

FAIRBANKS-MORSE

General Dealer Line
PRICES AND DATA



"Z" ENGINES	WATER SYSTEMS
LIGHTING PLANTS	PUMP JACKS
STORAGE BATTERIES	ECLIPSE WINDMILLS
FEED MILLS	FAIRBANKS SCALES
SAW FRAMES	WASHING MACHINES
HAND PUMPS	AIR CONDITIONERS
INDUSTRIAL POWER UNITS	

FAIRBANKS, MORSE & CO.

PRICE BOOK H-414A

FAIRBANKS-MORSE
GENERAL DEALER LINE
PRICES AND DATA

TO FAIRBANKS-MORSE DEALERS:

For the convenience of their Dealer Organization, Fairbanks, Morse & Co. have compiled in this little pamphlet complete prices and pertinent specifications on all of the products in their Dealer Line with the exception of Water Systems. The water system line is covered completely in a separate catalogue H-405, the latest issue of which will be sent you on request.

It is hoped the compactness and completeness of the pamphlet will enable you to become better acquainted with Fairbanks-Morse Dealer Products and in this way help you to serve more efficiently and more profitably the requirements of your community in any of the items here represented.

The name Fairbanks-Morse is internationally known. For over 100 years they have been manufacturing dependable machinery. The first windmill ever built was made by Fairbanks-Morse. Fairbanks-Morse pioneered the internal combustion engine long before the automobile put in an appearance. Today the Fairbanks-Morse "Z" engine is the most widely known engine on the market. Huge F-M Diesels, the outgrowth of this early engine development, now daily supply the lighting and pumping requirements of thousands of communities and commercial enterprises all over the world.

This background—this experience—this good will is behind every Fairbanks-Morse Product that is sold. As a Fairbanks-Morse Dealer you inherit the advantage of this prestige. You will find it an invaluable aid in establishing a wider and more profitable contact with your trade.

Your business of the past has been appreciated. We hope you will give us an opportunity to be of service to you in even a greater way in the future.

FAIRBANKS, MORSE & Co.

GENERAL INFORMATION

CORRESPONDENCE. All correspondence, telegrams, orders for goods, repairs, etc., should be addressed to the Fairbanks-Morse branch house in your territory. This will save time and money. Complete repair stocks as well as complete stocks of products in all popular sizes are maintained at the company's branch or territorial warehouses for your benefit.

COMPLAINTS concerning defective goods or errors should be made at once.

ERRORS, SHORTAGE, ETC. Claims for errors, shortage, etc., must be made on receipt of goods; otherwise no allowance will be made.

PRICES. All prices quoted in this pamphlet or in any supplementary price list pertaining there to are subject to change without notice.

RESPONSIBILITY. We will not be responsible for delays, resulting from strikes, accidents, negligence of railroad companies, or other causes beyond our control.

RETURNING GOODS. No goods will be received if returned, unless by special agreement.

GOODS RETURNED must have consignor's name plainly written on shipping tag.

GOODS RETURNED FOR REPAIRS should bear the sender's name and address, and letter of advice, with bill of lading should be mailed stating when and how forwarded, together with all necessary instructions.

RISK. All goods are at the risk of the purchaser, after they have been delivered by us to the carrier and receipt obtained therefor "in good order."

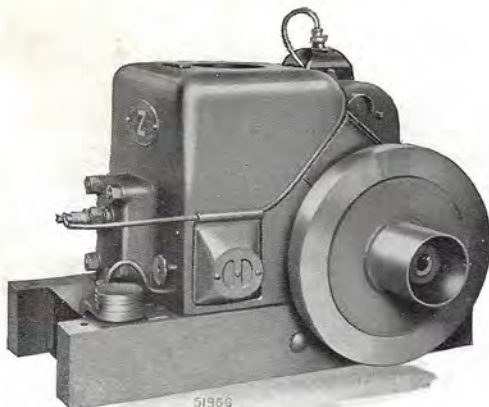
SHIPPING INSTRUCTIONS. Instructions as to route, etc., should accompany each order, otherwise the route is optional with us.

GUARANTY. Fairbanks-Morse Products are guaranteed as to material, workmanship and design. When properly installed and cared for they will perform all we claim for them. If any part of any product fails because of defect this part will be replaced without charge, F.O.B. Factory, upon return, transportation prepaid, of the defective part to the factory.

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"Z" ENGINES—1½ H.P.



1½ H.P. Standard Self Oiling Engine Outfit 5934

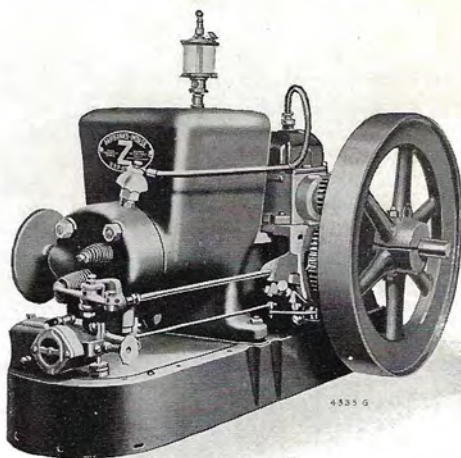
SPECIFICATIONS

Fuel.....	Gasoline	Fuel tank.....	.3 Qts
Bore and stroke.....	2¼"x3¼"	Lubrication.....	Splash
Speed.....	1500 R.P.M.	Oil reservoir.....	1 qt.
Flywheel pulley	Diameter.....3½"	Water hopper.....	1½ gals.
(cast on)	Belt width.....3"		17½"
	R.P.M.....1500	Dimensions	Width.....21½"
Camshaft Pulley	Diameter.....3¼"		Width, with crank in
(removable)	Belt width.....3"		place.....21½"
Governor.....	R.P.M.....750		Length.....21½"
Ignition.....	Throttling (flyball tyre)		Height overall.....15½"
	F-M H. T. Rotary Magneto	Skids.....	Wood
		Exhaust pipe tap.....	1"
		Flywheel diameter.....	11"

PRICES

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
STANDARD ENGINE:			
With standard 3¼" pulley on camshaft, (Code VABIW).....	5934	160	\$57.50
Without camshaft pulley, (Code VABWJ).....	5935	155	56.00
EXTENDED CRANKSHAFT ENGINE:			
Same as standard engine except camshaft extension omitted and the crankshaft is brought out on opposite flywheel side to receive a pulley—			
Engine less pulley, (Code VAPZE).....	6720	155	60.00
ENGINE WITH STEEL BASE:			
Same as standard engine Outfit 5935 except with skids of channel steel instead of wood—			
Engine less pulley, (Code VACLY).....	8063	155	60.50
CLOSED CYLINDER ENGINE:			
Same as standard engine Outfit 5935 except hopper is closed and tapped to receive pipe connection for circulating water cooling—			
Engine less pulley, (Code VACMZ).....	8060	155	60.50
ENGINE WITH AUXILIARY HOPPER:			
Same as standard engine Outfit 5935 except a supplementary cylindrical hopper of sheet steel with splash ring is added to increase hopper capacity to 3¾ gals. (Sufficient for 3½ hours operation)—			
Engine less pulley, (Code VACOA).....	8069	170	60.00

"Z" ENGINES—2 H.P.



**2 H.P. Standard Spoke Flywheel Open
Crankcase Engine, Outfit 6836**

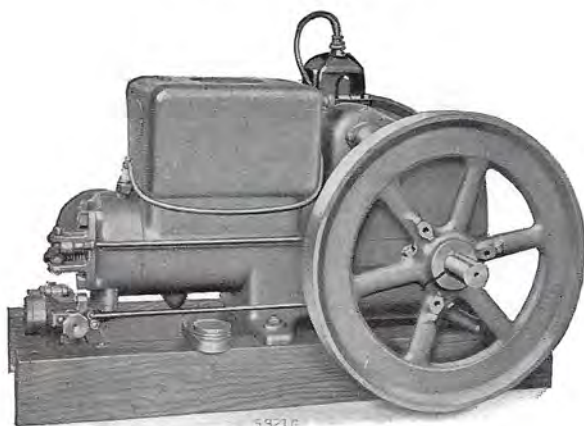
SPECIFICATIONS

Fuel.....	Gasoline or kerosene	Lubrication.....	Grease cup, sight feed cylinder oiler.
Bore and stroke.....	3½"x5"	Water hopper.....	1¾ gals.
Speed.....	600 R.P.M.	Dimensions	Width.....23¼"
Pulley	Diameter.....4"		Width with crank in place.....29¼"
	Belt width.....3½"		Length.....32"
Shaft	Diameter.....1¾"		Height overall.....21"
	Ext. crank side.....2½"	Skids.....	Pressed steel
	Ext. opposite crank side.....3"	Exhaust pipe tap.....	1"
	Keyway.....½"x¾"	Flywheels	Diameter.....17 ½"
Governor.....	Throttling (flyball type)		Face.....1¾"
Ignition.....	F-M H. T. Rotary Magneto		
Fuel tank.....	1 gal.		

PRICES

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
STANDARD ENGINE:			
As illustrated above—			
With standard pulley, (Code VABGU).....	6836	245	\$62.50
Without pulley, (Code VACAM).....	6837	243	61.75
RADIATOR EQUIPPED ENGINE:			
Same as standard engine (Outfit 6837) except with sealed hopper, steam condensing radiator and fan on crankshaft to provide forced air through radiator—			
Engine less pulley, (Code FATTY).....	4281	305	93.50
CLOSED CYLINDER ENGINE:			
Same as standard engine (Outfit 6837) except cylinder hopper is closed and tapped to receive pipe connection for circulating water cooling—			
Engine less pulley, (Code VACPC).....	8061	250	66.00

"Z" ENGINES—3 H.P.



3 H.P. Standard Self Oiling Engine, Outfit 5936

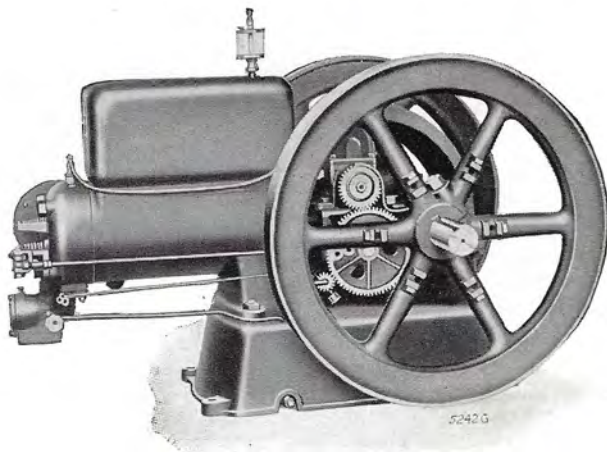
SPECIFICATIONS

Fuel.....	Gasoline or kerosene	Fuel tank.....	1 gal.
Bore and stroke.....	3 $\frac{5}{8}$ "x5"	Lubrication.....	Splash
Speed.....	800 R.P.M.	Oil Reservoir.....	.1 qt
Pulley {	Diameter.....6"	Water hopper.....	2 $\frac{1}{2}$ gals.
	Belt width.....4"		
Shaft {	Diameter.....1 $\frac{3}{4}$ "	Dimensions {	Width.....23 $\frac{7}{8}$ "
	Ext. crank side.....2 $\frac{1}{8}$ "		Width with crank in place.....30"
	Ext. opposite crank side.....2 $\frac{1}{8}$ "		Length.....32"
	Keyway..... $\frac{1}{2}$ "x $\frac{1}{8}$ "		Height overall.....20"
Governor.....	Throttling (flyball type)	Skids.....	Wood
Ignition.....	F-M H. T. Rotary Magneto	Exhaust pipe tap.....	.1"
		Flywheels {	Diameter.....16 $\frac{5}{8}$ "
			Face.....1 $\frac{3}{4}$ "

PRICES

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
STANDARD ENGINE:			
As illustrated above (wood skids)—			
With standard pulley, (Code VABJX).....	5936	305	\$90.00
Less pulley, (Code VABXK).....	5937	295	89.00
ENGINE WITH CAST IRON BASE:			
Same engine as above (Outfit 5937), except with cast iron base instead of wood skids—			
Engine less pulley, (Code VACRD).....	8067	320	98.00
CLOSED CYLINDER ENGINE:			
Same as standard engine (Outfit 5937) except cylinder is closed and tapped to receive pipe connection for circulating water cooling—			
Engine less pulley, (Code VACSE).....	8066	290	89.00

"Z" ENGINES—5 H.P.



Standard 5 H.P. "Z" Engine, Outfit 5938

SPECIFICATIONS

Fuel.....	Gasoline or kerosene	Lubrication.....	Grease cup sight feed cylinder oiler.
Bore and stroke.....	4¾"x6"	Water hopper.....	4 gals.
Speed.....	600 R.P.M.	Pulley {	Width.....31¼"
		Diameter.....	10"
		Belt width.....	6"
Shaft {	Diameter.....	Ext. crank side.....	1½"
	Ext. opp. crank side.....	4½"	
	Keyway.....	½"x1½"	
Governor.....	Throttling (flyball type)	Dimensions {	Width with crank in place.....37½"
Ignition.....	F-M H. T. Rotary Magneto		Length.....37½"
Fuel tank.....	2¾ gals.		Height overall.....28½"
		Base.....	Cast iron
		Exhaust pipe tap.....	1½"
		Flywheels {	Diameter.....21"
			Face.....2¼"

PRICES

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
STANDARD ENGINE:			
As illustrated above (cast iron base)—			
With standard pulley, (Code VABKY).....	5938	490	\$119.00
Less pulley, (Code VABYL).....	5939	485	117.50
RADIATOR EQUIPPED ENGINE:			
Same as standard engine (Outfit 5939) except with sealed hopper and steam condensing radiator, fan on crankshaft for forcing air through radiator—			
Engine less pulley, (Code VACUG).....	8070	495	155.50
CLOSED CYLINDER ENGINE:			
Same as standard engine (Outfit 5939) except with closed cylinder tapped to receive pipe connections for circulating water cooling—			
Engine less pulley, (Code VACTF).....	8071	480	117.50

"Z" ENGINES—7½ H.P.



7½ H.P. Standard Open Crankcase Engine, Outfit 5940

SPECIFICATIONS

Fuel.....	Gasoline or kerosene	Lubrication.....	Grease cup,
Bore and stroke.....	5¾"x8"	sight feed cylinder oiler.	
Speed.....	550 R.P.M.	Water hopper.....	8½ gals.
Pulley {	Diameter.....12"	Width.....	34½"
Belt width.....	6"	Width with crank in	
Diameter.....	2½"	place.....	43 ⅝"
Ext. crank side.....	4¼"	Length.....	48"
Ext. opp. crank side.....	4½"	Height overall.....	34"
Keyway.....	⅝"x1 ⅞"	Base.....	Cast iron
Governor.....	Throttling (flyball type)	Exhaust pipe tap.....	2"
Ignition.....	F-M H. T. Rotary Magneto	Flywheels {	Diameter.....28"
Fuel tank.....	5½ gals.	Face.....	21½"

PRICES

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
STANDARD ENGINE:			
As illustrated above—			
Engine with standard pulley, (Code VABLZ)....	5940	900	\$180.00
Engine less pulley, (Code VABZM).....	5941	890	178.50
ENGINE WITH EXTRA HEAVY WHEELS:			
Same as standard engine (Outfit 5941) in every			
detail except with the two 36"x2½" wheels—			
Engine less pulley, (Code VACVH).....	8072	1100	204.00
HAYPRESS ENGINE—EXTRA HEAVY WHEELS:			
Engine with two 36"x2½" wheels, special silencer			
with sheet metal casing; special screened suction,			
cover over hopper—			
Engine less pulley, (Code VACWI).....	8073	1130	217.50
CLOSED CYLINDER ENGINE:			
Same as standard engine (Outfit 5941) in every			
detail except cylinder is sealed and tapped to re-			
ceive pipe connections for circulating cooling			
water—			
Engine less pulley, (Code VACXJ).....	8075	880	178.50

HAND TRUCKS FOR "Z" ENGINES



3 H.P. Standard "Z" Engine on Hand Truck

PRICES—HAND TRUCKS ONLY

Outfit No.	For Size Engine	Shpg. Wt. Lbs.	Code Word	Price F.O.B. Factory
5949	1½ H.P.	35	VECGX	\$ 6.30
4275	2 H.P.	50	VECPF	6.30
5950	3 H.P.	36	VECHY	7.00
5951	5 H.P.	51	VECJQ	10.25
5952	7½ H.P.	80	VECOE	16.75

GENERAL CONSTRUCTION FEATURES

"Z" ENGINES—1½ TO 7½ H. P.

Simple: No complicated mechanisms. Smooth external lines reflect well developed design. Few adjustments. Attractive in appearance.

Economical: With the exception of the 1½ H.P., the "Z" will operate on either kerosene or gasoline. 1½ H.P. size designed for operation on gasoline only.

Simple Fuel System: Suction feed—simple fuel mixer—no fuel pump or auxiliary devices needed.

Check valve and strainer in suction pipe serve to maintain proper fuel level in tube and exclude foreign matter.

Speed Regulator: Conveniently located, permits of reducing the engine speed below normal while the engine is in operation if desired.

Balanced: Flywheels and moving parts carefully balanced for smooth running.

Crank Shaft: Large diameter, drop forged in steel dies for exactness in uniformity of the forging. Bearing surfaces accurately ground to dimensions.

Piston: Close grained cast iron—accurately finished—three piston ring type.

Piston Pin: Steel, hardened and ground. Operates in bronze bearing in connecting rod.

Connecting Rod: Drop forged, with crank pin bearing provided with interchangeable die cast, accurately fitted babbitt liner on 2, 5 and 7½ H.P. sizes. On 1½ H.P. and 3 H.P. engines the liner is centrifugally cast.

Gearing: Machine cut.

Water Cooled: Large hopper capacity. Large water space around cylinder wall. Cylinder head also water cooled. Insures a cool operating valve and seat. Means better compression.

Ignition: Fairbanks-Morse famous Type "RV" high tension hot spark magneto. Sealed—dust proof—moisture proof. No attention required. Not even an oil hole to fill. No adjustments to make.

Impulse coupling on 5 H.P. and 7½ H.P. sizes gives full speed engine spark during period of cranking.

SPECIAL PULLEYS FOR TYPE "Z" ENGINES

PLAIN PULLEYS

FOR 1½ H.P. ENGINES

Diameter, Inches	Belt Width, Inches	Actual Pulley Face, Inches	Type ("BF" Indicates Pulley Bolts to Flywheel)	Outfit No.	Shipping Weight, Lbs.	Price F.O.B. Factory
3¼	3	3¼	Die Cast—Shaft fit	9077	5	\$ 2.00
4¼	3	3¼	" " " "	9078	3	2.00
5	3	3¼	C.I.—Shaft fit	9079	9	2.75
7	3	3¼	C.I.—" " "	9080	12	3.20
8	3	3¼	C.I.—" " "	9081	14	3.65

FOR 2 OR 3 H.P. ENGINES

6	4	4½	C.I.—Shaft fit	9082	10	2.75
6	4	4½	Sheet Steel—BF	4600	1½	1.10
8	4	4½	C.I.—BF	4601	16	4.25
10	4	4½	C.I.—BF	9083	21	4.55
12	4	4½	C.I.—Shaft fit	9084	20	4.75

FOR 5 OR 7½ H.P. ENGINES

6	6	7	C.I.—BF	9085	24	4.85
8	6	6¼	C.I.—BF	9086	31	5.25
6	8	8¼	C.I.—BF	4603	20	5.25
8	8	8¼	C.I.—BF	4604	25	5.60
10	8	8½	C.I.—BF	9087	22½	6.30
12	8	8½	C.I.—BF	4606	30	6.50
14	8	8¾	C.I.—BF	4607	40	7.00

FOR 10 H.P. ENGINES

16	13	13¼	C.I.—BF	9088	75	11.25
18	13	13¼	C.I.—BF	4617	80	17.50
20	13	12½	C.I.—BF	4618	120	21.50
24	13	12½	C.I.—BF	4619	145	33.00
30	13	12¾	C.I.—BF	4620	210	46.00

FOR 15 H.P. ENGINES

16	13	14	C.I.—BF	4621	75	11.25
18	13	13¼	C.I.—BF	9089	80	17.50
20	13	12½	C.I.—BF	4622	120	21.50
24	13	12½	C.I.—BF	4623	145	33.00
30	13	12¾	C.I.—BF	4624	210	46.00

FOR 20 H.P. ENGINES

24	13	13 ⅞	C.I.—BF	4625	150	32.50
28	13	13 ⅞	C.I.—BF	4626	225	44.50
32	13	13 ⅞	C.I.—BF	9090	250	55.00
36	13	13 ⅞	C.I.—BF	4627	280	65.00

TYPE "Z" FRICTION CLUTCH PULLEYS



Type "Z" Friction Clutch Pulley

FOR 3 H.P. ENGINES

For Engine	Diameter, Inches	Belt Width, Inches	Actual Pulley Face, Inches	Outfit No.	Shipping Weight, Lbs.	Price F.O.B. Factory
3 H.P.	9	5	5 ⁵ / ₈	4610-A	50	\$17.25
"	10	5	5 ⁵ / ₈	4611-A	50	17.50
"	12	5	5 ⁵ / ₈	4612-A	50	17.75
"	14	5	5 ⁵ / ₈	4613-A	65	19.25
"	16	5	5 ⁵ / ₈	4614-A	65	20.00
"	18	5	5 ⁵ / ₈	4615-A	70	20.50
"	20	5	5 ⁵ / ₈	4616-A	70	21.50

FOR 5 OR 7 ¹/₂ H.P. ENGINES

5 or 7 ¹ / ₂ H.P.	9	5	5 ⁵ / ₈	4610	50	17.25
"	10	5	5 ⁵ / ₈	4611	50	17.50
"	12	5	5 ⁵ / ₈	4612	50	17.75
"	14	5	5 ⁵ / ₈	4613	65	19.25
"	16	5	5 ⁵ / ₈	4614	65	20.00
"	18	5	5 ⁵ / ₈	4615	70	20.50
"	20	5	5 ⁵ / ₈	4616	70	21.50

FOR 10 OR 15 H.P. ENGINES

10 or 15 H.P.	16	8	8 ⁷ / ₁₆	4628	140	45.00
"	18	8	8 ¹⁵ / ₁₆	4629	160	48.00
"	20	8	8 ¹⁵ / ₁₆	4630	170	50.00
"	22	8	8 ¹⁵ / ₁₆	4631	180	51.25
"	24	8	8 ¹⁵ / ₁₆	4632	200	53.50
"	26	8	8 ¹⁵ / ₁₆	4633	215	55.00
"	28	8	8 ¹⁵ / ₁₆	4634	220	56.25
"	30	8	8 ¹⁵ / ₁₆	4635	240	57.50
"	32	8	8 ¹⁵ / ₁₆	4636	270	63.50
"	34	8	8 ¹⁵ / ₁₆	4637	275	66.50
"	36	8	8 ¹⁵ / ₁₆	4638	280	69.00

FOR 20 H.P. ENGINES

20 H.P.	16	8	8 ⁷ / ₁₆	4639	200	51.50
"	18	8	8 ¹⁵ / ₁₆	4640	220	54.50
"	20	8	8 ¹⁵ / ₁₆	4641	230	56.25
"	22	8	8 ¹⁵ / ₁₆	4642	240	58.00
"	24	8	8 ¹⁵ / ₁₆	4643	260	60.00
"	26	8	8 ¹⁵ / ₁₆	4644	275	61.00
"	28	8	8 ¹⁵ / ₁₆	4645	280	62.50
"	30	8	8 ¹⁵ / ₁₆	4646	300	63.50
"	32	8	8 ¹⁵ / ₁₆	4647	330	70.00
"	34	8	8 ¹⁵ / ₁₆	4648	340	73.50
"	36	8	8 ¹⁵ / ₁₆	4649	350	76.00

SPECIAL FEATURES FOR TYPE "Z" ENGINES

FUEL PUMP

When more than the fuel storage capacity contained in the tank in the engine base is desired, a separate and larger fuel tank with fuel pump mounted on the engine can be supplied at the prices given below:

H.P. of Engine	Allow for Omission of Standard Fuel Tank in Base	Fuel Pump Additions					
		Fuel Pump Only		18 gal. Fuel Tank & Piping		53 gal. Fuel Tank & Piping	
		(Outfit 9096)		(Outfit 9097)		(Outfit 9098)	
		Shpg. Wt.	Price	Shpg. Wt.	Price	Shpg. Wt.	Price
3	\$2.80	10	\$14.75	70	\$16.75	115	\$23.00
5	3.15	10	14.75	70	16.75	115	23.00
7½	3.35	10	14.75	70	16.75	115	23.00
10	See Engine Price Lists						
15							
20							

The piping consists of approximately 1 length of ¾" suction pipe; 1 length of ¾" overflow pipe; 3 ⅜" ells and 3 ¼" ells. Tank should be located below the engine level (but not more than 6 ft. below) and preferably within a total pipe length of not more than 24 ft. from engine

WIPE OILERS FOR "Z" ENGINES

Where engine is required to operate for several hours without attention the grease cup on the crank pin bearing can be replaced by a wick or wipe oiler fed by an oil cup (¼ pt. on 5 and 7½ H.P.; ⅝ pt. on 10-15-20 H.P.), mounted on the crank case guard. Add for wipe oiler as follows:

H.P. of Engine	Add for Wipe Oiler and Oil Cup		Add for Sheet Steel Crank-case Enclosure (See Note Below)	
	Mounted at Factory	For Field Mounting	Mounted at Factory	For Field Mounting
2	\$6.85	\$5.50	\$5.50	\$5.50
5	8.25	6.50	6.50	6.50
7½	9.10	7.25	6.50	6.50
10	9.50	8.00	10.00	10.00
15	9.50	8.00	11.50	11.50
20	9.50	8.00	12.50	12.50

CRANK CASE ENCLOSURE

1½ and 3 H.P. engines are of the self oiling enclosed crank case type. The larger size engines when required to operate in extremely dirty places, can be furnished on special order with a sheet steel crank case enclosure instead of the standard open crank case guard. Add for the sheet steel enclosure as indicated above.

AIR FILTER FOR SELF OILING ENGINES

When the 1½ or 3 H.P. self oiling engine has to operate in an extremely dusty place an air filter is recommended for the suction to prevent the dust from working into the cylinder and mixing with the oil.

Add for suction air filter with adapter and gasket for either 1½ or 3 H.P. engines, Outfit 8076.....\$2.20

COOLING TANKS FOR "Z" ENGINES

For use in connection with closed cylinder engines where additional water cooling capacity is desired:

H.P. of Engine	Capacity, Gals.	Dimensions, Inches	Tank Only		Pipe and Fittings	
			(Outfit No. 9094)		(Outfit No. 9095)	
			Shipping Weight	Price	Shipping Weight	Price
3	135	23" dia. x 62" high	50	\$14.75	27	\$6.35
5	135	23" dia. x 62" high	50	14.75	27	6.35
7½	135	26" dia. x 62" high	50	14.75	27	6.35

"Z" ENGINES FOR OPERATION ON GAS

When the "Z" engine is required for operation on gas, make the following additions to the standard engine price:

NOTE:—When ordering for gas operation the engine is specially fitted and tested at the factory for that service. The parts required are not furnished separately for making the change-over in the field. Order the engine "Fitted for Gas Operation" and indicate whether the regulators (Notes 2 and 4 below), are to be furnished.

Size Engine	Add for Changes Required in Basic Engine (See Note 1)			Add for F-M Gas Regulator (See Note 4)			Add for Pressure Regulator if Required (See Note 2)					
	Outfit No.	Shpg. Wt., Lbs.	Add to Engine Price	Size	Outfit No.	Price	Gasometer (Oil Field Type)			Or Crawford Regulator		
							Size	Outfit No.	Price	Size	Outfit No.	Price
1½	8091	12	\$5.50	¾"	8100 (5 lbs.)	\$14.50	1½"	8102 (11 lbs)	\$13.50	¾"	8104 (11 lbs)	\$23.00
2	8092	28	8.00	¾"			1½"			¾"		
3	8093	28	8.00	¾"			1½"			¾"		
5	8094	28	9.00	¾"			1½"			¾"		
7½	8095	44	8.75	1½"	8101 (21 lbs)	28.00	1"	8103 (23 lbs)	14.00	¾"	8105 (33 lbs)	38.50
10	8096	70	-7.50*	1½"			1"			¾"		
15	8097	90	-7.50*	1½"			1"			¾"		
20	8098	120	-3.50*	1½"			1"			¾"		

*These are deductions.

Note 1

The gas parts supplied and priced in the first price column above consist of a special high compression piston (to make it possible for the engine to develop its full rated horse power on gas) and the auxiliary parts listed in bold face type in the table below. In the case of the 1½ H.P. engine the needed extra compression is secured by means of a special cylinder head instead of by means of a special piston. In the additions given, allowance has been made for the omission of the standard piston and fuel tank, which parts are not required when engine is operated on gas.

See Drawing 568ND on Next Page for Item Number References

No.	Description	1½ H.P.	2 H.P.	3 H.P.	5 H.P.	7½ H.P.	10 H.P.	15 H.P.	20 H.P.
1	Pressure Regulator Priced as an Extra.....								
2	Receiver (Not furnished). See Note 3.....	160 cu. in.	550 cu. in.	600 cu. in.	950 cu. in.	1800 cu. in.	2100 cu. in.	3000 cu. in.	4800 cu. in.
3	Reg. Check Valve price as an extra.....								
4	Bushing.....	¾x3½"	¾x3½"	¾x3½"	¾x3½"	¾x3½"	1½x3½"	1½x1"	1½x1¼"
5	Nipple.....	¾x1½"	¾x1"	¾x1"	¾x3½"	¾x3½"	¾x2"	1"x2"	1¼x2"
6	Dial Cock.....	¾"	¾"	¾"	¾"	¾"	¾"	1"	1¼"
7	Nipple.....	¾x7"	¾x3"	¾x3"	¾x2"	¾x2"	¾x4"	1x4½"	1¼x5"
8	Nipple.....	¾x10"	¾x10"	¾x10"	¾x15"	1x16"	1¼x24"	1¼x24"	2x24"
9	Elbow.....	none used	¾"	¾"	1"	1"			
10	Air Valve Seat....	¾"	¾"	¾"	1"	1"			
11	Elbow.....					1¼"	1¼"	1¼"	2"
12	Air Damper.....					1¼"	1¼"	1¼"	2"
13	Tee.....					1¼x1¼x3¼"	1¼x1¼x1"	2x1½x1¼"	
14	Nipple.....					1¼x2"	1¼x2"	1½x3"	
15	Bushing.....						1½x1½"		
16	Bushing.....						1½x¾"	1½x1"	

Part No. 16 (10-15-20 H.P.) is furnished but used only when receiver is not used.

Note 2

Pressure Regulator:—A pressure regulator (Item 1) is needed only when the gas pressure in the supply line is over 8 ounces. The pressure regulator is priced as an extra because frequently the necessary pressure reducer will be found to be already installed in the gas supply line.

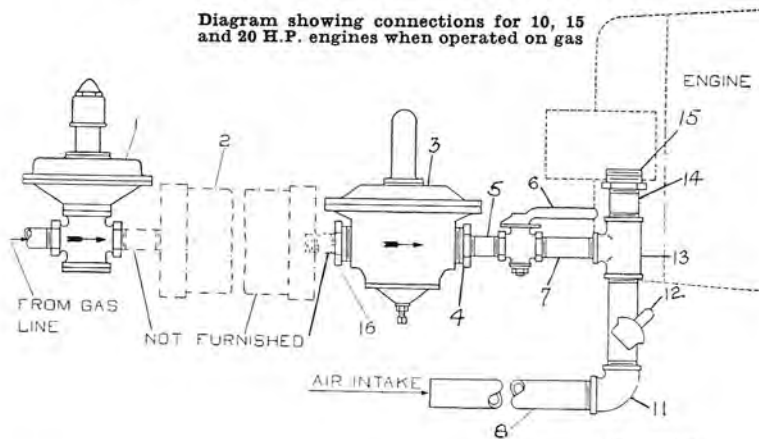
Either the Crawford Regulator or Gasometer can be employed if pressure reduction is found necessary. The gasometer quoted is of the water seal type, a design that has been used successfully in the Oil Fields for a great many years. In cold climates anti-freeze instead of water can be used for the seal on these gasometers. When the gasometer is used it is not necessary to provide the built-up receiver (Item 2) described below.

Note 3

Receiver:—Unless the gasometer type of pressure regulator is used, it is recommended a built-up receiver be installed (Fig. 2) between the pressure regulator and the F-M sensitive regulating check valve. The receiver should be placed as close to the engine as possible and

"Z" ENGINES FOR OPERATION ON GAS

Diagram showing connections for 10, 15 and 20 H.P. engines when operated on gas



(Fig. 568ND)

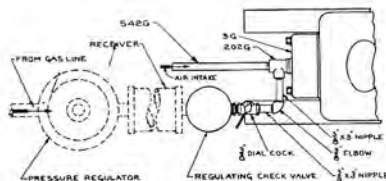
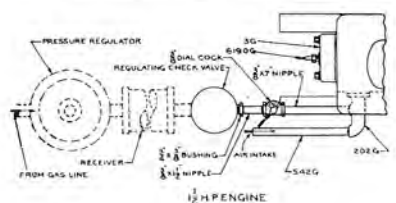
should have a volume at least equal to that indicated in the table. The Receiver can be constructed of ordinary pipe and fittings of whatever diameter and length is necessary to give the recommended volume.

Note 4

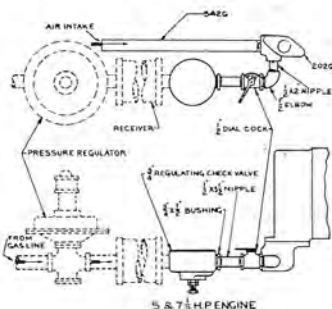
F-M Gas Regulator:—The F-M sensitive gas regulator (Item 3) which is priced as an extra is a necessary item on all installations where the engine is operated on gas. This regulating check valve is really a diaphragm regulator which will take gas at 8 ounces pressure or less and allow the engine suction to take into the cylinder whatever amount of gas is needed for the load. When the engine is shut down the regulating check valve closes and automatically shuts off the gas supply.

Fuel Economy

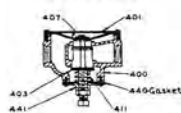
"Z" engines, when specially fitted with high compression as described in Note 1, will develop their full rated horse power on gas and the fuel consumption will be approximately 12,500 B.T.U. per B.H.P. per hour at full load. Engines thus fitted cannot be operated on liquid fuel without first changing the compression back to standard. Combination engines or engines of standard cylinder compression will develop only about 60% of their rated horse power when operated on gas. The high compression is necessary for full rated power and best fuel economy.



3 H.P. ENGINE



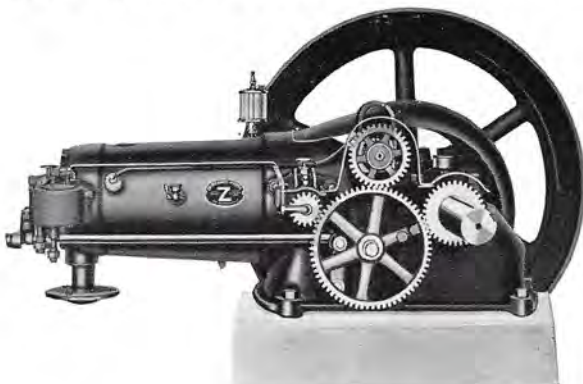
5 & 7 1/2 H.P. ENGINE



REGULATING CHECK VALVE

Diagram showing connections for engines 1 1/2 to 7 1/2 H.P. inclusive when operated on gas

10 H.P. CLOSED CYLINDER "Z" ENGINES



10 H.P. Closed Cylinder Engine with one flywheel removed to show the throttling governor mechanism, rotary high tension magneto, gearing, etc.

ENGINE FOR CIRCULATING WATER COOLING

Item	Standard Engine		Special Electric Engine	
	Shipping Wt., Lbs.	Price	Shipping Wt., Lbs.	Price
1. Basic engine less flywheels.....	1040	\$204.00	1040	\$204.00
2. Flywheels (2).....	675	97.00	1500	239.00
3. Exhaust silencer.....	5	.85	.....	.....
4. Exhaust pot.....	.....	.....	160	22.60
5. 53 gal. fuel tank and fittings (T-8).....	80	17.50	80	17.50
6. Fuel tank to engine pipe.....	24	2.50	24	2.50
7. Fuel tank to engine pipe fittings.....	1	.15	1	.15
Pulley (add from pulley price list).....	.....	.....	.....	.....
8. Stationary engine complete but less pulley as above, for running water cooling...	1825	\$322.00	2805	\$485.75
OUTFIT NUMBER (Engine less pulley).....	.....	1564	.....	1596
CODE WORD.....	.....	VAPAZ	.....	VAPGF
9. Add for running water pipe fittings.....	5	1.75	5	1.75
10. Add if packed fuel pump is desired in place of plunger pump regularly furnished..	11	11.50	11	11.50

ENGINE WITH THERMO-SYPHON COOLING TANK

8. Engine for running water cooling, as above	1825	\$322.00	2805	\$485.75
11. 400 gal. cooling tank (C-21).....	165	26.00	165	26.00
12. Cooling tank to engine pipe.....	44	2.75	44	2.75
13. Cooling tank to engine pipe fittings.....	7	2.50	7	2.50
14. Price of engine complete with 400 gal. thermo-syphon cooling tank, but less pulley.	2041	\$353.25	3021	\$517.00
OUTFIT NUMBER (Engine less pulley).....	.....	9004	.....	9005
CODE WORD.....	.....	VADAL	.....	VADBM

ENG. WITH COOLING TANK AND CENTRIFUGAL CIR. PUMP

15. Engine with thermo-syphon cooling tank (as above) but less the cooling tank pipe fittings (Item 13, \$2.50).....	2034	\$350.75	3014	\$514.50
16. Add for cent. circulating pump outfit....	70	23.50	70	23.50
17. Add for tank to engine cent. pump pipe fittings.....	7	2.25	7	2.25
18. Price of engine complete but less pulley, with 400 gal. cooling tank and circulating pump outfit.....	2111	\$376.50	3091	\$540.25
OUTFIT NUMBER (Engine less pulley).....	.....	9006	.....	9007
CODE WORD.....	.....	VADCN	.....	VADDO
19. Foundation bolts (set of 4).....	24	1.85	24	1.85
20. Wood templete.....	.....	1.60	.....	1.60

10 H.P. HOPPER COOLED "Z" ENGINES



The 10 H.P. hopper cooled engine with friction clutch pulley for portable service

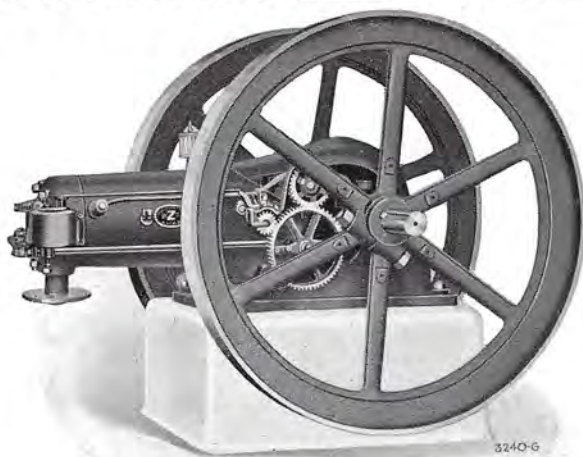
FOR STATIONARY SERVICE

Item	Shipping Wt., Lbs.	Price
1. Basic engine, less flywheels.....	1040	\$204.00
1A Hopper cylinder.....	185	25.50
2. Flywheels, (2) standard.....	675	97.00
3. Exhaust silencer.....	5	.85
5. 53 gal. fuel tank and fittings.....	80	17.50
6. Fuel tank to engine pipe.....	24	2.50
7. Fuel tank to engine pipe fittings.....	1	.15
Pulley (add from pulley price list).....		
8. OUTFIT 1570 —10 H.P. hopper cooled engine complete, less pulley (Code word VAREA).....	2010	\$347.50
10. Add if packed fuel pump is wanted in place of regular plunger pump	11	11.50

FOR PORTABLE SERVICE

1. Basic engine less flywheels.....	1040	\$204.00
1A. Hopper cylinder.....	185	25.50
2. Flywheels, (2) standard.....	675	97.00
3. Exhaust silencer.....	5	.85
21. Portable fuel tank (16 gals.).....	12	7.15
22. Portable fuel tank piping.....	7	3.25
"Z" clutch pulley (add from pulley price list).....		
23. Horse drawn truck (specifications on page 18).....	845	103.00
25. OUTFIT 1569 —10 H.P. hopper cooled portable engine outfit, complete, less pulley (Code word VARFB).....	2769	\$440.75

15 H.P. CLOSED CYLINDER "Z" ENGINES



The 15 H.P. Standard Closed Cylinder "Z" Engine with heavy flywheels for special electric service. The engine is also available with standard flywheels.

ENGINE FOR CIRCULATING WATER COOLING

Item	Standard Engine		Special Electric Engine	
	Shipping Wt., Lbs.	Price	Shipping Wt., Lbs.	Price
1. Basic engine less flywheels.....	1296	\$269.00	1296	\$269.00
2. Flywheels (2).....	900	128.50	1550	247.00
3. Exhaust silencer.....	25	3.00	.....	.....
4. Exhaust pot.....	.....	.....	185	25.00
5. 53 gal. fuel tank and fittings (T-S).....	80	17.50	80	17.50
6. Fuel tank to engine pipe.....	24	2.50	24	2.50
7. Fuel tank to engine pipe fittings.....	1	.15	1	.15
8. Stationary engine complete but less pulley as above, for running water cooling..	2326	\$420.65	3136	\$561.15
OUTFIT NUMBER (Engine less pulley)	.....	1571	.....	1597
CODE WORD.....	.....	VAPCA	.....	VAPHG
9. Add for running water pipe fittings.....	5	1.75	5	1.75
10. Add if packed fuel pump is desired in place of plunger pump regularly furnished...	11	11.50	11	11.50

ENGINE WITH THERMO-SYPHON COOLING TANK

8. Engine for running water cooling, as above	2326	\$420.65	3136	\$561.15
11. 550 gal. cooling tank (C-22).....	200	32.00	200	32.00
12. Cooling tank to engine pipe.....	58	4.10	58	4.10
13. Cooling tank to engine pipe fittings.....	10	2.50	10	2.50
14. Price of engine complete with 550 gal. thermo-syphon cooling tank, but less pulley	2594	\$459.25	3404	\$599.75
OUTFIT NUMBER (Engine less pulley)	.....	8106	.....	8107
CODE WORD.....	.....	VADEP	.....	VADFR

ENG. WITH COOLING TANK AND CENTRIFUGAL CIR. PUMP

15. Engine with thermo-syphon cooling tank (as above) but less the cooling tank pipe fittings (\$2.50).....	2584	\$456.75	3394	\$597.25
16. Add for cent. circulating pump outfit....	70	24.50	70	24.50
17. Add for tank to engine cent. pump pipe fittings.....	8	2.35	8	2.35
18. Price of engine complete but less pulley, with 550 gal. cooling tank and circulating pump outfit.....	2662	\$483.60	3472	\$624.10
OUTFIT NUMBER (Engine less pulley)	.....	8108	.....	8109
CODE WORD.....	.....	VADGS	.....	VADHT
19. Foundation bolts (set of 4).....	24	1.85	24	1.85
20. Wood templete.....	.....	1.75	.....	1.75

15-20 H. P. PORTABLE ENGINE OUTFITS



The 15 H.P. "Z" with screen cooler mounted on truck. The truck for these units is regularly equipped with a hand lever brake (not shown).

Item	15 H.P. Portable "Z" Engine Outfit		20 H.P. Portable "Z" Engine Outfit	
	Shipping Wt., Lbs.	Price	Shipping Wt., Lbs.	Price
1. Basic engine less flywheels.....	1296	\$269.00	2150	\$431.00
2. Flywheels (2) standard.....	900	128.50	1300	210.00
3. Exhaust silencer.....	25	3.00	25	4.00
24. Screen cooler and piping.....	150	86.50	150	86.50
21. Portable fuel tank (16 gals.).....	15	7.15	15	7.15
22. Portable fuel tank piping.....	20	3.25	20	3.30
"Z" clutch pulley (add from pulley price list).....				
23. Truck (specifications below).....	910	105.00	1250	150.00
25. Portable "Z" engine outfit complete with truck (less pulley).....	3316	\$602.40	4910	\$891.95
OUTFIT NUMBER (Engine less pulley)		1575		8110
CODE WORD.....		VARGD		VARHE

TRUCK SPECIFICATIONS

The truck used on the 10, 15 and 20 H.P. portable rigs is of all steel construction, double channel steel axles with solid spindles, front axle equipped with oscillating fifth wheel giving 3-point suspension to prevent undue racking of frame in passing over obstructions. All trucks are equipped with standard tongue for team and come regularly equipped with brake, foot board and seat. If brake is not desired, deduct as given in table below:

H.P. of Engine	Blueprint Number of Truck	Shpg. Wt., Truck Lbs.	Wheels			Axle	Spindles	Distance Between Axles	Truck Price	Allow for Omission of Brake
			Front	Rear	Grooved Tires					
10	C-3697S	845	26	34	4"x3 3/8"	4" channel	1 3/4"x9 1/16"	5'-10"	\$108.50	\$11.50
15	C-3585S	910	26	34	4"x3 3/8"	4" channel	1 3/4"x9 1/16"	7'-3"	111.00	11.50
20	C-3842S	1250	30	38	5"x1 1/2"	5" channel	2 1/2"x9 1/16"	8'-3 1/2"	158.00	12.25

Truck prices include fuel tank supports with necessary bolts for attaching and drilling of beams to receive engine. On the 15 and 20 H.P. sizes the cooling tank cross angles and cooling tank support rods are also furnished.

20 H.P. CLOSED CYLINDER "Z" ENGINES



The 20 H.P. Standard Closed Cylinder "Z" Engine

ENGINE FOR CIRCULATING WATER COOLING

Item	Standard Engine		Special Electric Engine	
	Shipping Wt., Lbs.	Price	Shipping Wt., Lbs.	Price
1. Basic engine less flywheels.....	2150	\$431.00	2150	\$431.00
2. Flywheels (2).....	1300	210.00	2700	377.00
3. Exhaust silencer.....	26	4.00	.....	.....
4. Exhaust pot.....	.....	.....	210	59.00
5. 53 gal. fuel tank and fittings (T-8).....	80	17.50	80	17.50
6. Fuel tank to engine pipe.....	24	2.50	24	2.50
7. Fuel tank to engine pipe fittings.....	1	.15	1	.15
8. Pulley (add from pulley price list).....	.....	.....	.....	.....
9. Stationary engine complete but less pulley as above, for running water cooling..	3581	\$665.15	5165	\$887.15
OUTFIT NUMBER (Engine less pulley)	.....	4189	.....	9008
CODE WORD.....	.....	VAPDB	.....	VADIU
10. Add for running water pipe fittings.....	5	1.75	5	1.75
11. Add if packed fuel pump is desired in place of plunger pump regularly furnished....	11	11.50	11	11.50

ENGINE WITH THERMO-SYPHON COOLING TANK

8. Engine for running water cooling, as above	3581	\$665.15	5165	\$887.15
11. Cooling tanks (C-23) 400 gals. each (2 furn.)	330	52.00	330	52.00
12. Cooling tank to engine pipe.....	72	4.85	72	4.85
13. Cooling tank to engine pipe fittings.....	20	9.25	20	9.25
14. Price of engine complete with 800 gal. thermo-syphon cooling tank, but less pulley	4003	\$731.25	5587	\$953.25
OUTFIT NUMBER (Engine less pulley)	.....	9009	.....	9010
CODE WORD.....	.....	VADJV	.....	VADKW

ENGINE WITH COOLING TANK AND CENTRIFUGAL CIRCULATING PUMP

15. Engine with thermo-syphon cooling tank (as above) but less the cooling tank pipe fittings (\$9.25).....	3983	722.00	5567	944.00
16. Add for cent. circulating pump outfit....	80	26.10	80	26.10
17. Add for tank to engine cent. pump pipe fittings.....	22	9.60	22	9.60
18. Price of engine complete but less pulley, with 800 gal. cooling tank and circulating pump outfit.....	4085	\$757.70	5669	\$979.70
OUTFIT NUMBER (Engine less pulley)	.....	9011	.....	9012
CODE WORD.....	.....	VADLX	.....	VADMY
19. Foundation bolts (set of 4).....	42	\$ 3.15	42	\$ 3.15
20. Wood template.....	.....	1.90	.....	1.90

DETAILED SPECIFICATIONS

10, 15 AND 20 H. P. "Z" ENGINES

In these larger size "Z" engines will be found the same high quality of material, workmanship and design that has made for the "Z" engine its world-wide reputation for dependability. The "Z" design is uncluttered by complicated mechanisms. This is apparent from a glance at its exterior construction. Internally it has the stamina to withstand many long years of faithful day in and day out service under even the most exacting conditions of operation.

Lubrication:—Dependable grease cup lubrication on the main and crank pin bearings. Large sight feed oiler for piston and piston pin.

Throttling Governor:—Flyball type, assures accurate and close speed regulation.

Speed Regulator:—Conveniently located, permits varying the speed while the engine is in operation.

Economical—Uses Low-Grade Fuels:—"Z" engines operate successfully on kerosene distillate or coal oil as well as gasoline.

Simple Fuel System:—A constant fuel level is maintained in the fuel reservoir by a plunger pump.

Balanced:—Flywheels and moving parts carefully balanced for smooth running.

Crank Shaft:—Large diameter, drop forged in steel dies for exactness in uniformity of the forging. Bearing surfaces accurately ground to dimensions.

Piston:—Close grained cast iron—accurately finished—trunk type having three piston rings.

Piston Pin:—Steel, hardened and ground. Operates in bronze bearing in connecting rod.

Connecting Rod:—Drop forged, with crank pin bearing provided with interchangeable die cast, accurately fitted babbitt liner.

Gearing:—Machine cut.

Water Cooled:—Simple and reliable cooling system. Large water space around cylinder wall. Cylinder head is also water cooled. Insures a cool operating valve and seat. Means better compression.

Ignition:—Fairbanks-Morse famous Type RV1 high tension hot spark magneto. Sealed—dust proof—moisture proof. No attention required. Not even an oil hole to fill. No adjustments to make.

Impulse Coupling gives full speed engine spark during period of cranking.

	10 H.P.	15 H.P.	20 H.P.
Fuel, Kerosene or Gasoline.....	350	350	300
Speed, R.P.M.....	7"	8"	9 1/4"
Bore.....	9"	10"	12"
Stroke.....	53	53	53
Fuel tank capacity (standard stationary engines).....	16	16	16
Fuel tank capacity, portable engines (gallons).....	1 1/4"	1 1/4"	1 1/4"
Suction Pipe Connections.....	3/8"	3/8"	3/8"
Overflow pipe connections.....	1"	1 1/4"	1 1/4"
Circulating water pipe sizes.....	17	10	10
Hopper capacity, gals.....	10	10	10
Cylinder oiler, capacity (ounces).....	3 1/2	3 1/2	3 1/2
Grease cups on crankshaft (Pipe thread).....	2	2	2
Capacity, oz.....	36"x7'-10"	42"x7'-10"	36"x7'-10"
Cooling tank (when furn.), dia. and lgth. (2 for 20 H.P.).....	2"	2 1/2"	3"
Size tap in cylinder head.....	15'	15'	15'
Max. length of exhaust recommended (2 elbows).....	41"x2 1/2"	44"x3"	54"x3"
Exhaust (Where more than 15 feet of pipe or 2 elbows are necessary, use next size larger pipe than that for which engine cylinder head is tapped.).....	675	900	1300
Flywheels, diam. and face (std. engine).....	*54"x5 1/4"	*55"x5 1/4"	*60"x7"
Weight (2 wheels), net (also shpg. wt.).....	1500	1550	2700
*Flywheels, diam. and face (special electric).....	3"	3 1/4"	3 3/4"
Weight (2 wheels) net (also shpg. wt.).....	5 11/16"	5 11/16"	8 1/8"
Shaft Diameter.....	6 1/4"	6 1/4"	8 1/4"
Extension, governor side.....	3/4"x3 1/8"	1 1/8"x3 1/8"	1 1/8"x3 1/8"
Extension opposite governor side.....	Height overall (on concrete base to clear flywheels).....	3'-8 1/2"	3'-10 1/2"
Keyway.....	Width overall.....	4'-5"	4'-7 1/2"
Height overall (on concrete base to clear flywheels).....	Length overall.....	5'-8 3/8"	5'-3 1/2"
Dimensions.....	Foundation bolts (when ordered), number used.....	4	4
Size.....	Size.....	3/4"x36"	1"x36"

For code words and shipping weights see price pages.

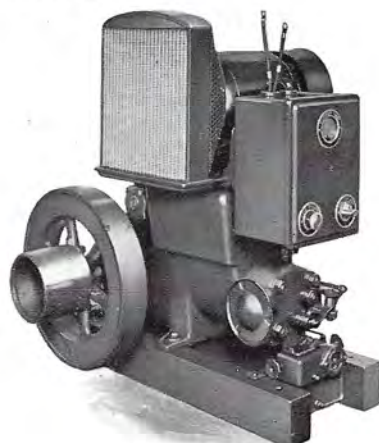
*Crown face.

MODEL "A" LIGHT PLANTS

FOR USE WITH STORAGE BATTERY



The 750 Watt Model "A"
Light Plant



The 1500 Watt Model "A"
Light Plant

32 VOLT STORAGE BATTERY PLANTS

(16 Cells of Storage Battery)

Size Generating Unit Watts	Storage Battery Capacity					Shpg. Wt., Lbs.	Outfit No.	Code Word	Sales Price F.O.B. Factory
	Ampere Hours	Type	*Watts from Battery Alone						
			For 5 Hours Contin- uously	For 8 Hours Contin- uously	For 24 Hours Int. Basis				
750	Plant less the battery					275	75300	VEHSC	\$193.50
750	85	HM- 7	315	225	110	745	75385	VEHXXH	282.00
750	140	HM-11	525	375	175	900	75314	VEHYI	313.00
1500	Plant less the battery					500	15300	VEIAJ	285.00
1500	185	NM- 7	685	490	240	1330	15318	VEIFO	422.00
1500	250	NM- 9	925	660	320	1390	15325	VEIGQ	447.50
1500	375	NM-13	1390	990	480	1705	15337	VEIHR	509.00

Plant for Refrigerator Service:—Because of the frequent periods of operation required by automatic electric refrigerators, particularly during the hot summer months, the 1500 watt plant with oversize battery, Outfit No. 15337, is recommended for this service. In the 115 volt combinations, Outfit No. 15185 should be used for refrigerator service.

110 VOLT STORAGE BATTERY PLANTS

(56 Cells of Storage Battery)

750	Plant less the battery					275	75100	VEIKU	\$193.50
750	90	CCMC-7	1165	840	400	1535	75190	VEIMW	447.50
1500	Plant less the battery					500	15100	VEIOY	285.00
1500	85	HM-7	1150	825	385	2145	15185	VEISB	595.00

(Continued on next page)

MODEL "A" LIGHT PLANTS—NOTES

The 750 watt plant is not generally recommended for 110 volts storage battery service because the limited current output of a generator of this size on 110 volts makes it impossible to charge at the rapid rate anything but a storage battery of small ampere hour capacity.

On any 110 volt storage battery installation it is economy to figure on the 1500 watt generating unit. If, however, because of weight it is not possible to install the 1500 watt generating unit, the 750 watt unit in connection with the 90 ampere hour rubber jar battery priced on the previous page will make a satisfactory installation. A fairly good charge can be put into this battery from the 750 watt plant in the course of seven or eight hours.

Storage Battery Capacity:—While the capacity of the storage battery is given in "watts" for both the 5 hour and 8 hour continuous service discharge rates, in house lighting service the load on the battery is seldom of a "continuous" character so that these ratings will be used only occasionally. On the other hand, the "24 hour Intermittent" capacity given in the tables above will give a close approximation of the number of watts that may be expected from each size battery for 4 hours every night for 6 days ($4 \times 6 = 24$), etc. These capacities are on the assumption the battery is fully charged to start off with.

SPECIFICATIONS

	750 Watt Plant	1500 Watt Plant
Engine H.P.....	1½	3
Engine R.P.M.....	1500	800
Generator R.P.M.....	3600	3000
Fuel tank, gals.....	¾	2
Lubricating oil, capacity qts.....	1	1
Water capacity, gals.....	1½	2½
Power Pulley—Diameter.....	3¼"	6"
Belt width.....	3"	4"
Speed.....	750	800
No. of belts in drive.....	1	2
Generating unit floor space:		
Width (crank in place).....	23¼"	30½"
Length.....	24½"	34"
Height.....	26"	31¼"

FEATURES

Push Button Start—Starts at the push of a button. No hand cranking necessary.

Double Duty—Engine equipped with power pulley to supply engine power for driving direct such machines as a pump, washer, cream separator, etc. No investment in motors necessary.

Radiator Cooled—Cooled by steam. Sealed—no evaporation to speak of. A dependable cooling system that operates with equal efficiency in hot and cold weather

One Place To Oil—Engine is self oiling. Magneto is sealed—requires no lubrication whatever.

Ball Bearing Generator—Operates at high speed to give best quality of light. Unusually efficient.

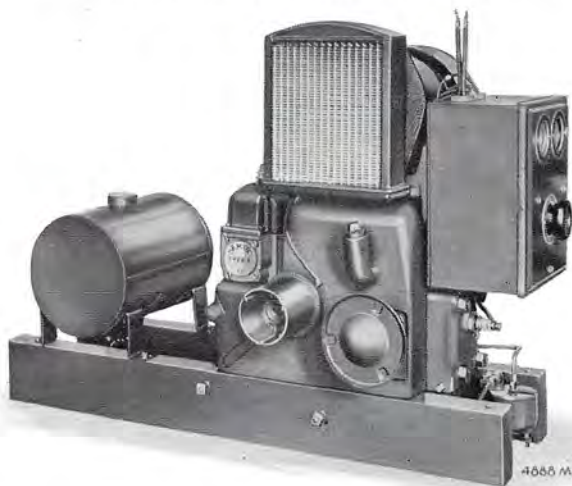
Compact Control Panel—Completely enclosed—convenient. Mounted as a unit on main frame.

Makes the Battery Last Longer—Two charging rates—changed by a simple turn of the control switch. "High" for the ordinary service charge; "Low" for the monthly equalizing charge.

Flex-Mor Drive—V-belt principle. Requires no lubrication. Clean—positive—durable.

Unit Assembly—Engine, generator, control and ignition maintained as individual units—no complicated mechanisms—easy replacement of any part.

**MODEL "A" LIGHT PLANTS—DIRECT LIGHTING
FOR USE WITHOUT STORAGE BATTERY**



The Direct Lighting Plant with Auxiliary Fuel Tank (Table 2)

SPECIFICATIONS

Except for the control panel, these plants are of the same general specifications as the standard storage battery plants described on the previous page. The generator is compound wound to give constant voltage regardless of load. The control panel contains a voltmeter, ammeter and field regulating rheostat. Because of the fact no storage battery is employed, plants must be cranked by hand and the engine must be run whenever lights are to be operated.

TABLE 1—PLANTS WITH STANDARD FUEL TANK

Size Generating Unit Watts	Generator Voltage	Fuel Tank		Approx. Shipping Weight, Lbs.	Outfit No.	Code Word	Selling Price
		Capacity	Will Run Plant For				
750	32	3 Qts.	4 Hrs.	275	7532	VEJAI	\$193.50
1500	32	2 Gals.	5 Hrs.	500	1532	VEJBJ	285.00
750	115	3 Qts.	4 Hrs.	275	7515	VEJEM	193.50
1500	115	2 Gals.	5 Hrs.	500	1515	VEJFN	285.00

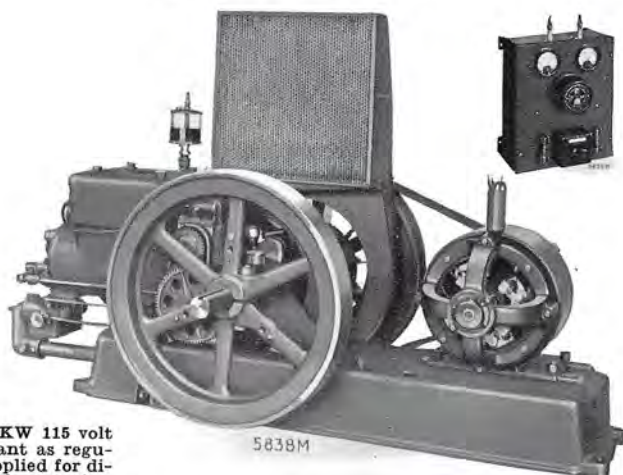
***TABLE 2—PLANTS WITH AUXILIARY FUEL TANK**

750	32	2¼ Gals.	11 Hrs.	290	6818	VEJGP	210.50
1500	32	5 Gals.	13 Hrs.	520	6820	VEJIR	302.00
750	115	2¼ Gals.	11 Hrs.	290	9016	VEJJS	210.50
1500	115	5 Gals.	13 Hrs.	520	9017	VEJKT	302.00

*The plants priced in table 2 have an auxiliary fuel tank mounted on an extension of the engine skids as shown in the illustration at top of page. The regular fuel tank between the skids is omitted.

A Byrne & Kingston float chamber, mounted between the skids underneath the head of the engine, is connected by means of a fuel tube to the special fuel tank. Suitable drain and shut-off is provided at the tank end.

2½ KW LIGHT PLANT



The 2½ KW 115 volt Light Plant as regularly supplied for direct lighting service.

SPECIFICATIONS

This plant consists of a Fairbanks-Morse 5 H.P. radiator equipped engine (see page 7 for specifications) V-belt connected to a 2500 watt F-M generator, the entire assembly, excepting switchboard, being mounted on a substantial cast iron base.

Fuel Tank—In base. Capacity 6½ gallons.

Power Pulley—Engine can be supplied with power pulley at small additional charge.

V-Belt Drive—Both sheaves machine grooved. 3 belts used.

Overall Dimensions { Width.....29¾"
Width with crank in place 35¼"
Length.....60¼"
Height overall.....32¼"

Generator—2500 watts, 2500 R.P.M. ball bearing type.

Switchboard for attaching on wall—On direct lighting plants, contains voltmeter, ammeter, field rheostat and 30 amp. DP ST Tumbler main switch with N.E. CODE fuses.

Switchboard for attaching on wall—On battery charging plants contains zero center ammeter, "high-low-belt" generator control switch, battery fuse, generator fuse, reverse current relay, and single pole single throw "start-run" switch.

115 Volt Plant for Direct Lighting Service

This is a non-automatic plant, intended for operation without storage batteries. Lights are available only when plant is running. Plant must be hand cranked.

Outfit Number	Code Word	Approx. Shpg. Wt.	Sales Price
8126	VENWA	1025	\$430.00

Storage Battery Plants

These plants are complete with storage battery. They are cranked automatically by the throw of a switch. Lights are available from the storage battery when the plant is shut down.

32 VOLT STORAGE BATTERY PLANTS—(16 Cells of Battery)

Outfit No.	Storage Battery		Watts from Battery Alone			Shpg. Wt.	Code Word	Sales Price
	Ampere Hours	Type	For 5 Hrs. Continuously	For 8 Hrs. Continuously	For 24 Hrs. Int. Basis			
8127	Less Battery					1025	VENAE	\$480.00
8128	185 A.H.	NM-7	685	490	240	1855	VENBF	617.00
8129	250 A.H.	NM-9	925	660	320	1915	VENCG	642.50
8130	375 A.H.	NM-13	1390	990	480	2230	VENDH	704.00

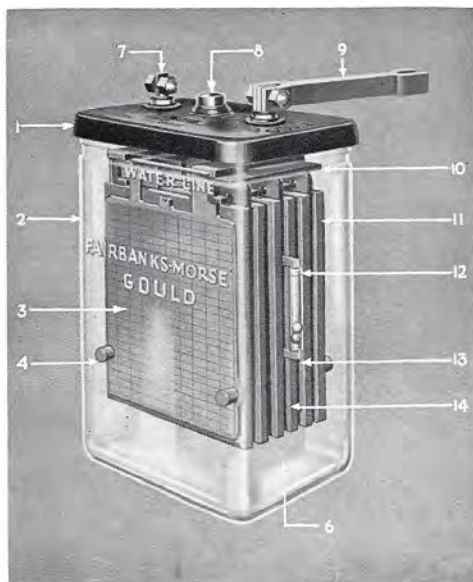
115 VOLT STORAGE BATTERY PLANTS—(56 Cells of Battery)

8131	Less Battery					1025	VENMR	\$456.00
8132	85 A.H.	HM-7	1100	780	385	2670	VENNS	766.00
8133	140 A.H.	HM-11	1825	1300	610	3200	VENOT	874.00

F-M GOULD STORAGE BATTERIES

5-YEAR GUARANTY

GLASS JAR TYPE—FOR REPLACEMENT SERVICE



The Battery above illustrated is the one that is furnished as standard with Fairbanks-Morse Home Light Plants priced on page 21, but it can be sold to replace worn-out batteries on light plants of other makes as well. It is a heavy plate battery of unusually durable construction sold under a 5-year adjustment guaranty. Note its features.

14 BIG SALES FEATURES

1. Improved and durable composition cover with sufficient mechanical strength to support the entire weight of the element without resorting to the trouble-inviting "bridge" at the bottom of the cell.

2. A large heavy glass jar that permits of easy inspection of the interior of the cell, water level, etc.

3. Uniformity in the high grade of oxide used makes a plate of smooth appearance and unusual adhesiveness, thus greatly retarding the rate of "shedding" in service.

4. Stabilizer to keep plates and separators in close contact—also prevents vibration of element in transit.

6. Large space at bottom to receive the shedded material or sediment as battery

grows old in service, thus minimizing possibility of short-circuiting sediment formation at bottom of cell.

7. Terminal post so constructed that it is difficult to connect the cells in any but the right way.

8. Hard rubber vent plug—easily removable to take hydrometer readings.

9. Connecting link of double forked type, affording double contact surface at each terminal post.

10. Cross bar and element post of improved truss design, giving better rigidity and strength.

A U-shaped hard rubber support, resting on the top of the plate just under the cross bar

(Continued on next page)

F-M GOULD STORAGE BATTERIES

14 BIG SALES FEATURES—(Continued)

and supporting the hook of the plate of opposite polarity, provides a substantial two point support for every plate in the cell. No bottom plate supporting bridge necessary. This is a patented F-M Gould battery feature.

11. Unusually thick and heavy positive plates constructed of improved materials to maintain high capacity and long life.

12. Ball float hydrometer in pilot cell gives day-to-day indication of whether or not battery is in need of a re-charge.

13. Long-life wood separators, which are treated to withstand action of the acid, provide the necessary insulation between plates.

14. Perforated hard rubber separators maintain close contact with each positive

plate and prevent undue shedding of active material—add about 25% to the life of the battery.

The hard rubber separators, as well as the wood separators are kept in position by means of a hard rubber separator support rod which rests on a projection in the top of the negative plates between the terminal posts. This rod passes through electrically drilled holes in the top of the separator keeping them in position without the necessity of a trouble-inviting supporting bridge at the bottom of the cell.

In addition to the ball hydrometer in the pilot cell, a large, easily read syringe hydrometer is furnished as regular equipment with every battery, so that the actual specific gravity reading of any one of the individual cells may be taken whenever desired.

PRICES

These Prices are F.O.B. Following Free Delivery Points:

Depew, N. Y.

Kansas City, Mo.

St. Paul, Minn.

16-CELL SETS—32 VOLTS

Gravity Range:—1250 completely charged; 1150 completely discharged

Amp. Hour Capacity	Type	Output in Watts when Fully Charged			Outfit No.	Code Word	Approx. Shgp. Wt., Lbs.	Selling Price
		For 24 Hour Int. Basis	Continuously					
			For 8 Hours	For 5 Hours				
85	HM-7	110	225	315	16085	VELAG	470	\$88.50
140	HM-11	175	375	525	16140	VELBH	625	119.50
185	NM-7	240	490	685	16185	VELCI	830	137.00
250	NM-9	320	660	925	16250	VELDJ	890	162.50
375	NM-13	480	990	1390	16375	VELEK	1205	224.00

56-CELL SETS—110 VOLTS

85	HM-7	385	780	1100	56085	VELSZ	1645	\$310.00
140	HM-11	610	1300	1825	56140	VELUA	2175	418.00
185	NM-7	840	1710	2400	56185	VELVB	2905	480.00
250	NM-9	1120	2300	3240	56250	VELWC	3115	568.00
375	NM-13	1680	3450	4850	56375	VELXD	4210	785.00

32 Volt Glass Jar Batteries:—With the 32 volt glass jar batteries are furnished 18 bolt connectors, one 2 ft. length of lead connecting tape and a syringe hydrometer.

110 Volt Glass Jar Batteries:—With the 110 volt glass jar batteries are furnished 60 bolt connectors, three 2 ft. lengths of lead connecting tape and a syringe hydrometer.

In ordering specify the number of cells, the type of battery and the ampere hour capacity.

F-M GOULD PROTECTED PLATE—ARMORED GRID 7 YEAR GUARANTY STORAGE BATTERY



The last word in storage battery construction—the F-M Gould Protected Plate Armored Grid Storage Battery.

Here is a battery that is designed to give the maximum possible number of years' service per dollar expended. It is a distinctively new design offered under an adjustment guaranty of seven years but it should last considerably longer than this under normal conditions of service, provided it is given a reasonable amount of care.

This particular battery has the same sturdy method of plate suspension employed in the F-M Gould standard cell. In addition it has several other features—mechanical and electrical—new insofar as the houselighting battery is concerned but thoroughly tried out by Gould over a period of years in marine, railroad and utility service.

Armored Grid:—The members are re-inforced vertically and horizontally to give a grid life consistent with the life of the rest of the battery. All corners where the horizontal and vertical members meet are heavily filleted. A heavy vertical member runs from the top to the bottom located in the center of the grid.

Positive Active Material:—Specially developed for use with the retainer described below. Has a normal life from 25% to 50% greater than the average pasted plate battery. This material has a semi-Plante action in service; in other words, as the active material is used up in regular service, more is being formed as the life progresses.

The Retainer Mat:—This feature is obtained by the use of a flexible spun glass mat consisting of innumerable hair-like glass fibres horizontally overlaid—about twelve fine layers in all—held close to the positive plate by a perforated hard rubber sheet envelope. 90% porous. Flexible—bends to meet stresses and strains—extremely effective in retaining the useful active material in the plate. Acts as a filter. In time becomes an integral part of the positive plate.

Perforated Rubber Envelope:—Completely encircles the retainer mat and positive plate—acts as a protective armored sheath. The envelope is solid where it passes around the edge of the plate, thereby preventing the possibility of "treeing" and internal short circuiting around the edge of the plate.

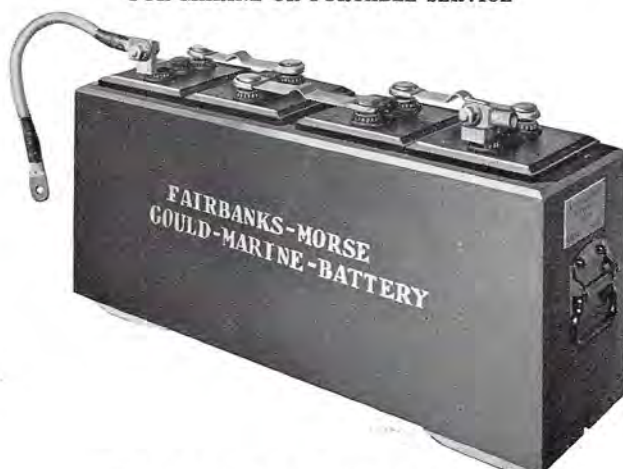
Two Sizes:—130 and 200 A.H. Can be sold with Fairbanks-Morse Light Plants or for general replacement service:

Amp. Hrs.	Type	Output in Watts When Fully Charged			Outfit No.	Code Word	Approx. Shgp. Wt., Lbs.	Price
		24 Hr. Int. Basis	Continuously					
			For 8 Hrs.	For 5 Hrs.				
130	HMX-9	165	345	485	8142	VEKJR	620	\$138.50
200	NMX-7	255	525	740	8143	VEKKS	900	175.00

110 Volt Batteries:—To get the price or wattage of a 110 volt battery multiply the above figures by 3/4.

F-M GOULD RUBBER JAR BATTERY

FOR MARINE OR PORTABLE SERVICE



A Tray of 8 Cells in the Rubber Jar Assembly

These batteries are set up in the highest quality hard rubber jars with sealed-in covers, in acid-proof wood trays with carrying handles and porcelain insulators. The plates are of the Gould Dreadnaught construction with separators of perforated hard rubber in addition to the regular specially treated cedar separators.

Fairbanks-Morse Gould Marine Batteries are designed for installation in ocean liners,

ocean going and cruising yachts, cabin cruisers, fishing boats, speedsters and sport boats and for every purpose on every vessel where electric power and appliances are used.

Their portability makes them popular also for installation in the summer cottage or lodge where the batteries are carried in to town for storage and occasional charging during the long winter months.

PRICES—GOULD STANDARD RUBBER JAR MARINE LIGHTING BATTERIES

These prices are f.o.b. Depew, N. Y. only

16-CELL SETS—32 VOLTS

Gravity range:—1275 completely charged; 1175 completely discharged

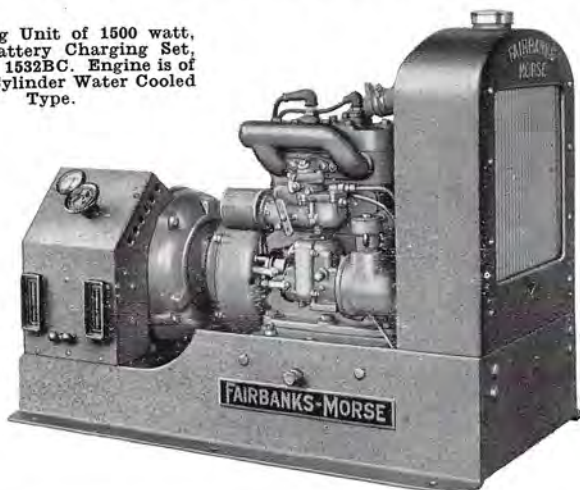
Amp. Hour Cap. (Int. Rate)	Type	No. of Plates	No. Cells per Tray	No. of Trays	Tray Dimensions			Outfit No.	Code Word	Approx. Shpg. Wt., Lbs.	Selling Price
					Lgth.	Width	Height				
90	CCMC-7	7	4	4	13 1/8"	7 13/16"	12 3/8"	1690R	VEMDI	360	\$72.50
120	CCMC-9	9	4	4	17 1/8"	7 13/16"	12 3/8"	16120R	VEMDJ	460	90.00
150	CCMC-11	11	4	4	20 1/8"	7 13/16"	12 3/8"	16150R	VEMFK	560	105.00
180	CCMC-13	13	4	4	24 1/16"	7 13/16"	12 3/8"	16180R	VEMGM	660	120.00
210	CCMC-15	15	4	4	28 7/16"	8 1/16"	12 1/2"	16210R	VEMHN	780	133.50
240	CCMC-17	17	4	4	31 13/16"	8 1/16"	12 1/2"	16240R	VEMIO	880	146.50

56-CELL ASSEMBLIES FOR 110 VOLT SERVICE

If a rubber jar battery for 110 volt service is desired, use 3 1/2 times the number of cells required for 32 volt service as well as 3 1/2 times the above 32 volt price.

32 VOLT BATTERY CHARGING SETS

Generating Unit of 1500 watt, 32 volt Battery Charging Set, Outfit No. 1532BC. Engine is of the Two Cylinder Water Cooled Type.



Service:—For generating 32 volts, direct current. These plants have a 16 cell storage battery standby so that it is not necessary to run the engine whenever lights or electricity is desired.

Standard Equipment:—1000 watt size has overhead fuel tank. All other sizes have fuel pump only; fuel tank is extra. See Page 32 for prices. 1000 watt plant has a cast iron base; welded steel base on the larger sizes.

All plants are regularly furnished with

magneto, carburetor, air cleaner, muffler starting crank, and

Control Panel with following equipment mounted thereon: Manual start and stop buttons, zero center ammeter, and automatic reverse current relay to prevent battery discharging back through the generator and motoring the engine. Plants 1500 watts and larger have, in addition to foregoing, a rheostat and generator and battery fuses enclosed in bakelite safe-loading holders.

32 VOLT BATTERY PLANTS—"BC" MODELS

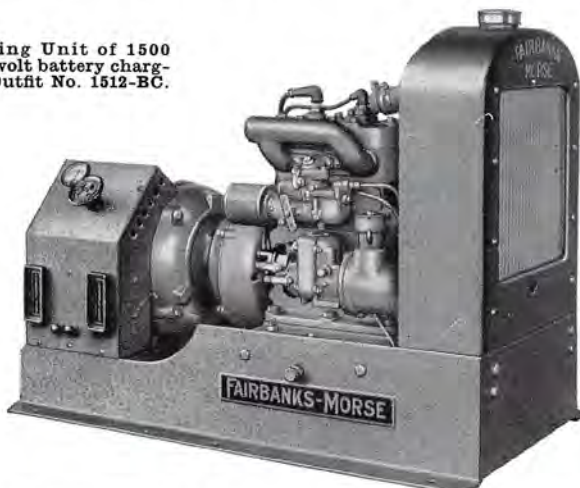
(16-Cells of Storage Battery)

Size Gener- ating Unit, Watts	Storage Battery Capacity					Dom. Shpg. Wt., Lbs.	Outfit No.	Code Word	Price F.O.B. Factory
	Ampere Hours	Type	*Watts from Battery Alone						
			For 5 Hours Contin- uously	For 8 Hours Contin- uously	For 24 Hours Contin- uously				
1000	Plant less the battery					340	1032-BC	VFBAS	\$263.00
1000	85	HM-7	315	225	110	810	1032-BC85	VFBBT	351.50
*1000	130	HMX-9	485	345	165	960	1032-BC130	VFBCU	401.00
1000	140	HM-11	525	375	175	965	1032-BC140	VFBDV	382.50
1500	Plant less the battery					490	1532-BC	VFBGZ	450.00
1500	185	NM-7	685	490	240	1320	1532-BC185	VFBIA	587.00
*1500	200	NMX-7	740	525	255	1390	1532-BC200	VFBJB	624.50
1500	250	NM-9	925	660	320	1380	1532-BC250	VFBKC	612.00
1500	375	NM-13	1390	990	480	1700	1532-BC375	VFBLD	674.00
3000	Plant less the battery					750	3032-BC	VFDAN	760.00
3000	185	NM-7	685	490	240	1580	3032-BC185	VFDBR	897.00
*3000	200	NMX-7	740	525	255	1650	3032-BC200	VFDPS	934.50
3000	250	NM-9	925	660	320	1640	3032-BC250	VFDDT	922.00
3000	375	NM-13	1390	990	480	1955	3032-BC375	VFDEU	984.00

*The batteries furnished with these plants are special seven-year guaranty batteries. All other outfit numbers include a standard battery which carries a 5-year adjustment guaranty.

D. C. 110 VOLT BATTERY CHARGING SETS

Generating Unit of 1500 watt, 110 volt battery charging set, Outfit No. 1512-BC.



Service: For generating 110 volt direct current. These plants have a 56 cell storage battery standby so that it is not necessary to run the engine whenever light or electricity is desired.

Standard Equipment: 1000 watt size has overhead fuel tank. All other sizes have fuel pump only; fuel tank is extra. See page 32 for prices. 1000 watt plant has a cast iron base; welded steel base on the larger sizes.

All plants are regularly furnished with

magneto, carburetor, air cleaner, muffler starting crank, and

Control Panel with following equipment mounted thereon: Manual start and stop buttons, zero center ammeter, and automatic reverse current relay to prevent battery discharging back through the generator and motoring the engine. Plants 1500 watts and larger have, in addition to foregoing, a rheostat and generator and battery fuses enclosed in bakelite safe loading holders.

110 VOLT STORAGE BATTERY PLANTS—"BC" MODELS

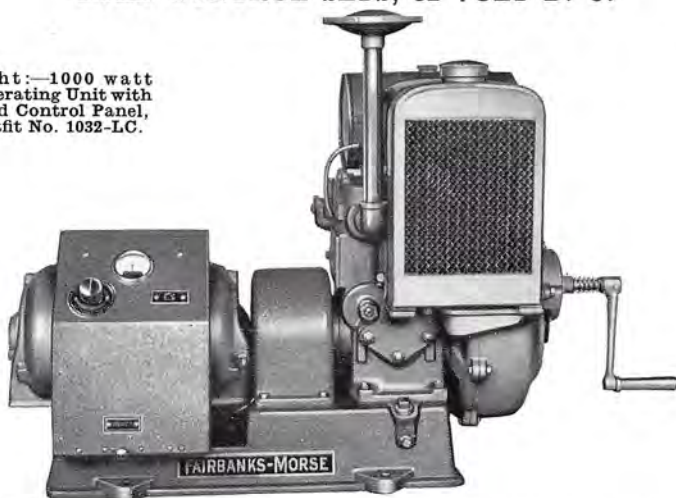
(56 Cells of Storage Battery)

Size Generating Unit, Watts	Storage Battery Capaty					Dom. Shpg. Wt., Lbs.	Outfit No.	Code Word	Price F.O.B. Factory
	Ampere Hours	Type	*Watts from Battery Alone						
			For 5 Hours Contin- uously	For 8 Hours Contin- uously	For 24 Hours Contin- uously				
1000	Plant	less the battery				375	1012-BC	VFDKA	\$335.00
1000	85	HM-7	1100	790	385	2020	1012-BC85	VFDLB	642.00
1500	Plant	less the battery				495	1512-BC	VFDMC	503.00
1500	85	HM-7	1100	790	385	2140	1512-BC85	VFDND	810.00
3000	Plant	less the battery				725	3012-BC	VFDOE	741.00
3000	85	HM-7	1100	790	385	2370	3012-BC85	VFDPF	1048.00
*3000	130	HMX-9	1700	1200	580	2900	3012-BC130	VFDRH	1224.00
3000	140	HM-11	1825	1300	610	2900	3012-BC140	VFDSI	1159.00
3000	185	NM-7	2400	1710	840	3630	3012-BC185	VFDTE	1220.50
5000	Plant	less the battery				1000	5012-BC	VFDUK	817.00
5000	85	HM-7	1100	790	385	2645	5012-BC85	VFDVL	1124.00
*5000	130	HMX-9	1700	1200	580	3170	5012-BC130	VFDWM	1300.00
5000	140	HM-11	1825	1300	610	3175	5012-BC140	VFDYO	1235.00
5000	185	NM-7	2400	1710	840	3900	5012-BC185	VFDZP	1296.50

*The batteries furnished with these plants are special seven-year guaranty batteries. All other outfit numbers include a standard battery which carries a 5-year adjustment guaranty.

LOAD CONTROL SETS, 32 VOLT D. C.

Right:—1000 watt
Generating Unit with
Load Control Panel,
Outfit No. 1032-LC.



Service: These plants have a 16-cell storage battery standby to carry ordinary lighting and small power loads when the engine is not operating.

In addition, they have an automatic voltage operated relay to automatically start the engine whenever the load on the line is sufficiently heavy to pull the battery voltage down to 28 volts. The same relay automatically stops the plant when the heavy load is removed or the line voltage reaches a maximum of 38 volts which it will do as soon as the battery is brought up to a condition of normal charge.

These plants are recommended for use where automatic appliances using motors of $\frac{1}{4}$ H.P. or larger, (such as water systems

or extra large refrigerators) are connected across the line.

Equipment: 1000 watt size has overhead fuel tank, gravity feed. All other sizes have fuel pump only; fuel tank is extra. (See page 29 for prices.)

All plants are regularly supplied with magneto, carburetor, air cleaner, muffler, starting crank, and

Control Panel containing manual "start" and "stop" buttons, ammeter, reverse current relay, transfer switch from manual to automatic control, and automatic voltage operated relay to start and stop the plant as described above. Plants 1500 watts and larger are equipped with rheostat, and generator and battery fuses enclosed in bakelite safe loading holders.

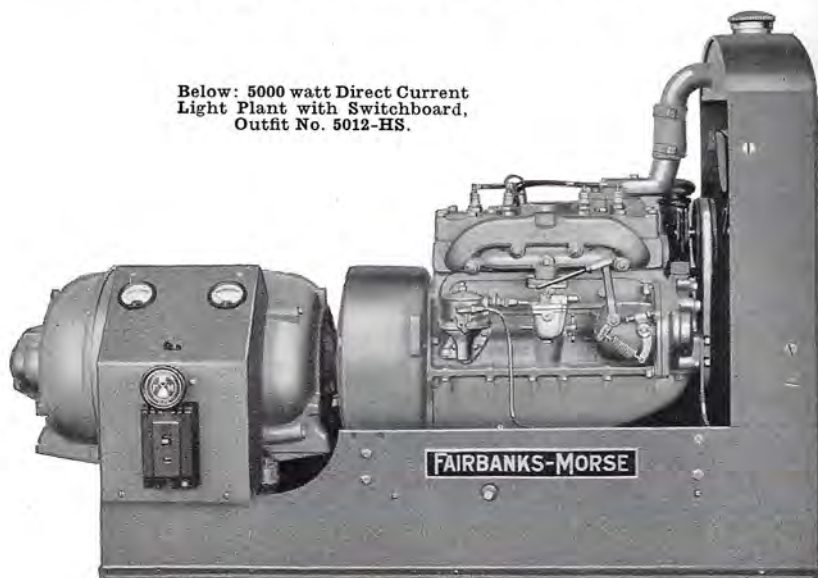
32 VOLT LOAD CONTROL PLANTS—"LC" MODELS (16 Cells of Storage Battery)

Size Generating Unit, Watts	Storage Battery Capacity					Dom. Shpg. Wt., Lbs.	Outfit No.	Code Word	F.O.B. Factory
	Ampere Hours	Type	*Watts from Battery Alone						
			For 5 Hours Continuously	For 8 Hours Continuously	For 24 Hours Continuously				
1000	Plant less the battery					340	1032-LC	VFBQG	\$295.00
*1000	85	HM-7	315	225	110	810	1032-LC85	VFBPH	383.50
	130	HMX-9	485	345	165	960	1032-LC130	VFBQI	433.00
1000	140	HM-11	525	375	175	965	1032-LC140	VFBRJ	414.50
1500	Plant less the battery					490	1532-LC	VFBSE	475.00
1500	185	NM-7	685	490	240	1320	1532-LC185	VFBTL	612.00
*1500	200	NMX-7	740	525	255	1390	1532-LC200	VFBUM	649.50
1500	250	NM-9	925	660	320	1380	1532-LC250	VFBVN	637.00
1500	375	NM-13	1390	990	480	1695	1532-LC375	VFBWO	695.00
3000	Plant less the battery					750	3032-LC	VFDV	800.00
3000	185	NM-7	685	490	240	1580	3032-LC185	VFDGX	937.00
*3000	200	NMX-7	740	525	255	1650	3032-LC200	VFDHY	974.50
3000	250	NM-9	925	660	320	1640	3032-LC250	VFDIZ	962.00
3000	375	NM-13	1390	990	480	1955	3032-LC375	VFDJN	1020.00

*The batteries furnished with these plants are special seven-year guaranty batteries. All other outfit numbers include a standard battery which carries a 5-year adjustment guaranty.

125 VOLT D. C. DIRECT LIGHTING PLANTS

Below: 5000 watt Direct Current
Light Plant with Switchboard,
Outfit No. 5012-HS.



Service:—For generating direct current, 125 volts. With these plants the engine must be operated whenever any light or electricity is desired inasmuch as they do not have a storage battery standby. Method of start, hand crank.

Equipment:—1000 watt size has an overhead fuel tank, gravity feed. All other sizes have a fuel pump only; fuel tank is extra. See table below for prices. Cast iron base is supplied on the 1000 watt plant; welded steel base on the larger sizes.

All plants are regularly furnished with magneto, carburetor, air cleaner, muffler and starting crank. The "HS" Models also have a control panel containing the following equipment:

Control Panel:—On "HS" Models only. Contains voltmeter, ammeter, stop switch for grounding or interrupting the magneto circuit, "high-low" switch for regulating the generator voltage in the case of the 1000 watt plant, rheostat in the case of the larger sizes. Main switch and two fuses in bakelite holders supplied on 1500 and 3000 watt panels. 5000 and 7500 watt plants, instead of main switch and fuses, have a double pole main switch of circuit-breaker type with automatic overload protection.

125 VOLT DIRECT LIGHTING PLANTS—HAND CRANKED

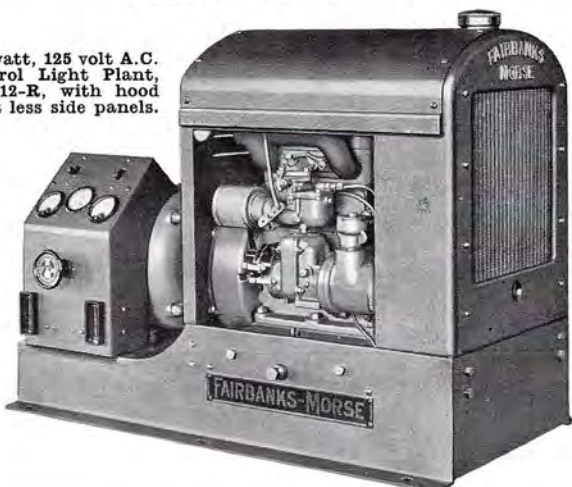
Capacity, Watts	Less Switchboard ("H" Models)				With Switchboard ("HS" Models)			
	Model No.	Domestic Weight	Code Word	Price F.O.B. Factory	Model No.	Domestic Weight	Code Word	Price F.O.B. Factory
1000	1012-H	345	VFCAR	\$251.00	1012-HS	360	VFCHZ	\$275.00
1500	1512-H	465	VFCBS	395.00	1512-HS	485	VFCJA	448.00
3000	3012-H	705	VFCCT	614.00	3012-HS	720	VFCRB	664.00
5000	5012-H	980	VFCDU	690.00	5012-HS	995	VFCLC	780.00
7500	7512-H	1080	VFCEV	822.00	7512-HS	1105	VFCMD	985.00

	1000 Watt	1500 Watt	3000 Watt	5000 Watt
	(Overhead)			
	Std.	\$11.00	\$13.00	\$13.00
Add for (Fuel Tank in Base.....)	1½	5	7½	7½
Add for (Size, Gals.....)	6	13	11½	8
Add for (No. Hours on One Filling.....)				
Add for 55 Gal. Fuel Tank and Fittings.	\$27.20	\$27.20	\$27.20	\$27.20

REMOTE CONTROL—DIRECT LIGHTING

125 VOLTS—DIRECT CURRENT

Below: 1500 watt, 125 volt A.C. Remote Control Light Plant, Outfit No. 1512-R, with hood (an extra) but less side panels.



Service:—These plants are designed for electric start by pushing a button either at the plant or at one or more remote points. Current generated is 125 volts, direct current. With these plants the engine must be operated whenever electricity is desired inasmuch as they do not have a storage battery standby. The current for cranking is supplied by a 6 volt automotive type battery which is furnished with the plant as an extra when ordered.

Equipment:—Standard equipment includes electric starting motor, automotive type charging generator and battery ignition, automatic choke, startix, fuel pump, carburetor, air cleaner, muffler, welded steel base, starting crank, and control panel containing equipment listed below. Fuel tank is extra. See table below for prices.

Control Panel contains voltmeter, ammeter for line current, ammeter for reading "charge" and "discharge" of 6 volt starting battery, start and stop switch, rheostat, relay for closing startix circuit, main switch and two fuses enclosed in bakelite holders.

Plants of 5000 watts and larger, instead of main switch and fuses, have main switch of the double pole, single throw, circuit breaker type with thermal overload tripping mechanism.

125 VOLT DIRECT LIGHT PLANTS—"R" MODELS

(Push Button Start)

Model Model	Capacity Watts	Domestic Weight	Code Word	List Price
1512-R	1500	505	VFCNE	\$536.00
3012-R	3000	755	VFCOF	782.00
5012-R	5000	1020	VFCPG	896.00
7512-R	7500	1135	VFCRI	1008.00

Starting Battery:—6 volt, 13 plate, 117 amp. hours, suitable for use with any of the above plants.....\$11.15

Starting Switch:—Four way, flush type, for starting and stopping operation at remote points, price each.....5.00

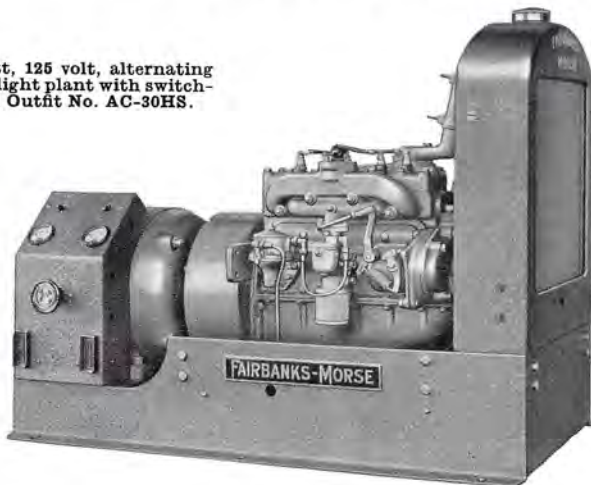
Starting Switch:—Three way, flush type, for starting and stopping at extreme end of line, price each.....1.25

	1500 Watt	3000 Watt	5000 Watt	7500 Watt
Add for Fuel Tank in Base.....	\$11.00	\$13.00	\$13.00	\$16.50
Add for Size, Gals.....	5	7½	7½	10
No. Hours on One Filling.....	13	11½	8	7
Add for 55 Gal. Fuel Tank and Fittings.....	\$27.20	\$27.20	\$27.20	\$27.20

ALTERNATING CURRENT—HAND CRANK

125 VOLTS, SINGLE PHASE

3000 watt, 125 volt, alternating current light plant with switch-board, Outfit No. AC-30HS.



Service:—For generating 125 volts, alternating current, single phase, which is the same kind of current delivered by high lines. These plants must be cranked by hand and engine must be operated whenever electricity is desired. (Storage batteries cannot be charged from an alternating current generator.)

Equipment:—Standard equipment includes magneto with impulse coupling, overhead fuel tank on the AC10-H, fuel pump (no tank) on all other sizes, carburetor, air cleaner, muffler, and starting crank. No control panel is furnished with the "H" models.

Control Panel:—Furnished only with "HS" models. Consists of volt-meter, ammeter, stop switch for grounding or interrupting the magneto circuit, rheostat for regulating the voltage (high-low switch with resistor in the case of the 1000 watt plant).

The 1500 and 3000 watt plants are equipped with main switch and two fuses enclosed in bakelite safe loading holders. Plants 5000 watts and larger have a double pole, single throw switch of the circuit-breaker type with thermal overload tripping mechanism.

"H" MODELS (Less Control Panel)

Model Number	Watts Capacity		Domestic Weight	Code Word	Price F.O.B. Factory
	100% P.F.	80% P.F.			
AC10-H	1000	800	325	VFEAP	\$270.00
AC15-H	1500	1200	470	VFECR	424.50
AC30-H	3000	2400	700	VFEDS	663.00
AC50-H	5000	4000	995	VFEEF	764.00
AC63-H	6300	5000	1150	VFEFU	997.80
AC94-H	9400	7500	1260	VFEGW	1370.00

"HS" MODELS (With Control Panel)

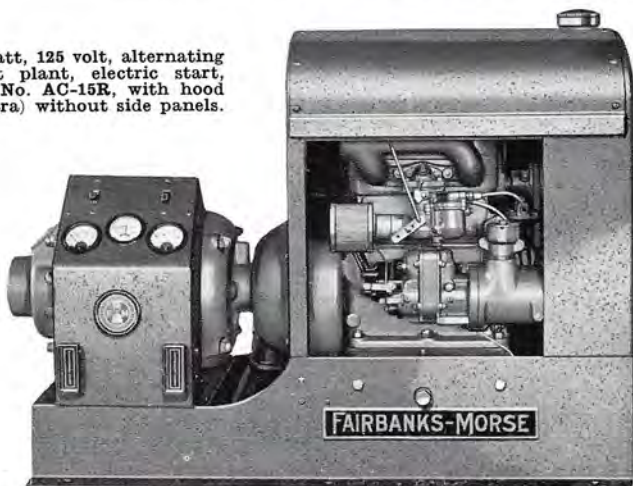
AC10-HS	1000	800	340	VFEMB	\$295.00
AC15-HS	1500	1200	490	VFENC	482.50
AC30-HS	3000	2400	720	VFEOB	721.00
AC50-HS	5000	4000	1010	VFEPE	872.00
AC63-HS	6300	5000	1175	VFERG	1145.00
AC94-HS	9400	7500	1285	VFESH	1517.00

	1000 Watt	1500 Watt	3000 Watt	5000 Watt	6300 Watt	9400 Watt
Add for Fuel Tank in Base.....	Std.	\$11.00	\$13.00	\$13.00	\$16.50	\$16.50
Size, Gals.....	1½	5	7½	7½	10	10
No. Hours on One Filling.....	6	13	11½	8	7	7
Add for 55 Gallon Fuel Tank and Fittings.....	\$27.20	\$27.20	\$27.20	\$27.20	\$27.20	\$27.20

ALTERNATING CURRENT—ELECTRIC START

125 VOLTS, SINGLE PHASE, 60 CYCLE

1500 watt, 125 volt, alternating current plant, electric start, Outfit No. AC-15R, with hood (an extra) without side panels.



Service: These plants generate 60 cycle, 125 volt, single phase current, same as delivered by central station high lines. The engine must be operated whenever electricity is desired because the plants do not have a storage battery standby. (Storage batteries cannot be charged from an alternating current plant.) The plants are fitted for electric start so that they can be put into operation by merely pushing a button either at the plant or at any convenient remote point or points.

Or, when ordered with a special emergency control panel (as priced below) the plant may be used as a standby or emergency set to automatically start up in the event of failure of the regular high line service.

The current for cranking is supplied by a 6 volt automotive type battery which is furnished with the plant as an extra when ordered.

Equipment: Standard equipment includes electric starting motor, automotive type charging generator and battery ignition, automatic choke, startix, fuel pump, carburetor, air cleaner, muffler, welded steel base, starting crank and control panel containing equipment listed below. Fuel tank is extra. See table on opposite page for prices.

Control panel contains voltmeter, ammeter for load current, ammeter for reading the "charge" and "discharge" of starting battery, a start and stop main switch, main or load switch, rheostat for regulating the voltage, relay for closing the starting circuit and two fuses enclosed in bakelite safe loading holders. Instead of fuses, plants 5000 watts and larger are equipped with double pole, single throw switch of the circuit-breaker type with thermal overload tripping mechanism.

A.C. 125 V., SINGLE PHASE LIGHT PLANTS—REMOTE CONTROL

Model No.	Watts Capacity		Domestic Weight, Lbs.	Code Word (Std. Panel)	Price F. O. B. Factory	
	100% P.F.	80% P.F.			With Standard Panel	With Automatic Emergency Control Panel
AC15-R	1500	1200	520	VFEVK	\$572.50	\$643.50
AC30-R	3000	2400	750	VFEWL	\$337.00	\$957.00
AC50-R	5000	4000	1040	VFEXM	\$990.00	\$1100.00
AC63-R	6300	5000	1215	VFEYN	\$1168.00	\$1305.00
AC94-R	9400	7500	1325	VFEZO	\$1540.00	\$1689.00

Starting Battery:—6 volt, 13 plate, 117 amp. hours, suitable for use with any of the above plants.....\$11.15

Starting Switch:—Four way, flush type, for starting and stopping operation at remote points, price each.....5.00

Starting Switch:—Three way, flush type, for starting and stopping operation at extreme end of line, price each.....1.25

ADDITIONS, DEDUCTIONS, ETC.

Add for the Addition of the Following Extra Equipment:	1000 Watt & 1.0 KVA Sizes	1500 Watt & 1.5 KVA Sizes	3000 Watt & 3.0 KVA Sizes	5000 Watt & 5.0 KVA Sizes	6.3 KVA Size	7500 Watt & 9.4 KVA Sizes
Hood and Side Panels.....		\$20.00	\$20.00	\$20.00	\$20.00	\$25.00
RADIO SUPPRESSORS:						
For D.C. Plants.....	\$10.00	10.00	12.50	15.00		17.50
For A.C. Plants.....	25.00	30.00	35.00	40.00	40.00	45.00
*Circulating Pump (When Radiator and Fan are omitted)...			11.20	11.20	11.20	20.00
Natural Gas Burning Equipment.....	30.00	35.00	40.00	40.00	40.00	40.00
Alcohol Burning Equipment ("H" and "HS" Models only) (Price includes special double compartment fuel tank).....		22.50	28.80	28.80	28.80	32.65
*When circulating pump is used in connection with the 3.0 KVA to 9.4 KVA sizes inclusive, deduct cost of radiator and fan equipment as follows:			50.00	50.00	50.00	60.00

DETAILED SPECIFICATIONS

Type.....	Water Cooled L-Head—All Sizes					
No. of Cylinders.....	1	2	4	4	4	4
Bore and Stroke.....	2 $\frac{5}{8}$ x2 $\frac{1}{2}$	2 $\frac{1}{2}$ x2 $\frac{3}{4}$	2 $\frac{1}{2}$ x3	2 $\frac{5}{8}$ x3	2 $\frac{5}{8}$ x3	3x4
Rated H.P. at 1800 R.P.M.....	2.48	4.0	10.5	11.5	11.5	16.2
Piston Displacement.....	13.6	27.0	58.8	64.9	64.9	113
Fuel.....	Gasoline	Gasoline, Gas	Gasoline, Gas	Gasoline, Gas	Gasoline, Gas	Gasoline, Gas
Fuel Tank Capacity.....	1 gal.	5 gal.	7 $\frac{1}{2}$ gal.	7 $\frac{1}{2}$ gal.	7 $\frac{1}{2}$ gal.	10 gal.
Fuel Consumption.....	4 hr. per gal. at full load	4 KW hr. per gal. at full load	4.7 KW hr. per gal. at full load	5.5 KW hr. per gal. at full load	5.5 KW hr. per gal. at full load	5.5 KW hr. per gal. at full load
Oil Sump Capacity.....	1 $\frac{1}{8}$ qts.	3 qt.	2 qt.	2 qt.	2 qt.	2.5 qt.
Cooling System Capacity.....	3 qt.	4 qt.	8 qt.	8 qt.	8 qt.	10 qt.
Cylinder Head.....	Cast Iron Detachable—All Sizes					
Pistons.....	Lynite Casting	Aluminum Alloy with Three Rings	Close Grained Cast Iron with Three Rings			
Crankshaft.....	Drop Forged—All Sizes					
Lubrication.....	Splash System Oil Pump, Vertical Plunger Type		Pressure to All Crankshaft, Camshaft and Connecting Rod Bearings			
Water Circulation.....	Thermo-Syphon—All Sizes					
Ignition.....	Magneto	Magneto	"H" and "HS" Models—Magneto Ignition. "R" Models—Battery Ignition			
Governor.....	Centrifugal Type	Centrifugal Type—All Sizes				
OVERALL DIMENSIONS:						
*Length: A.C.....	38 $\frac{1}{2}$ "	37"	45"	60"	61 $\frac{1}{4}$ "	67 $\frac{5}{8}$ "
D.C.....	38 $\frac{1}{2}$ "	39"	45 $\frac{1}{2}$ "	49"	....	57 $\frac{5}{8}$ "
Width: A.C.....	15"	20"	22"	25"	27 $\frac{1}{2}$ "	28 $\frac{3}{4}$ "
D.C.....	15"	20"	21"	22"	....	25 $\frac{1}{4}$ "
Height: A.C.....	24"	27"	32 $\frac{1}{2}$ "	34 $\frac{1}{2}$ "	33 $\frac{1}{8}$ "	36 $\frac{1}{8}$ "
D.C.....	24"	27"	32 $\frac{1}{2}$ "	32 $\frac{1}{2}$"	....	34 $\frac{3}{8}$ "

*In the case of the 1000 watt plant the length includes the starting crank which is not removable. In the case of all other sizes add 7" to the length for crank.

4 AND 6 CYLINDER INDUSTRIAL POWER UNITS**5 TO 40 H.P.****ECONOMICAL, DEPENDABLE MULTI-CYLINDER POWER**

Fairbanks-Morse Industrial Power Units are designed particularly for service in the contracting and industrial fields where the duty is tough and dependability of operation is an all-important consideration.

They are of the vertical type, compact in design, with all important working parts enclosed so that they operate in a bath of oil with a minimum amount of wear, completely protected from the dust and dirt that is usually encountered in the particular fields of service for which the engines are usually sold. In spite of their complete enclosure, however, accessibility of the working parts is a feature that has been carefully preserved throughout.

Gasoline, Kerosene or Gas:—Fairbanks-Morse Industrial Power Units are regularly furnished for operation on gasoline, but on special order they can be furnished, at a slight additional charge for operation on either kerosene or natural gas.

Substantially Built:—These Units are substantially and sturdily built. They are of the light weight, heavy duty type, with all parts sufficiently heavy to withstand the severe strains of continuous full load duty. A cast iron radiator shell, welded steel type base and heavy gauge hood and side panel equipment all contribute to the strength and dependability of these units. Two-tone color combinations, chromium trimmed louvers and plated fittings make them the most attractive power units on the market.

SPECIFICATIONS AND EQUIPMENT



The Power Take-Off end of the FM-65 Electric Start Power Unit. The rear panel shows the oil pressure gauge, starting switch, ignition switch and key, ammeter and governor adjusting screw.

SPECIFICATIONS

Cylinders: Cast iron. Cast Monobloc with crankcase.

Cylinder Heads: Cast iron. Detachable; cast in one.

Crankcase: Cast iron. Integral.

Valves: Intake, nickel steel. Exhaust Silchrome.

Camshaft: Located in crankcase.

Timing Gears: Helical driven from front end of crankshaft. (FM-65 silent chain driven.)

Pistons: Cast iron with 3 rings. (FM-65 and FM-66 aluminum alloy with 4 rings.)

Connecting Rods: Drop forged.

Crankshaft: Drop forged.

Lubrication: Pressure to all crankshaft, camshaft, and connecting rod bearings.

Water Circulation: Thermo-syphon on Models FM-1, FM-2 and FM-3; Centrifugal pump on Models FM-4, FM-5, FM-65 and FM-66.

Ignition: Single, either magneto or battery. (FM-65 furnished for battery ignition only.)

Governor: Centrifugal type.

Direction of Rotation: Counter-clockwise when viewing power take-off end.

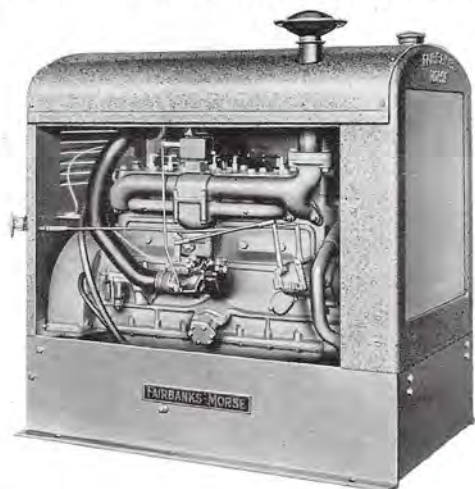
STANDARD EQUIPMENT

- | | |
|--|------------------------------|
| 1. Engine | 8. Starting crank |
| 2. Power take-off | 9. Fuel pump |
| 3. Governor | 10. Carburetor |
| 4. Radiator | 11. Air cleaner |
| 5. Fan | 12. Muffler |
| 6. Magneto with impulse coupling (FM-65, battery ignition) | 13. Instruments and controls |
| 7. Spark plugs, cables and switch | 14. Welded steel frame |
| | 15. Hood and side panels |
| | 16. Tools |

EXTRA EQUIPMENT

Power pulley
Flexible coupling
Stub shaft
Electric starting motor, generator and battery ignition
Automotive choke control and startix
Storage battery (6 volt, 13 plate, 90 A.H. GOULD DR-1)
Instrument panel (when hood and side panels are omitted)
Fuel tank and fittings
Oil filter
Air cleaner (oil bath type)
Single outboard bearing
Sliding rails
Welded steel base with extension for mounting generator or pump
Welded steel base with extension for mounting dual units
Natural gas burning equipment
Kerosene burning equipment

DETAILED DATA AND H.P. RATINGS



Model FM-65 Power Unit equipped with magneto ignition, power take-off and clutch and power pulley. This illustration shows the unit with hood but less side panels.

DETAILED DATA AND HORSEPOWER RATINGS

Engine Model	FM-1	FM-2	FM-3	FM-4	FM-5	FM-65	FM-66
No. of Cylinders.....	4	4	4	4	4	6	6
Bore, inches.....	2 $\frac{5}{8}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	3 $\frac{1}{8}$	3 $\frac{3}{8}$
Stroke, inches.....	3	4	4	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{8}$	4 $\frac{1}{2}$
Displacement, cu. in....	65	78.5	113	173	226.2	201.3	241.8
Oil Sump Capacity, qt.	2	2.5	2.5	4	4	6	6
Cooling Capacity, qts...	7 $\frac{1}{2}$	12	12	18	18	15	16
*Fuel Tank under Hood.	4	5	5	7 $\frac{1}{2}$	7 $\frac{1}{2}$	12	12
Standard Unit:							
Net Weight, lbs.....	390	500	550	840	870	1075	1125
Shipping Weight.....	450	560	630	925	950	1165	1215
Code Word.....	VBACR	VBADS	VBAET	VBAFU	VBAGW	VBAIY	VBALA
Max. Cor- rected	900 R.P.M. 5.5	7.7	10.6	15.3	20.5	20.4	25.0
H.P.	1200 R.P.M. 7.7	10.6	14.5	20.4	27.2	27.6	32.6
(Lab'y.)	1500 R.P.M. 9.5	13.3	18.5	25.1	31.8	33.8	40.4
	1800 R.P.M. 11.5	16.2	22.3	28.5	34.4	40.0	47.0
Rating for	900 R.P.M. 5.0	6.0	9.5	13.8	18.4	18.4	22.5
Max. or	1200 R.P.M. 6.9	9.5	13.1	18.4	24.5	24.8	29.4
or Vari-	1500 R.P.M. 8.6	12.0	16.7	22.6	24.5	34.0	36.4
able Load	1800 R.P.M. 10.4	14.6	20.1	25.7	31.0	36.0	42.3
Rating	900 R.P.M. 4.4	6.2	8.5	12.2	16.4	16.3	20.0
for Con-	1200 R.P.M. 6.2	8.5	11.6	16.3	21.7	22.1	26.1
tinuous	1500 R.P.M. 7.6	10.6	14.8	20.1	25.5	27.0	32.3
Load	1800 R.P.M. 9.2	13.0	17.8	22.8	27.5	32.0	37.6

The above ratings are secured with gasoline having an "Octane" rating of 56-60 under atmospheric conditions 29.92" barometer, 60°F. air temperature and with complete engine accessory equipment as follows: radiator, fan, governor, carburetor, air cleaner, magneto and muffler.

Altitude and Temperature Corrections:—A deduction of 3% for each 1000 ft. of altitude above sea level and of 1% for each 10 degrees of temperature above 60°F. must be allowed in all cases except the continuous duty rating where a deduction is not necessary until an altitude of 3000 ft. is reached.

Power ratings are made and established in accordance with standards adopted by the Internal Combustion Engine Institute.

***Fuel Tank Under the Hood** is furnished only when ordered, at an extra charge. No fuel pump is necessary with this type of tank. Gravity feed.

F-M INDUSTRIAL POWER UNITS

LIST PRICES F. O. B. FACTORY

PRICE OF STANDARD CLOSED TYPE POWER UNIT INCLUDES THE FOLLOWING STANDARD EQUIPMENT:

Engine	Fan	Fuel Pump	Instruments and Controls
Power Take-off	*Magnet with Impulse Coupling	Carburetor	Welded Steel Frame
Governor	Spark Plugs, Cables and Switch	**Air Cleaner	Hood and Side Panels
Radiator	Starting Crank	Muffler	Tools

*The FM-65 is available only for Battery Ignition. Standard Unit Price includes Electric Starting Motor, Generator and Battery Ignition.

**An air cleaner of the dry type is regularly furnished as standard. This is satisfactory for indoor operation where little dust is encountered.

Where the engine is to be used in unusually dusty places a filter of the "oil bath" type (see "Extras" below) should be specified.

ENGINE MODEL USED.....	FM-1	FM-2	FM-3	FM-4	FM-5	FM-65	FM-66
WEIGHTS; STANDARD UNIT: Net, lbs.....	390	500	550	840	870	1075	1125
Shipping, lbs.....	450	560	630	925	950	1165	1215
CRATING CHARGE: Domestic, Net.....	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00
Export, Net.....	15.00	17.00	17.00	19.00	22.00	22.00	22.00
Code Word, STANDARD UNIT.....	VBACR	VBADS	VBAET	VBAFU	VBA GW	VBAIT	VBALA
Price of Standard Closed Type Power Unit.....	\$280.00	\$315.00	\$320.00	\$382.00	\$415.00	\$437.00	\$565.50

DEDUCTIONS AND ADDITIONS

Deduct or add to Standard Closed Type Power Unit price of standard equipment omitted or extra equipment required.

Deduct for the Omission of the Following Standard Equipment:

Power Take-off Complete with Clutch.....	\$37.00	\$39.00	\$43.00	\$45.00	\$54.00	\$54.00	\$54.00
Radiator and Fan.....	39.00	42.00	42.00	48.00	48.00	43.00	43.00
Magnet with Impulse Coupling.....	22.00	22.00	22.00	22.00	32.80	.....	91.00
Fuel Pump.....	3.80	3.80	3.80	3.80	4.85	4.85	4.85
Air Cleaner (Dry Type).....	2.75	2.75	2.90	2.90	3.00	3.00	3.00
Hood and Side Panels.....	15.75	15.75	15.75	20.00	20.00	23.00	23.00

Add for the Addition of the Following Extra Equipment:

Power Pulley.....	8.00	8.00	8.00	9.00	9.50	10.00	10.00
Stub Shaft (Use for Direct Coupled Drive only).....	10.00	10.00	10.00	12.50	15.00	15.00	15.00
Twin Disc Gear Red. Units, for Engine Rotation:							
Model No.....	7944	7677	7677	7677	8164	8164	8164
Type.....	GT-6	C8-5	C8-5	C8-4	C8-4	C8-4	C8-4
Reductions.....	2.56:1	2.00:1	2.00:1	2.00:1	2.00:1	2.00:1	2.00:1
Price.....	3.05:1	2.85:1	2.85:1	2.85:1	2.85:1	2.85:1	2.85:1
Price.....	4.10:1	3.90:1	3.90:1	3.90:1	3.90:1	3.90:1	3.90:1
Price.....	\$74.50	\$92.00	\$92.00	\$93.50	\$97.50	\$97.50	\$97.50
Twin Disc Gr. Red. Units for Anti-Eng. Rotation:							
Model No.....	7946	7672	7672	7672	8163	8163	8163
Type.....	GT-6	C8-5	C8-5	C8-4	C8-4	C8-4	C8-4
Reductions.....	2.11:1	2.00:1	2.00:1	2.00:1	2.00:1	2.00:1	2.00:1
Price.....	3.10:1	2.85:1	2.85:1	2.85:1	2.85:1	2.85:1	2.85:1
Price.....	4.09:1	3.90:1	3.90:1	3.90:1	3.90:1	3.90:1	3.90:1
Price.....	\$76.50	\$80.50	\$80.50	\$82.00	\$86.00	\$86.00	\$86.00
Flexible Coupling (Shaft Type).....	15.00	15.00	15.00	18.00	22.00	22.00	22.00
Flexible Coupling (Flywheel Type).....	15.00	15.00	15.00	18.00	19.00	19.00	19.00
Elec. Starting Motor, Gen. and Bat. Ignition.....	54.00	57.80	57.80	57.80	57.80	Std.	60.50
Automatic Choke and Startix.....	21.25	21.25	21.25	21.25	22.00	23.00	23.00
Stor. Bat. (6 V., 13 pl., 90 A.H. Gould DR-1).....	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Inst. Panel (when Hood & Side Pan. are omitted).....	5.40	5.40	5.40	5.40	5.40	6.00	6.25
†Fuel Tank (under Hood)..... (Gals.)	4	5	5	7½	10	12	12
Price.....	9.75	10.25	10.25	12.50	12.50	15.00	15.00
Fuel Tank, 55 gal.....	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Fittings for use with 55 Gal. Fuel Tank.....	10.75	10.75	10.75	10.75	10.75	10.75	10.75
*Add for Water Circulating Pump.....	12.00	20.00	20.00	Std.	Std.	Std.	Std.
Oil Filter.....	.....	10.60	10.60	18.65	18.65	11.30	11.30
Air Cleaner (Oil Bath Type).....	17.20	17.20	17.20	17.20	17.20	17.20	17.20
Single Outboard Bearing.....	71.00	71.00	71.00	71.00	71.00	71.00	71.00
Siding Rails.....	20.00	20.00	20.00	25.00	25.00	25.00	27.50
Welded Base with Ex. for mtg. Gen. or Pump.....	42.50	42.50	44.00	46.50	46.50	49.00	49.00
Welded Steel Base with Ex. for Mtg. Dual Units.....	96.00	100.00	104.00	106.00	106.00	109.00	109.00
Natural Gas Burning Equipment: (High compression Cylinder Head, Venturi Type Mixing Valve and Atmospheric Pressure Regulator).....	20.00	25.00	25.00	30.00	34.75	34.75	34.75
Kerosene Burning Equipment.....	13.50	15.25	15.25	22.00	25.00	25.00	25.00

Soft or treated water only should be used in the engine cooling system.

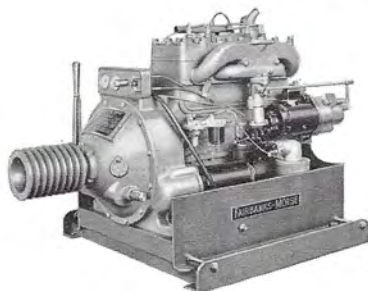
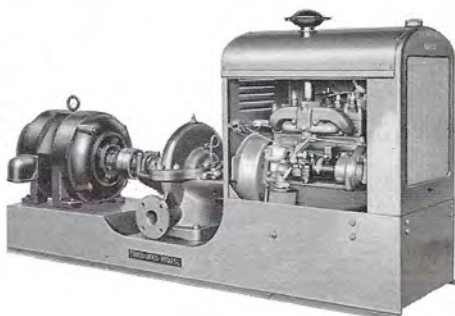
Electric Starting and Ignition Equipment price does not include Storage Battery.

†No Fuel Pump is necessary when this Overhead Fuel Tank is used.

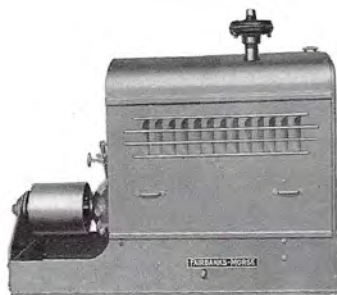
*The water in the case of the FM-1, FM-2 and FM-3 units is ordinarily circulated by the thermo-syphon method. The circulating pump must be added only when the radiator and fan are omitted and a closed type of cooling system is substituted.

SOME APPLICATIONS OF F-M POWER UNITS

A dual drive combination. In the center a $2\frac{1}{2}$ " Fairbanks-Morse centrifugal pump, clutch connected on one end to a F-M 15 H.P. motor and on the other end to a FM-3 power unit which is thrown into operation as emergency power in the event of failure of the electric current supply.



Left:—FM-4 unit less radiator but with electric starting equipment and sheave for V-belt drive. This illustration also shows the sliding rails available on special order.



Above:—FM-5 with extended base, outboard bearing, power pulley and power take-off. This is the assembly recommended where pulleys of face wider than the maximums shown on dimension sheet are used.

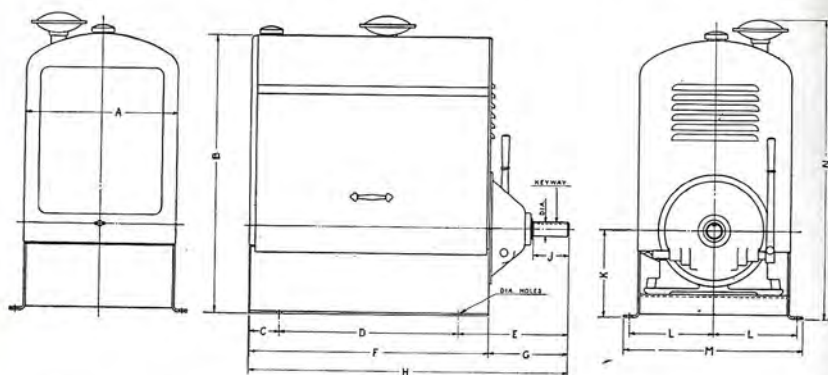


Above:—FM-1 standard unit showing power take-off and oil pressure gauge.

Right:—FM-4 with extended base direct coupled to a Fairbanks-Morse 4" centrifugal pump. Capacity 600 G.P.M. against a 93 ft. head operating at 1550 R.P.M.



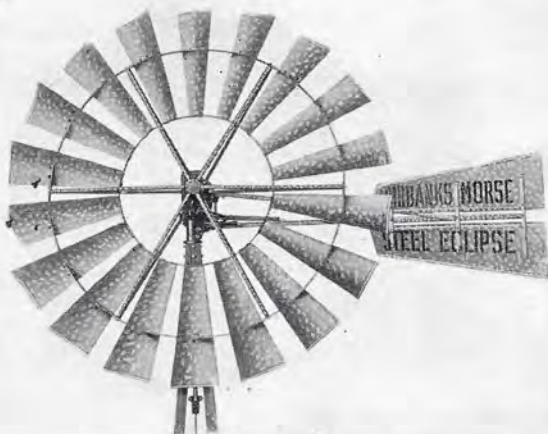
GENERAL DIMENSIONS—F-M POWER UNITS



Model	A	B	C	D	E	F	G	H	K	L	M
FM-1	17½	29½	2¾	21¼	10½	26½	7¾	34½	9	9¾	21
FM-2	19½	34¾	3¾	22¾	13½	29¾	9½	39½	11	10½	22½
FM-3	19½	34¾	3¾	22¾	13½	29¾	9½	39½	11	10½	22½
FM-4	21½	38¾	3½	29	13½	36¼	10	46¾	11¼	11¾	25
FM-5	21½	38¾	3½	29	13½	36¼	10	46¾	11¼	11¾	25
FM-65	24½	39¾	3¾	33½	13½	41½	10½	51¼	11¼	13	27½
FM-66	24½	39¾	3¾	33½	13½	41½	10½	51¼	11¼	13	27½

Model	N	Dia. Holes	Power Take-off Shaft			Stub Shaft			Pulley Diameter		
			Dia.	Lgth. (J)	Key-way	Dia.	Lgth.	Key-way	Min.	Max.	Belt Width
FM-1	31½	¾	1.4375" 1.4365"	3½"	¾"x¾"	1.4375" 1.4365"	5¾"	¾"x¾"	5"	10"	4"
FM-2	37½	1½	1.750" 1.749"	4½"	1½"x1½"	1.4375" 1.4365"	5¾"	¾"x¾"	5"	10"	4"
FM-3	37½	1½	1.750" 1.749"	4½"	1½"x1½"	1.4375" 1.4365"	5¾"	¾"x¾"	6"	12"	5"
FM-4	42¾	1½	1.750" 1.749"	4½"	1½"x1½"	1.4375" 1.4365"	5½"	¾"x¾"	6"	12"	6"
FM-5	42¾	1½	1.875" 1.874"	4½"	1½"x1½"	1.4375" 1.4365"	5½"	¾"x¾"	6"	12"	6"
FM-65	46½	1½	1.875" 1.874"	4½"	1½"x1½"	1.7505" 1.7495"	5"	1½"x1½"	6"	12"	6"
FM-66	46½	1½	1.875" 1.874"	4½"	1½"x1½"	1.7505" 1.7495"	5"	1½"x1½"	6"	12"	6"

MODEL 33—NEW ECLIPSE WINDMILLS



SPECIFICATIONS—MODEL 33 WINDMILL

Mechanism—Simple—few working parts. No oil pump, springs, valves or rings to get out of order. No old style pitmans or crank-pins to wear.

Self oiling—Pivot housing serves as an oil reservoir. Fins on the large gear distribute the oil. See illustration.

Pivot Housing—Completely enclosed to protect mechanism and oil from rain, sleet, snow and dirt.

Ball Bearing Turntable—Furnished as regular equipment on all sizes. Enables the mill to turn easily into the wind.

Bearings—All bearings are bored and reamed. Outer and inner wheel shaft bearings can be removed and replaced while the mill is in place on the tower.

Shafts—Wheel shaft is of cold rolled steel. Crankshaft is cold rolled steel shafting.

Back Gear Reduction—Approximately 3 to 1; that is when wheel turns at 120 R.P.M. pump will operate at approximately 40 complete strokes per min.

Brake—Internal spring brake entirely stops rotation of wheel when out of wind.

Wheel Sails—Heavy gauge galvanized steel curved and locked in position for maximum efficiency.

Wheel Spider—Keyed to forward end of wheel shaft—pressure fitted.

Wheel Girts—Bolted to the wheel arms. Arms bolted to wheel spider by means of galvanized carriage bolts.

Size Mill	Gauge of Material In Wheel	In Vane	Wheel Bolts	Spider Bolts
6'	20	24	$5\frac{1}{16}$ "	$5\frac{1}{16}$ "
8'	20	24	$5\frac{1}{16}$ "	$5\frac{1}{16}$ "
10'	20	24	$5\frac{1}{16}$ "	$7\frac{1}{16}$ "
12'	18	20	$5\frac{3}{8}$ "	$7\frac{1}{16}$ "
*14'	16	22	$5\frac{3}{8}$ "	$1\frac{1}{2}$ "
*16'	16	22	$5\frac{3}{4}$ "	$1\frac{1}{2}$ "

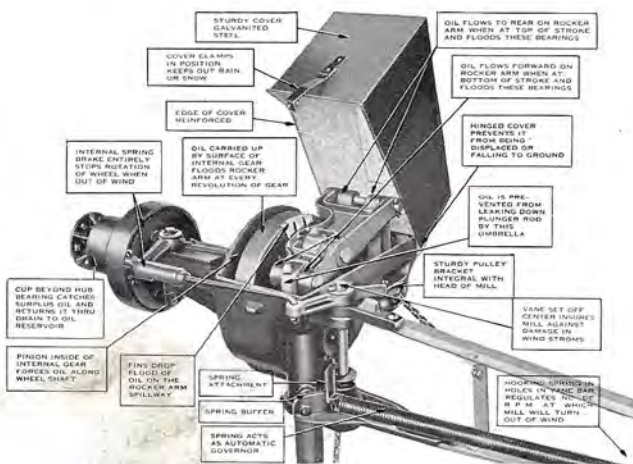
*Type "WG" worm gear mills. See next page for illustration.

PRICES—MODEL 33 NEW ECLIPSE WINDMILLS

These prices cover the mill complete with ball bearing collar or turntable, 36 feet of pump pole, pull-out chain, sufficient pull-out wire for a 40 foot tower, pump pole swivel, ratchet wheel windlass and sufficient special grade oil for one filling of pivot head. Automatic pump slide included with all sizes up to and including the 12 ft.

Size	Length of Stroke	Quantity of Oil Furnished with Mill	Code Word	Shipping Wt., Lbs.	Sales Price F.O.B. Factory
6 Ft.	$5\frac{5}{8}$ "	1 Qt.	VLIXO	270	\$32.50
8 Ft.	$5\frac{5}{8}$ "	1 Qt.	VLIIY	325	42.00
10 Ft.	$6\frac{1}{4}$ "	3 Pts.	VLJAN	445	65.00
12 Ft.	8"	3 Qts.	VLJBR	1090	117.50

CAPACITIES—ECLIPSE WINDMILLS



The interior of the pivot head of the Model 33 windmill—available in 6, 8, 10 and 12 foot sizes

* CAPACITIES OF ECLIPSE WINDMILLS

Size Ft.	Apprx. No. of Strokes Per Minute	Lgth. of St'ke in Inch	** 25' Head or 10.8 lbs. Pressure		** 50' Head or 21.7 lbs. Pressure		** 75' Head or 32.5 lbs. Pressure		** 100' Head or 43.4 lbs. Pressure		** 125' Head or 54.2 lbs. Pressure	
			Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour
6	28	5 5/8	3	288	2 1/2	200	2	129	1 3/4	98	1 1/8	121
8	30	5 5/8	3 3/4	485	2 3/4	261	2 1/4	168	2	138	2	123
10	24	6 1/4	4 1/2	625	3 1/4	326	2 3/4	236	2 1/4	156	2 1/2	204
12	20	8	5 1/2	987	4	521	3 1/4	345	2 3/4	246	3	330
14	17	10 1/2	6 1/2	1550	4 3/4	830	3 3/4	516	3 1/4	388	3 1/2	450
16	15	12	7 1/2	2064	5 1/2	1104	4 1/2	744	3 3/4	516		

Size Ft.	Apprx. No. of Strokes Per Minute	Lgth. of St'ke in Inch	** 150' Head or 65.1 lbs. Pressure		** 200' Head or 86.7 lbs. Pressure		** 250' Head or 108.25 lbs. Pressure		** 300' Head or 129.93 lbs. Pressure		** 350' Head or 151.73 lbs. Pressure	
			Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour	Inside Diam. of Cylinder in inches	U.S. Gals. pumped per hour
6	28	5 5/8	1 3/4	105	1 3/4	95	1 3/4	100	1 1/2	128	1 3/4	110
8	30	5 5/8	1 7/8	108	2	131	1 3/4	147	1 3/4	186	2	147
10	24	6 1/4	2 1/4	165	2 1/4	186	2 1/2	229	2 1/4	278		
12	20	8	2 3/4	278	2 3/4	278						
14	17	10 1/2	3 1/4	388								
16	15	12										

*Based on a wind velocity of 15 miles per hour and loaded to start in a seven mile wind.

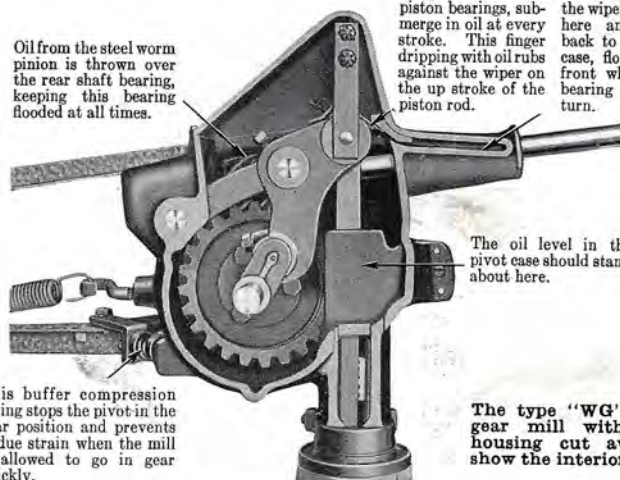
**This is the depth below ground to water plus height above ground at which water is discharged.

14' AND 16' TYPE "WG" ECLIPSE MILLS

Oil from the steel worm pinion is thrown over the rear shaft bearing, keeping this bearing flooded at all times.

The double arms of the pitman with the piston bearings, submerge in oil at every stroke. This finger dripping with oil rubs against the wiper on the up stroke of the piston rod.

And the oil from the wiper flows out here and drains back to the pivot case, flooding the front wheel shaft bearing on its return.



The type "WG" worm gear mill with pivot housing cut away to show the interior design

PRICES 14' AND 16' TYPE "WG" ECLIPSE WINDMILLS

Size	Length of Stroke	Quantity of Oil Furnished with Mill	Code Word	Shipping Wt., Lbs.	Price
14 Ft.	10½"	3 Gals.	VLIVM	1558	\$222.50
16 Ft.	12"	5 Gals.	VLIVN	2038	325.50

Steel Eclipse Zero Test Windmill Oil

Sufficient Fairbanks-Morse Eclipse Windmill Oil for the initial filling of the mill is included with every windmill shipment. The mill should be drained and new oil supplied once every year. Price of the oil is as follows: Outfit Number—5730—1 gal. container . . . Price ea. \$1.25
5731—5 gal. container . . . 4.60

MOUNTING OF STEEL ECLIPSE MILLS ON TOWERS OF OTHER MAKE:

When it is desired to mount the 6, 8, 10 or 12 ft. Eclipse mill on a tower of another make, the necessary adapters will be furnished with the mill without charge provided the make of tower is specified on the order. On the 14 ft. and 16 ft. mills, or for field adaptation of the 6, 8, 10 and 12 ft. mills, the extra charge for the necessary adapters will be as follows: **Always specify make of tower and number of posts.**

	6'		8'		10'		12'		14'-16' Mills	
	Symbol	Price	Symbol	Price	Symbol	Price	Symbol	Price	Symbol	Price
4-POST TOWERS										
Woodmanse.....	8159	\$1.50	8171	\$1.50	8183	\$1.75	8195	\$2.50	5207	\$2.00
F. & W.....	8160	1.50	8172	1.75	8184	1.75	.....	.....	5207	2.00
Butler.....	8161	1.50	8173	1.75	8185	1.75	.....	.....	5207	2.00
Aermotor.....	8162	2.50	8174	2.75	8186	2.75	8196	3.50	5207	2.00
Dempster.....	8163	1.50	8175	1.75	8187	1.75	.....	.....	5207	2.00
Dandy.....	8164	1.50	8176	1.75	8188	1.75	.....	.....	5207	2.00
Diamond.....	8165	1.50	8177	1.75	8189	1.75	.....	.....	5207	2.00
Freeman.....	8166	1.50	8178	1.75	8190	1.75	.....	.....	5207	2.00
Stover.....	8167	1.50	8179	1.75	8191	1.75	.....	.....	5207	2.00
I X L.....	8168	1.50	8180	1.75	8192	1.75	.....	.....	5207	2.00
3-POST TOWERS										
Goodhue.....	8169	1.50	8181	1.75	8193	1.75	.....	.....	5207	2.00
Aermotor.....	8170	2.50	8182	2.50	8194	2.50	.....	.....	5207	2.00

Note:—The Model 33 8 Ft. and 10 Ft. Eclipse mills have 2" mast pipe. These mills can be mounted on any tower designed for a 2" pipe by simply ordering an Eclipse ball race collar. In a case of that kind be sure to use the storm stay that regularly comes with the Eclipse.

The 6 Ft. Model 33 Eclipse can be mounted on a bed plate designed for 2" mast pipe by ordering a reducing bushing to take the 1½" mast pipe of the 6 Ft. mill.

EXTRA LENGTHS WOOD PUMP POLE

If pump pole beyond the 36 ft. regularly furnished with the mill is required, there will be an extra charge as follows:

Size Pole	Length Feet	USED WITH	Price per Length	Price, Splice Plates, Each
1½"x1½"	12	6, 8 and 10 Ft. Mills....	\$.60	\$.25
1½"x1½"	12	12 Ft. Mill.....	.90	.40
2"x2¼"	12	* 14 and 16 Ft. Mills....	2.06	.20

4 POST GALVANIZED STEEL TOWERS

(CROSS GIRTS EVERY 5 FEET)

FOR ECLIPSE WINDMILLS

These prices cover tower complete with anchor posts, braces, platform, ladder and cross girts at 5 foot intervals throughout height of the tower. No pump pole or pull-out wire included as this equipment is furnished with windmill.

MILL	Tower Symbol	Outfit No.	Height, Ft.	Code Word	Approx. Shipping Weight, Lbs.	Sales Price F.O.B. Factory
For 6 or 8 Foot Mills	No. 1-F 2"x2"x $\frac{1}{8}$ " Angle Steel Corners	5221	20	VLMNA	280	\$29.40
		5222	30	VLMPB	420	42.00
		5223	40	VLMRE	600	55.00
		5224	*50	VLMSE	790	78.75
		5225	*60	VLMTG	1100	101.00
For 6, 8 or 10 ft. Mills	No. 2-F 2 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{1}{8}$ " Angle Steel Corners	5226	20	VLMUH	340	\$31.50
		5227	30	VLMVI	500	45.25
		5228	40	VLMWJ	700	59.75
		5229	**50	VLMXK	1000	83.00
		5230	**60	VLMYL	1315	110.25
For 12 Foot Mills	No. 3-F 2 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{1}{8}$ " Angle Steel Corners	5233	20	VLNBN	410	\$42.00
		5234	30	VLNCO	650	59.75
		5235	40	VLNDP	925	80.85
		5236	***50	VLNER	1200	109.20
		5237	***60	VLNFS	1600	139.50
For 14 or 16 ft. Mills	No. 4-F 3"x3"x $\frac{3}{16}$ " Angle Steel Corners	5240	20	VLNIV	650	\$64.00
		5241	30	VLNJW	1150	92.40
		5242	40	VLNKK	1300	119.75
		5243	†50	VLNLY	1700	154.50
		5244	†60	VLNMZ	2250	197.05

*The lower 10' section of the 50' No. 1-F tower and the lower 20' section of the 60' tower are made of 2 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{1}{8}$ " angles.

**The lower 10' section of the 50' No. 2-F tower and the lower 20' section of the 60' tower are made of 3x3x $\frac{1}{8}$ " angles.

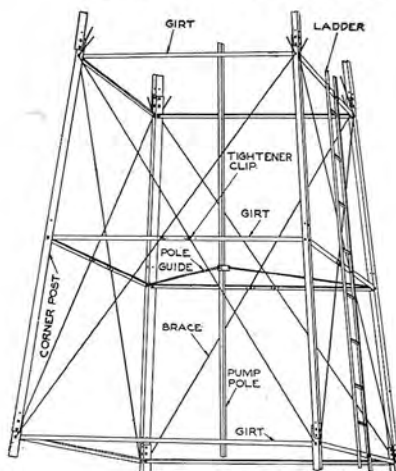
***The lower 10' section of the 50' No. 3-F and the lower 20' section of the 60' No. 3-F are made of 2 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{3}{16}$ " angles.

†The lower 10' section of the 50' No. 4-F and the lower 20' section of the 60' No. 4-F are made of 3"x3"x $\frac{1}{4}$ " angles.

STUB TOWERS

Outfit No.	Height, Ft.	DESCRIPTION	Code Word	Approx. Shipping Weight, Lbs.	Sales Price F.O.B. Factory
5248	4	For 6 Ft. and 8 Ft. Mills	VLOPA	40	\$4.75
5249	5	For 10 Ft. Mills.....	VLORC	50	5.25
5315	.....	Angle Feet (Set of 4).....	VLOGG	.....	1.00
5250	12	For 8 Ft. and 10 Ft. Mills (Including Platform and Angle Feet).....	VLOSD	125	20.20

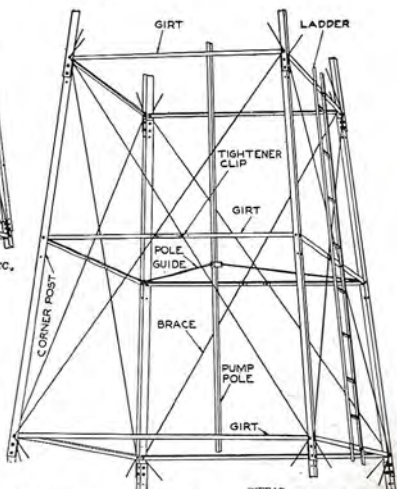
TYPE "F" TOWERS FOR ECLIPSE WINDMILLS



TYPICAL 10 FT. SECTION OF TOWER SHOWING BRACES, PUMP POLE GUIDE, ETC., FOR TOWERS ERRECTED IN PLACE. (99EBA)

Ease of Erection:—The towers may be assembled "on the ground" and raised into place by means of a sheer or gin pole or they may be built "in place" from the ground up, section by section. All corner posts are punched to permit of either method of erection.

When erected "in place" the cross girts are placed **below** the splice throughout the entire length of the tower as illustrated at the left above. When erected "on the ground" the cross girts are placed **above** the splice throughout the entire length of the tower as illustrated to the right.

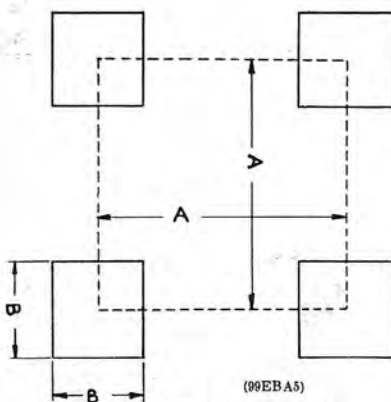


TYPICAL 10 FT. SECTION OF TOWER SHOWING BRACES, PUMP POLE GUIDE, ETC., FOR TOWERS ASSEMBLED ON THE GROUND AND RAISED INTO PLACE. (99EBA)

Base spread for guidance in digging holes is as follows:

Height of Tower	(A) Girts above Splice	(A) Girts below Splice
10 ft.	25½"	24¼"
20 ft.	48½"	47¼"
30 ft.	71¾"	70½"
40 ft.	94¼"	93"
50 ft.	117¾"	116½"
60 ft.	141¾"	140½"
70 ft.	169"	167¾"
80 ft.	194"	192¾"

These above dimensions are for the top end of anchor posts, not the lower end in concrete. The spread at the lower end would be approximately 11½" wider. Four holes each about 4'-6" deep are necessary to anchor the Nos. 1, 2 and 3 towers. In the case of the No. 4 tower the hole should be 5'-6" deep.



DIMENSIONS OF ANCHOR POST HOLES (99EBA5)

SUBURBAN TOWERS

FOR 6', 8' OR 10' ECLIPSE WINDMILLS



F-M Eclipse Mill on Suburban Tower

A complete suburban or elevated tank windmill outfit consists of the following items:

1. Windmill (Page 43)
2. Tower (Table 1 below)
3. Tank (Table 2 next page)
4. Roof (Table 3 next page)

1. PRICES—SUBURBAN TOWERS—F. O. B. FACTORY

(Girts every 5 feet)

These prices do not include the windmill or the storage tank but they do include the wood joists to support the tank in the tower.

When ordering the windmill to go with these towers, order the mill "with adapters to mount on F-M Suburban Tower."

Height	Elevates Tank	To Receive Tank Size	Weight of Tower	Outfit No.	Price of Tower Only
30'	15'	8 bbl.	850	9030	\$71.00
40'	25'	8 bbl.	1100	9031	92.00
50'	35'	8 bbl.	1450	9032	121.00
40'	20'	20 bbl.	1050	9033	88.00
50'	30'	20 bbl.	1375	9034	115.00
60'	40'	20 bbl.	1750	9035	147.00
70'	50'	20 bbl.	2100	9036	176.00
80'	60'	20 bbl.	2475	9037	207.00
50'	20'	63 bbl.	1550	9038	130.00
60'	30'	63 bbl.	1950	9039	163.00
70'	40'	63 bbl.	2400	9040	201.00
80'	50'	63 bbl.	2775	9041	235.00

SUBURBAN TOWERS AND TANKS

(CONTINUED)

2. TAPER TOWER TANKS (WITHOUT ROOFS)

Tank prices include 2" center pipe and flanges. Roof for tank is extra. See Table 3 below.

	1½" Cypress			2" Cypress		
	Outfit No.	Shipping Weight	Price	Outfit No.	Shipping Weight	Price
8 bbl.....	9021	320	\$ 42.00	9024	425	\$ 53.00
20 bbl.....	9022	785	73.00	9025	985	96.00
63 bbl.....	9023	1375	117.00	9026	1775	154.00

	*Galv. Steel		
	Outfit No.	Shipping Weight	Price
8 bbl.....	9027	110	\$26.00
20 bbl.....	9028	250	48.00
63 bbl.....	9029	550	74.00

*Steel tanks are of No. 20 gauge, copper bearing galvanized sheet steel. If heavier material is wanted, add 30% for 18 gauge and 60% for 16 gauge material.

3. ADD FOR CONICAL TANK ROOF

Frequently the purchaser will elect to build his own roof for the tank, hence tanks are regularly priced less the roof. If roof is desired with the tank, add as follows:

	Composition Roof			Board Roof		
	Outfit No.	Shipping Weight	Price	Outfit No.	Shipping Weight	Price
8 bbl.....	9060	95	\$ 5.00	9063	85	\$ 4.00
20 bbl.....	9061	200	8.00	9064	155	7.00
63 bbl.....	9062	340	14.00	9065	240	12.00

	Steel Roof		
	Outfit No.	Shipping Weight	Price
8 bbl.....	9066	40	\$ 5.00
20 bbl.....	9067	85	9.00
63 bbl.....	9068	110	18.00

Steel roof can be used for either wood or steel tank. Composition roof is board roof with composition cover.

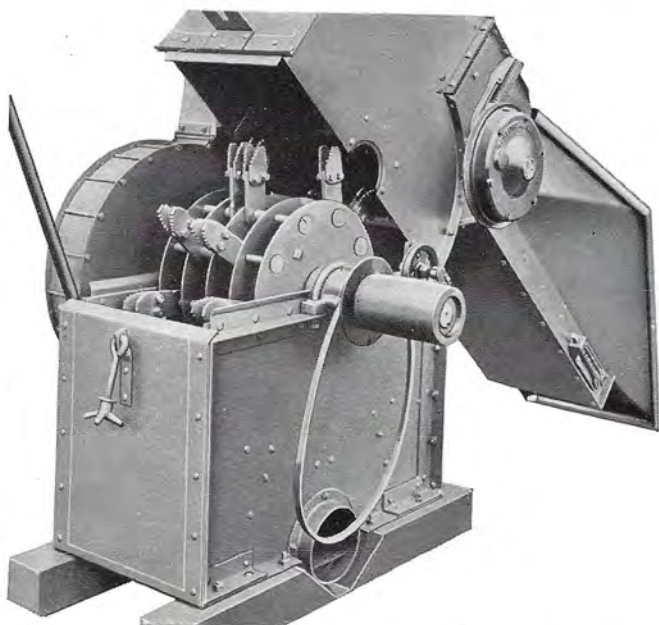
MAKE FOUR BUSHELS DO THE WORK OF FIVE!**FAIRBANKS-MORSE HAMMER MILLS
WITH 2-YEAR GUARANTEED HAMMERS**

Every stock feeder knows that feeding whole grain to live stock is a costly practice. On an average, out of every 100 bushels that are fed whole, about 20 bushels are wasted due to incomplete mastication. In the case of small hard grains, such as barley, rye, wheat, kaffir corn or milo maize, or if the animal has poor teeth or a sore mouth the percentage will run much higher than this. This means not only the loss of the grain to the stock man—it means a loss of energy to the animal. It means light weight and poor finish at market time—it means smaller yield from the milch cows: it means fewer eggs per day on the chicken ranch. In every case the stock feeder is the loser.

Fairbanks-Morse Model 36 Hammer Mills, described on the pages following, will soon pay for themselves in feed saved and added profits. They are designed to grind either small grains or roughage, thereby making it possible to mix together in a palatable, appetizing feed the higher priced concentrates with the lower priced roughages, encouraging the animal to consume larger quantities with less waste. If steers are being fed for market, this means a shorter feeding period, earlier shipment and a better finish. In the case of the dairy cow, it means the cow, after getting the required nourishment for the maintenance of her body, has a greater surplus of raw materials for the manufacturer of milk.

Feeding experts everywhere emphasize the necessity of grinding and mixing for maximum results—on the dairy farm, the stock farm, the chicken ranch—wherever there is stock or poultry to be fed. *It never fails to pay!*

MADE IN 4 SIZES—WITH OR WITHOUT BLOWER



The No. 500 Hammer Mill with Housing Tipped Back to Show the Cylinder Construction

The Fairbanks-Morse Model 36 Hammer Mill is made in four sizes: Nos. 140, 320, 500 and 600, to work with drivers all the way from 5 H.P. to 50 H.P. There is, therefore, in the Fairbanks-Morse line, a mill to meet the requirements of almost any stock feeder or custom mill operator.

The mills are available with or without the blower attachment. While the blower method of conveying the ground material away from the mill is a desirable convenience, it is not necessary for the farmer to invest in this part of the equipment at the outset if he desires to keep the initial cost as low as possible. The mill alone may be installed now and immediate advantage taken of the many benefits a Fairbanks-Morse Hammer Mill affords. The blower and feed collector equipment may be attached later if desired.

TWO YEAR GUARANTEED HAMMERS

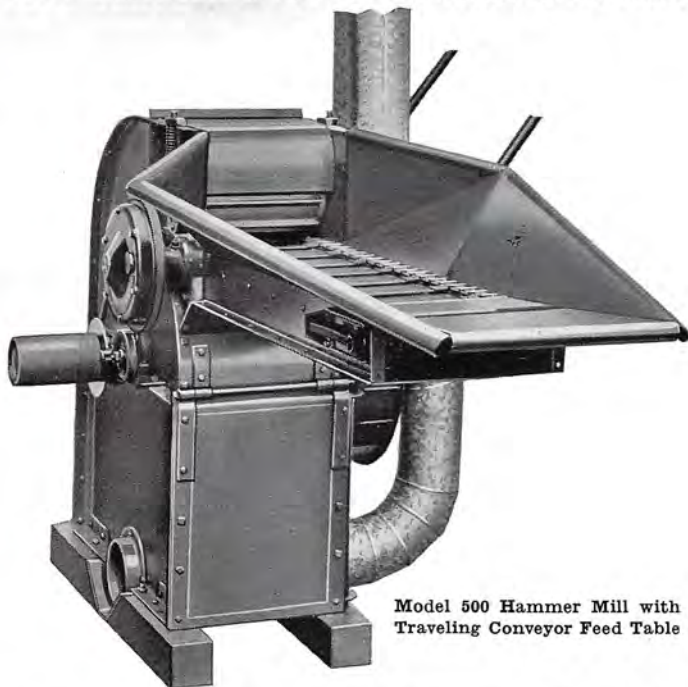
If the hammers on any model 36 Fairbanks-Morse Hammer Mill wear, in less than two years time, to the point that the serrations on both sides have become obliterated, they will be replaced without charge, f.o.b. factory provided the worn hammers are returned to our plant for inspection, transportation charges prepaid.

This guaranty applies only to the mills when used in ordinary farm use. It does not apply if the mill is used for grinding material other than grains or roughage.

It is further understood that not more than one set of hammers per mill will be replaced gratis under the terms of this guaranty.



WITH TRAVELING TABLE OR HAND FEED TRAY

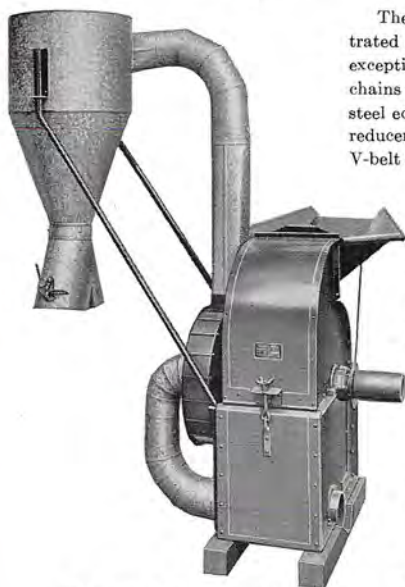


**Model 500 Hammer Mill with
Traveling Conveyor Feed Table**

The traveling conveyor type all-metal feed table illustrated above is available for all Model 36 mills with the exception of the No. 140. The riddles are of steel, and the chains to which the riddles are attached are of heat-treated steel equipped with automatic tension take-up. The speed reducer, which operates the chain, is driven by means of a V-belt from the hammer mill shaft.

The traveling conveyor table has several advantages over the hand feed tray. In the first place, it regulates the flow of material into the cylinder of the mill. Thus when grinding small grains a whole bushel basket of the grain can be dumped on the feed table and the riddles on the conveyor will carry it uniformly into the cylinder.

On roughage the conveyor likewise handles the material in smooth and even fashion. The feed roll, which is positively driven from the speed reducer shaft, is provided with angle strips which act as teeth and draw the roughage into the cylinder in a uniform, positive manner without the "grabbing", "slugging", or congestion at the throat of the mill that is apt to take place when material of this sort is hand fed.



**Model 500 Hammer Mill complete
with Hand Feed Tray,
Blower and Collector.**

PRICES—MODEL 36 HAMMER MILLS

Nos. 320, 500 and 600
ORDER BY OUTFIT NUMBER

1. MILL ONLY—with Hand Feed Table. (Blower, Feed Collector and Piping not included)

Size Mill	Pulley		Domestic	Export Data			Code Word	Outfit Number	Price F.O.B. Factory
	Diam.	Face	Approx. Shpg. Wt. Lbs.	Approx. Gross Wt., Lbs.	Approx. Net Wt., Lbs.	Cubic Feet			
320	4½"	6"	320	430	320	31	VLABA	320	\$72.00
500	4½"	7"	420	550	420	36	VLACB	500	86.00
600	4½"	8"	450	600	450	42	VLADC	600	113.50

2. MILL COMPLETE with Blower and Feed Collector (Hand Feed Table).

320	4½"	6"	400	.....	.....	.....	VLAAH	320BC	95.00
500	4½"	7"	528	.....	.....	.....	VLAII	500BC	110.00
600	4½"	8"	585	.....	.....	.....	VLAJJ	600BC	140.00

3. MILL COMPLETE as in Table 2 above but less Feed Collector.

320	4½"	6"	360	530	360	48	VLAUU	320B	\$83.50
500	4½"	7"	470	670	470	56	VLAVV	500B	97.75
600	4½"	8"	530	740	530	60	VLAWW	600B	129.00

4. MILL with Conveyor Type Feed Table and Blower and Feed Collector Equipment.

320	4½"	6"	585	.....	.....	.....	VLBGF	320TBC	151.00
500	4½"	7"	682	.....	.....	.....	VLBGH	500TBC	170.00
600	4½"	8"	795	.....	.....	.....	VLBIH	600TBC	207.00

5. WAGON BOX EXTENSION.

Make the following additions to price of standard sacking layouts for extra 36" length of pipe and extra long Feed Collector supports when Wagon Box extension is wanted. Swivel spout instead of sacking attachment will be furnished with all outfits ordered with wagon box extension unless otherwise specified. When both sacker and swivel spout are wanted, the addition below will be \$6.00 instead of \$4.00.

320	.....	.....	15	.....	.....	.....	VLBUT	8200	\$ 4.00
500	.....	.....	15	.....	.....	.....	VLBVU	8201	4.00
600	.....	.....	15	.....	.....	.....	VLBWV	8202	4.00

POUNDS PER HOUR AVERAGE CAPACITIES

		Mill No. 320	Mill No. 500	Mill No. 600
		17 H.P.	22 H.P.	40 H.P.
Material	Screen	Lbs. per Hr.	Lbs. per Hr.	Lbs. per Hr.
Oats.....	3/32"	600—750	1000—1200	1400—1800
	1/8"	750—875	1200—1400	2000—2400
	3/16"	1500—1800	2500—3000	3500—4000
	1/4"	2000—2400	4000—4500	5200—6600
Wheat and Barley.....	1/8"	950—1050	1700—2000	3800—4000
	3/16"	1900—2200	3400—3650	4500—4700
	1/4"	2500—2700	5300—5700	6700—7200
Shelled Corn.....	1/8"	2700—2900	6500—8000	8500—9500
	3/16"	3100—3900	9500—12500	12000—14000
	1/2"	4200—4750	12500—14000	14000—16000
	3/4"	5000—5500	14000—16000	16000—18000

POUNDS PER HOUR AVERAGE CAPACITIES (Continued)

Material	Screen	Horse Power	Mill No. 320	Mill No. 500	Mill No. 600
			17 H.P.	22 H.P.	40 H.P.
			Lbs. per Hr.	Lbs. per Hr.	Lbs. per Hr.
Ear Corn.....	$\frac{3}{8}$ "		2500—2650	3800—4250	6000—6400
	$\frac{1}{2}$ "		2800—3250	4550—5400	7500—9000
	1"		3600—3900	6500—7000	10000—12500
Alfalfa.....	$\frac{1}{2}$ "		750—900	2050—2300	2600—2700
	$\frac{3}{4}$ "		1300—1550	2300—2650	2700—2900
	1 $\frac{1}{4}$ "		1550—1850	2650—3500	3100—3400
Corn Stalks.....	$\frac{3}{4}$ "		1000—1200	1200—1400	2400—2600
	1"		1400—1600	1800—2000	2800—3000
	1 $\frac{1}{4}$ "		1600—1800	2000—2500	3000—3400

Screens:—A screen of $\frac{1}{4}$ " mesh (unless otherwise specified) is included as standard equipment with all size mills, Nos. 140, 320, 500 and 600. The following special mesh screens are regularly carried in stock for prompt shipment:— $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1" and $1\frac{1}{4}$ ".

Price each.....
 Extra fine mesh screens available on special order,
 (complete with re-inforcing frame), sizes $\frac{1}{32}$ ",
 1/24" and 1/20". Price each.....

140 Mill \$2.50 320 Mill \$3.00 500 Mill \$3.50 600 Mill \$4.00
 \$3.50 \$6.00 \$6.00 \$6.00

*The $1\frac{1}{4}$ " screen is not available for the No. 140 mill. The $\frac{1}{16}$ " screen is not regularly furnished with re-inforcing frame but the re-inforcement is advisable particularly on the No. 500 and 600 mills. Any of the extra fine mesh screens may be ordered without the re-inforcing frame if desired, at the standard screen price, and a standard 1" or $1\frac{1}{4}$ " mesh screen used instead of the regular re-inforcing frame to give the fine mesh screen its needed mechanical re-inforcement.

MODEL 36—HAMMER MILL—SPECIFICATION DETAILS

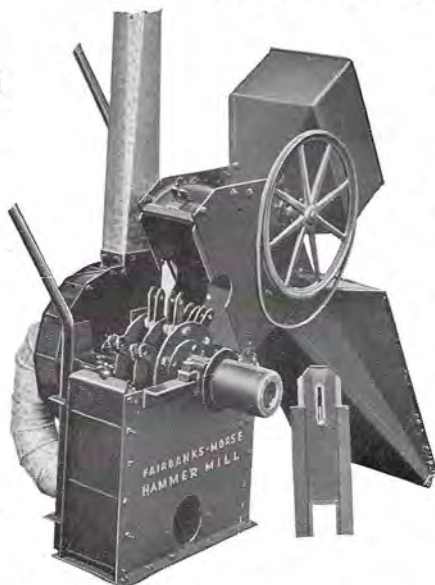
	No. 320 Mill	No. 500 Mill	No. 600 Mill
Feed Opening.....	8x9 $\frac{1}{2}$ "	12x9 $\frac{1}{2}$ "	15x9 $\frac{1}{2}$ "
Size of Screen.....	7 $\frac{7}{8}$ x41 $\frac{1}{4}$ "	11 $\frac{7}{8}$ x41 $\frac{1}{4}$ "	14 $\frac{7}{8}$ x41 $\frac{1}{4}$ "
Screen Area.....	325 Sq. In.	490 Sq. In.	614 Sq. In.
Cylinder Diameter.....	24"	24"	24"
Cylinder R.P.M.....	2400	2400	2400
Pulley Size (Rockwood).....	4 $\frac{1}{2}$ x6"	4 $\frac{1}{2}$ x7"	4 $\frac{1}{2}$ x8"
Hammers.....	12	18	24
Number of "V" Tips, (Reversible).....	24	36	48
Serrations in Tips (Reversible).....	10	10	10
Serrations, Cutting.....	120	180	240
Cylinder Shaft.....	1 $\frac{5}{8}$ " Hex. 1.50" Dia.	2" Hex. 1.75" Dia.	2 $\frac{1}{8}$ " Hex. 2.25" Dia.
Material.....	Alloy Steel Heat Treated	Alloy Steel Heat Treated	Alloy Steel Heat Treated
Size of Blower.....	20 $\frac{5}{8}$ x3"	20 $\frac{5}{8}$ x4 $\frac{1}{4}$ "	20 $\frac{5}{8}$ x4 $\frac{3}{4}$ "
Material.....	Steel	Steel	Steel
Collector Size.....	21" Dia. Top 7" Outlet 31" Depth	21" Dia. Top 7" Outlet 35" Depth	21" Dia. Top 7" Outlet 35" Depth
Collector height, overall to bottom of Sacker	43"	47"	47"
Transition Pipe Sq. to Rd.....	6x28"	6x28"	6x28"
Elbow, Long Sweep.....	6"	6"	6"
Discharge Pipe.....	6x24"	6x24"	6x24"
Pipe Furnished over all including Elbow....	6"x5 $\frac{1}{2}$ '	6"x5 $\frac{1}{2}$ '	6"x5 $\frac{1}{2}$ '

NEW! MODEL 140 HAMMER MILL

\$47.50

**MILL ONLY
with
HOPPER**

**FOR THE
SMALL
FARM OR
CHICKEN
RANCH—**



\$76.00

**COMPLETE
with
FEED TABLE
HOPPER
BLOWER
COLLECTOR!**

**SUITABLE
FOR USE
with 5 H.P.
or 7½ H.P.
MOTOR**

The Model 140 Mill with upper housing tipped back to show cylinder assembly.

The Model 140 Mill has been developed to meet the requirements of the poultry raiser or small farm owner who has only eight or ten head of stock to feed.

It is a real wonder insofar as performance is concerned. It will grind grains and roughages with any power from 5 to 12 H.P. maximum and do a high-class type of grinding with efficient use of the power available between these limits.

The Model 140 Mill can be purchased with the small grain hopper only, the hand feed table only or complete with both the hopper and the hand feed table so that small grains and a limited amount of roughage can be fed to the mill at the same time. The agitator in the hopper, above an easily adjusted slide gate, so regulates the feed flow to get maximum capacity from the horse power available.

ALL PRICES F.O.B. FACTORY

Outfit No.	Equipment	Shpg. Wt., Lbs.	Code Word	Price
140-H	Mill with Hopper.....	180	VLHQI	\$47.50
140-HB	Mill with Hopper and Blower.....	200	VLHRJ	56.50
140-HBC	Mill with Hopper, Blower and Collector.....	260	VLHSK	70.00
140-T	Mill with Hand Feed Table.....	175	VLHTL	47.50
140-TB	Mill with Hand Feed Table and Blower.....	210	VLHUM	56.50
140-TBC	Mill with Hand Feed Table, Blower and Collector.....	250	VLHVN	70.00
140-HT	Mill with Hopper and Hand Feed Table.....	190	VLHWQ	53.50
140-HTB	Mill with Hopper, Hand Feed Table and Blower.....	210	VLHXP	62.50
140-HTBC	Mill with Hopper, Hand Feed Table, Blower and Collector.....	270	VLHZR	76.00

Mills less Blower have gravity outlet through bottom of Mill.

MODEL 140 HAMMER MILL

SPECIFICATIONS AND CAPACITIES

(1) Feed Opening

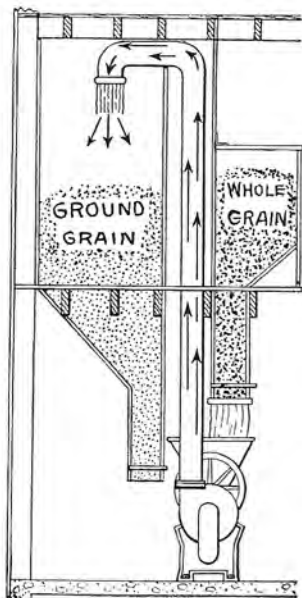
- (a) Through hopper
Positive feed from.....0"
To full open..... $2\frac{1}{4}" \times 3"$
- (b) Through Hand Feed Table
From.....0"
To Full Open..... $2\frac{1}{2}" \times 3"$
- (c) Roughage, through Hand Feed
Table, Gate Removed..... $5" \times 6"$
- (d) Size of Screen..... $6" \times 21\frac{1}{8}"$
- (e) Screen Area.....131 Sq. In.
- (f) Cylinder Diameter..... $13\frac{1}{2}"$
- (g) Cylinder R.P.M.....3200-3800
- (h) Pulley Size (Rockwood)..... $4" \times 5"$
- (i) Hammers (Reversible).....24
- (j) Serrations (Reversible).....192
- (k) Serrations Cutting.....48
- (l) Cylinder Shaft..... $1\frac{1}{8}"$ O.D. $\times 4\frac{3}{4}"$ Overhang
- (m) Material, Alloy Steel Heat Treated

(2) Blower

All steel for 20' Elevation of Feed.
.....3 Point Mounting

(3) Hopper. For Grains.

Capacity—1 Bushel. Fitted with
agitator driven from main shaft giving
positive feed of grains with regulat-
ing opening from Shut (0") to
Full Open ($2\frac{1}{4}" \times 3"$) made of steel.
Easily removed as a complete unit.



No. 140 Mill with
hopper, hand feed
tray, blower and
collector Outfit
No. 140-HTBC

(4) Hand Feed Table. For Grains and Roughages.

$9" \times 16" \times 33\frac{1}{2}"$. Fitted with re-
movable Feed Gate. Opening can
be easily adjusted from Shut (0")
to Full Open $2\frac{1}{2}" \times 3"$ Position. For
ear corn feed gate can be set with
 $2\frac{1}{2}" \times 6"$ opening. For Alfalfa
(Lucerne) and other roughages Feed
Gate can be removed to obtain
Feed Opening $5" \times 6"$.

(5) Horse Power

5 H.P. to $7\frac{1}{2}$ H.P. Gas or Electric.
Can use up to 12 H.P. and obtain
good results. Deduct about 1 H.P.
for Blower and Hopper when not
used.

(6) Dimensions

Mill Only:

Height Overall.....41"
Length Overall.....48"
Width Overall.....30"

With Collector:

Height Overall.....76"
Length Overall.....48"
Width Overall.....59"

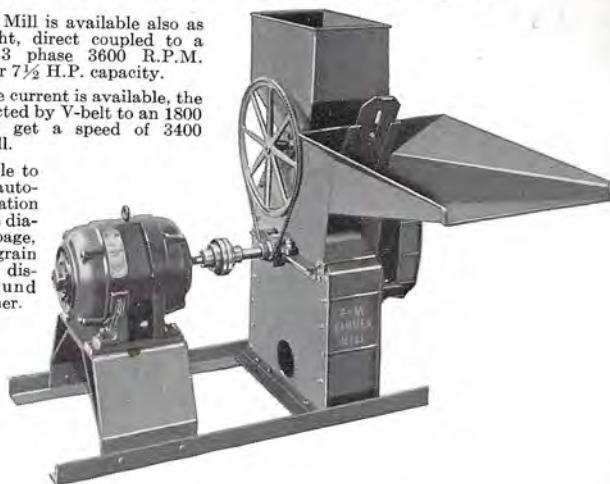
Left:—A possible layout of the Model
140 Mill with overhead feed bins to
make possible full automatic feed and
automatic discharge where electric
motor power is available.

AVAILABLE COMPLETE WITH MOTOR

The Model 140 Mill is available also as shown to the right, direct coupled to a Fairbanks-Morse 3 phase 3600 R.P.M. motor of either 5 or 7½ H.P. capacity.

Or if single phase current is available, the mill may be connected by V-belt to an 1800 R.P.M. motor to get a speed of 3400 R.P.M. at the mill.

It is thus possible to rig up an almost automatic grinding operation as illustrated in the diagram on the next page, drawing the whole grain from one bin and discharging the ground material into another.



MOTOR DRIVEN OUTFITS

Mill Complete with Motor				
	Outfit No.	Shpg. Weight	Code Word	Price
Three Phase: —Price includes No. 140-HTBC Mill (with blower and collector) connected by means of a flexible coupling to a Fairbanks-Morse 3 phase, 3600 R.P.M., 60 cycle, 110-220 volt motor on pedestal base as illustrated				
With 5 H.P. Type "Q" Motor.....	8246	460	VLIDU	\$192.00
Add for 220 volt motor starter with overload and low voltage protection.....	8532		VLIEV	20.50
With 7½ H.P. Type "Q" Motor.....	8247	520	VLIFW	218.00
Add for 220 volt motor starter with overload and low voltage protection.....	8536		VLIGY	38.50
Single Phase: —Price includes No. 140-HTBC Mill only, no base, Flex-Mor drive to give a mill speed of 3400 R.P.M., (Drive No. 3-7B-194S center distance 20.6") and single phase, 60 cycle, 220-440 volt, 1800 R.P.M. motor				
With 5 H.P. Motor Type "W".....	8248	535	VLHZ	.....
Add for 220 volt motor starter with overload and low voltage protection.....	8533		VLJA	23.00
With 7½ H.P. Motor Type "RA".....	8249	760	VLKB	.....
Add for 220 volt motor starter with overload and low voltage protection.....	8536		VLILC	38.50

2-YEAR HAMMERS

The Model 140 carries the same hammer guaranty as the larger F-M Mills. If, in ordinary farm use, the hammers wear out to the point that the serrations on both

sides have become obliterated, they will be replaced without charge f.o.b. factory provided the worn-out hammers are returned to the factory transportation prepaid.

CAPACITIES IN LBS. PER HR. WITH 5 H.P. ELECTRIC MOTOR

Screen	Oats	Shelled Corn	Ear Corn	Alfalfa (Lucerne)	Corn Stalks With Ears
1/20"	225	340		125	
1/16"	320	560		150	
3/32"	410	850			
1/8"	485	950			
3/16"	615	1000		175	
1/4"	910	1300	400	250	
5/16"		1350	700	325	
3/8"		1400	900	375	
1/2"		1600	1000	550	200
5/8"		1850	1100	700	300
3/4"		2000	1300		400
1"			1500		500
1 1/4"					

MODEL 20-18 HEAVY CAPACITY HAMMER MILL

(15 TO 50 H.P.)



Model 20-18 Hammer Mill without blower or dust collector. Outfit No. 6741

Specifications

A large capacity, rigid hammer type of mill for custom or other large capacity grinding. Speed range 2100 to 3600 R.P.M.

14 heat treated hammers, double headed, giving 56 effective striking surfaces in cylinder.

All steel construction throughout. Heavy box steel frame—welded steel plate housing. SKF self-aligning double row ball bearings.

Capacities of Mill with Blower

Material	Screen	H.P.	Capacity lbs. per hr.
Shelled Corn	$\frac{3}{4}$ "	15-20	4500-7500
Ear Corn	$\frac{1}{4}$ "	20-30	4500-7500
Snapped Corn	$\frac{7}{16}$ "	15-30	1800-6500
Corn Stover	$\frac{7}{16}$ "	20-30	2000-6000
	$\frac{1}{2}$ "	12-25	400-1500
Oats	$\frac{3}{16}$ "	20-30	2000-3000
	$\frac{3}{32}$ "	20-30	800-1200
Alfalfa	$\frac{1}{8}$ "	20-40	1400-4000
	$\frac{7}{16}$ "	20-40	2000-4500
Barley	$\frac{5}{16}$ "	20-40	3000-7000
	$\frac{3}{16}$ "	20-30	1400-2000
Wheat	$\frac{3}{32}$ "	25-35	3000-7000
	$\frac{5}{16}$ "		

NEW LOW PRICES!

	Shpg. Wt Lbs.	Price F.O.B. Factory
Model 20-18 mill as illustrated above, with $4\frac{1}{2}$ " dia. x $8\frac{1}{2}$ " face pulley and $\frac{1}{4}$ " screen—		
Outfit No. 6741.....	590	\$89.50
Extra screens for Model 20-18 mill (available in $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", 1 " and $1\frac{1}{2}$ " mesh).....	20	5.00

MODEL 20-18 HAMMER MILL WITH BLOWER AND DUST COLLECTOR



The Model 20-18 mill can be furnished with either a 14" or 16" blower, depending on the speed at which the mill is to be operated.

Two types of dust collector are available, the short cone collector where compactness and lowest possible price are prime considerations, and the long cone type for more efficient separation of the ground material from the incoming air.

On special order, either type can be furnished with 4" return pipe from the top of the collector to the air suction inlet as shown in the illustration to the left. In this way a considerable portion of the fine material that would otherwise escape through the top of the collector is saved. All dust collectors regularly furnished with double spout sackers.

Dust Collector Dimensions—Short cone type 52" high, 38" dia. at barrel. Long cone type, 130" high, 37" dia. at barrel. Discharge and suction piping 8" dia.

Outfit 6895. The Model 20-18 mill with blower, dust collector and 4" return pipe

Prices—Model 20-18 Mill Complete with Blower

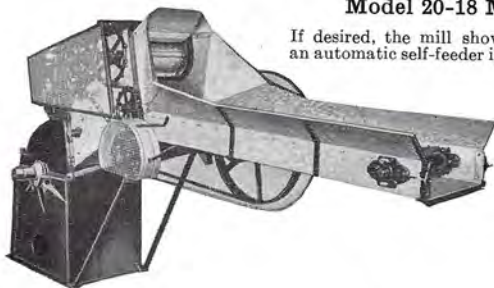
Outfit	*Size Blower	For Mill Speeds	Type of Collector	Shipping Weight, Lbs.	Price F.O.B. Factory
7006	16"	2100-2800	Short cone without return pipe	985	\$139.00
6800	16"	2100-2800	Long cone without return pipe	1135	210.00
8058	16"	2100-2800	Short cone with return pipe	1050	204.00
6895	16"	2100-2800	Long cone with return pipe	1205	226.00
7004	Floor tripod for short cone collector			50	8.00
6736	Extra 36" lengths of 8" pipe with clamps and bolts			.....	2.00
6734	Extra 36" lengths of 4" return pipe, clamps and bolts			.....	1.00
6737	Extra 8" ells with clamps and bolts			.....	3.10
6735	Extra 4" ells with clamps and bolts			.....	1.15

*For mill speeds from 2800-3600 R.P.M., order the 14" blower instead of the 16" or merely add the figure "14" after the Outfit number, thus "7006-14". No change in price.

Model 20-18 Mill with Self Feeder

If desired, the mill shown above can be furnished with an automatic self-feeder instead of with standard feed table.

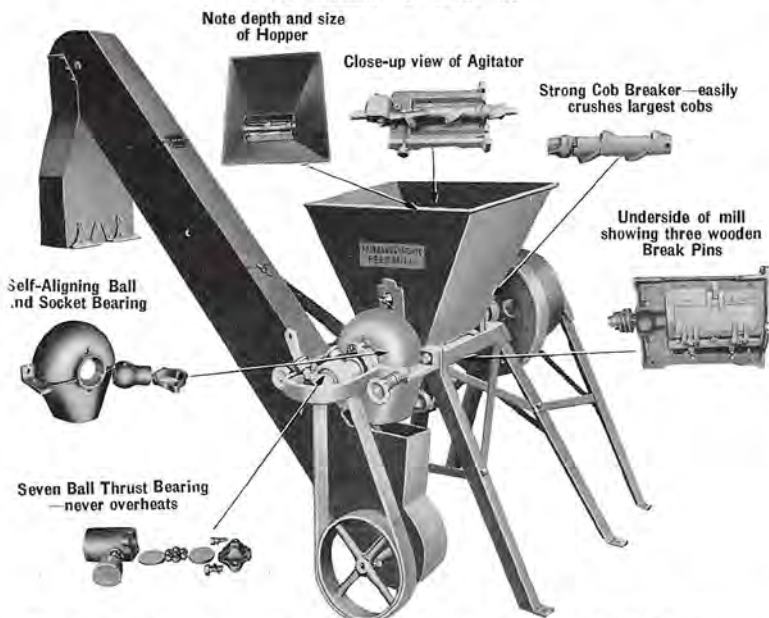
The self-feeder automatically regulates flow of material to the mill—prevents clogging—improves capacity.



Mill with self-feeder, Outfit No. 6853, Shipping weight, 1290 lbs. \$190.00

Mill with self-feeder can be used with blower equipment if desired. Make \$3.00 list addition to regular prices of blower equipment to cover special blower mounting.

BURR TYPE FEED COB CRUSHER AND GRAIN GRINDER TWO SIZES—8" AND 10"



The 8" mill with 5 ft. wagon box elevator. Illustration shows the third bearing and the agitator, both of which are furnished only when ordered and at an extra cost on the 8" mill. 10" size comes regularly equipped with the third bearing.

A LARGE CAPACITY MILL

designed to work with tractor or engines from 8 H.P. to 30 H.P. The 8B mill may be operated at 1500 revolutions per minute and it will give good, dependable service, grinding 110 bushels of cob meal an hour. The seven ball end thrust bearing easily absorbs the entire thrust of the mill when running at this speed. Feed can be ground fine or coarse, just as you please.

The third bearing which is supplied as an extra on the 8" mill is recommended for use when the mill is driven with engines larger than 7 H.P. This extra bearing distributes the belt strain evenly on the mill frame.

CONSTRUCTION DETAILS

Interchangeable Bearings—All bearings are interchangeable and self aligning. Bearings always run cool. Are easily replaced and will always be assembled correctly due to self-aligning feature.

Seven Ball Bearing End Thrust—End thrust is completely absorbed by seven ball bearings placed between two steel discs. Insures easy, light running shaft. Makes for long life.

Agitator—May easily be attached to mill at any time. Prevents bridging of ear corn when grinding.

Cob Breaker—Is made of one piece—strengthens main shaft. The cob breaker and cob breaker blade quickly cut and chop large ear corn to uniform size—thoroughly prepares same for grinding burrs.

Break Pins—If stones, or bolts, or any foreign substance gets into the mill, these wooden pins break, and tension is relieved before damage is done.

Forced Feed—Insures easy grinding of wet, damp grains.

Feed Lever—May be instantly closed or opened. Located on spout—handy to use.

Safety Spring—Guards against breakage of burrs. Allows burrs to open should piece of iron get in between burrs.

Flywheel—Specially balanced heavy flywheel increases grinding capacity by storing up power for use when needed.

Relief Lever—Burrs may be thrown apart quickly by use of this lever.

Grain Board—May be placed in hopper when grinding grain only. Directs grain to burrs without passage through cob breaker equipment.

Drive Shaft— $1\frac{1}{8}$ " diameter.

Flywheel— $15\frac{1}{2}$ " diameter; weight—65 pounds.

Large Steel Hopper—Cobs do not jump out when mill is running.

Construction—All metal construction throughout.

FINE, FAST AND FURIOUS

The amazing capacity of the F-M Burr mill is due to the design of its wonderful, self-sharpening, self-aligning, self-cleaning, scientifically designed burr.

The long curving, cutting teeth on the burr represent the path of least resistance. These teeth are fully 90% longer than the teeth of any other grinding plate. Grain naturally follows this line of least resistance. These long teeth easily cut and grind the grain to any degree of fineness desired without retarding the movement of the grain. The ground grain is forced out of the burrs at a terrific pace. The small rectangular baffler teeth catch, cut and shear the smaller particles of grain that are not completely ground by the longer teeth. The burrs may be run with the mill empty. This merely serves to sharpen them. These burrs will easily grind several thousand bushels.



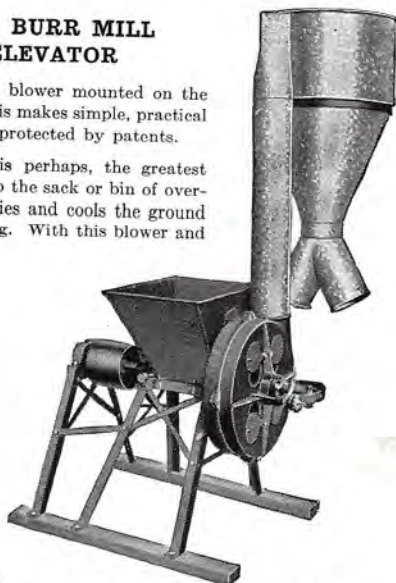
The highly efficient burr or plate of the 8" and 10" F-M Feed Mill

COMBINATION 8" AND 10" BURR MILL WITH BLOWER TYPE ELEVATOR

The F-M Burr mill is also available with blower mounted on the main shaft. As you will note from the cut, this makes simple, practical and economical installation, which we have protected by patents.

This type of elevator, overcomes what is perhaps, the greatest objection to the burr mill, i.e., the delivery to the sack or bin of over-heated ground feed. The blower aerates, dries and cools the ground feed, thereby eliminating the fear of moulding. With this blower and additional piping, ground feed can be delivered to a bin at any distance up to 50 feet from the mill.

Two sets of 10" burrs and one set of 8" burrs are furnished with each combination outfit. Each set of burrs has one plate with small throat opening, and the other plate with a larger opening. This makes it possible, by interchanging the plates, to obtain six combination ranges of capacities, and for coarse and fine grinding. By adjustment of the grain slides, and use of proper combination of burrs, the mill will deliver the full grinding capacity of any power between 10 and 40 H.P. Pulley, 12x6". (See table below for capacities—next page for prices.)



The F-M combination 8-10" cob crusher and grain grinder with blower, dust collector and third bearing.

CAPACITIES—COMBINATION 8"-10" MILL WITH BLOWER

H.P.	Recommended R.P.M. Mill	Recommended Burr Size	Average Capacity to Expect Given In Bushels of Unground Grain			
			Coarse	Medium	Fine	Very Fine
10	500-600	8x3	50-80	25-40	12-20	8-12
15	600-700	10x4	70-100	35-50	20-30	10-15
15	700-800	8x4	70-100	35-50	20-30	10-15
20	800-900	10x4	90-120	45-60	25-40	13-22
20	900-1100	8x4	90-120	45-60	25-40	13-22
25	1000-1200	10x4	110-140	55-70	35-45	16-28
25	1100-1300	10x4	110-140	55-70	35-45	16-28
30	1200-1400	10x4	115-150	55-70	36-50	15-30
30	1300-1500	10x4½	120-160	60-80	38-55	18-35
40	1400-1550	10x4½	140-180	70-90	40-60	20-40

CAPACITIES—8" AND 10" MILLS

The grinding capacity of the mill depends on the condition of the grain and the power at hand for driving the grinder. Wet or frozen grain, or grain that is dirty, full of chaff or short pieces of straw, will not feed through the burrs as fast as dry, clean grain. Speed of grinder should be suited for power of engine. The following table shows horsepower and relative speeds and capacity. The standard U.S. bushel is used as a measure.

Engine H.P.	8" Mill R.P.M.	10" Mill R.P.M.	Average Capacity to Expect Given In Bushels of Unground Grain			
			Coarse	Medium	Fine	Very Fine
5	250	215	20-40	10-20	7-10	3-6
7	340	275	30-50	15-30	10-15	5-9
10	500	400	50-80	25-40	12-20	8-12
15	800	650	70-100	35-50	25-35	10-15
20	1150	925	90-120	45-60	30-40	13-22
25	1300	1050	110-140	55-70	35-50	15-30
30	1500	1250	130-160	60-80	38-55	18-35
35	....	1500	150-180	65-90	42-60	20-40

The above table applies to oats, barley, or ear corn. Shelled corn grinds approximately twice as fast with the same horsepower. It has been proved that coarse grinding requires only 15% to 20% as much power as very fine grinding. Medium grinding 25% to 35% as much power, and fine grinding 50% to 70% as much power.

PRICES F. O. B. FACTORY

Outfit No.	Size Mill	Description	Size Pulley, Inches	Shpg. Weight, Pounds	Price
8111	8	Std. 8" mill with two sets of burrs.....	12x6	285	\$31.80
8112	8B	Std. 8" mill with third bearing added.....	12x6	310	35.50
8113	10B	Std. 10" mill with third brg. (2 sets of burrs)	12x6	355	36.75
8114	8" or 10"	Add for agitator—either 8" or 10" mills (With Mill.....)		20	2.85
		(Ordered separately.....)		20	4.15
8115	8-10C	8"-10" combination mill with blower and dust collector.....	12x6	585	75.00
8116	8" or 10"	8"—Wood two spout bagging elevator (Either 8" or 10" mills).....		125	24.00
8117	8" or 10"	10"—Wood wagon box elevator (Either 8" or 10" mills).....		185	31.50
8118	8-10C	Blower type elevator equipment to make combination 8"-10" mill out of standard outfit 8113—(consists of blower, dust col- lector, agitator, pipe and set of 8" plates)		200	47.50
8119	8-10C	Blower only, for 8"-10" combination mill...		115	18.75
8120	8-10C	Extra 30" lengths of 7" discharge pipe, each		20	1.00
8121	8-10C	7" Ells (if required), each.....		20	2.35
8122	8"	Burrs, per set of 2.....		8	1.80
8123	10"	Burrs, per set of 2.....		14	2.70

Two sets of burrs are furnished with every mill except the 8"-10" combination mill with blower which is regularly supplied with 3 sets (2 sets of 10" burrs and one set of 8"). You have your choice between coarse burrs, medium fine and extra fine.

No. 6 BURR TYPE FEED MILL FOR GRINDING SMALL GRAINS

Will grind Oats, Rye, Barley, Shelled Corn, Wheat, Millet, Seed, Salt, Bark with little power and at practically no cost. Simple screw adjustment enables you to grind fine or coarse as occasion requires.

Large capacity—built of iron and steel throughout with long and well babbitted bearings. Safety springs protect burrs from nails, nuts, etc., and keep burrs apart when machine is running empty.

Hinged cover gives easy access to burrs. One set of fine burrs, also one set of coarse burrs furnished with each machine. Pulley 6x3½ inch, gives proper speed for operation with any engine or light plant. Speed 290 to 1150 R.P.M. Shaft 1½ inch cold rolled. Large roomy hopper. Firm broad base. Burrs 6 inches. Height 33 inches.

Outfit No. 8124—No. 6 Mill (90 lbs.).....	\$12.00
Outfit No. 8125—Extra Burrs (Set of 2) (3 lbs.).....	.90

GRINDING CAPACITY WITH WET, DRY OR OILY GRAINS

Speed R.P.M.	H.P. Required	Bu. Ground Per Hour
550	1½	10
670	2½	15
800	3	20
920	3½	25
1150	5	30



No. 760 ALL STEEL TILTING TABLE FRAME



The No. 760 frame shown above is of standard width, and is primarily designed for sawing cordwood into stove lengths. However, with a 30" saw, larger than cordwood can be sawed by turning the log.

The all steel saw frames here listed are built especially for sawing poles and cordwood with ease and in the fastest possible time. They are of heavy angle steel construction, made rigid by substantial cross bracing. Being of steel construction throughout, with just ordinary care

they will last indefinitely. They are not subject to the warping and rotting which are common in the less durable wood constructed frames. The tilting table is evenly balanced and easily moved. The adjustable saw guard accommodates saws up to and including 30" in diameter.

No. 760 FRAMES

Frame No.	Description	Speed R.P.M.	Pulley		Shipping Weight, Lbs.	Price
			Diameter	Face		
760	With Balance Wheel...	850-1200	5"	6"	235	\$24.00
760-A	Less Balance Wheel...	850-1200	8"	6"	180	20.00

Saw Table Dimensions.....12 x 40 inches
Length of Mandrel Overall.....51½ inches

No. 770 EXTENSION TABLE FRAME



The No. 770 frame illustrated above is of the extension pole saw type in which the tilting table extends beyond the saw frame proper. This frame, although especially designed for sawing poles longer than the conventional 4-ft. cordwood length, can also be used for sawing cordwood.

The saw mandrel boxes are self-aligning, with babbitt bearings, and are capable of withstanding the high operating speed at which the saws must revolve for best results.

The mandrel is of finest quality

cold rolled steel, $1\frac{1}{16}$ " diameter, fitted for saw with $1\frac{3}{8}$ " hole.

Flywheel:—The flywheel is accurately machined and carefully balanced for smooth operation. It is $18\frac{1}{2}$ " diameter, weight, 60 lbs.

No. 770 EXTENSION TABLE FRAMES

Frame No.	Description	Speed R.P.M.	Pulley		Shipping Weight, Lbs.	Price
			Diameter	Face		
770	With Balance Wheel...	850-1200	5"	6"	290	\$27.00
770-A	Less Balance Wheel....	850-1200	8"	6"	235	23.25

Saw Table Dimensions.....12 x 40 inches
Length of Mandrel Overall.....51 $\frac{1}{8}$ inches

No. 750-A TRACTOR FRAME



The No. 750-A all-steel frame illustrated above is of standard tractor saw frame width. This frame is designed particularly for tractor drive. It cannot be equipped with balance wheel.

No. 750-A ALL-STEEL FRAME

Frame No.	Description	Speed R.P.M.	Pulley		Shipping Weight, Lbs.	Price
			Diameter	Face		
750-A	Less Balance Wheel....	850-1200	8"	6"	170	\$18.50

Saw Table Dimensions.....12 x 27 inches
 Length of Mandrel Overall.....35 inches

MANDRELS—SAW BLADES



Illustrated above is the No. 550 saw mandrel which consists of the saw shaft, boxes, pulley, flywheel and saw flanges the same as used on our stationary saw frames excepting the boxes of the mandrel are flat for bolting to timbers, channels, or flat surfaces.

The No. 751-A mandrel is the same mandrel used on tractor frame No. 750 except with flat boxes.

Either of the above mandrels can be furnished with right or left-hand threads. Right-hand threads will be furnished unless otherwise specified.

Outfit No.	Description	Speed R.P.M.	Length of Mandrel Overall	Pulley		Shpg. Weight, Lbs.	Price
				Diam.	Face		
550	With Balance Wheel...	850-1000	52"	5"	6"	115	\$11.50
550A	Less Balance Wheel...	850-1000	52"	5"	6"	65	7.75
751A	Less Balance Wheel...	850-1000	35"	5"	6"	60	7.75

Length of shaft, 52 inches over all.

All shafts are turned to $1\frac{3}{8}$ inches on saw blade end.

CORDWOOD SAW BLADES

Price Includes Setting and Hand Filing
(Not Sharpened by Emery Wheel)



Dia. In.	Gauge	Teeth	Weight Crated	Speed per Min.	*H.P. Needed to Drive	Price F.O.B. Factory
20	13	52	10	1800	3	\$3.50
22	12	56	14	1636	3	4.25
24	11	60	19	1500	3-5	5.00
26	11	64	21	1384	5	5.75
28	10	70	27	1285	5	6.75
30	10	76	30	1200	5-7½	7.50
32	10	80	36	1120	7½	8.75

*These horse power recommendations are only approximate. Speed of the saw, kind of wood being cut diameter of logs, etc., are all influencing factors.

PORTABLE SAW RIGS



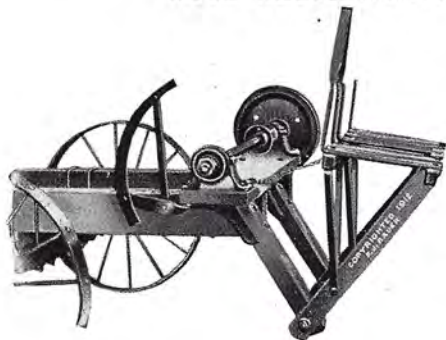
A three-in-one machine. Can be used as a complete saw rig ready to draw along the side of a wood pile and put to work; second, as a portable engine for doing all kinds of belt work; and third the engine can be removed from the truck and used for stationary power in between cutting operations.

The truck is of rigid all steel construction, suitable for either the 3, 5 or 7½ H.P. "Z" engine. It has a 3" channel axle, 1½" steel spindles, 5" channel beams 10-ft. long with 24" diameter front and 26" diameter rear metal wheels with 3" grooved face. Regularly furnished with tongue for team.

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
1. Truck only, as described above.....	9053	455	\$45.50
2. Steel saw frame, including 80 lb. flywheel and *5" diameter pulley.....	9054	250	36.50
3. Combination seat and battery box.....	9055	40	4.50
4. Belt tightener (should always be used).....	9056	35	5.50
5. Neck yoke, single and double trees.....	9057	30	4.50
6. Engine—add from engine price page.....	.....	.....	.....
7. Belt—select from table below (approx. 15 ft. required).....	.....	.....	.....

*6" pulley can be furnished on saw frame if so ordered.

WOOD WAGON RACK ATTACHMENT



The wagon rack attachment illustrated above is of wood construction and can readily be mounted on a wagon or sleigh rack. The frame is contained on a 2x10" hardwood plank and the plank can be bolted to the sills of the wagon by four bolts—easily attached and easily taken off. The bracket boxes which carry the mandrel are extra strong and well babbitted. Mandrel is made with long keyway between boxes so that pulley can be placed to line up with engine pulley. Shaft 1½x48"; 1½" arbor.

	Outfit No.	Shpg. Wt. Lbs.	Price F.O.B. Factory
No. 70 Wood wagon box attachment, With 60 lb. wheel.....	9058	240	\$26.00
With 95 lb. wheel.....	9059	275	28.50

4-PLY No. 28 RED RUBBER BELTING

	Price Per Foot	Add for Lacing.
4"—4 ply for 3 H.P. rigs.....	\$0.55	\$0.50
5"—4 ply for 5 H.P. rigs.....	.65	.50
6"—4 ply for 7½ H.P. rigs.....	.75	.50

PITCHER SPOUT PUMPS

Pitcher Spout Pumps are made for extra service. They are substantially and carefully constructed throughout, and embody efficient weight to avoid breakage.

	Cylinder Size	Suction Pipe	Weight	Price Each
No. 2	3 in.	1¼ in.	18½ lbs.	\$2.15
No. 3	3½ in.	1¼ in.	25 lbs.	2.50
No. 4	4 in.	1½ in.	28½ lbs.	4.40

Brass Body Nickel Plated Cylinder

Brass Body Pitcher Spout Pump with nickel plated cylinder. The cylinder of this pump is made of heavy seamless brass tubing which will not corrode or rust.

	Cylinder Size	Suction Pipe	Weight	Price Each
No. 58	3 in.	1¼ in.	22 lbs.	\$6.25



No. 2-3-4

CLOSED TOP HOUSE PUMP

An improved house pump with closed top to prevent foreign matter from getting into the well or cistern.

No. 49B —3" Brass lined cylinder, base tapped for 1¼" suction pipe.....	<u>Wt. Lbs.</u> 20	<u>Price Each</u> \$4.65
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No. 49-B

HOUSE FORCE PUMPS

Will lift water 25 feet and can easily force it another 25 feet. Used for pumping water from cistern to overhead tank, bath room, or any part of the house.

Plunger has brass cage and iron follower equipped with highest grade plunger leather.

The 59F is the same as the 59 except that it is equipped with compression faucet spout. A hose can be attached to this pump, and it can be used for sprinkling, fire protection, etc.

	Cylinder Size	Suction Pipe	Weight	Price Each
No. 59	3 in.	1¼ in.	21 lbs.	\$6.90
No. 59-F	3 in.	1¼ in.	21½ lbs.	7.95



**No. 59F
With Faucet Spout**

No. 358—KITCHEN SINK PUMP BRACKETS



Pump Bracket or Shelf can be attached to any roll rim or flat rim sink, avoiding the necessity of an unsanitary wooden shelf. By adjusting the lower set-screws the bracket can be brought to any level. A piece of leather or rubber should be placed between the bracket and the rim of the sink to prevent damage to the sink. Weight 10 lbs.

No. 358. Sink Pump Bracket. Each.....\$1.50

SHALLOW WELL SET LENGTHS AND STANDARDS



No. 31-A Lift Pump



No. 36 Lift Pump

No. 31. This pump consists of a body made to screw on $1\frac{1}{4}$ -inch pipe, with a clamp base. Intended for use in shallow wells where it is convenient to have the well pipe project above ground. Base made in two parts which clamp to pipe and are bolted to platform. Two-piece clamp-on cap permits handle to turn in any direction.

Price
F. O. B.
Factory

31-A—4 ft. set length pump, $1\frac{1}{4}$ " galv. pipe, 3"x6" stroke No. 1 iron cylinder, each..... **\$7.85**
Additional for 3"x6" brass lined cylinder in place of iron..... **2.85**

The 36 is a medium weight Hand Top Lift Pump suitable for shallow wells and cisterns. The pump standard is tapped inside near the spout for $1\frac{1}{4}$ " standard pipe and the handle is fitted to receive a $\frac{3}{8}$ " piston rod.

The 36A Set Length Pump is fitted with 3"x6" stroke No. 1 Iron Pump Cylinder, with pump rod and $1\frac{1}{4}$ " galv. pipe measuring 4 feet from base of pump to bottom of cylinder.

Price
F.O.B.
Factory

36—Pump Standard Only (37 lbs.)..... **\$5.40**
36-A—4-ft. Set Length Pump, $1\frac{1}{4}$ " galv. pipe, 3"x6" stroke No. 1 iron cylinder (62 lbs.)..... **8.80**

4 FT. SET LENGTH PIPE ONLY (GALV.), WITH PISTON ROD AND CYLINDER (Pump Standard Not Included)

Size Pipe	Price With Iron Cylinder		Price With Brass Lined Cylinder		Add for Each Additional 2 Ft. of Galv. Set Length Pipe
	Size	Price	Size	Price	
$1\frac{1}{4}$ "	3"x6" stroke	\$3.35	3"x6" stroke	\$6.25	\$0.75
2"	4"x6" stroke	6.45	4"x6" stroke	9.85	1.00

HAND AND WINDMILL FORCE PUMPS



No. 55
No. 57

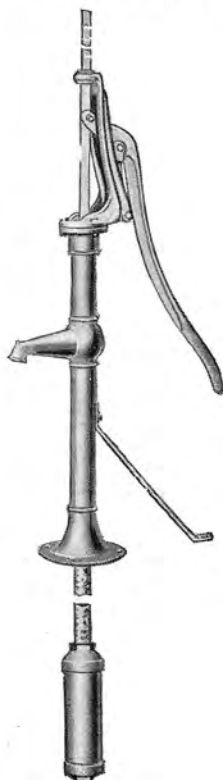
H-29 Spout

No. 226 6" stroke
No. 238 Adj. stroke
No. 248 1 1/16" piston rod

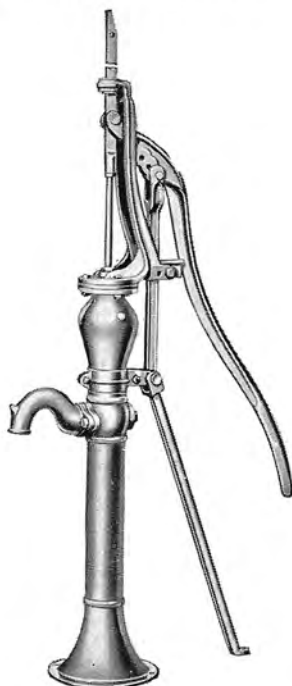
General:—The back outlet on these pumps is tapped for 1 1/4" pipe in every case and unless otherwise indicated; the piston rod is 1 1/16" dia., threaded at lower end for 7/16" steel rod and 3/8" pipe thread for wood rod coupling.

Pump No.	Description	Wt. Price F.O.B.	
		Lbs.	Factory
55	Pump, hand force, long fulcrum, base tapped for 1 1/4" pipe. Can be made into any desired set length. (See page 46 for addition for set lengths.) Furnished in 6" stroke only.....	50	\$ 9.60
57	Pump, same as No. 55 except large base, 2" tap.....	50	11.00
226	Windmill force pump with detachable spout—6" stroke only. Stand is tapped for 2" pipe under the spout and can be bushed for 1 1/4" or 1 1/2" pipe.....	68	10.75
238	Same as No. 226 except it is equipped with 6"-8"-10" stroke.....	71	11.10
248	Pump—same as 238—6"-8"-10" stroke, except with 1 1/16" piston rod and extra heavy stuffing box for deep wells.....	74	11.40
H29	Lock lever shut-off spout, each.....	..	1.80
H29	Spout on pump in place of plain spout.....	..	1.45
E11	Spout, double seal, handwheel type.....	..	2.15
E11	Spout on pump in place of plain spout.....	..	1.80

WINDMILL LIFT AND FORCE PUMPS



No. 106-A



No. 278
No. 280

No. 106 Lift Pump

Suitable for either hand or windmill use. The pump is regular 6" stroke, tapped for $1\frac{1}{4}$ " standard pipe. The lower end of the flat windmill rod is threaded for $\frac{1}{8}$ " pump rod.

The No. 106-A Set Length Pump is fitted with 3"x6" stroke No. 1 iron cylinder with pump rod and $1\frac{1}{4}$ " galv. pipe measuring 4 feet from base of pump to bottom of cylinder.

Pump No.	Description	Wt. Lbs.	Price F.O.B. Factory
106	Pump only.....	50	\$6.35
106-A	4-ft. set length $1\frac{1}{4}$ " galvanized 3"x6" stroke iron cylinder, each....	63	9.75
	Add for each additional 2 feet of $1\frac{1}{4}$ " galv. pipe.....	..	.75
	Add for 3"x6" brass lined cylinder.....	..	2.85

No. 278 Force Pump

An outstanding force pump—back outlet tapped for $1\frac{1}{4}$ " pipe. Piston rod is threaded at the lower end for regular $\frac{1}{8}$ " steel rod and $\frac{3}{8}$ " pipe thread for wood rod coupling.

Pump No.	Description	Wt. Lbs.	Price F.O.B. Factory
278	Pump—adj. stroke. Standard tapped for 2" pipe under the spout and can be bushed for $1\frac{1}{2}$ " or $1\frac{1}{4}$ " pipe. Can be made into any desired set length (See page 46 for set length prices).....	88	\$12.50
280	Same as 278 except base tapped for $2\frac{1}{2}$ " pipe.....	..	14.25

IMPROVED WELL CYLINDERS

All Cylinders are Tapped for $\frac{1}{4}$ " Rod

No. 1 Iron Pump Cylinders—With lower leather check valve, inside shell bored and polished. 6" and 8" stroke cylinders have one-leather plungers, 10" stroke have two-leather plungers. All iron cylinders have replaceable valve seat.

No. 1
Iron

Size Cylinder, Inches	Stroke, Inches	Fitted for Pipe, Inches	Outside Diam. Caps, Inches	Weight Each, Lbs.	Price F.O.B. Factory
3 x10	6	1 $\frac{1}{4}$	4 $\frac{1}{8}$	11	\$2.45
3 $\frac{1}{2}$ x10	6	1 $\frac{1}{2}$	4 $\frac{3}{8}$	14 $\frac{1}{2}$	3.40
4 x10	6	2	5 $\frac{1}{4}$	18	4.35
2 $\frac{1}{2}$ x12	8	1 $\frac{1}{4}$	3 $\frac{3}{8}$	11	3.10
3 x12	8	1 $\frac{1}{4}$	4 $\frac{1}{8}$	12 $\frac{1}{2}$	3.60
3 $\frac{1}{2}$ x12	8	1 $\frac{1}{2}$	4 $\frac{3}{8}$	16 $\frac{1}{2}$	4.65
2 $\frac{1}{2}$ x14	10	1 $\frac{1}{4}$	3 $\frac{3}{8}$	12	3.35
3 x14	10	1 $\frac{1}{4}$	4 $\frac{1}{8}$	14	3.85
3 $\frac{1}{2}$ x14	10	1 $\frac{1}{2}$	4 $\frac{3}{8}$	19	5.15
4 x14	10	2	5 $\frac{1}{4}$	23 $\frac{1}{2}$	6.70

3 $\frac{1}{2}$ inch cylinders can be tapped 1 $\frac{1}{4}$ inch in place of 1 $\frac{1}{2}$ inch on special orders.

No. 2 Brass Lined Pump Cylinders

All have brass cage and poppet, iron follower, lower leather valve and brass valve seat. 6" stroke cylinders have one leather plunger; 8" and 10" stroke, two-leather plunger.

3 x10	6	1 $\frac{1}{4}$	4 $\frac{1}{8}$	11	\$5.25
3 $\frac{1}{2}$ x10	6	1 $\frac{1}{2}$	4 $\frac{3}{8}$	14 $\frac{1}{2}$	6.15
4 x10	6	2	5 $\frac{1}{4}$	18	7.60
3 x12	8	1 $\frac{1}{4}$	4 $\frac{1}{8}$	12 $\frac{1}{2}$	5.85
3 $\frac{1}{2}$ x12	8	1 $\frac{1}{2}$	4 $\frac{3}{8}$	16 $\frac{1}{2}$	6.90
2 $\frac{1}{2}$ x14	10	1 $\frac{1}{4}$	3 $\frac{3}{8}$	12	5.70
3 x14	10	1 $\frac{1}{4}$	4 $\frac{1}{8}$	14	6.30
3 $\frac{1}{2}$ x14	10	1 $\frac{1}{2}$	4 $\frac{3}{8}$	19	7.50
4 x14	10	2	5 $\frac{1}{4}$	23 $\frac{1}{2}$	9.65

No. 2
Brass Lined**No. 3 Brass Lined Pump Cylinders
With Primeless Lower Check Valve**

2 $\frac{1}{2}$ x12	6	1 $\frac{1}{4}$	3 $\frac{3}{8}$	11	\$5.60
3 x12	6	1 $\frac{1}{4}$	4 $\frac{1}{8}$	13	6.25
3 $\frac{1}{2}$ x12	6	1 $\frac{1}{2}$	4 $\frac{3}{8}$	18	7.40
4 x12	6	2	5 $\frac{1}{4}$	21	9.40
2 $\frac{1}{2}$ x14	8	1 $\frac{1}{4}$	3 $\frac{3}{8}$	12	6.10
3 x14	8	1 $\frac{1}{4}$	4 $\frac{1}{8}$	14	6.75
2 $\frac{1}{2}$ x16	10	1 $\frac{1}{4}$	3 $\frac{3}{8}$	13	6.75
3 x16	10	1 $\frac{1}{4}$	4 $\frac{1}{8}$	15	7.40
3 $\frac{1}{2}$ x16	10	1 $\frac{1}{2}$	4 $\frac{3}{8}$	24	8.90
4 x16	10	2	5 $\frac{1}{4}$	26	11.50

No. 4 Brass Body Pump Cylinders

With flush iron caps and primeless lower check valve. 6" stroke cylinders have one-leather plunger; 8" and 10" stroke cylinders have two-leather plungers.

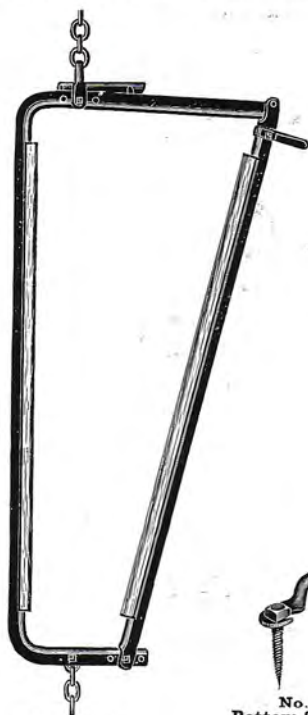
2 $\frac{1}{2}$ x12	6	1 $\frac{1}{4}$	2 $\frac{3}{4}$	8 $\frac{1}{2}$	\$5.80
2 $\frac{3}{4}$ x12	6	1 $\frac{1}{4}$	3	9 $\frac{1}{2}$	6.10
3 x12	6	1 $\frac{1}{4}$	3 $\frac{1}{4}$	10 $\frac{1}{2}$	6.45
2 x14	8	1 $\frac{1}{4}$	2 $\frac{3}{4}$	8	5.80
2 $\frac{1}{2}$ x14	8	1 $\frac{1}{4}$	2 $\frac{3}{4}$	9	6.30
2 $\frac{3}{4}$ x14	8	1 $\frac{1}{4}$	3	10	6.60
3 x14	8	1 $\frac{1}{4}$	3 $\frac{1}{4}$	11	6.95
3 $\frac{1}{2}$ x14	8	1 $\frac{1}{2}$	3 $\frac{3}{4}$	13	8.35
2 x16	10	1 $\frac{1}{4}$	2 $\frac{3}{4}$	8 $\frac{3}{4}$	6.10
2 $\frac{1}{4}$ x16	10	1 $\frac{1}{4}$	2 $\frac{3}{4}$	9	6.60
2 $\frac{1}{2}$ x16	10	1 $\frac{1}{4}$	2 $\frac{3}{4}$	9 $\frac{1}{2}$	6.95
2 $\frac{3}{4}$ x16	10	1 $\frac{1}{4}$	3	10	7.30
3 x16	10	1 $\frac{1}{4}$	3 $\frac{1}{4}$	11	7.65
3 $\frac{1}{2}$ x16	10	1 $\frac{1}{4}$	3 $\frac{3}{4}$	13	8.15
3 $\frac{1}{2}$ x16	10	1 $\frac{1}{2}$	3 $\frac{3}{4}$	13 $\frac{1}{2}$	9.15
4 x16	10	2	4 $\frac{1}{4}$	20	11.90

No. 3
Brass LinedNo. 130
Brass Body**Gallons Per Stroke Displacement of Above Cylinders**

Stroke, Inches	2" dia. Cylinder	2 $\frac{1}{4}$ " dia. Cylinder	2 $\frac{1}{2}$ " dia. Cylinder	2 $\frac{3}{4}$ " dia. Cylinder	3" dia. Cylinder	3 $\frac{1}{4}$ " dia. Cylinder	3 $\frac{1}{2}$ " dia. Cylinder	4" dia. Cylinder
6	.0816	.1032	.1275	.1542	.1836	.2154	.2499	.3264
7	.0952	.1204	.1487	.1799	.2142	.2513	.2915	.3808
8	.1088	.1377	.1700	.2057	.2448	.2773	.3332	.4352
10	.1360	.1721	.2125	.2571	.3060	.3591	.4165	.5440
10 $\frac{1}{2}$	.1427	.1807	.2231	.2694	.3213	.3770	.4371	.5712
12	.....	.....	.2550	.3085	.3672	.4309	.4998	.6528

ADJUSTABLE NECK SPACE STANCHIONS

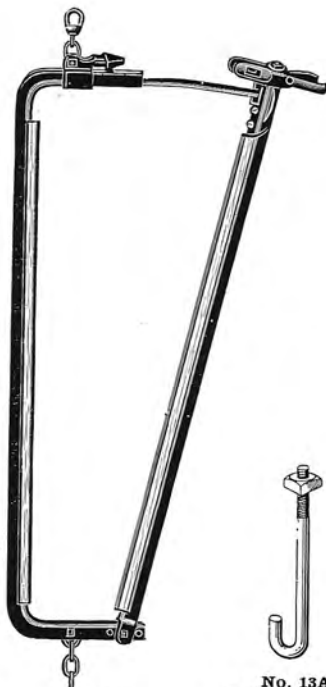
Here are two stanchions that are popular with dairymen everywhere—well constructed—durable. Thousands in use. These stanchions will sell quickly. Order in a supply for stock



No. 181W



No. 13B
Bottom Stanchion
Fastener for Wood



No. 193W



No. 13A
Top Stanchion
Fastener for Wood

No. 181 STANCHION

An unusual value of popular design. Made of high carbon U-Bar Steel. Has adjustable neck space, extension lead, strong hinge and cow proof springless latch. Specially designed chain hangers give free action and comfort. Finished in fused aluminum. Furnished with or without wood linings:

No. 181W.	Wood Lined Stanchion.	19½ lbs.	Each.....	
No. 181.	Plain Steel Stanchion.	18 lbs.	Each.....	

Price Each
\$2.75
2.45

No. 193 STANCHION

The new features of this popular stanchion make it unusually desirable. Made of high carbon U-Bar with or without wood linings. Patented, quick-acting latch, double lever type. Cow proof. Easily operated with one hand. Adjustable neck space. Will stand rough usage and give years of service. Finish fused aluminum. An outstanding value.

No. 193W.	Wood Lined Stanchion.	20¼ lbs.	Each.....	
No. 193.	Plain Steel Stanchion.	18¾ lbs.	Each.....	

3.25
3.00

Stanchion Fasteners for Wood:

13-A Top	Fastener, Each.....	
13-B Bottom	Fastener, Each.....	

\$0.12
.18

Stanchions are F. O. B. Milwaukee

MORE DAIRY DOLLARS WITH THESE POPULARLY PRICED PATENTED WATER BOWLS

Every dairyman will be interested in these popularly priced water bowls. Any herd will produce more dairy dollars for its owner when clean, fresh water is always available in the dairy barn. There are four reasons why a cow should be supplied with a plentiful supply of water and as she needs it.

1. **For Milk Production**—87% of milk is water. In 8 quarts of milk there are 7 quarts of water. A cow producing only 16 pounds of milk a day (8 quarts) needs 14 pounds of water for milk alone.
2. **To Control Temperature**—A milking cow is the hardest working animal on the farm. If she could not keep her temperature down by evaporation of moisture from her body, you'd soon have a sick animal on your hands.
3. **To Help Digestion**—Water mixing with the nutrients in the feed is more readily absorbed through the walls and lining of the digestive system.
4. **To Carry Off Body Waste.**

A sip at a time; any time, and at all times during the day or night, before feeding, while feeding or after feeding makes feeds rich in protein more easily digested.

It has been found that cows in milk drink four times as much water as when they are dry and farrow.



She can get it this way—Day or Night

No. 99 GALVANIZED STEEL WATER BOWL



Quickly and easily detached for cleaning or storage. Clamping device grips bowl firmly at any point around the bowl. Clamp has large bearing surface eliminating excessive strain or wear on bowl.

Bowl. Pressed from special deep drawing steel with heavy rolled rim. Galvanized afterward so galvanizing will not crack in manufacturing process. Size 4½ inches deep, 10 inches across top.

No. 99. Galvanized Steel Bowl. Weight 8 lbs. each, packed 12 to crate.
Shipping weight 100 lbs. Each..... **\$3.50**

No. 117 GRAY IRON BOWL

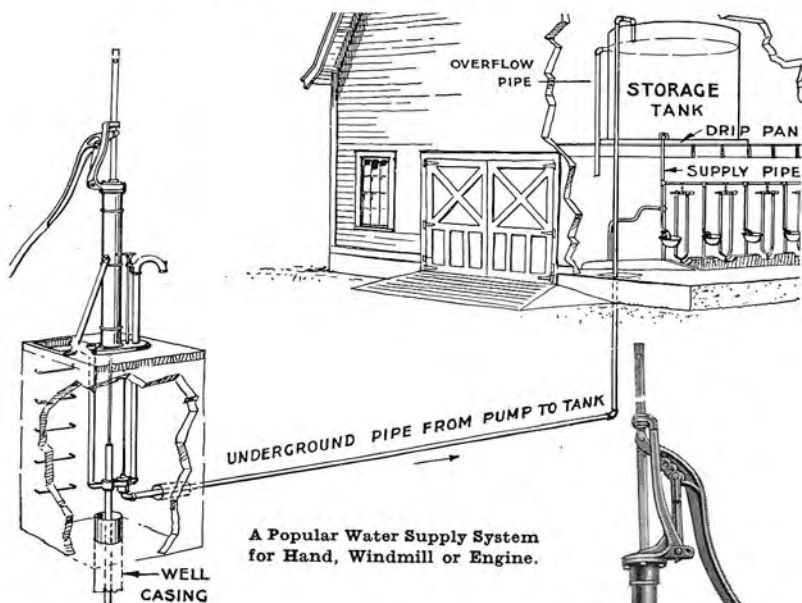
Bowl is of special alloy gray iron, practically unbreakable, round and smooth inside, easy to clean. Valve is Fuller Ball type with side tapping for ¾" or 1" pipe. Simple assembly of this valve makes it outstanding. If, valve is to be removed, just loosen two screw bolts and take out valve. Valve stem and spring of brass resist corrosion and rust. Also frost resisting.
Each..... **\$2.75**

No. 117



UNDERGROUND FORCE PUMP

FOR HAND, WINDMILL OR POWER



A Popular Water Supply System for Hand, Windmill or Engine.

This pump is adaptable for any type of well for farm use where it is desirable to force water underground and deliver it to some distant point.

The pump is fitted with regulation $1\frac{1}{4}$ inch seamless brass packing tube, with double leather packer and brass spacer nuts and brass guide.

The 1 inch underground control valve consists of a specially designed brass three way valve with lever control, so that the water may be directed through the underground pipe or through the spout at the pump.

The water chamber or cross head is regularly fitted for 2 inch drop pipe and has sufficient clearance so that a 2 inch valve may be pulled through without disturbing the pump. The width of cross head is 9 inches.

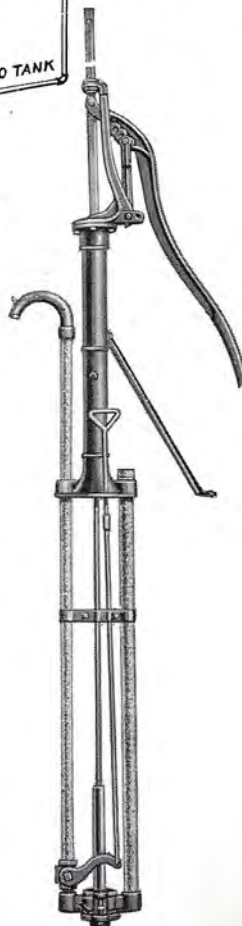
Stroke:—Adjustable 6, 8 or 10 inches.

Plunger Rod:—Is fitted for $\frac{3}{16}$ inch steel rod and $\frac{3}{8}$ inch pipe.

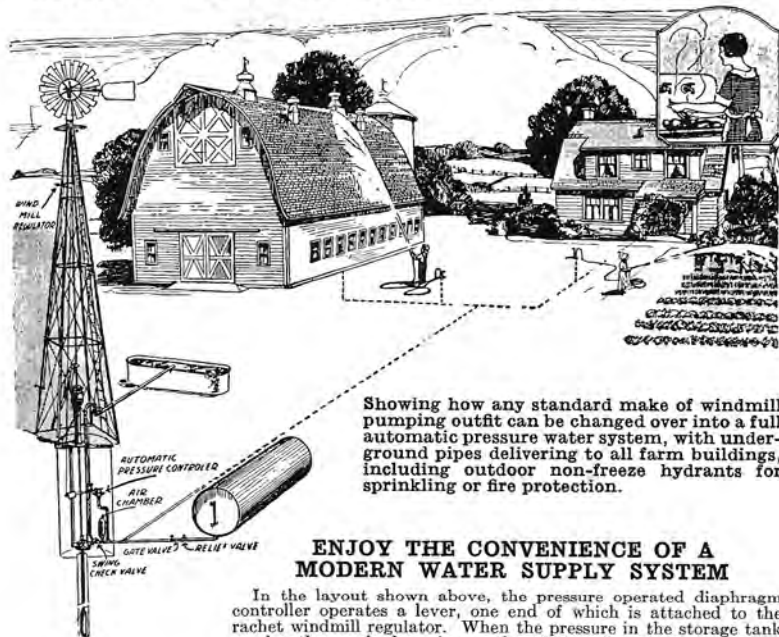
Adjustable Platform:—The platform base is adjustable, making it convenient for replacing old pumps.

Pump is regularly furnished with lower cross head measuring 4 feet from center of underground discharge valve to under side of platform.

No.	Distance to Lower Discharge	Weight	Price Each
422 Pump.....	4 ft.	100 lbs.	\$23.00
422A Pump.....	6 ft.	105 lbs.	25.00



WINDMILL OPERATED PRESSURE WATER SYSTEM



Showing how any standard make of windmill pumping outfit can be changed over into a full automatic pressure water system, with underground pipes delivering to all farm buildings, including outdoor non-freeze hydrants for sprinkling or fire protection.

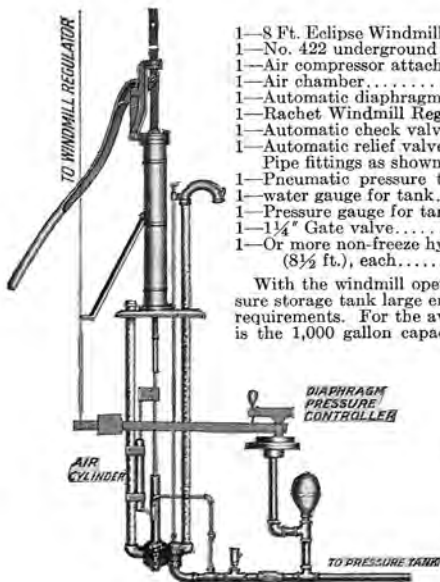
ENJOY THE CONVENIENCE OF A MODERN WATER SUPPLY SYSTEM

In the layout shown above, the pressure operated diaphragm controller operates a lever, one end of which is attached to the ratchet windmill regulator. When the pressure in the storage tank reaches the required maximum, the mill is pulled out of gear; when the tank pressure drops the mill is again allowed to get back into gear to rebuild the pressure in the tank.

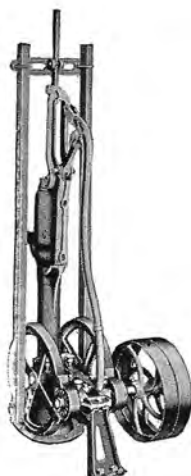
To arrive at the cost of a complete system include the following:

	Outfit No.	Price
1—8 Ft. Eclipse Windmill and Tower . . . (See Windmill price page)		
1—No. 422 underground force pump (100 lbs.) . . .	8144	\$23.00
1—Air compressor attachment	8145	8.00
1—Air chamber	8146	3.00
1—Automatic diaphragm pressure controller	8147	15.60
1—Ratchet Windmill Regulator	8148	6.90
1—Automatic check valve	8149	2.65
1—Automatic relief valve	8150	1.80
Pipe fittings as shown in illustration	8151	2.70
1—Pneumatic pressure tank (Ask for current price)		
1—water gauge for tank	8152	2.75
1—Pressure gauge for tank	8153	1.35
1—1½" Gate valve	8154	2.10
1—Or more non-freeze hydrants for outdoor use, (8½ ft.), each	8155	8.20

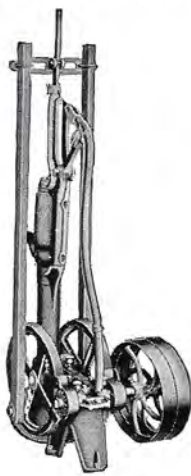
With the windmill operated job it is advisable to have the pressure storage tank large enough to hold water for at least one day's requirements. For the average dairy farm our most popular outfit is the 1,000 gallon capacity tank, size 42 inches diameter by 14 feet long. For best results the pressure tank should be located near the pump. The tank may be buried under ground with the end of the tank extending into the pump pit. The discharge pipe leading from the pump to the pressure tank should be 1½ in. The service supply pipe from the pressure tank to the various buildings may be reduced to ¾ inch. If the length of the service line is 100 feet or more the main service line should be one inch up to the first branch line, at which point the pipe may be reduced.



F-M PUMP JACKS



RJ
Clamp Jack



RJ
Sub-base Jack



KJ Clutch Jack
With Complete En-
circling Gear Guards

Jack prices include pitmans but do not include pump standards

RJ Jack—a strong, substantially built double gear Jack with a lifting capacity up to 200 feet with a 2" cylinder. The gears automatically equalize, so there is always an equal pull on each set of gears. Intersection of gears is protected by small gear guards, furnished as standard. Complete encircling gear guard can be furnished when so ordered at small extra cost.

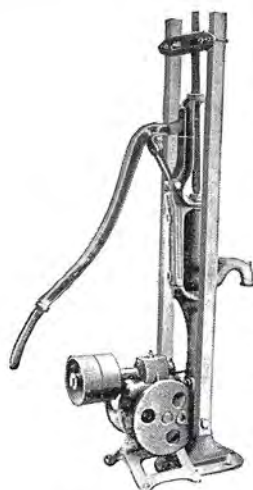
Outfit	Lbs.	Price
8134 RJ Jack, clamp type with std. gear guard . .	95	\$9.00
8135 RJ Jack with complete encircling gear guard . .	95	9.85
8136 RJ Sub-base Jack—can be bolted to wall or ceiling or to floor of pump platform	100	9.50
8137 RJ Sub-base Jack with complete encircling gear guard	100	10.40

KJ Jack—This center-drive clutch driven jack may be placed in any position—on the floor, wall, ceiling, on a post or simply clamped to the pump standard. Four jacks in one. Center drive—belt pull is in exact center of jack. All side strain eliminated. Sturdy. Wide face cast gears mesh perfectly. Clutch pulley—no belts to shift.

Outfit	Lbs.	Price
8138 KJ Jack, standard gear guard	85	\$7.40
8139 KJ Jack with complete encircling gear guard	85	7.90

UJ Worm Jack—This worm gear jack has the gears completely encased, giving the operator full protection against possible injury. Gears operate in oil—minimum wear. A low priced, efficient, dependable pumping jack.

Outfit	Lbs.	Price
8140 UJ Worm Gear Jack—10" tight pulley	85	\$9.25
8141 UJ Worm Gear Jack—4" T & L pulley . . .	85	9.25

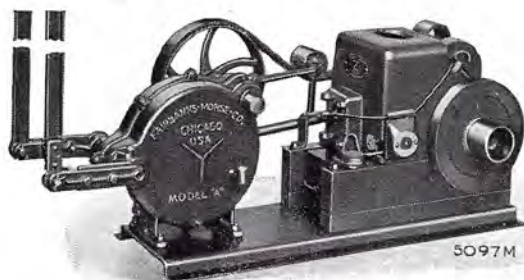


UJ
Worm Gear Self
Oiling Jack

SPECIFICATION DETAILS

Jack	Gear Ratio	Max. Strokes per Minute	Lifting Capacity, with 2" Cylinder	Strokes	Shaft	Pulley
RJ	5 to 1	35	150-200 ft.	5-7½-10"	1½"	13x2
KJ	5 to 1	35	200-250 ft.	5-7½-10"	1½"	13x2
UJ	16-1	35	150-200 ft.	5-7½-10"	1½"	.....

MODEL "A" PUMP JACK



The Model "A" Jack with Idler Close Belted to a $1\frac{1}{2}$ H. P. "Z" Engine.

The Model "A" is a double geared self oiling jack, the interior mechanism of which is completely enclosed—no chance for dirt, dust, rain, snow or sleet to enter the housing and dilute or contaminate the oil.

6" or 8" Stroke— $5\frac{1}{2}$ to 1 Gear Ratio—35 Strokes per Min.

The gears are of moulded construction to insure a hard, smooth-long-life wearing surface. A hardened steel roller running on a cold rolled steel crank pin connected to the two large main gears operates in a slotted lever which in turn is keyed on a hinged cold rolled steel pin to which the crank arms that operate the pitmans are keyed. Complete enclosure is thus obtained, and in addition the movement gives a long leverage or slow movement on the lifting stroke and a short leverage or quick return on the down stroke. This not only results in improved efficiency but contributes greatly to the easy starting feature of the jack.

PRICES

Outfit No.	Description	Code Word	Shpg. Wt., Lbs.	Price
6913	Jack as illustrated above with $1\frac{1}{2}$ H.P. "Z" engine	VJCKG	385	\$95.00
8048	Same assembly except with $\frac{3}{4}$ H.P. air-cooled engine	VJCJF	225	89.50
6914	Jack only (no base) with 12" pulley for engine drive	VJCNJ	110	20.00
6915	Jack only (no base) with 18" pulley for motor drive	VJCRN	115	21.20

CAPACITY TABLE

Diam. Cyl.	** G.P.H. at 35 Strokes per Minute	*Maximum Lift in Feet—Open Tank Service			
		6" Stroke		8" Stroke	
		$\frac{3}{4}$ HP. Eng.	$1\frac{1}{2}$ HP. Eng.	$\frac{3}{4}$ HP. Eng.	$1\frac{1}{2}$ HP. Eng.
2"	155	242'	292'	182'	242'
$2\frac{1}{4}$ "	195	187'	282'	137'	217'
$2\frac{1}{2}$ "	240	147'	232'	110'	172'
$2\frac{3}{4}$ "	290	117'	192'	80'	142'
3"	350	92'	157'	65'	118'

*When operating at 40 lbs. tank pressure, reduce these lifts by 92 feet.

**These capacities are for the 6" stroke. When operating on the 8" stroke the capacities will be about one third greater.



Showing the double gear drive and interior mechanism of the Model "A" Self Oiling Jack.

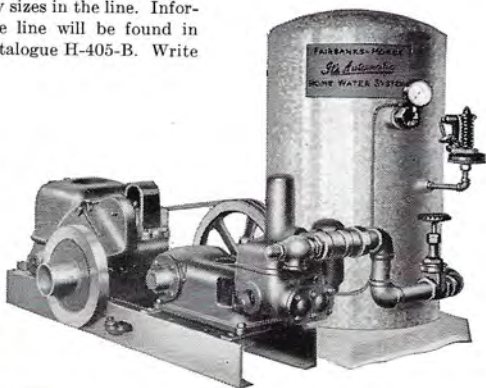
F-M ENGINE DRIVEN WATER SYSTEMS

The Fairbanks-Morse line of engine driven water systems has been developed to make it possible for the home without electric service to enjoy the convenience of a modern and dependable water system.

The units are offered complete as illustrated here, for either shallow well or deep well service, in sizes from $\frac{3}{4}$ H.P. up. Being engine operated, they will not start automatically but they will stop automatically as soon as the pressure in the tank reaches the required maximum.

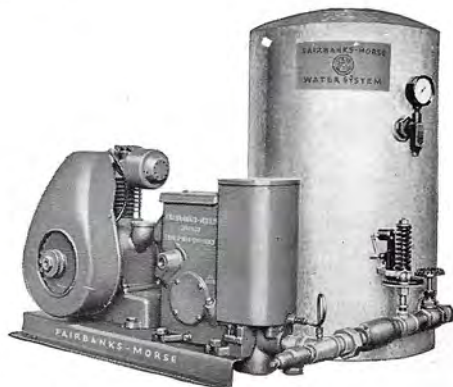
These are only a few of the many sizes in the line. Information, prices, etc., on the entire line will be found in Fairbanks-Morse Water System catalogue H-405-B. Write for it.

Right:—The $1\frac{1}{2}$ H.P. "Z" engine connected to a 600 gallon per hour Typhoon pump (for shallow well service). This unit is capable of delivering 600 gallons per hour against 100 lbs. pressure. Both engine and pump are made by Fairbanks-Morse.



Left:—A smaller unit for shallow well service. The engine is a $\frac{3}{4}$ H.P. four cycle air-cooled with foot crank starting lever. Offered in two sizes—360 and 500 gallons per hour

Right:—A $\frac{3}{4}$ H.P. engine driven deep well water system—for use where the water lift is greater than the 22 foot limit of the shallow well pump units. These units are also available in $1\frac{1}{2}$ and 3 H.P. sizes for deeper wells or greater pumping capacities.



F-M ELECTRIC WATER SYSTEMS

**The
CHALLENGER**
200 Gals. per Hr.
Complete with
5 Gal. Tank
in Base



\$44.95

F.O.B. FACTORY

**For Lifts of
22 Feet or Less**

In addition to the engine operated water systems mentioned on the previous page, the Fairbanks-Morse Line includes an exceptionally complete array of electric water systems—in a wide range of sizes—for both shallow well and deep well pumping.

Foremost in the field of shallow well pumps is the Challenger—a genuine Fairbanks-Morse Water System—offered complete as illustrated above—at a price that clearly establishes it as the outstanding value of the day.

SYSTEMS WITH LARGER TANKS

To the right is shown another popular unit from the Fairbanks-Morse Line—the 225 gallon pump with 18 gal. tank, air volume control, etc. This unit likewise is priced to give the customer unheard-of value for his money.

Fairbanks-Morse Pumps of greater capacity with tanks of any standard size are available for either shallow well or deep well pumping. Write for the complete Water System Catalogue H-405.

**"Wherever there is Life
there is Need for Running
Water" and wherever there
is need for running water
there is an opportunity for
you to make money selling
Fairbanks-Morse Pumps.**



BUILT-TOGETHER PUMP

In addition to a complete line of home water systems, Fairbanks-Morse also manufacture pumps for special duty and general industrial service. A few of the many different types are shown here.

The F-M Built-Together pump illustrated to the right is a highly efficient pump of centrifugal design. The enclosed bronze impeller is mounted directly on the shaft of a Fairbanks-Morse Splash-Proof motor—no couplings or alignment problems to contend with. Rotating element is mounted in ball bearings. Made in four different sizes—1¼", 1½", 2" and 2½" suction.

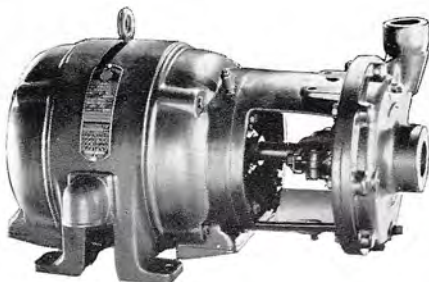


FIG. 5520 AND 5530 CENTRIFUGAL PUMPS



Here is a very unusual line of ball bearing centrifugal pumps. They are highly efficient, low in price and built of the finest materials available. Single stage, side suction design. Compact, sturdily built. Especially designed for general pumping service and heavy duty.

FIG. 5510 CENTRIFUGAL PUMPS

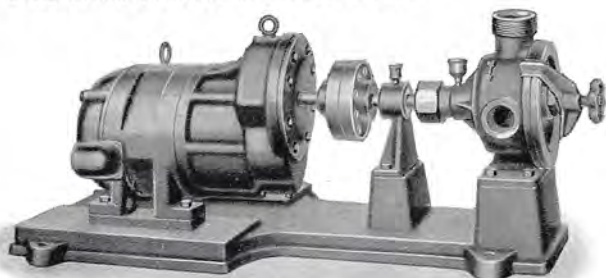
The Fig. 5510 is a sleeve bearing centrifugal pump of side suction design. Like the design shown above, they are exceptionally efficient and built to withstand the rigors of heavy duty.

Available in sizes from 1 inch to 8" for capacities from 25 to 2200 g.p.m. against heads up to 120'. Open impellers used on all sizes. Frames are cast in one piece and are heavy and rigid to take care of internal pressure.



F-M PERFECTION ROTARY PUMP

The rotary pump here shown can handle any fluid that can flow through a pump from benzine or gasoline to molasses. The pump is compact, light in weight and remarkably free from vibration.



The rotor is in the form of a helical (spiral), internal gear that fits into the housing with just sufficient clearance to keep wear at a minimum. Within the rotor is an idler pinion with helical teeth intermeshing with the teeth in the rotor. Only two moving parts—the helical gear rotor and the pinion. There are no suction and discharge valves—no springs or other fittings.

The motor driven type shown is a popular unit. It is furnished complete as shown with motor and enclosed reduction gears mounted on one base.

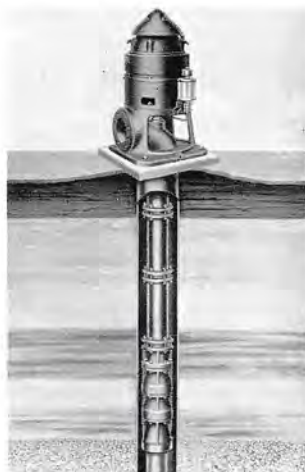
**SANITARY TYPE ROTARY PUMP**

The sanitary type rotary pump here illustrated for belt drive, is designed with removable end plate for easy cleaning. It is made in close grained gray iron or bronze finished in gray enamel. All bronze pumps, nickel plated can be furnished if desired. Both types of pumps are available in several sizes from $\frac{3}{4}$ " to 2" with capacities of from 8 to 90 gallons per minute.

F-M TURBINE PUMPS

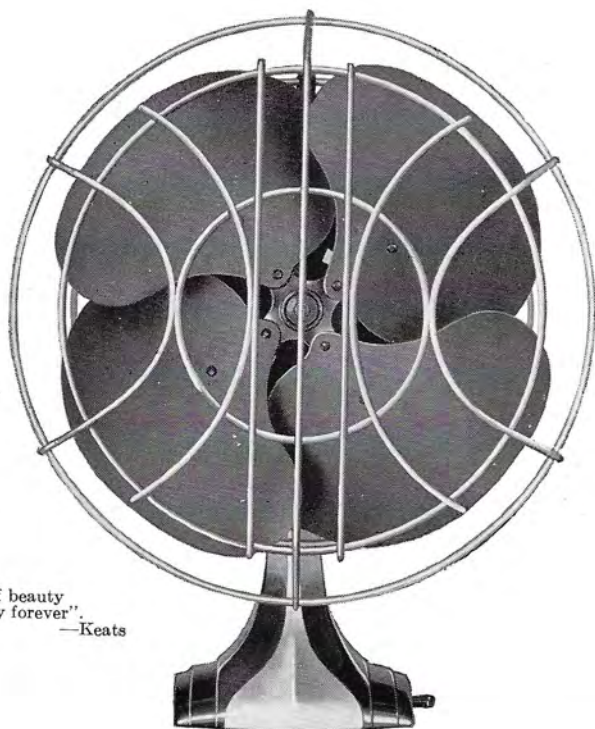
These pumps are designed for pumping large quantities of water from underground sources. Oil lubricated pumps are available in sizes from 4" to 16" with capacities up to 2200 g.p.m. and for heads up to 450 feet. Water lubricated pumps are available in sizes from 6" to 10" with capacities up to 1100 g.p.m. and heads up to 450 feet.

These pumps are simple, yet sturdily built to withstand severe service. Their efficiency is high but it is not secured at the sacrifice of wearing qualities. Complete data on this or any of the other pumps illustrated will be furnished on request.



THE NEW MODERNISTIC DE LUXE FAN

Ultra—Quiet—Beautiful



"A thing of beauty
is a joy forever"
—Keats

Here is a thing of beauty! A styled fan, designed to harmonize with the finest living-room appointments!

Without introducing a single exotic metal stamping or incongruous casting, without clashing in any way with time-honored conceptions of symmetry, our design-engineers have succeeded in reshaping guard, and base to effect a new styled fan destined to meet public favor in 1936.

Because of the specially-designed blades and motor, the fan is ultra-quiet . . . the ideal fan for lecture halls, mortuaries, reading-rooms, churches, class rooms, hospitals . . . and, of course, for private bedrooms.

Blades are of aluminum, treated and enameled; base is die-cast, enamel finished in ebony black and silver gray; guard is of heavy steel wire, finished in silver gray.

Size	Description	No. of Speeds	Type	Price
10-inch	Oscillating	1	5260-S3	\$14.45
10-inch	Oscillating	3	5260-S	16.45
12-inch	Oscillating	3	6260-S	28.00
16-inch	Oscillating	3	8460-S	36.00

CONVENTIONAL TYPE FANS

8" Non-Oscillating Portable Fans

The Outstanding 8" Fan! The Best Buy on the Market

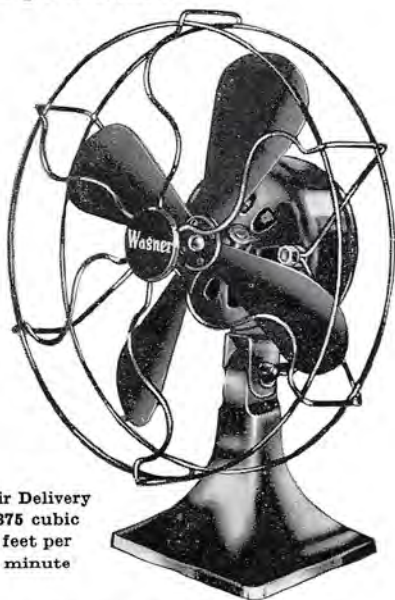
Its soft semi-gloss black lacquer finish and modernistic lines combine to give it the greatest "eye appeal" of any of the smaller models. Quiet, smooth operation—no interference with radio reception—wool yarn lubrication—built for desk or wall mounting. Attention given to every detail even to furnishing the latest type soft rubber unbreakable attachment plug.

Price

\$3.95

in 110 volt, 60 cycle

Air Delivery
375 cubic
feet per
minute



10" Oscillating and Non-Oscillating Portable Fans



Air Delivery
550 cubic
feet per
minute

You will not find a better fan for the price. This 10" fan is the leader in its field. It is the most popular size for the home. It runs very quietly—gives faithful service—does not interfere with radio reception. It is of pleasing proportions, smoothly rounded—with the weight low to assure stability. Ideal as a portable fan; also designed for wall mounting.

Price

10" Non-Oscillating.....\$ 9.95

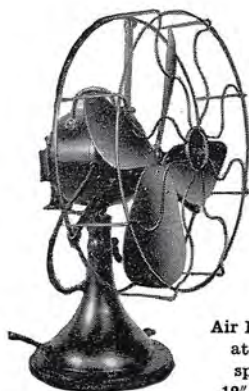
10" Oscillating..... 12.95

in 110 volts, 60 cycle

(For other data and prices see page 88)

12" AND 16" PORTABLE FANS

Oscillating and Non-Oscillating



Air Delivery
at high
speeds
12"; 1000;
16"; 1500
cubic feet
per minute

Price

12" Non-Oscillating.....	\$21.00
12" Oscillating.....	25.00
16" Oscillating.....	32.00
in 110 volt, 60 cycle	

OUTSTANDING SALES FEATURES

Guard—Strong and rigid.

Blades—Machine formed from aluminum sheets. Truly quiet; impervious to moisture—will not warp.

Three-Speed Switch—With choke coil, is standard equipment on all 12- and 16-inch fans. So designed that a pressure on the handle will not break the electric contact; glides easily from point to point. Fan can be started at ANY position.

Motor—Induction type, the simplest type ever developed. No brushes—hence, no sparking and radio interference. Rotors are dynamically balanced—hence, no vibration and noise. Wagner motors are the finest built—and they will not interfere with radio reception.

Hinge—Adjustable; fan can be tilted backward or forward, and clamped in position desired.

Pedestal—Cast iron, pleasingly designed. Base padded with felt to prevent scratching of furniture.

Cord and Plug—Eight feet of cord; unbreakable soft rubber plug.

Finish—Semi-gloss black lacquer.

Bearings—Bronze, extra long for maximum service. Wool-yarn lubricated.

Oscillating Mechanism—Turned off or on with twist of a knob on top of the housing. Fan stops oscillating when encountering an obstruction, and starts oscillating again when obstruction is removed.

Handle—Provided on all 12- and 16-inch fans.

(For other data and prices see page 88)

CEILING FANS

These ceiling fans are available in the 52-inch size. These fans are exceptionally quiet, dependable and economical in service. They operate at comparatively slow speed. The down-draft is gentle enough not to cause inconvenience to those seated immediately below, and the volume of moving air is great enough to afford relief from stagnant, oppressive atmosphere common to crowded, ill-ventilated rooms. These fans are ideal for large public rooms, halls, auditoriums, theatres, hotels, ball rooms, restaurants, shops, stores, offices, factories, etc.

Air Delivery
7500 cubic feet per
minute at high speed



Base Price
\$47.00
in 110 volt, 60 cycle

REVERSIBLE CEILING FANS

In offices and other places where a direct breeze from a ceiling fan would cause considerable inconvenience and confusion by scattering papers about the room, it becomes extremely desirable to be able to reverse the flow of air from a downward to an upward direction. The Reversible Ceiling Fan shown above has a toggle switch located directly underneath the oil reservoir that permits changing direction of the air flow—up or down. 52-inch blades.

Price \$50.00 in 110 Volt, 60 Cycle

HOTEL TYPE CEILING FANS



**Ceiling
Fan
equipped
with light**

Price \$47.00
in 110 volt, 60 cycle

The 52-inch hotel type fan, shown to the left, is designed especially for use in hotels. This fan uses only 96 watts at high speed instead of 110 watts, and produces 7,400 cubic feet of air per minute.

CEILING FAN CONSTRUCTION DETAILS

Blades—Are of wood, mahogany finished.

Motor—Induction type, the simplest type ever developed. No brushes—hence, no sparking and radio interference. Rotor dynamically balanced; no vibration and noise. Vertical shaft supporting the motor and around which the motor rotates, is stationary. Sleeve bearing around vertical shaft is integral part of the rotor. The sleeve bearing is generously long to prevent the slightest wobbling. Ball-thrust bearings support the weight of the rotor.

Three-Speed Switch—Pull-socket type. Wall-switch can be had on specification, at slightly higher cost.

Finish—Motor is semi-gloss black; blades mahogany.

Oil Hole—Placed above vertical bearing, dust-proofed with spring cap. Oil reservoir at bottom of fan is large; ample oiling assured. Oil-drain is at bottom of oil reservoir. Well-designed lubrication system requires oiling only once each year.

Hanger—Pleasingly designed and finished. Includes ceiling hook and canopy—but no pipe extensions are furnished unless specially ordered.

(For other data and prices see page 88)

VENTILATING FANS



Air delivery
at high speed
12", 935; 16",
1500 cubic ft.
per minute

The ventilating fans here shown are complete, ready for mounting in walls or partitions. These fans are excellent for removing smoke, dust or objectionable odors, thus keeping the air in kitchens, smoking rooms, public toilets and other places fresh and healthful. They are non-reversible, designed to exhaust to the outdoors. Every home, restaurant, hotel, store—any place where cooking, smoking and other odors prevail—requires ventilating fans.

Price

12-inch—\$22.50

16-inch— 25.00

OUTSTANDING FEATURES

Motor is a standard non-oscillating fan motor. Three-speed control can be had at a small extra charge. The back end plate is closed to protect the motor from fine dust.

Mounting Ring provided for attaching ventilating fan to opening in outside wall or inside partitions. Three arms secure the motor in place. The entire unit is rigid—will not warp or work itself loose. The ring is circular—of the following dimensions: 12-inch size, inside diameter 12¾ inches, outside diameter 15¼ inches, bolt circle 14½ inches; 16-inch size, inside diameter 16¾ inches, outside diameter 19¼ inches, bolt circle 18½ inches.

Finish of motor, blades and mounting ring is black.



3-speed wall
regulator

Price \$5.00

SPEED REGULATORS

A speed regulator coil with a 4-point regulating switch providing three running speeds and an off position together with choke coil, mounted in a cast iron box for mounting on the wall and for use with either ventilating or furnace fans, can be had at a small additional price.

(For prices and other data see page 88)

1935 PRICE TABLE

Size	Description	Number of Speeds	Type	Air Delivery in Cu. Ft. at High Speed *	Approx. Shpg. Weight	List Price
Alternating Current DESK OR BRACKET FANS 110 Volt, 60 Cycle†						
8"	Non-osc.	1	4160	375	9	\$ 3.95
10"	Non-osc.	1	5160	550	18	9.95
	Osc.	1	5260	550	19	12.95
	Osc. Spec. Blades	1	5260	550	19	14.45
12"	Non-osc.	3	6160	1000	27	21.00
	Osc.	3	6260	1000	27	25.00
	Osc. Spec. Blades	3	6260	1000	28	28.00
	Osc. Chrom. Plate	3	6260	1000	28	33.50
16"	Osc.	3	8260	1550	35	32.00
	Osc. Spec. Blades	3	8160	1550	36	36.00
	Osc. Chrom. Plate	3	8460	1550	36	40.50
Alternating Current VENTILATING FANS 110 Volt, 60 Cycle†						
12"	Vent.	1	6560	1000	38	22.50
	Vent. Spec. Blades	1	6660	1000	38	26.00
16"	Vent.	1	8560	1550	44	25.00
	Vent. Spec. Blade	1	8660	1550	44	29.00
Alternating Current CEILING FANS 110 Volt, 60 Cycle†						
52"	Non-reversible	3	1960	7500	67	47.00
	Non-reversible hotel type	3	1960H	7400	67	47.00
	Reversible	3	1960	7500	67	50.00
Direct Current DESK OR BRACKET FANS 115 and 230 Volt						
12"	115 V. Osc.	3	6400	1000	27	28.50
	230 V. Osc.	3	6402	1000	27	30.00
16"	115 V. Osc.	3	8400	1550	35	35.00
	230 V. Osc.	3	8402	1550	35	36.50
Direct Current VENTILATING FANS 115 and 230 Volt						
12"	115 V. Vent.	1	6600	1000	37	25.00
	230 V. Vent.	1	6602	1000	37	26.50
16"	115 V. Vent.	1	8600	1550	43	28.00
	230 V. Vent.	1	8602	1550	43	29.50

Prices cover fans that will start and operate successfully on any voltage, frequency, or combinations of voltage and frequency variation not in excess of 5% above or below normal rated values, but not necessarily in accordance with published performance data for operation at normal rating.

SPECIAL VOLTAGES

For 220-250 volt A.C. or 230-250 volt D.C. oscillating fans and ventilating fans add \$1.50 to the list price of corresponding 110 volt A.C. or 115 volt D.C. fans.

For 220-250 volt A.C. ceiling fans add \$2.00 to list price of corresponding 110 volt ceiling fan.

Ventilating Fan Speed Regulator

All ventilating fans are one speed, however, if speed control is required, a 3 speed wall type speed regulator will be furnished at an extra charge of \$5.00 list.

*These figures may vary 10% from figures shown above.

†50 cycle fans furnished at same price as 60 cycle but the air delivery is slightly less than figures given above.

Special Finishes

On special orders Wagner Fans can be finished to meet special requirements. The extra charges for same are as follows:

For special lacquer finish, any color—

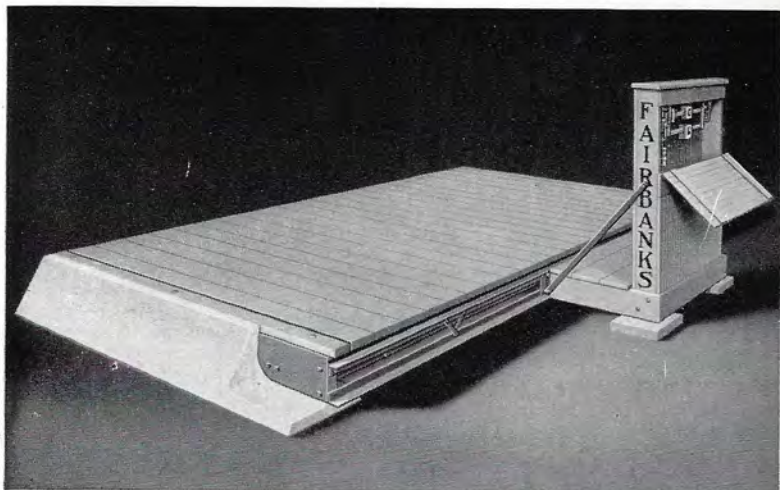
	50 or
Reasonable Quantities	More
8" and 10"—Add to price \$2 each.	\$1.00 each
12" and 16"—Add to price	3 each. 1.50 each

For Chromium Plate—

8"—10" fans add.....	\$ 6.00 each list
12"—16" fans add.....	8.50 each list
Ceiling fans add.....	11.50 each list

These additions for chromium plate to be made for any quantity.

FAIRBANKS SELF CONTAINED WAGON SCALES



Weighing is an important aid to profit making in agriculture as in other forms of business whether products are being bought or sold. The Fairbanks self contained wagon scale, backed by more than 100 years of experience in scale design and construction, is an accurate, dependable weighing machine. A high grade wagon scale that requires no pit; can be quickly and easily installed. Its simplicity of design, great strength and ample capacity makes it the finest of agricultural type scales ever offered at an economical price. The capacity is 5 tons; no loose weights; platform size 14'x8'; furnished with steel I-beam stringers and wooden beam box. No planking furnished.



FAIRBANKS PORTABLE PLATFORM SCALE

For general weighing of merchandise in every form, these all metal portable platform scales are the most popular and adaptable of the portable type. The pillar, cap and center panel of the platform are made of copper-alloy steel. The lever system is made heavy, with a large factor of safety. All bearings, pivots, loops and weights are Parkerized rust-resistant. Furnished in 1000 lb. capacity, platform size 18"x27" and 500 lb. capacity, platform size 16"x25". Finished in blue with bronze stripe, all well varnished for protection.

FAIRBANKS HEALTH SCALES

RIGHT:—Fairbanks personal weighing scales give accurate and dependable weights to safeguard the health of the entire family. Such weights are most important in maintaining good health and in detecting impending ailments before they reach a stage that is difficult to cure or control. Variations continually take place in the weight of the human body and if accurate weight records are kept, any great deviations from normal weights are immediately discovered, and proper corrections may be made of such developments before they become serious. These scales are light, compact units, and of substantial construction to provide long and accurate service. Capacity 300 lbs.; waist height; finished in Tourmaline grey duco, white, ivory, green, blue, orchid or pink; with rubber covered platform 11"x11" in size.



LEFT:—The only way mother will be sure her baby is gaining properly is to weigh the baby regularly and keep a record. Records should be made of baby's weight every week for the first three months and every two weeks thereafter. Doctors recognize that such records are indispensable for the proper care of a baby and that they must have accurate data upon which to base a diagnosis. These scales are of pressed and welded steel construction, with a most attractive design and finish. Easy to keep clean and sanitary. Finished in beautiful Tourmaline grey, white, ivory, green, blue, orchid or pink. Capacity 31 lbs.

MODEL 12—ELECTRIC



A new Fairday with outstanding sales features—built to Fairbanks-Morse exacting standards of quality—priced within the reach of the popular purse!

Full porcelain washing compartment is finished in an alluring shade of blue-grey with legs and wringer in Harmony blue—the whole an intriguing combination of rare beauty and unusual eye appeal.

**MODEL 12
ELECTRIC** \$69.50
as illustrated

Shipping wt. 195 lbs.

The Model 12 is a washer that is designed to appeal to the careful buyer. It is not a machine of skimpy design, cheaply constructed, built to sell at a specific price. It is a real high quality washer—with oversize tub—four-fin agitator—large roll wringer—first quality full size motor—in fact, all the conveniences and refinements you would expect to find only in a washer selling at a price of from \$10.00 to \$20.00 more.

OUTSTANDING SALES FEATURES

Washing Compartment—Tub is of exclusive design, with corrugated sides acting as old-fashioned washboard, which have a decided effect on the washing action. Corrugations are horizontal and inasmuch as agitator gives an over and under "cushioned washing action", clothes are rubbed up and down against the corrugated sides in much the same method as clothes were washed on the old-fashioned washboard.

Capacity—16 gallons of water. Full 60 lbs. of clothes per hour (dry weight). Oversize 21-inch tub.

Rust-Proofed Tub Cover—Cover is of heavy auto-body steel, vibration-proofed with rubber edge. Cover is provided with one handle.

Exclusive French Type Agitator—Agitator is an improved French type, perforated with double set of fins. It is extra large and so

constructed that clothes are agitated at the top as well as at the bottom of the tub. Agitator fins on top and bottom give superior washing action. Perforations in the agitator allow the water to pass through and create a suction against agitator blades which draws the clothes into the agitator. The top wing of the agitator draws the clothes to the agitator, grips them firmly but thoroughly, then causes the clothes to circulate downward, at the same time rubbing them. WITH THIS NEW AGITATOR, THE WATER ACTION IS NOT DEPENDENT UPON TO CIRCULATE THE CLOTHES. THE AGITATOR ITSELF FIRMLY BUT GENTLY GRIPS THE CLOTHES AND GIVES AN OVER AND UNDER "CUSHIONED WASHING ACTION." Double set of fins on agitator prevents clothes from twisting and tangling, as sometimes happens with agitators with but one set of fins.

MODEL 12-P—ELECTRIC

WITH PUMP

The Model 12-P is identical in every detail with the Model 12 except it has the additional refinement of an automatic drain pump which eliminates the necessity of lifting and carrying heavy pails of water when emptying the tub.

MODEL 12-P
with Auto-
matic Drain
Pump

\$79.50

Shipping wt. 205 lbs.



MODEL 12 FEATURES—Continued

Exclusive Patented Wringer—Wringer frame is all-metal. Swings easily into 8 positions, and locks firmly and securely.

Drainboard—Made of special selected auto body steel, rust-proofed. Adjustable to permit water draining either way.

Soft-Roll Dryer—Handsome convenient Balloon Roll Wringer Dryer. Swings at touch of finger. Extra large $2\frac{1}{4}$ -inch rolls. Wrings a sheet or handkerchief equally dry without adjustment.

Wringer Safety Release—The most modern to be found in any washer; release is instantaneous and positive as pressure is released at a slight pressure with hand, finger, arm, elbow, etc.

Wringer Head Mechanism—Neat, compact wringer head. Wringing is operated by silent, heavy gears. Wearing parts in the

wringer head mechanism are of hardened steel.

Sturdy Construction—Frame construction of this washer is strong and sturdy. Legs are braced and tied together with a brace of over-size steel, insuring maximum rigidity.

Casters—Large, easy rolling casters. Axles are rust-proofed by special Udyllite process.

Motor—Full powered; oversize capacity. Gear Case—Sealed tight, made of close grained cast iron with openings for drive shafts only in lower half, eliminating possibility of oil leaks.

Automatic Drain Pump—Eliminates forever the necessity of lifting and carrying heavy pails of water when emptying the washer. (Only model 12P is equipped with pump.)

Special Motors:—All electric models are regularly priced with 110 volt 60 cycle motor. When direct current or special cycle motors are required they can be supplied at a small additional charge. Price quoted on application.

MODEL 12-G—ENGINE DRIVEN



The Fairday Model 12-G Washer is identical in every detail with the Model 12 Electric except it is equipped with gasoline engine instead of electric motor. Shipping wt. 260 lbs. **\$89.50**

Price complete with engine as shown above.....

The Fairday Model 12-G at this low figure represents the biggest value obtainable in a high-grade engine driven washer. The home without electricity is thus assured of the same high degree of washing machine service as that obtainable from the Fairday Electric Models.

Engine driven washers frequently are used on the farm where large washings are the rule and large washing capacities are desired. The Fairday Model 12-G is not a low-priced electric with small tub converted to an engine driven model. It has the same capacity as the standard Fairday Model 12 Electric—oversize 21" tub—16 gallons of water—full 60 lbs. of clothes per hour (dry weight)—four-fin French type rapid washing agitator—a truly A-No. 1 quality engine driven washer in every detail.

GAS ENGINE MOTOR:—The Fairday Model 12-G is equipped with the special "Blue-Flash" Briggs & Stratton, 4 cycle, gas motor with the new L type cylinder head. Starter prevents foot from slipping. Motor is built low and compact—generates $\frac{1}{2}$ H.P. and is economical to operate.

MODEL 82 DE LUXE ELECTRIC

An unusually high grade washer of extra large capacity with patented finger-tip control—a real DeLuxe model at a price that really is no more than that of a standard washer.

Large Washing Compartment with corrugated sides—finished in blue vitreous porcelain. 23" dia. deep tub. **Larger in capacity than any single tub washer in its price class.** Heavy pressed steel cover—rust proof—rubber edge—vibration proof.

Full Size Heavy Wringer with sturdy grey iron rust proof frame—2 1/4" rolls—locks firmly in eight different positions. Flipper drainboard—reversible.

French Type Agitator—perforated, with double set of fins. Speeds up washing and prevents clothes from twisting and tangling.

Casters:—Large 2" easy rolling noiseless rubber casters.

Finger-tip Controls:—Exclusive finger-tip controls start and stop wringer operation. A flip of the lever starts and stops the agitator. *This washer has everything!*

MODEL 82, without drain pump (not illustrated) Shpg. Wt. 205 Lbs. **\$89.50**

MODEL 82-P, with automatic drain pump Shpg. Wt. 215 Lbs. **\$99.50**

MODEL 42—ELECTRIC

1 A Low Priced Fairday; priced in the reach of most modest pocketbook. Quality built throughout. Built up to a standard, not down to a price.

2 Large Tub with horizontal corrugated sides; results in unusual washing action. Capacity 6 sheets. Porcelain finish in beautiful warm blue-grey. Tub cover is rust proof, auto body steel.

3 Extra Large Size Agitator, perforated, with double set of fins gives superior washing action. Washes clothes at top of tub as well as at bottom. One control lever within convenient reach starts and stops agitator.

4 Equipped with Standard Chamberlain Wringer with large, oversize, balloon rolls. Has pressed steel wringer frame and rust-proof drainboards.

5 Sturdy Frame with steel legs securely riveted to base. Has easy-rolling, rust-proof casters.

MODEL 42, without drain pump (178 Lbs.) **\$49.50**

MODEL 42-P, with drain pump (185 Lbs.) **\$59.50**

MODEL 42-G, with B & S engine (240 lbs.) **\$78.50**



OUTFIT NUMBERS

Outfit	Code	Page	Outfit	Code	Page	Outfit	Code	Page
1.		72	320-TBC	VLBGF	53	4610		11
FM-1.	VBACR	39	358		68	4610-A		11
2		72	422		75	4611		11
2PS.		68	422A		75	4611-A		11
FM-2.	VBADS	39	500	VLACB	53	4612		11
3		72	500-B	VLAVV	53	4612-A		11
3-PS.		68	500-BC	VLAIH	53	4613		11
FM-3.	VBAET	39	500-TBC	VLBHG	53	4613-A		11
4		72	550		66	4614		11
4-PS.		68	550-A		66	4614-A		11
FM-4.	VBAFU	39	600	VLADC	53	4615		11
FM-5.	VBAGW	39	600-B	VLAWW	53	4615-A		11
6 ft.	VLIXO	43	600-BC	VLAJH	53	4616		11
8 ft.	VLIIY	43	600-TBC	VLBIH	53	4616-A		11
10 ft.	VLJAN	43	750-A		65	4617		10
AC10-H.	VFEAP	34	751-A		66	4618		10
AC10-HS.	VFEMB	34	760		63	4619		10
E-11.		70	760-A		63	4620		10
12.		91	770		64	4621		10
12-G.		93	770-A		64	4622		10
12 ft.	VLJBR	43	1012-H.	VFCAR	32	4623		10
12-P.		92	1012-HS.	VFCCHZ	32	4624		10
13-A.		73	1012-BC.	VFDKA	30	4625		10
13-B.		73	1012-BC85.	VFDLB	30	4626		10
14 ft.	VLIVM	45	1032-BC.	VFBAS	29	4627		10
AC15-H.	VFECR	34	1032-BC85.	VFBBT	29	4628		11
AC15-HS.	VFENC	34	1032-BC130.	VFBCU	29	4629		11
AC15-R.	VFEVK	35	1032-BC140.	VFBDO	29	4630		11
16 ft.	VLWVN	45	1032-LC.	VFBGO	31	4631		11
H29		70	1032-LC85.	VFBPH	31	4632		11
AC30-H.	VFEDS	34	1032-LC130.	VFBQI	31	4633		11
AC30-HS.	VFEOD	34	1032-LC140.	VFBRI	31	4634		11
AC30-R.	VFEWL	35	1512-H.	VFCBS	32	4635		11
31.		69	1512-HS.	VFCJA	32	4636		11
31-A.		69	1512-R.	VFCNE	33	4637		11
36.		69	1512-BC.	VFDMC	30	4638		11
36-A.		69	1512-BC85.	VFDND	30	4639		11
42		94	1515	VEJFN	23	4640		11
42-P.		94	1532	VEJBJ	23	4641		11
42G		94	1532-BC.	VFBGZ	29	4642		11
49B		68	1532-BC185.	VFBIA	29	4643		11
AC30-H.	VFEET	34	1532-BC200.	VFBIB	29	4644		11
AC50-HS.	VFEPE	34	1532-BC250.	VFBKC	29	4645		11
AC50-R.	VFEXM	35	1532-BC375.	VFBLD	29	4646		11
55.		70	1532-LC.	VFBSK	31	4647		11
57.		70	1532-LC185.	VFBTL	31	4648		11
58.		68	1532-LC200.	VFBUM	31	4649		11
59.		68	1532-LC250.	VFBVN	31	5012-H.	VFCDU	32
59-F.		68	1532-LC375.	VFBWO	31	5012-HS.	VFCCL	32
AC63-H.	VFEFU	34	1564	VAPAZ	15	5012-R.	VFCPG	33
AC63-HS.	VFERG	34	1569	VARFB	16	5012-BC.	VFDUK	30
AC63-R.	VFEYN	35	1570	VAREA	16	5012-BC85.	VFDVL	30
FM-65.	VBAIY	39	1571	VAPCA	17	5012-BC130.	VFDWM	30
FM-66.	VBALA	39	1575	VARED	18	5012-BC140.	VFDYO	30
82.		94	1596	VAPGF	15	5012-BC185.	VFDZP	30
82P.		94	1597	VAPHG	17	5160		88
AC94-H.	VFEGW	34	1690-R.	VEMDI	28	5207		45
AC94-HS.	VFESH	34	2005-R.	VGZBX	80	5221	VLMAA	46
AC94-R.	VFEZO	35	3012-H.	VFCCT	32	5222	VLMPB	46
99.		51	3012-HS.	VFCCKB	32	5223	VLMPRE	46
106		48	3012-R.	VFCOF	33	5224	VLMSF	46
106-A.		48	3012-BC.	VFDDE	30	5225	VLMTG	46
117		51	3012-BC85.	VFDPF	30	5226	VLMTU	46
130		49	3012-BC130.	VFDRIH	30	5227	VLMTV	46
140-H.	VLHQI	55	3012-BC185.	VFDST	30	5228	VLMTW	46
140-HB.	VLHRI	55	3032-BC.	VFDAN	29	5229	VLMTX	46
140-HBC.	VLHSH	55	3032-BC185.	VFDBR	29	5230	VLMTY	46
140-T.	VLHTL	55	3032-BC200.	VFDCE	29	5231	VLMTZ	46
140-TB.	VLHUM	55	3032-BC250.	VFDCT	29	5232	VLNAN	46
140-TBC.	VLHVN	55	3032-BC375.	VFDEU	29	5233	VLNBN	46
140-HT.	VLHWO	55	3032-LC.	VFDV	31	5234	VLNCO	46
140-HTB.	VLHXP	55	3032-LC185.	VFDGX	31	5235	VLNDP	46
140-HTBC.	VLHZR	55	3032-LC200.	VFDHY	31	5236	VLNER	46
181.		73	3032-LC250.	VFDIZ	31	5237	VLNFS	46
181-W.		73	3032-LC375.	VFDJN	31	5238	VLNGT	46
193.		73	4160		88	5239	VLNHU	46
193-W.		73	4189	VAPDB	19	5240	VLNIV	46
226.		70	4275	VECPF	9	5241	VLNJW	46
238.		70	4281	FATTY	5	5242	VLNKX	46
248.		70	4600		10	5243	VLNLY	46
278.		71	4601		10	5244	VLNMZ	46
280.		71	4603		10	5245	VLNOA	46
320.	VLABA	53	4604		10	5246	VLNPC	46
320B.	VLAU	53	4606		10	5248	VLOPA	46
320BC.	VLAHH	53	4607		10	5249	VLORC	46
						5250	VLOSD	46

OUTFIT NUMBERS

Outfit	Code	Page	Outfit	Code	Page	Outfit	Code	Page
5260		88	8103		13	9033		48
5315	VLOGG	46	8104		13	9034		48
5730		45	8105		13	9035		48
5731		45	8106	VADEP	17	9036		48
5934	VABIW	4	8107	VADFR	17	9037		48
5935	VABWJ	4	8108	VADGS	17	9038		48
5936	VABJX	6	8109	VADHT	17	9039		48
5937	VABXK	6	8110	VARHE	18	9040		48
5938	VABKY	7	8126	VENWA	24	9041		48
5939	VABYL	7	8127	VENAE	24	9042		41
5940	VABLZ	8	8128	VENBF	24	9043		41
5941	VABZM	8	8129	VENCG	24	9053		67
5949	VECGX	9	8130	VENDH	24	9054		67
5950	VECHY	9	8131	VENMR	24	9055		67
5951	VECJQ	9	8132	VENNS	24	9056		67
5952	VECOE	9	8133	VENOT	24	9057		67
6160		88	8134		77	9058		67
6260		88	8135		77	9059		67
6400		88	8136		77	9060		49
6402		88	8137		77	9061		49
6560		88	8138		77	9062		49
6600		88	8139		77	9063		49
6602		88	8140		77	9064		49
6660		88	8141		77	9065		49
6720	VAZPE	4	8142	VEKJR	27	9066		49
6734		59	8143	VEKKS	27	9067		49
6735		59	8144		76	9068		49
6736		59	8145		76	9077		10
6737		59	8146		76	9078		10
6741		58	8147		76	9079		10
6800		59	8148		76	9080		10
6818	VEJGP	23	8149		76	9081		10
6820	VEJIR	23	8150		76	9082		10
6836	VABGU	5	8151		76	9083		10
6837	VACAM	5	8152		76	9084		10
6853		59	8153		76	9085		10
6895		59	8154		76	9086		10
6913	VJCKG	78	8155		76	9087		10
6914	VJCNJ	78	8159-96		45	9088		10
6915	VJCRN	78	8200	VLBUT	53	9089		10
7004		59	8201	VLBVU	53	9090		12
7006		59	8202	VLBWV	53	9094		10
7512-H	VFCV	32	8260		88	9095		12
7512-HS	VECMD	32	8400		88	9096		12
7512-R	VECRI	33	8402		88	9097		12
7515	VEJEM	23	8460		88	9098		12
7532	VEJAI	23	8600		88	15100	VEIOY	21
7532	VEJAI	23	8602		88	15185	VEISB	21
8048	VJCJF	78	8660		88	15300	VELAJ	21
8058		59	9004	VADAL	15	15318	VEIFO	21
8060	VACMZ	4	9005	VADBM	15	15325	VEIGQ	21
8061	VACPC	5	9006	VADCN	15	15337	VEIHR	21
8063	VACLY	4	9007	VADDO	15	16085	VELAG	26
8066	VACSE	6	9008	VADIV	19	16120R	VEMEJ	28
8067	VACRD	6	9009	VADJV	19	16140	VELBH	26
8069	VACOA	4	9010	VADKW	19	16150R	VEMFK	28
8070	VACUG	7	9011	VADLX	19	16180R	VEMGM	28
8071	VACTF	7	9012	VADMY	19	16185	VELCI	26
8072	VACVH	8	9016	VEJJS	23	16210R	VEMHN	28
8073	VACWI	8	9017	VEJKT	23	16240R	VEMIO	28
8075	VACXJ	8	9021		49	16250	VELDJ	26
8076		12	9022		49	16375	VELEK	26
8091		13	9023		49	56085	VELSZ	26
8092		13	9024		49	56140	VELUA	26
8093		13	9025		49	56185	VELVB	26
8094		13	9026		49	56250	VELWC	26
8095		13	9027		49	56375	VELXD	26
8096		13	9028		49	75100	VEIKU	21
8097		13	9029		49	75150	VEIMW	21
8098		13	9030		48	75300	VEHSC	21
8100		13	9031		48	75314	VEHYI	21
8101		13	9032		48	75385	VEHXH	21
8102		13						

CODE WORDS

Code	Outfit	Page	Code	Outfit	Page	Code	Outfit	Page
FATTY	4281	5	VABZM	5941	5	VACUG	8070	7
VABGU	6836	5	VACAM	6837	5	VACVH	8072	8
VABIW	5934	4	VACLY	8063	4	VACWI	8073	8
VABJX	5936	6	VACMZ	8060	4	VACXJ	8075	8
VABKY	5938	7	VACOA	8069	4	VADAL	9004	15
VABLZ	5940	8	VACPC	8061	5	VADBM	9005	15
VABWJ	5935	4	VACRD	8067	6	VADCN	9006	15
VABXK	5937	6	VACSE	8066	6	VADDO	9007	15
VABYL	5939	7	VACTF	8071	7	VADEP	8106	17

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