

"DOMESTIC"

BULLETIN No 19-E

Domestic Engine & Pump Co.,
Main Office & Factory Shippensburg, Pa.

"DOMESTIC"
Portable and Semi-Portable Gasoline Engines
Designed and Built for SERVICE

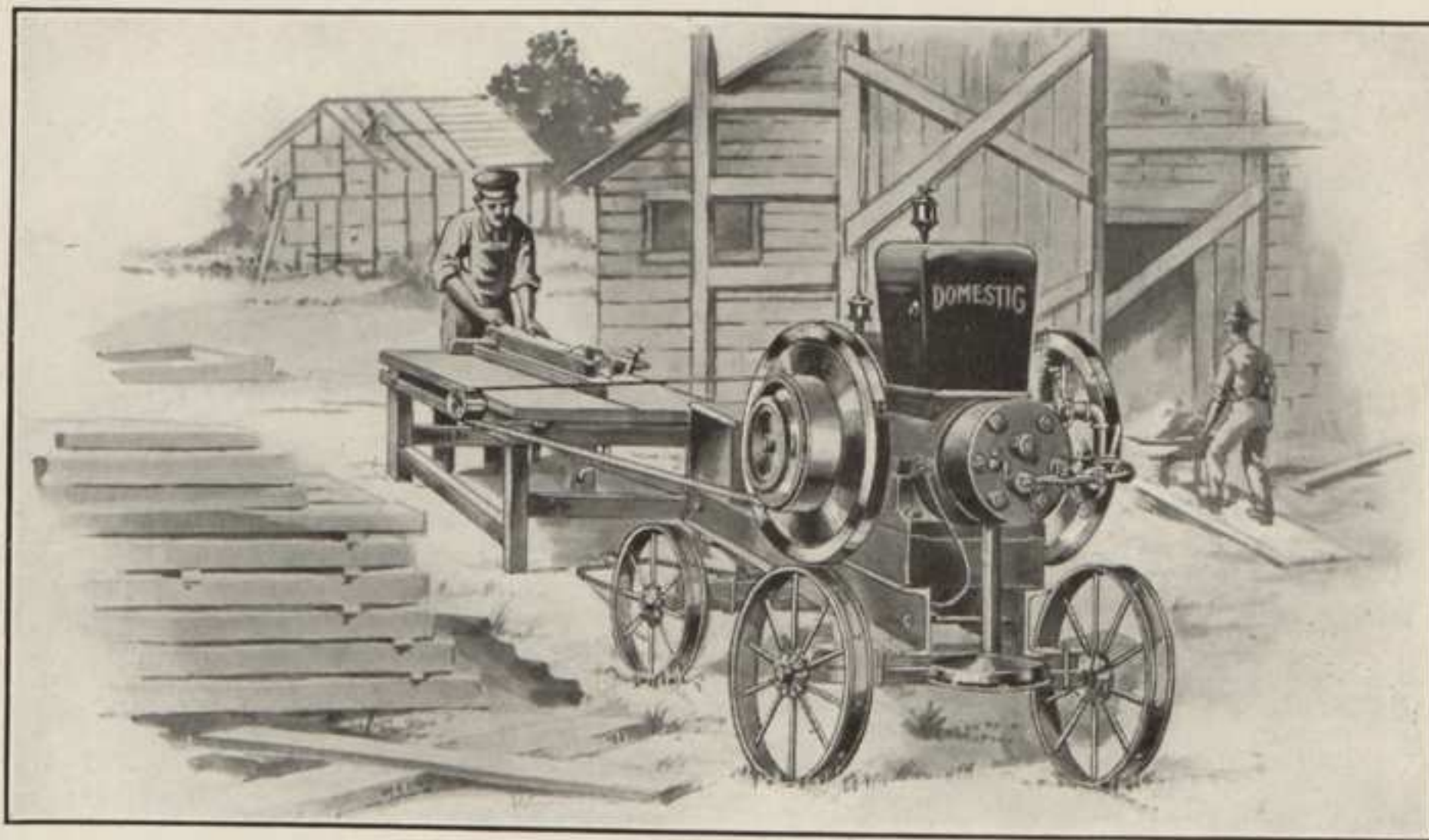


Fig. D

"DOMESTIC" Four Cycle, Single Cylinder, Water Cooled,
Jump Spark Ignition, Gasoline Engines

(*"The Gasoline Engine in an economical sense, for small powers, has left steam far behind"*—HISCOX.)

"DOMESTIC" GASOLINE ENGINES deliver the POWER to run a saw, pump, hoist, air-compressor, ditching machine, back filler or other power equipment *for the contractor*. They also deliver the POWER to run a pump, churn, cream separator, milking machine, grindstone, ensilage cutter, wood saw, threshing machine and the numerous other labor saving machines *used on the farm*.

They will work efficiently and untiringly on a 24-hour shift whenever necessary.

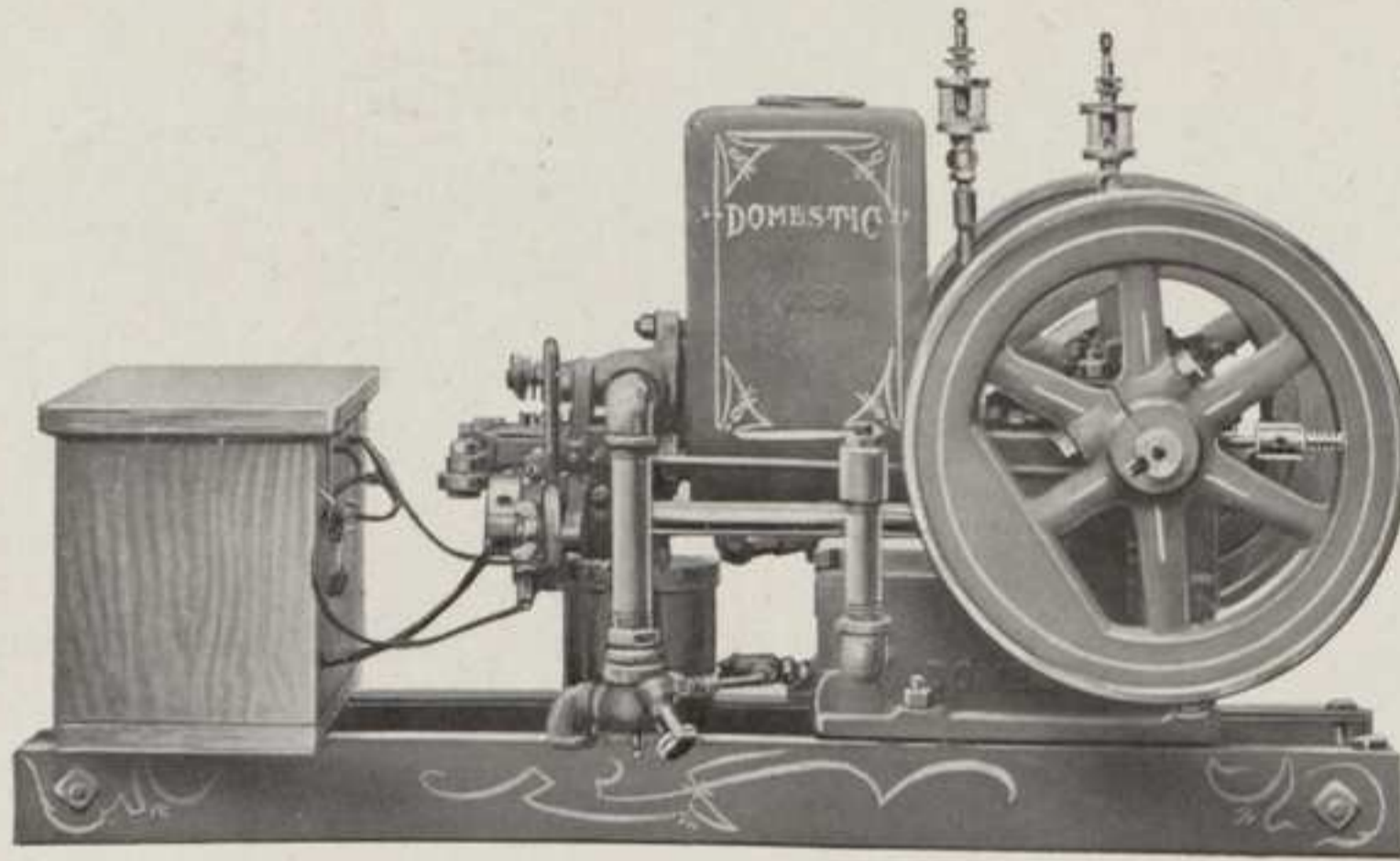


Fig. 284

"DOMESTIC" Junior 1½ H. P. Gasoline Engine

A little engine of big power and big possibilities

This is the smallest *side lay shaft* engine built. It contains all the features of *high grade design*, *skilled workmanship* and beautiful finish that have always characterized the larger "DOMESTIC" power units.

Its smoothness of operation, absolute reliability and wearing qualities make the "DOMESTIC" Junior unequalled as a *small power unit*.

The "DOMESTIC" Junior has made available for the user of small power a mechanically correct small gasoline engine. It is not in any sense a side line with us. Neither is it an imitation of something else. It is essentially a "DOMESTIC" product.

The advent of the numerous small power machines, such as the washing machine, cream separator, churn, small milking machine, corn sheller, spray pump, etc., etc.; the growing

knowledge of the advantages of the private water system for the farm and suburban home; and the saving of labor by utilizing the power of a small engine around the place—all these have materially increased the *demand* for a *high grade small engine*.

The "DOMESTIC" Junior will fulfill every requirement, where Quality, Reliability, Durability, Mechanical Excellence, Proper Design, Pleasing Appearance and Beauty of Finish are the standards desired.

The "DOMESTIC" Junior is a complete self-contained power unit. In place of the usual tin can to hold the gasoline used on many small engines, it has a gasoline reservoir cast integral with the base of the engine, which is mounted on steel channels, to which is clamped the battery box containing dry cells, high tension spark coil and switch.

GASOLINE "DOMESTIC" ENGINES

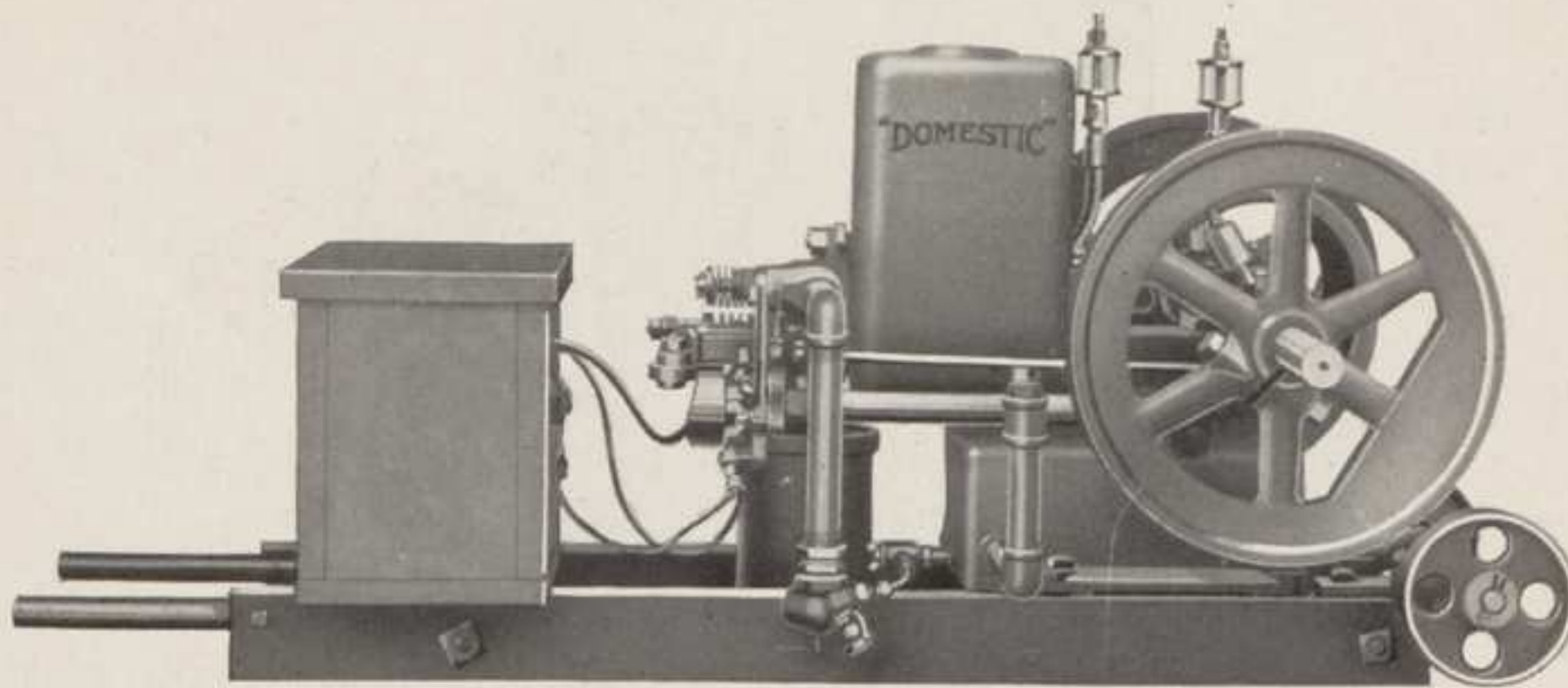


Fig. 400

"DOMESTIC" Junior 1 1/2 H. P. Gasoline Engine Mounted on "Domestic Handitruck"

This substantial and convenient mounting makes it easy to move the engine from place to place

DETAILS OF CONSTRUCTION

CYLINDER AND BASE—Cast en-bloc.

CYLINDER—Special Grade of Cast Iron, *Ground Cylinder Walls.*

PISTON—Trunk type, special grade of cast iron, *ground to size 3/1000 of an inch smaller than cylinder bore.*

CONNECTING ROD—Open Hearth Steel Die Forged, 20 to 30 carbon.

CRANK SHAFT—Open Hearth Steel Forging, 20 to 30 carbon. *Bearing Surfaces ground to size.*

VALVES—Cold Rolled Steel Stems, Cast Iron Head, screwed and riveted fast.

BEARINGS—Adjustable, Babbitt.

VALVE MECHANISM—Intake Valve Automatic, Exhaust Valve and Timing Commutator are operated by *Side Lay Shaft* as is approved custom of designers of the largest and highest-priced engines made.

PISTON RINGS—*Four* ground and perfectly fitted rings.

PISTON PIN—Ground and Hardened Steel. Clamped fast by connecting rod. Pin oscillates in *Double Bearing in Piston.*

FLY-WHEELS—*Two, Split Hub Type*, well balanced fly-wheels on each engine, which attach to crank shaft with Key and *Draw Bolt*, following, even in this detail, the *Very Best Engine Practice.*

GOVERNOR—Single Ball Centrifugal.

CONTROL—Hit-or-Miss—Speed Lever allows of changing speed *While Engine is Running.*

IGNITION—Jump Spark, Dry Batteries, High Tension Vibrator Coil.

Rated H. P.	Cylinder Bore	Piston Stroke	Speed R. P. M.	Diameter crank Shaft	Diameter Fly-Wheels	Weight each Fly-Wheel	Floor Space Overall		Size Pulley	Net Weight	Shipping Weight	Export		Code on Channels	Code on Trucks
							Width	Length				Wt. boxed	Cu. ft. of box		
1 1/2	3 1/2"	3 1/2"	400 to 700	1 1/4"	14"	33 lbs.	2' 2"	3' 4"	6" face, 6" diam.	280 lbs.	380 lbs.	500	17	"Compass"	"Compassion"

10/10/67 Pa. Approval Co.

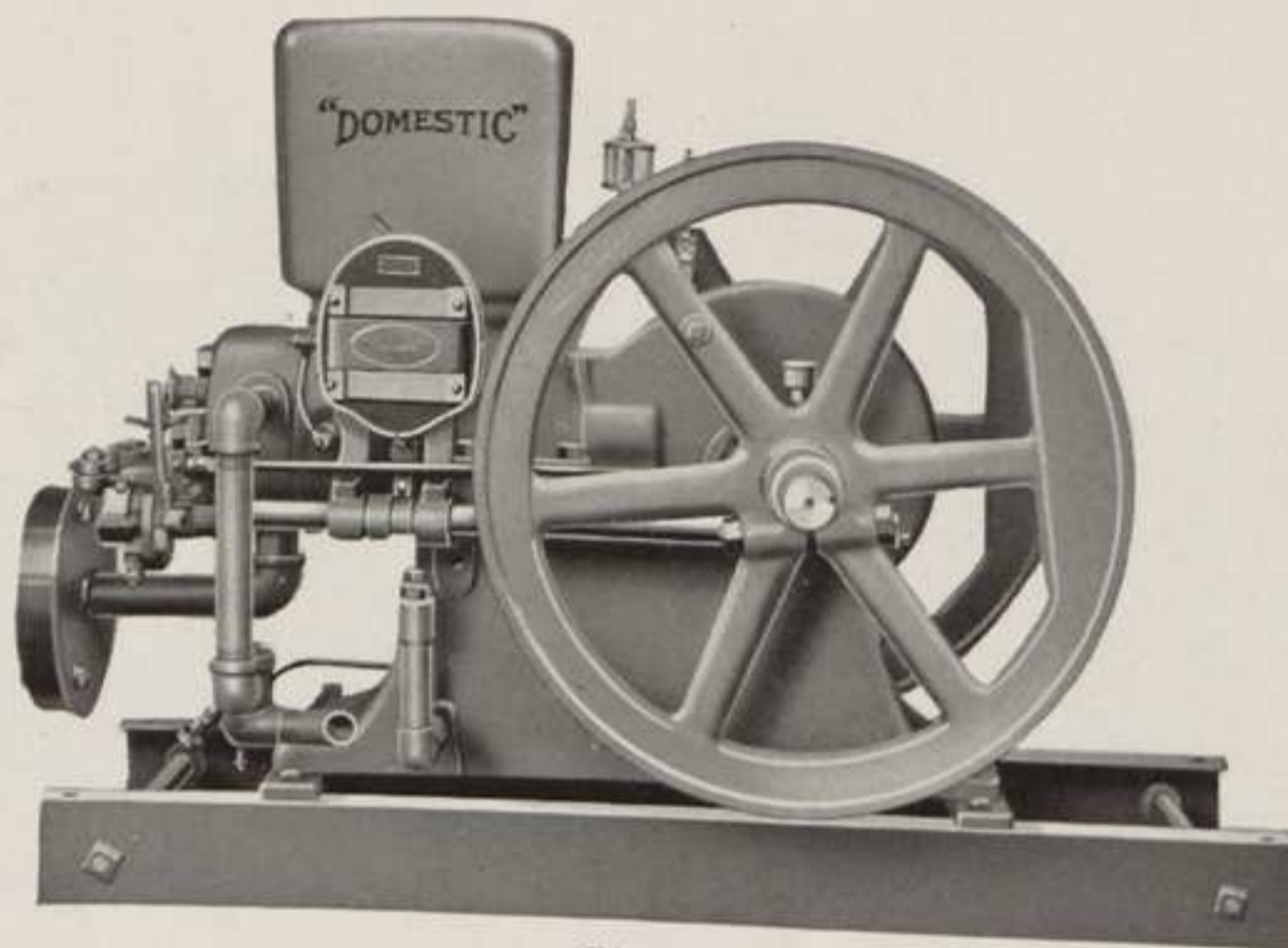


Fig. 413

"DOMESTIC" 3 $\frac{1}{2}$ H. P. Gasoline Engine

The great strength and absolute dependability of the "DOMESTIC" 3 $\frac{1}{2}$ H. P. Gasoline Engine will be appreciated when we state that hundreds of these engines were in service in France, Flanders and Italy in pumping out trenches and in furnishing water supply for the soldiers. Surely no small gasoline engines were ever called upon to perform a more difficult or a more important duty.

Naturally, these engines were accepted only after the most thorough tests by U. S. Government Engineers, who accorded the 3 $\frac{1}{2}$ H. P. "DOMESTIC" Engines a Government rating of 4 $\frac{1}{2}$ H. P.—a full horsepower higher than the factory rating.

The uses of an engine of this power are varied. Among them are: driving a chain or belt driven centrifugal pump; running a cut-off saw; running small air compressors for riveting work or hammer drilling of rock; running gravel washers and graders, medium-sized feed grinders, concrete mixers, etc., etc.

Wherever POWER is needed, within the limits of this Unit, it will be found a source of un-failing satisfaction to put a "DOMESTIC" 3 $\frac{1}{2}$ H. P. Gasoline Engine on the job.

"DOMESTIC" Engines are ALL SIDE LAY SHAFT engines.

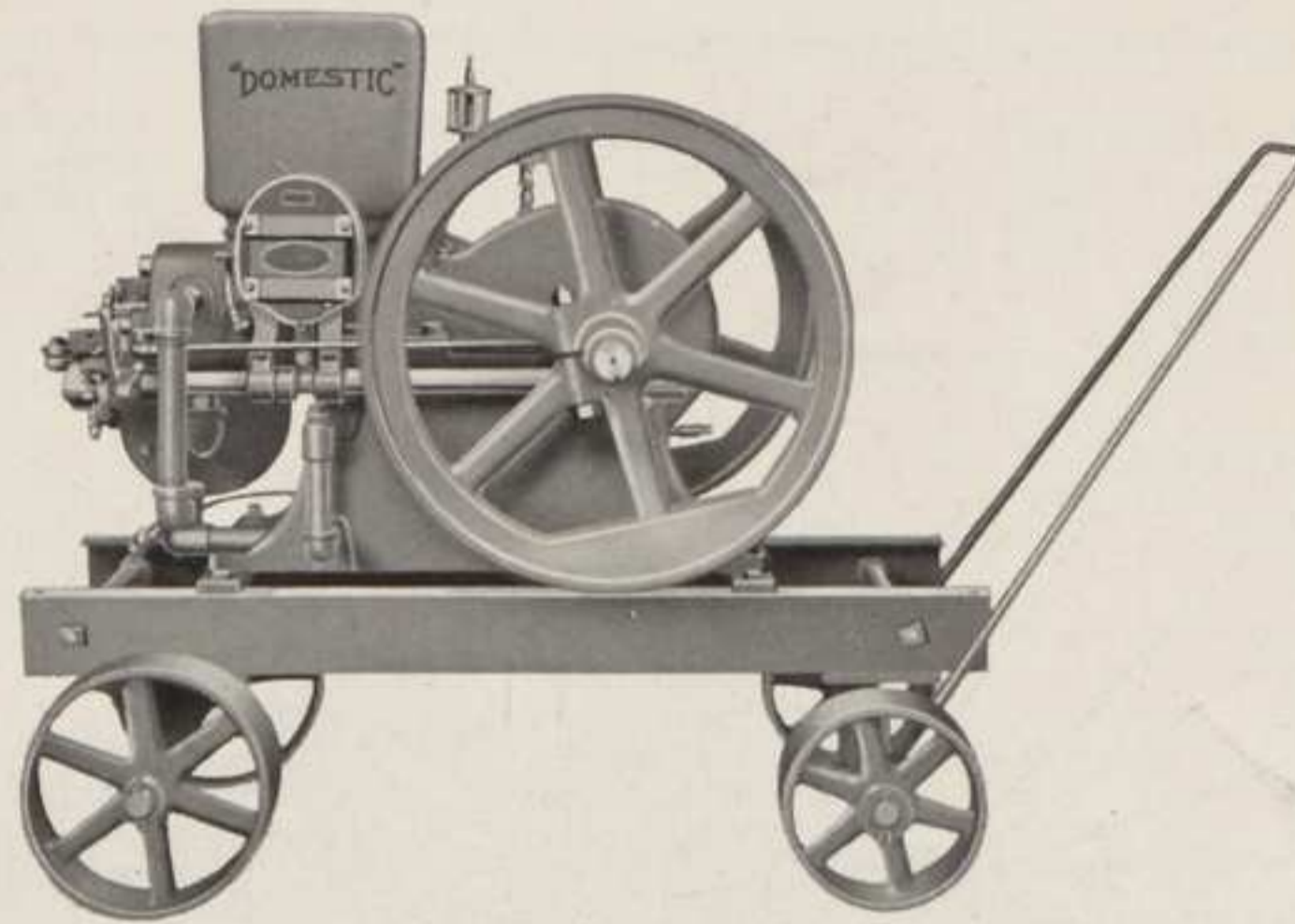


Fig. 390

"DOMESTIC" 3½ H. P. Gasoline Engine Mounted on Low Hand Truck

For lining up the engine as well as making the engine easy to move, the above mounting has proved a valuable feature.

DETAILS OF CONSTRUCTION OF 3½ H. P. "DOMESTIC"

CYLINDER, BASE AND HOPPER—Cast separate.

CYLINDER—Special grade of gray iron; cast with liberal water jacket; cylinder finished by grinding on Heald Internal Grinder.

PISTON—Trunk type; same grade of iron as cylinder; ground to size, .0035" smaller than cylinder bore at crank shaft end, and is .005" smaller at combustion chamber end. This accurately finished taper of piston takes care of the expansion due to extreme heat in combustion chamber—A very important feature.

CONNECTING ROD—Open hearth steel—Die forged, 20 to 30 carbon.

CRANK SHAFT—Open hearth steel forging, 20 to 30 carbon. Bearing surfaces ground to size. Extended on both sides.

VALVES—Cold rolled steel stems, cast iron heads, screwed and riveted fast. Valves ground true to seat.

BEARINGS—Main crank shaft bearings, die cast, removable,

renewable and adjustable. Crank wrist bearing genuine babbitt, laminated brass shims, adjustment liners.

VALVE MECHANISM—Intake valve automatic. Exhaust valve and magneto operated by *side lay shaft*, driven from crank shaft through helical gears, machine cut from solid blanks.

PISTON RINGS—Five accurately ground and fitted rings.

PISTON PIN—Ground and hardened steel. Clamped fast by connecting rod. Pin oscillates in double bearings in piston.

FLY-WHEELS—Two split hub type well balanced fly-wheels on each engine. Attached to crank shaft with key and draw bolt. Keyway cut at 90° of split in hub.

GOVERNOR—Single ball centrifugal. Hit-and-miss control.

SPEED LEVER—Speed lever allows of changing speed *while engine is running*.

IGNITION—JUMP SPARK—Wico high tension magneto. Auxiliary battery unit, boxed, furnished at slight extra cost.

Rated H. P.	U. S. Army H. P. Rating	Cylinder Bore, Inches	Piston Stroke, Inches	Speed, R. P. M.	Crank Shaft Diameter, Inches	Fly Wheel Diameter, Inches	Fly Wheels Wt. Each, Lbs	Floor Space Overall		Size Pulley	
								Width Inches	Length Inches	Diameter Inches	Face Inches
3½	4½	5	6	350 to 550	1⅝	24	88	32	48	12	6

Net Weight on Channel, Lbs.	Net Weight on Hand Truck, Lbs.	Shipping Weight on Channels, Lbs.	Shipping Weight on Hand Trucks Lbs.	Export on Truck		Code on Channels	Code on Truck	Export on Channels	
				Weight Lbs.	Cu. Ft. of Box			Weight Lbs.	Cu. Ft
700	900	800	1000	1300	50	"Complacent"	"Cinder"	1100	45

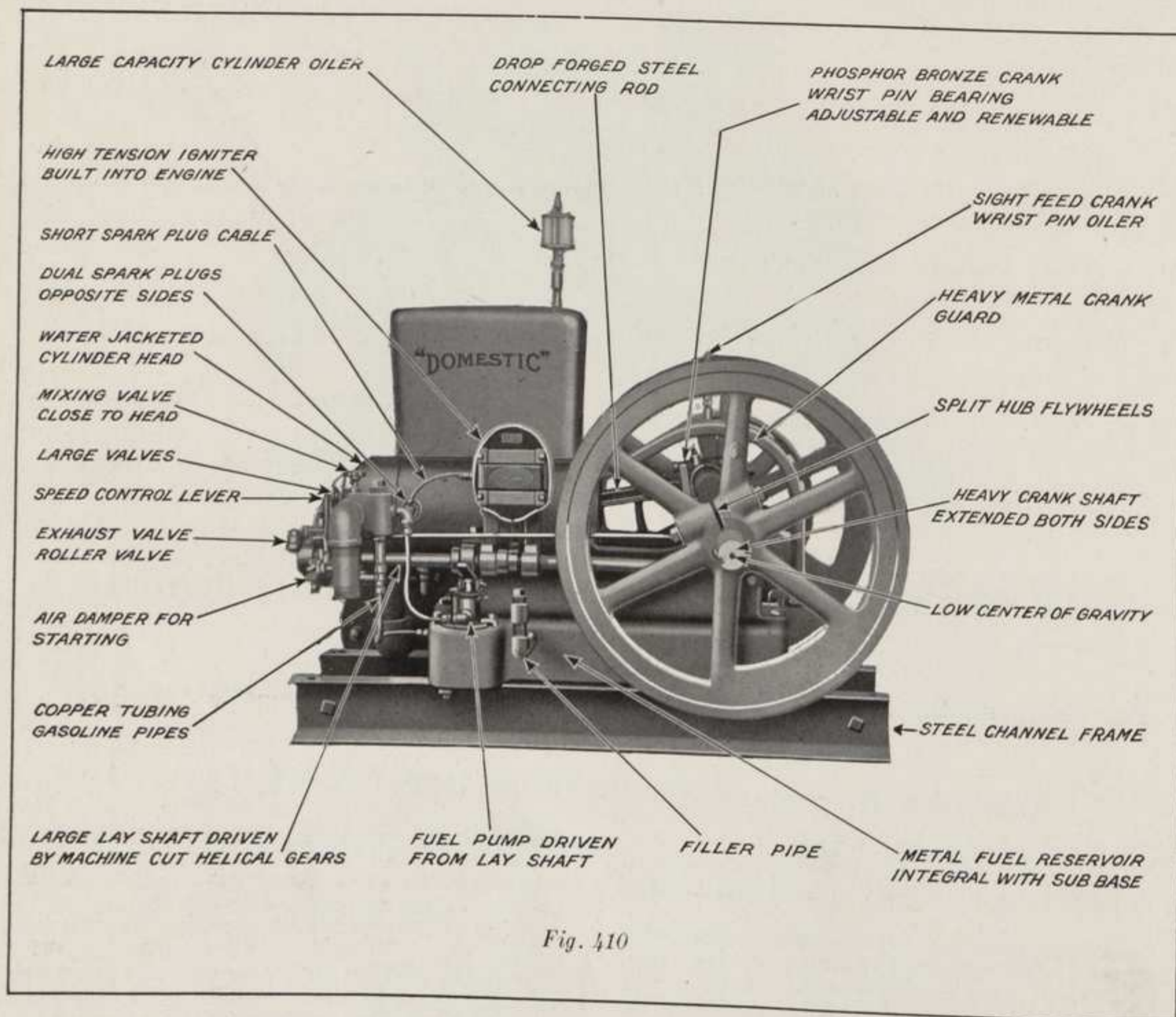


Fig. 410

"DOMESTIC" Heavy Duty Engines—6 to 15 H. P.

In these Heavy Duty Engines the "DOMESTIC" characteristics of Ruggedness, Strength and Reliability are emphasized to a marked degree.

These "DOMESTIC" Heavy Duty Engines have demonstrated their practical value and superiority in many ways,—particularly furnishing power to run Stone Crushers, Hoisting Machinery, Saw Rigs, Loading and Unloading Machinery, Large Displacement (Triplex) and Centrifugal Pumps, Mine Fans, Air Compressors, Hay Balers, Threshing Machines, Saw Mills, Ensilage Cutters, etc., etc.

A large number of "DOMESTIC" engines were used by contractors on cantonment and other war work where speed, efficiency and absolute reliability were essential.

Quality rather than large output has always been the policy of the "DOMESTIC" management, and results have justified the continuance of this policy.

Quality in "DOMESTIC" engines is self-evident, not only in design, but also in workmanship, material and in the individual tests of each engine after completion, and in a *rigid inspection of every part* before the engine is assembled.

THE SIDE LAY SHAFT, a distinctive feature of all "DOMESTIC" engines, permits on the Heavy Duty Engines, the use of the well-known "DOMESTIC" Constant Level Carburetor, resulting in *great economy of fuel, easy starting and maximum power.*

GASOLINE "DOMESTIC" ENGINES

DETAILS OF CONSTRUCTION OF HEAVY DUTY ENGINES

- | | |
|--|---|
| <p>CYLINDER, BASE, HOPPER AND SUB-BASE AND HEAD—Cast Separate.</p> <p>CYLINDER—Special grade of Gray Iron. Cast with liberal Water Jacket. Cylinders finished by grinding.</p> <p>PISTONS—Trunk Type. Ground to Size. Slightly smaller at combustion end to allow for expansion.</p> <p>CONNECTING RODS—Open Hearth Steel Forgings, 20 to 30 carbon.</p> <p>CRANK SHAFTS—Open Hearth Steel Forgings—20 to 30 carbon. Bearing Surfaces Ground to Size.</p> <p>VALVES—Cold rolled steel stem and cast iron head. Head screwed on stem and riveted. Valves ground true to seat.</p> <p>BEARINGS—Crank Wrist Bearings, Phosphor Bronze, adjustable and easily renewable. Main Crank Bearings Babbitt.</p> | <p>VALVE MECHANISM—Intake Valve Automatic. Exhaust operated by Side Lay Shaft.</p> <p>PISTON RINGS—Five accurately Ground and Fitted Rings.</p> <p>PISTON PIN—Hardened and Ground Steel Pin. Oscillates in two Piston Bearings.</p> <p>FLY-WHEELS—Two Split Hub type, well balanced.</p> <p>GOVERNOR—Single Ball Centrifugal. Hit-and-Miss Control.</p> <p>SPEED LEVER—Control of or change of speed while engine is running.</p> <p>IGNITION—Jump Spark. Wico Magneto. Dual System at Extra Cost.</p> |
|--|---|

SIZES AND SPECIFICATIONS OF "DOMESTIC" HEAVY DUTY ENGINES

Rated H. P.	U. S. Army Rating H. P.	Cylinder Bore, Inches	Piston Stroke, Inches	Speed R. P. M.	Diameter Crank Shaft	Diameter Fly-Wheels	Weight each Fly-Wheel	Size Pulley		Overall Floor Size		Net Weight	Shipping Weight	Export		Code
								Diam.	Face	Width	Length			Weight	Cu. ft.	
6	7	5 ³ / ₄	7	350 to 500	2"	26"	130 lbs.	16"	6"	35"	48"	965	1100	1400	48	Comport Compound Compute Con
9	11	7	9	275 to 400	2 ¹ / ₄ "	32"	300 lbs.	20"	6"	40"	58"	1800	2000	2400	80	
13	14	8 ¹ / ₄	10	250 to 350	2 ¹ / ₂ "	36"	380 lbs.	24"	8"	45"	68"	2600	2800	3300	130	
15	18	10	10	225 to 300	2 ³ / ₄ "	48"	575 lbs.	28"	10"	50"	72"	3300	3700	4600	180	

GASOLINE "DOMESTIC" ENGINES

"DOMESTIC" Portable Gasoline Engines—Sizes 6 to 15 H. P.

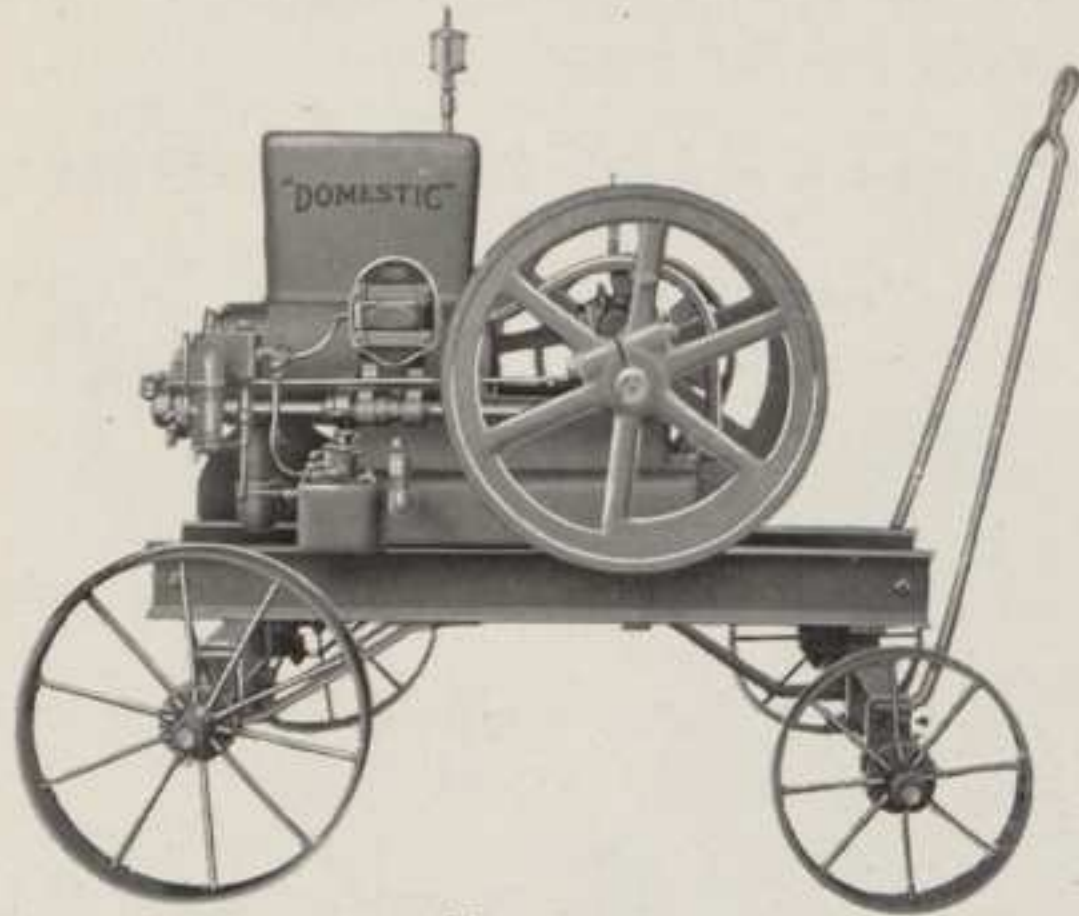


Fig. 415

"DOMESTIC"
Heavy Duty 6 H. P. Engine
Mounted on Steel Wheel Hand Truck

SPECIFICATIONS, FIG. 415

	6 H. P.
DIAMETER FRONT WHEELS.....	16"
DIAMETER REAR WHEELS.....	22"
WIDTH OF TIRES.....	3"
SIZE SOLID PULLEY.....	16 x 6
NET WEIGHT, POUNDS.....	1200
SHIPPING WEIGHT, POUNDS.....	1300
EXPORT WEIGHT, POUNDS.....	2600
BOXING, CUBIC FEET.....	60
CODE WORD.....	Conceco

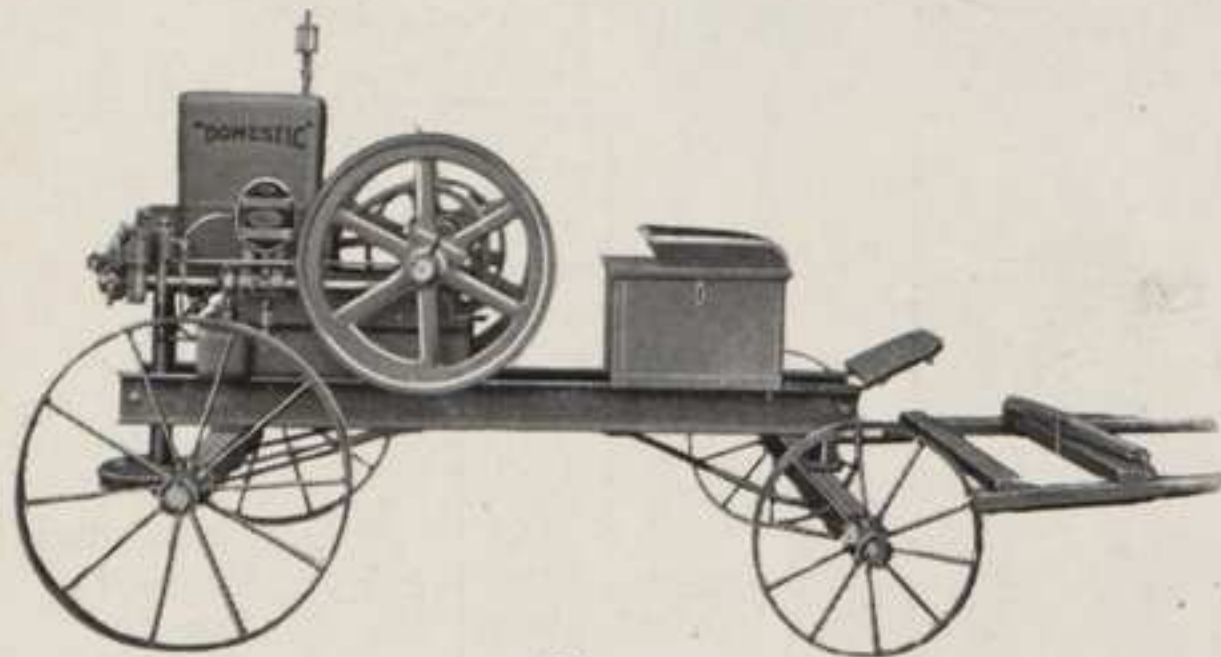


Fig. 408

"DOMESTIC"
Heavy Duty 6 and 9 H. P. Engine

Mounted on One Horse Truck

SPECIFICATIONS, FIG. 408

	6 H. P.	9 H. P.
DIAMETER FRONT WHEELS.....	22"	22"
DIAMETER REAR WHEELS.....	30"	30"
WIDTH OF TIRES.....	3"	3"
NET WEIGHT, POUNDS.....	1400	2200
SIZE SOLID PULLEY.....	16 x 6	20 x 6
SHIPPING WEIGHT, POUNDS.....	1600	2400
EXPORT WEIGHT, POUNDS.....	2800	3650
BOXING, CUBIC FEET.....	90	104
CODE WORD.....	Conceal	Concern

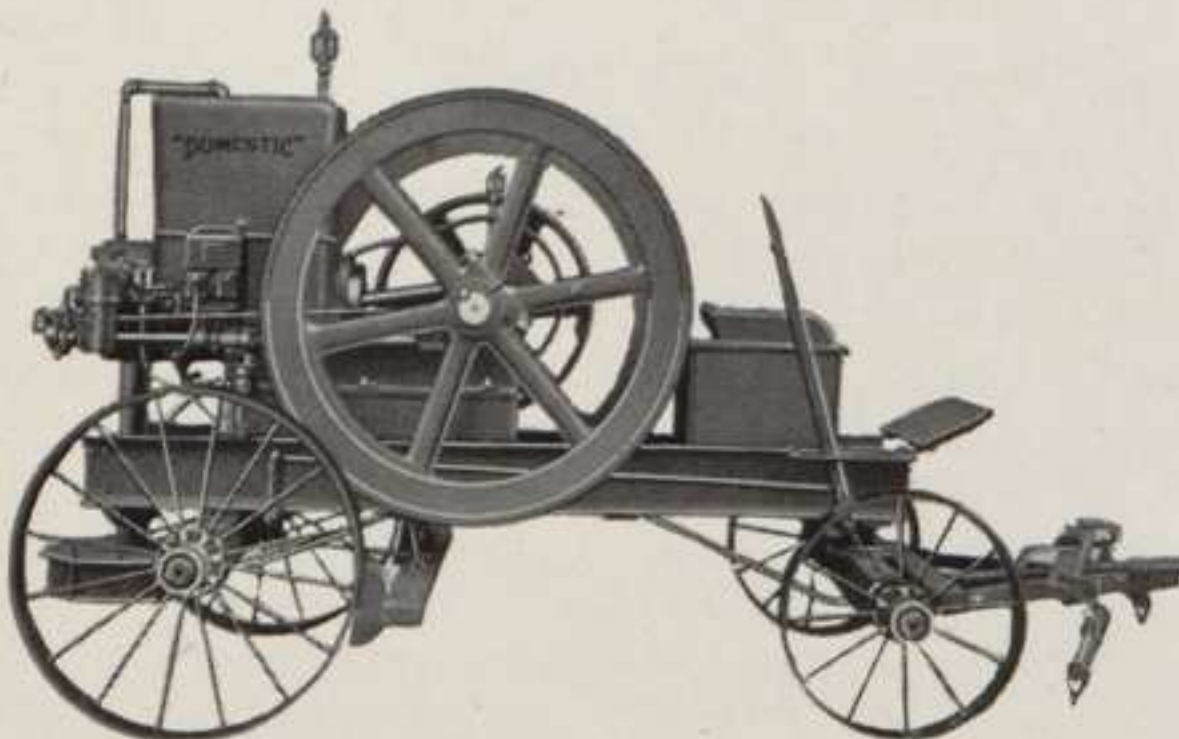


Fig. 412

"DOMESTIC"
Heavy Duty 9 to 15 H. P. Engine
Mounted on 2 Horse Truck, Complete, with Friction
Clutch Pulley, Brake, Double Trees
and Neck Yoke

SPECIFICATIONS, FIG. 412

	9 H. P.	13 H. P.	15 H. P.
DIAMETER FRONT WHEELS.....	24"	26"	26"
DIAMETER REAR WHEELS.....	32"	34"	36"
WIDTH OF TIRES.....	4"	4"	5"
SIZE FRIC'N CLUTCH PULLEY.....	20 x 6	24 x 8	28 x 10
NET WEIGHT, POUNDS.....	2300	3300	5100
SHIPPING WEIGHT, POUNDS.....	2500	3500	5300
EXPORT WEIGHT, POUNDS.....	3000	4200	6400
BOXING, CUBIC FEET.....	180	200	240
CODE WORD.....	Condign	Conduce	Confect

GASOLINE "DOMESTIC" ENGINES

Illustrations and Specifications of
Trucks used with 6 to 15 H. P.
Engines listed on page 8

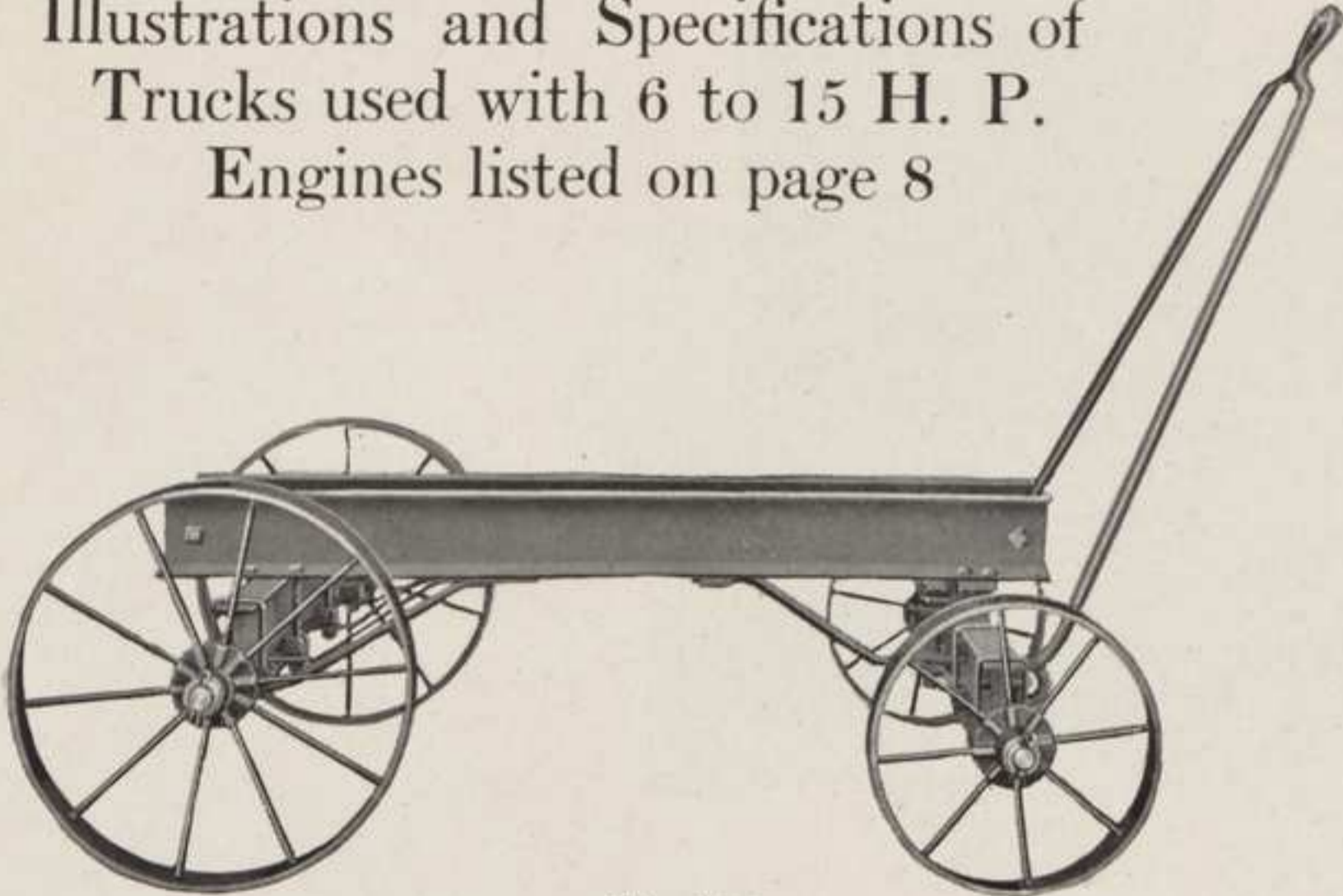


Fig. 416

All Steel Hand Truck for 3½ and 6 H.P. Engines.

SPECIFICATIONS OF ALL STEEL
HAND TRUCK

	3½ and 6 H. P.
SIZE TRUCK NO.....	29
DIAMETER FRONT WHEEL..	16"
DIAMETER REAR WHEEL...	22"
FACE OF WHEEL.....	3"
SILLS STEEL CHANNELS....	5"
AXLE ROUND STEEL.....	1½"
WIDTH OF TRACK.....	40"
LENGTH OF FRAME.....	56"
NET WEIGHT TRUCK WITH MAL. HANDLE	300 lbs.
CODE.....	Confronting

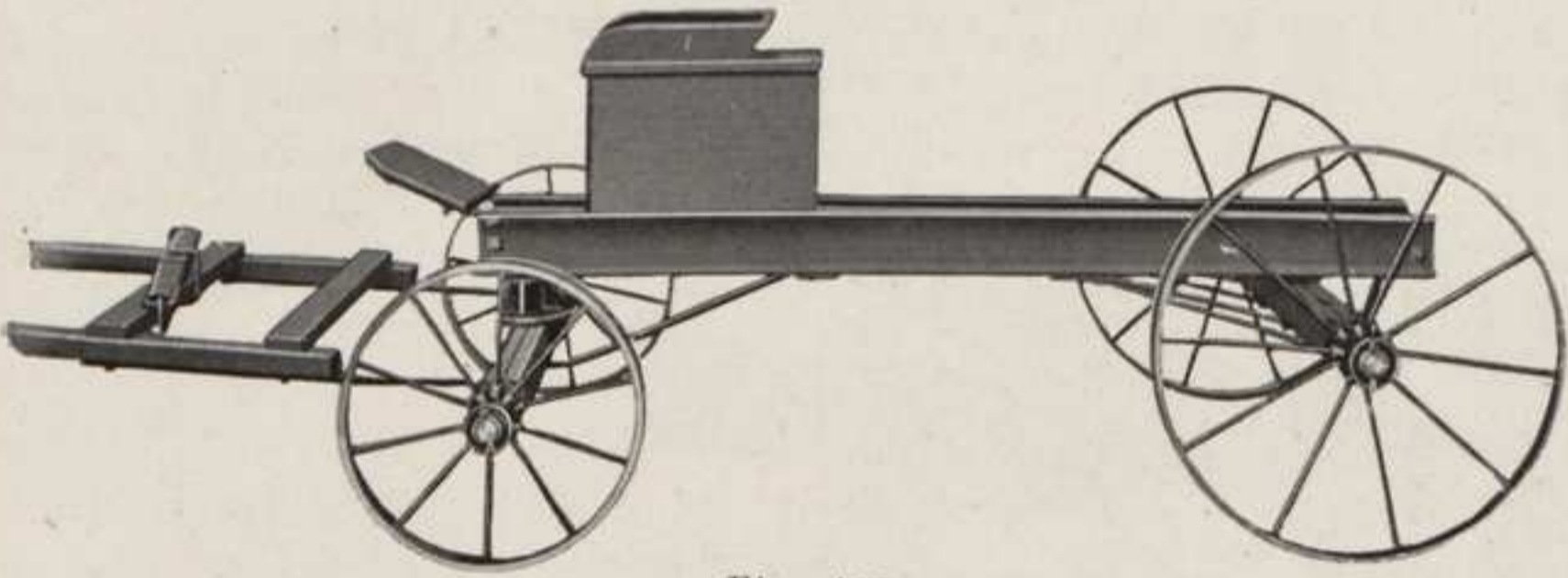


Fig. 402

One Horse Truck for 6 and 9 H.P. Engines.

SPECIFICATIONS OF ONE
HORSE TRUCK

	6 and 9 H. P.
SIZE TRUCK NO.....	19
DIAMETER FRONT WHEEL..	22"
DIAMETER REAR WHEEL...	30"
FACE OF WHEEL.....	3"
SILLS STEEL CHANNELS....	5"
SKEIN.....	Straight
AXLES STEEL.....	3" x 3"
WIDTH OF TRACK.....	56"
LENGTH OF FRAME.....	6½ft.
NET WEIGHT TRUCK COMPLETE WITH TOOL BOX AND SHAFTS	490 lbs.
CODE TRUCK COMPLETE	AS SHOWN Confusion

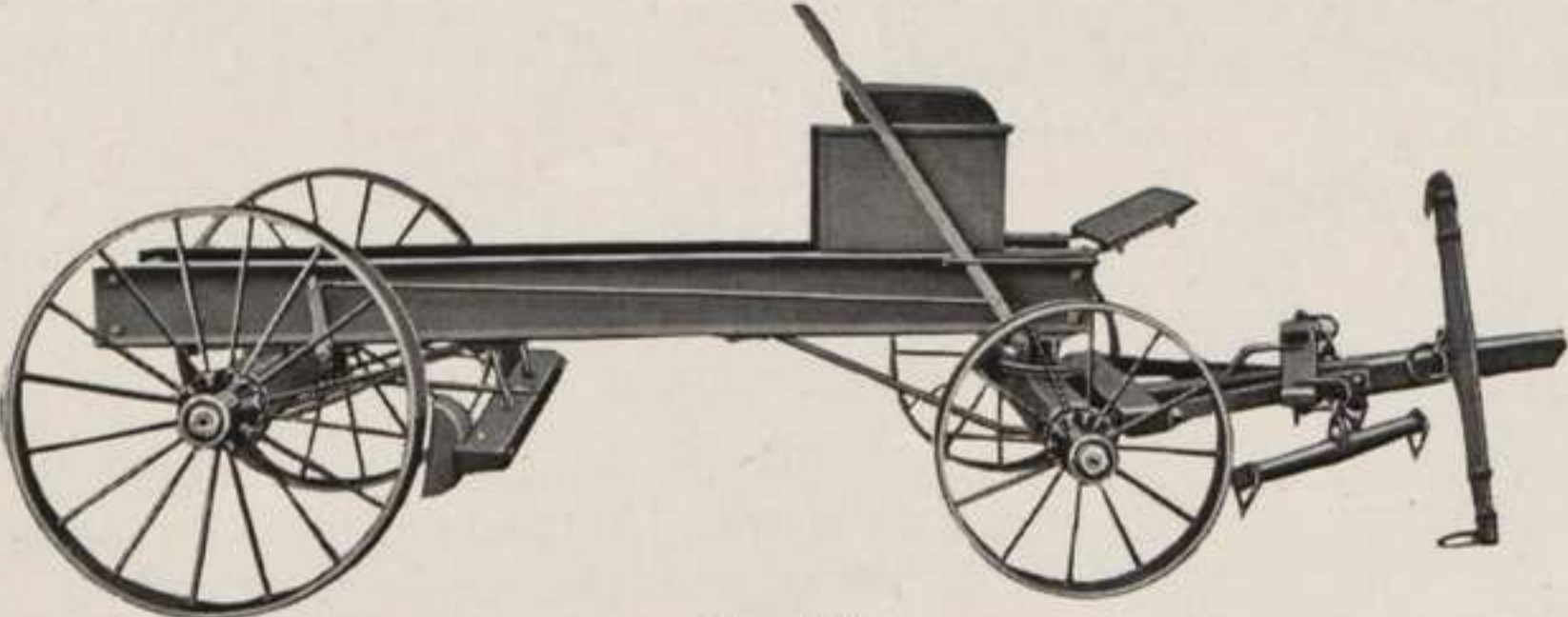


Fig. 401

Two Horse Truck for 9, 13 and 15 H.P. Engine.

TWO HORSE TRUCK SPECIFICATIONS

	9 H. P.	13 H. P.	15 H. P.
SIZE TRUCK NO.	21	22	23
DIA. FRONT WHEELS.....	24"	26"	26"
DIA. REAR WHEELS.....	32"	34"	36"
FACE OF WHEELS	4"	4"	5"
SILLS STEEL CHANNELS....	6"	8"	8"
SKEIN.....	Tapered	Tapered	Tapered
AXLES STEEL...	3" x 4"	4" x 5"	4" x 5"
NET WT. TRUCK COMPLETE	700 lbs.	875 lbs.	1075 lbs.
APPROX'Y....	700 lbs.	875 lbs.	1075 lbs.
WIDTH OF TRACK	56"	56"	56"
LENGTH OF TRUCK FRAME	6½'	8'	8'
CODE TRUCK COMPLETE..	Confusty	Confute	Confuting

GASOLINE "DOMESTIC" ENGINES

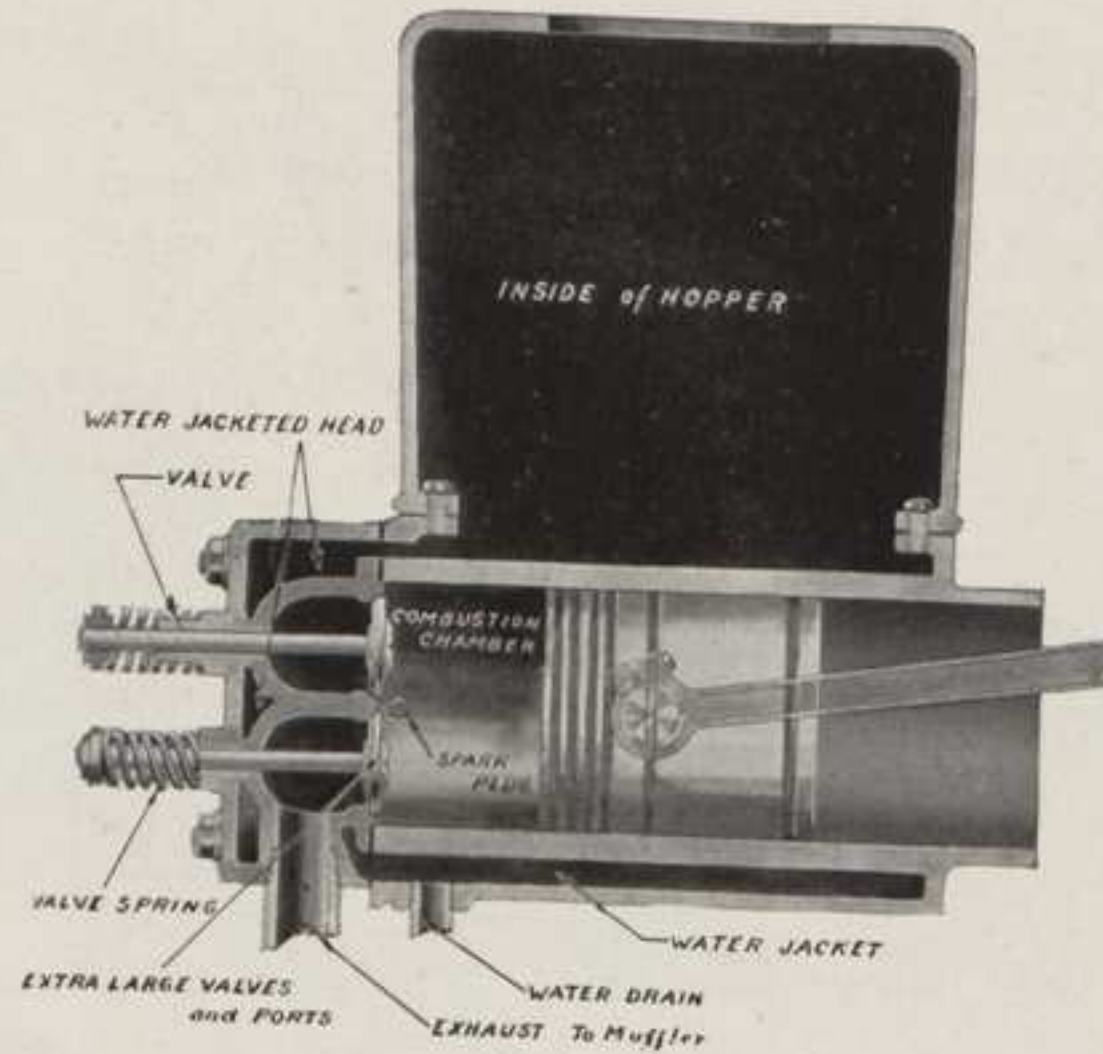


Fig. E

Sectional View of "DOMESTIC" Engine Cylinder and Head Design

Large water spaces entirely surround cylinder and water jacketed head and valves insure even expansion and contraction of cylinder walls, valves and valve seats. No danger of overheating.

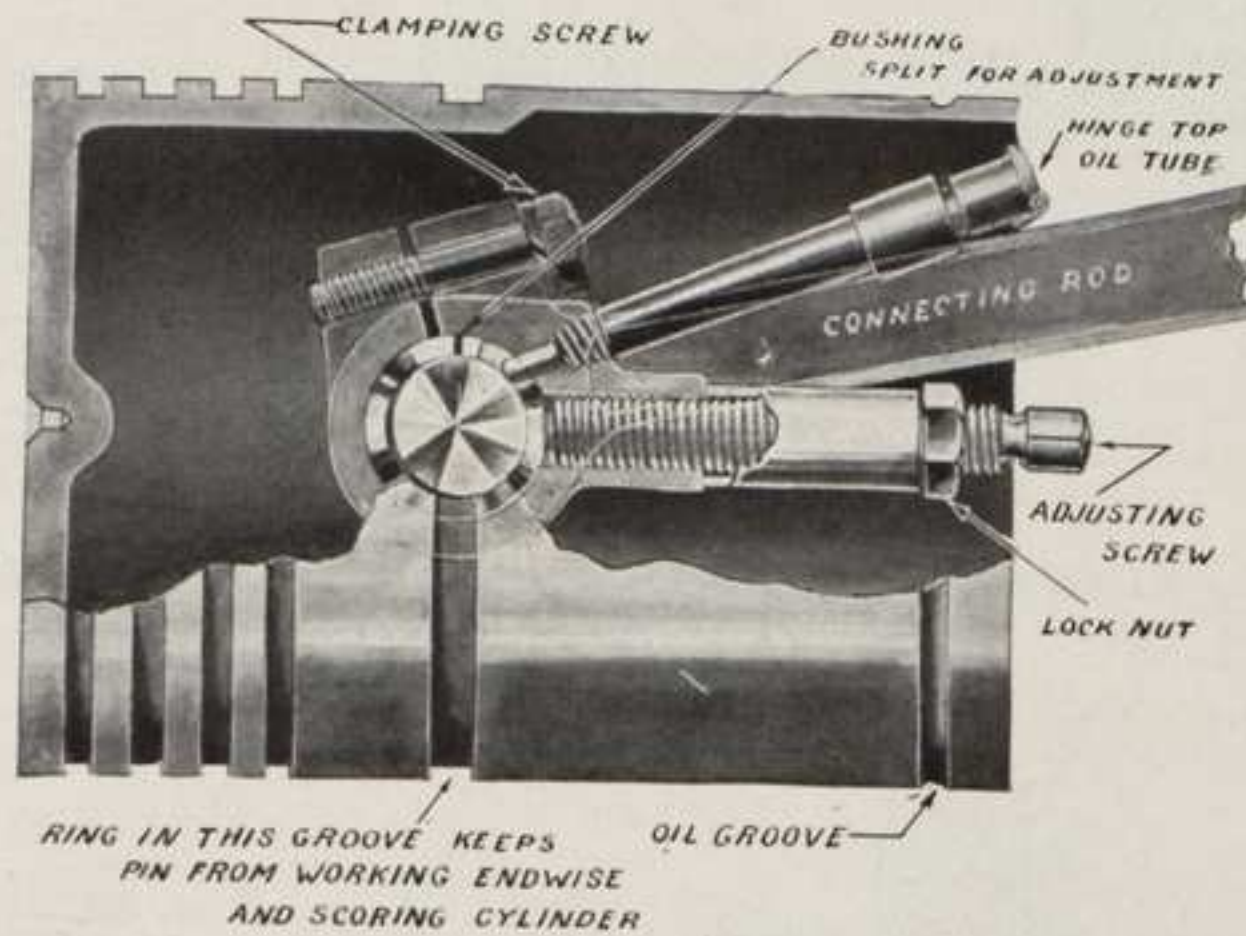


Fig. F

Sectional View of Piston

The construction of piston and the method of retaining piston pin is of utmost importance to the life of an engine.

The "DOMESTIC" piston pin oscillates in two piston bearings (in place of one connecting rod bearing as is common practice) and the connecting rod clamps fast the hardened and ground pin.

The pin oscillates in split bushings, which are adjusted by screws. Adjustment can be made without removing piston or connecting rod.

Pin bushings are grooved and a piston ring passes over ends of piston pin, making damage to cylinder walls from a loosened pin impossible.

GASOLINE **"DOMESTIC"** ENGINES

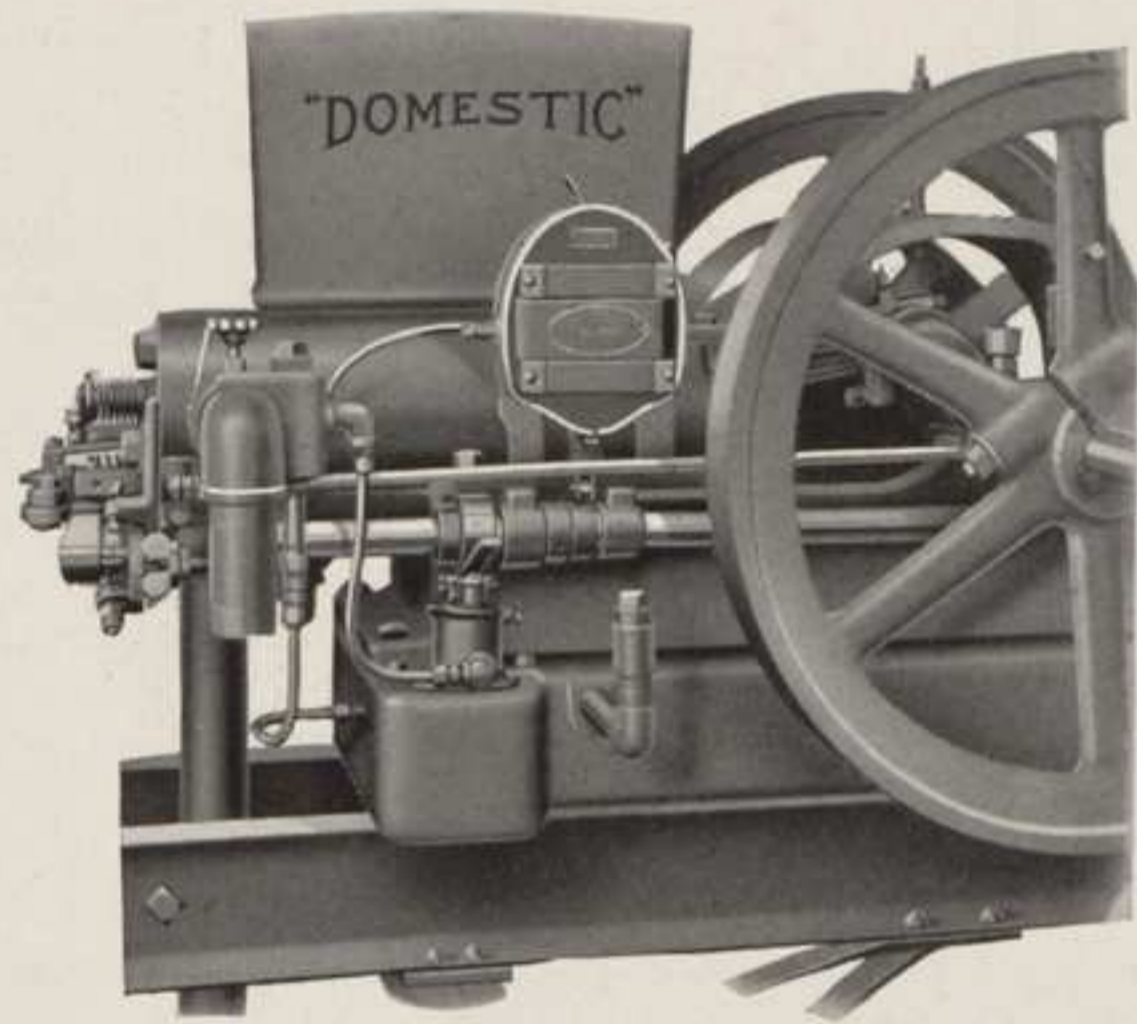


Fig. 409

Location of Carburetor, Fuel Pump and Magneto

The location of the carburetor, close up to cylinder head of engine, insures a perfect vapor mix of fuel and air, which gives maximum power with minimum fuel. As condensation of the fuel between carburetor and combustion chamber is avoided and cleaner mixture is possible, this location of carburetor reduces consumption of fuel, eliminates carbon deposits, prolongs life of engine and generally improves engine operation.

The magneto and fuel pump are operated by side lay shaft cams and are located at the most accessible position.

The "DOMESTIC" Carburetor has no springs or moving parts to wear or get out of order. Tests made of hundreds of types of carburetors have shown nothing better for this style of engine. It is rugged, simple (no complicated parts), economical and absolutely reliable.

The cut below shows the simplicity of governor and the important functions of the side lay shaft.

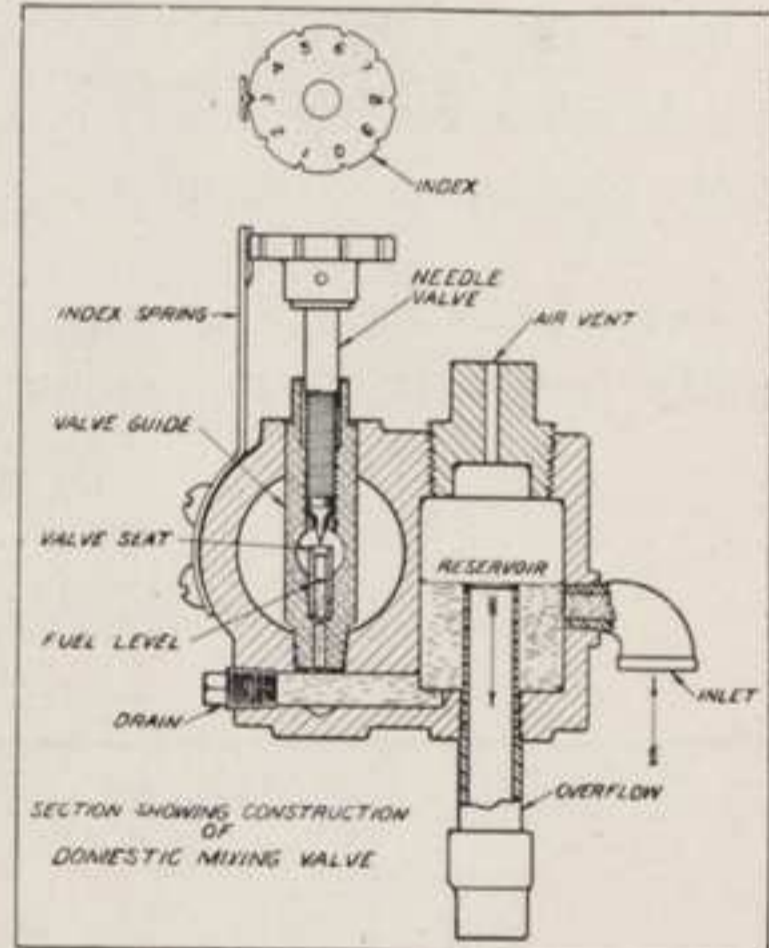


Fig. H
Cross Section of "Domestic" Carburetor

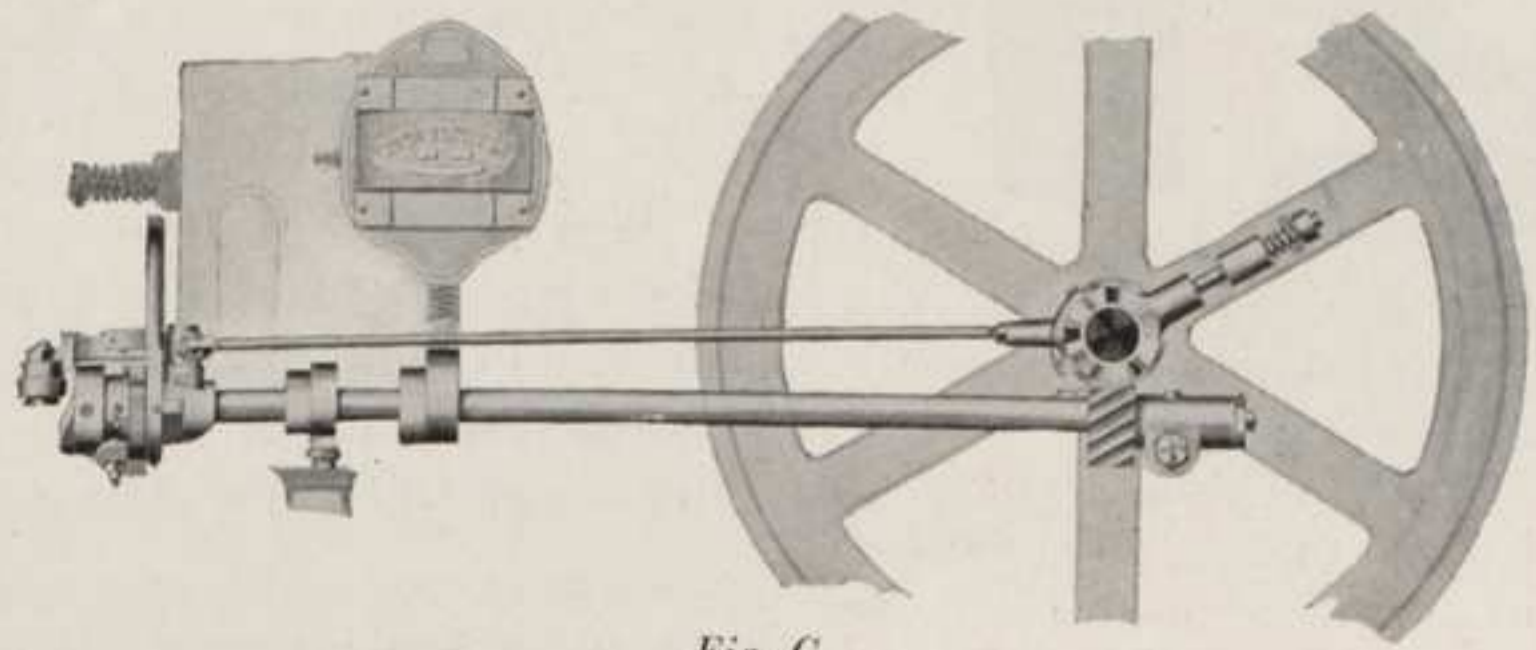


Fig. G
Governor, Speed Lever, Side Lay Shaft, Exhaust Valve Mechanism

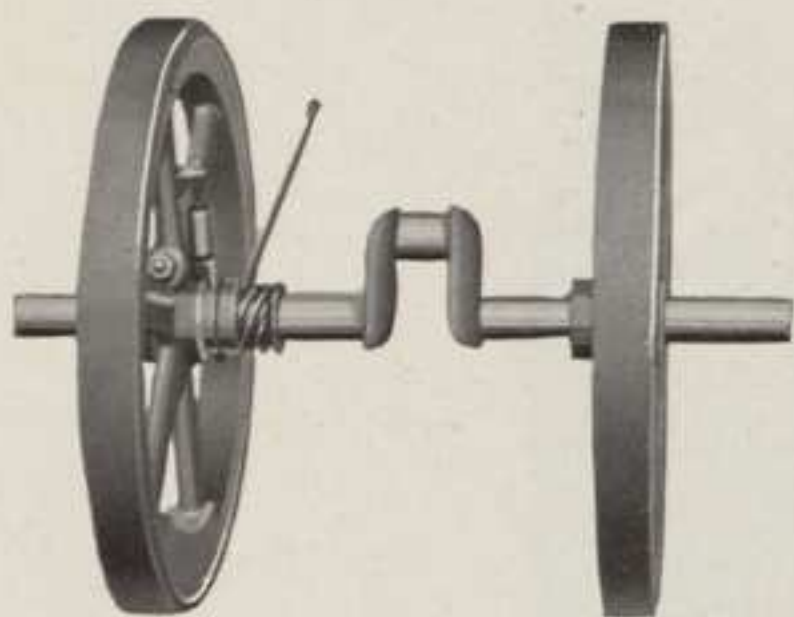


Fig. 405

Fly Wheels and Crank Shaft

Following the approved methods of the best American and European engine builders, "DOMESTIC" Engines are *all* built with the split hub fly wheels. Wheels are attached to the forged steel crank shafts with key and draw bolt.

Crank shafts are all finished by grinding.

The cylinder head contains water spaces which allow circulation of cooling water around valve guides and prevent warping of valve seats.

Valve openings are extra large, and valve guides long and of ample diameter.



Fig. 404

Cylinder Head, Valves and Valve Springs



Fig. 403

*Connecting Rod, Crank Wrist Bearing
and Piston Pin assembled*

The connecting rod is die-forged, open hearth steel. The crank wrist bearing is phosphor bronze on heavy duty engines; steel boxing babbitt, lined, on smaller sizes.

The piston and piston rings are finished by grinding. Ring slots in piston are cut with special tools and are absolutely true to width and depth. Rings are side pinned in slot making it impossible for openings to get in line.

Engine Accessories

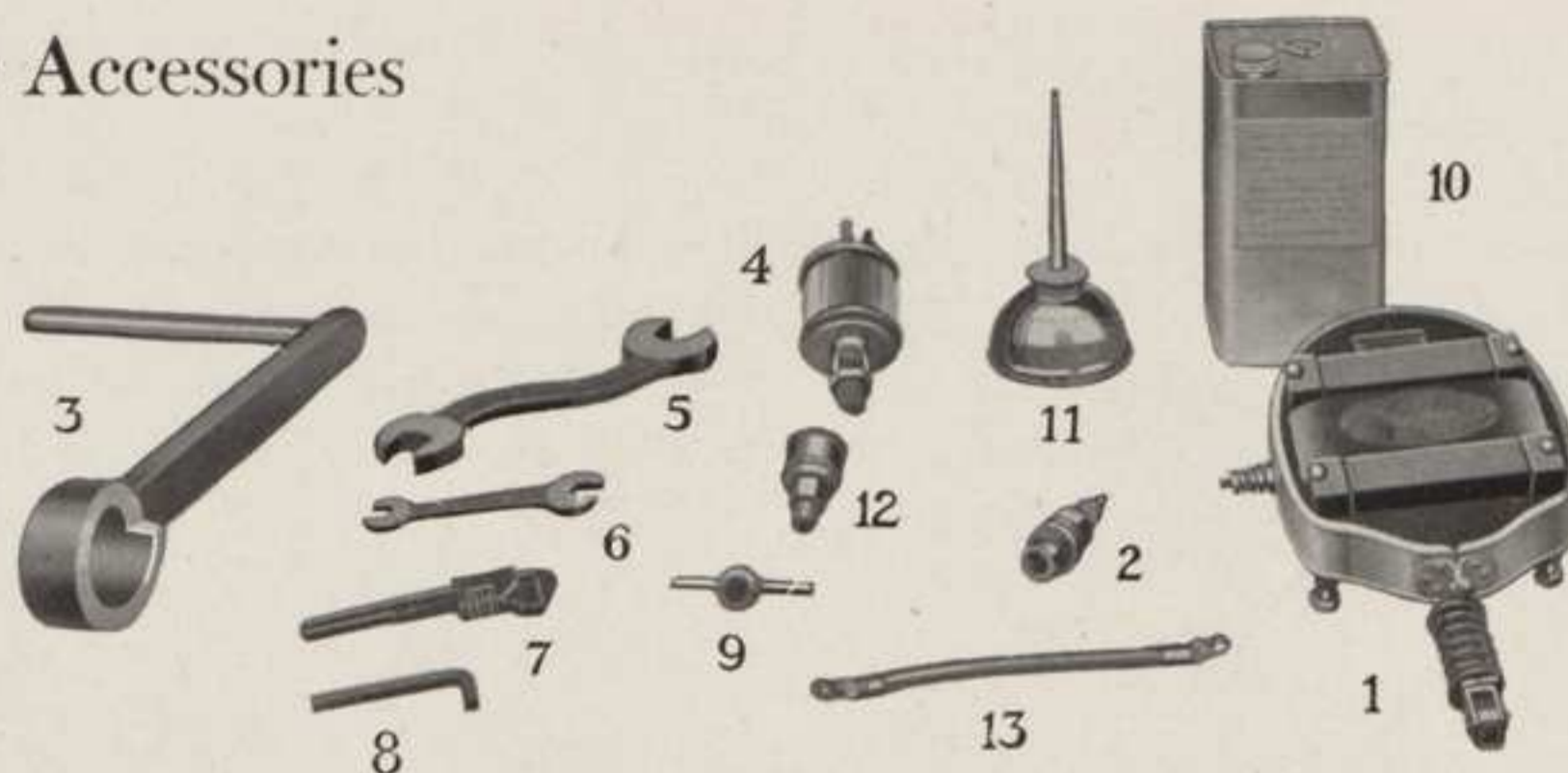


Fig. 414

In Ordering Give H. P. and
Number of Engine

- No. 1—Wico High Tension Magneto.
No. 2—S. A. E. Standard $\frac{7}{8}$ " Spark Plug.
No. 3—Starting Handle.
No. 4—Sight Feed Oiler (name engine size and whether for cylinder or crank wrist).
No. 5—"S" Wrench (Special sizes for different engines.)
No. 6—"S" Wrench for Governor.
No. 7—Pocket Wrench.
No. 8—Hollow Set Screw Wrench.
No. 9—Drain Plug Brass.
No. 10— $\frac{1}{2}$ gal. oil in can.
No. 11—Spring bottom oil can.
No. 12—Hard Grease Cup.
No. 13—Spark Plug Cable.

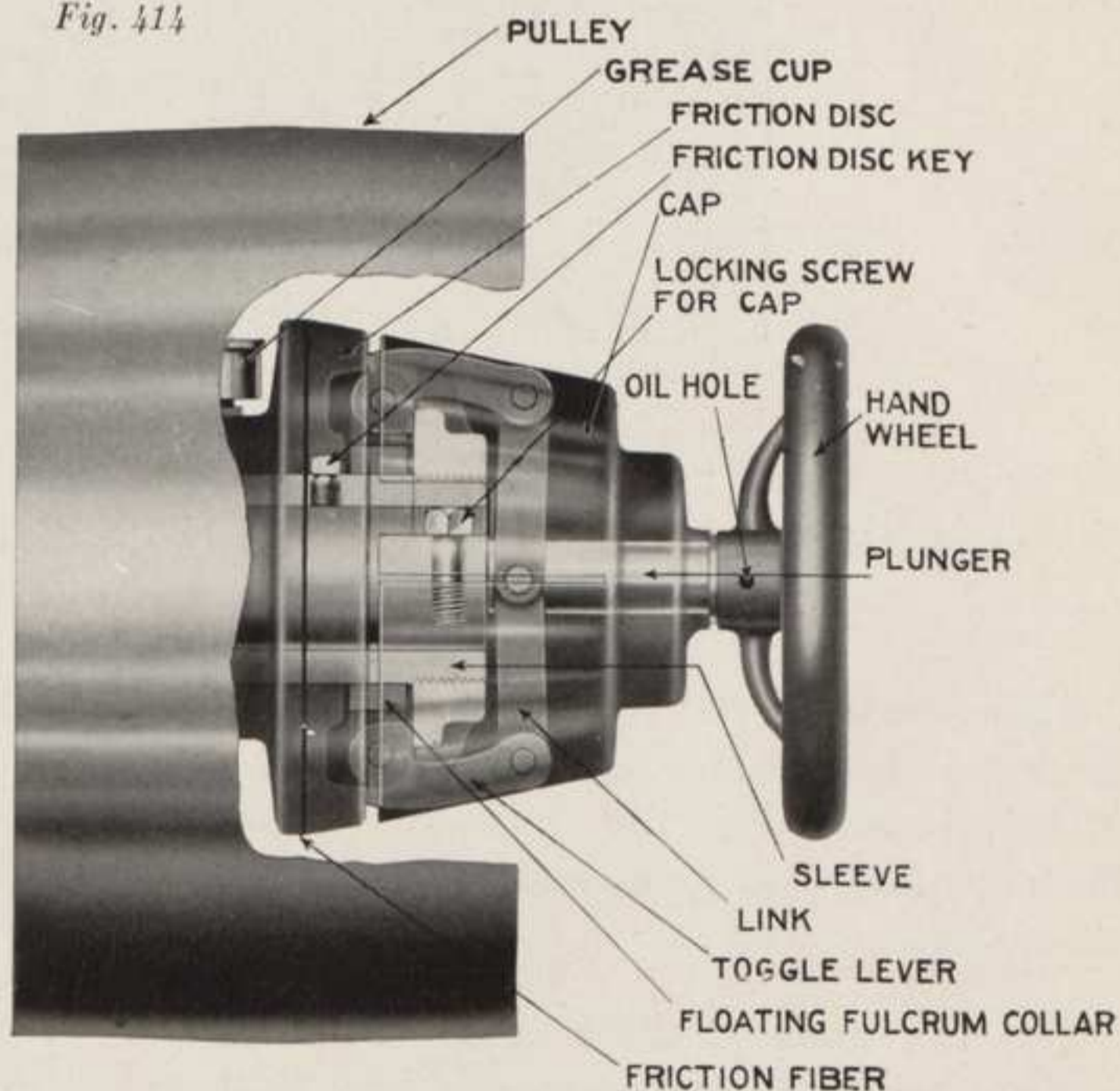


Fig. 1

Friction Clutch Pulley

We recommend the use of the improved friction clutch pulley on all heavy duty engines. When friction pulley is desired in place of standard pulley, size given is standard. Add to engine code word, the word *FRICTION*.

With the exception of the "DOMESTIC" Junior all "Domestic" Engines have built-on magneto.

For those desiring it, we have a battery ignition system complete with six dry cells, high tension oil, cable connections and switch assembled in a combination ignition and battery box which we can furnish at a nominal extra charge.

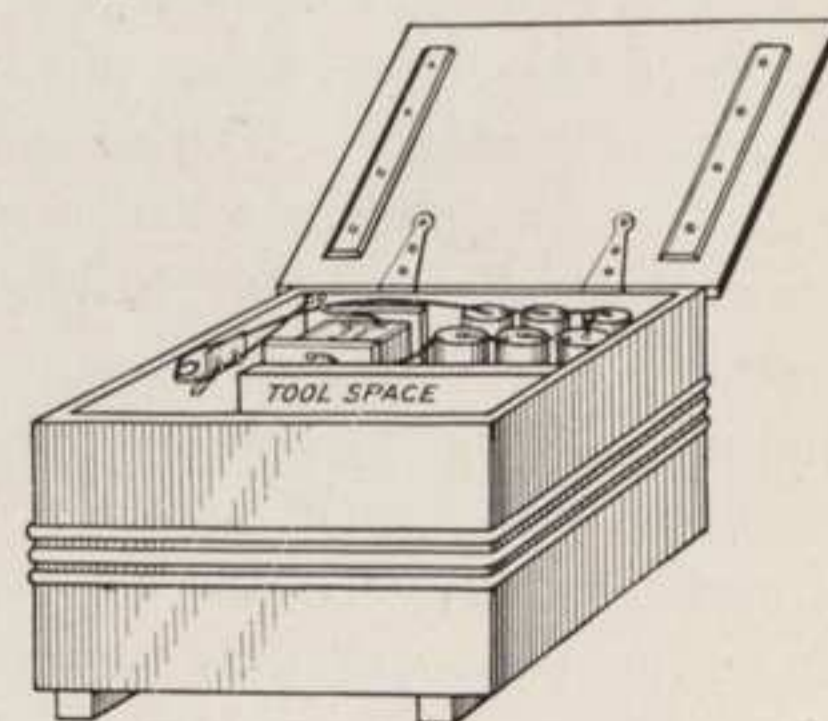


Fig. C

Auxiliary Ignition System and Tool Box

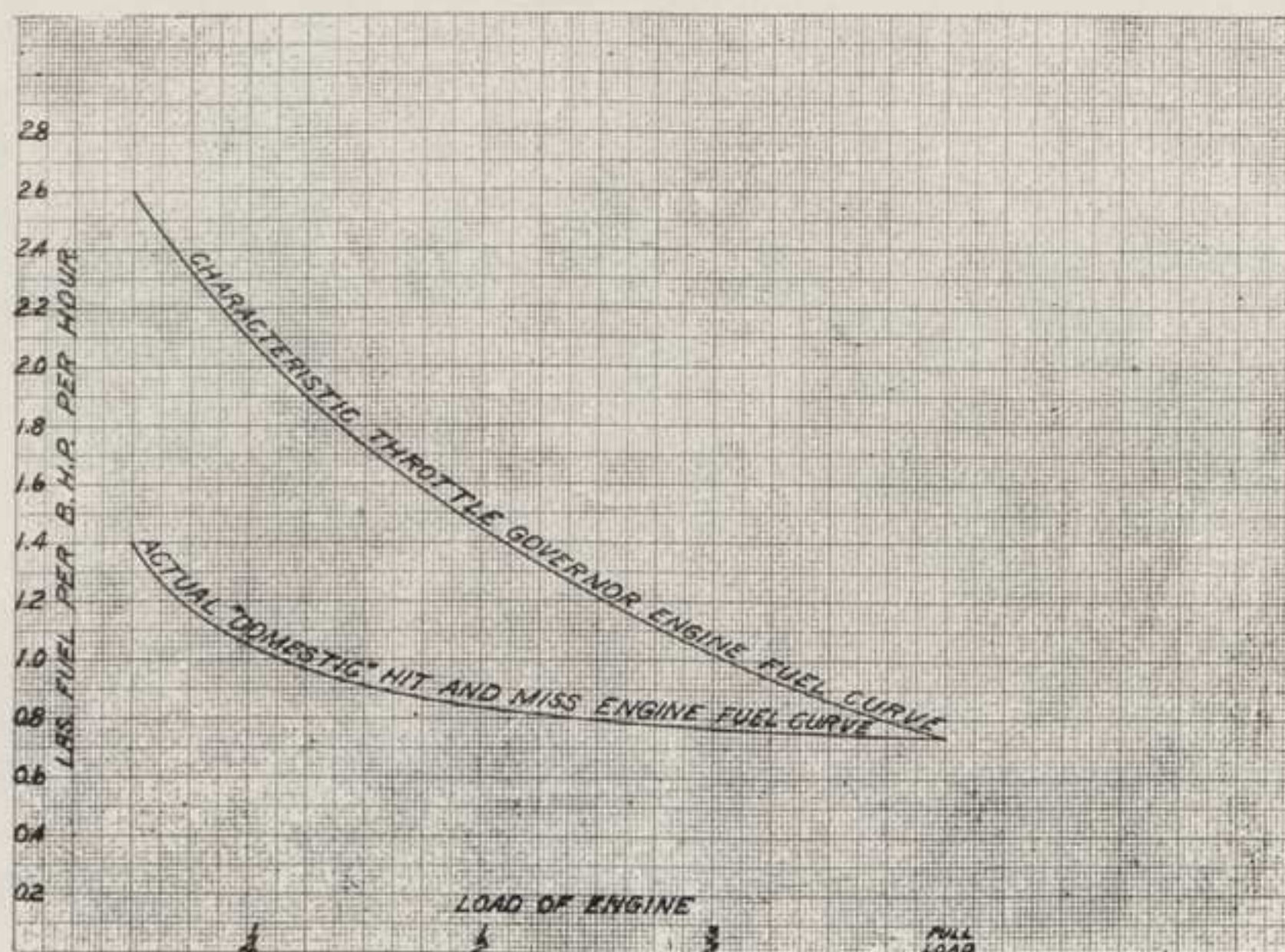


Fig. J

Characteristic Fuel Consumption Curves of Hit-and-Miss and Throttle Governed Engines.

There are two standard methods of controlling the speed of a gasoline engine; viz., the Hit-and-Miss-Governor and the Throttle Governor. Both methods are good and both have their advocates.

The two methods differ considerably. The throttle-governed engine takes a fuel mixture into the cylinder on each and every suction stroke of the piston, firing this mixture on each compression stroke. The amount of mixture is varied by the governor which reduces the fuel drawn into the cylinder on light loads, and increases it for the heavy loads, the speed remaining (if engine and governor are properly designed) very nearly constant. This closeness of speed regulation makes this style of governor preferable for some uses, such as, for example, direct lighting systems where storage batteries are not on the line.

The hit-and-miss governed engine takes a fuel mixture **ONLY** when the **SPEED** of the engine drops below the speed at which it is set to run. While this method does not give as close speed regulation as the Throttle-Governed, it gives **GREAT ECONOMY** of fuel on **INTERMITTENT** and **PARTIAL** loads.

The **FUEL CONSUMPTION CURVES** shown above illustrate the difference in fuel consumption between the two types of governed engines. Note that at full load both throttle and hit-and-miss governed engines use the same amount of fuel per brake horsepower per hour; but at one-quarter load the throttle governed engine uses twice the amount of fuel per brake horsepower hour that is consumed by the hit-and-miss governed engines. This saving in fuel in favor of the hit-and-miss engine is also very pronounced at one-half and three-quarter loads as well.

As the power used varies greatly with many types of machines such as Hoists, Saws, Ensilage Cutters, Pumps, etc., running from full load one moment to one-half or even no load the next, engines designed for use with such machines show great saving in operating costs, when the hit-and-miss governor is used.

a simple but strong and reliable hit-and-miss governor. The latches and catches are made of tool steel ground and tempered. The speed regulation is as close as is possible to obtain with a hit-and-miss governor. The speed lever allows a radical change in speed at the will of the operator. This is a particularly valuable feature when engine is used for hoisting purposes.

All "DOMESTIC" engines are equipped with

Practical Rules for Belting

- 1—It is generally advisable to use Single Leather Belting if one or both pulleys are less than 12" diameter, and Double Belting where both pulleys are over 12" diameter.
- 2—4-ply rubber and cotton belting is considered equal to Single Leather, and 6-ply rubber or cotton equal to Double Leather.
- 3—DIRECTION OF DRIVE. The lower side of the belt should carry the load, the top being slack gives the greatest grip on the pulleys.

5—RULE FOR WIDTH OF BELT.

For Single Leather

$$W = \frac{4000 H}{D.N.}$$

W = Width of Belt.

H = Horse Power to be transmitted.

D = Diameter of Pulley on Engine.

N = Number of Revolutions per minute of Pulley on Engine.

EXAMPLE

Find the width belt for 15 H. P. Engine having a 28 inch pulley running 275 R. P. M.

$$W = \frac{4000 \times 15}{28 \times 275} = \frac{60000}{7700} = 7\frac{61}{77} \text{ use } 8'' \text{ Belt.}$$

For Double Leather or 6-ply rubber or cotton the width may be $\frac{1}{3}$ less than for Single Leather.

GUARANTEE

All “DOMESTIC” Engines are guaranteed as to capacity, workmanship and material. We will replace free of charge at our factory any parts found faulty or showing undue wear, provided that such parts are sent for our inspection, freight or express charges prepaid.

This guarantee does not cover labor or material expense incurred by the customer, unless authorized in writing by the home office, Shippensburg, Pa., nor does it cover electrical supplies which are subject to deterioration from age, weather or temperature.

DOMESTIC ENGINE & PUMP CO.,
Shippensburg, Pa.

The following Bulletins, any of which will be sent on request, give complete specifications of other standard “DOMESTIC” Units:

19-F—“DOMESTIC” Power Double Acting Force Pump Units.

19-D—“DOMESTIC” Diaphragm Power Pumping Units.

19-H—“DOMESTIC” Patented Vertical Lift, Poppet Valve, Hand Diaphragm Pumps.

Net to Consumer
20% due to Duties

DOMESTIC ENGINE and PUMP CO.,

SHIPPENSBURG, PENNA.

PRICE LIST JANUARY 1st, 1920.

All Prices f. o. b. Shippensburg, Penna. Subject to Change Without Notice.

BULLETIN 19-E.

Semi-Portable and Portable Gas and Gasoline Engines.

Size Engine H. P.	Plain Engines on Steel Channels With Wico Magneto			Engines Mounted on Metal Trucks With Wico Magneto				Add for Friction Clutch Instead of Plain Pulley	Add for Gas Attachments Instead of Gasoline
	Fig. No.	Price	Code	Fig. No.	Price	Type Truck	Code		
12		\$135.00	Compel		\$155.00	Low Hand	Compelling		
3½	413	190.00	Complacent	390	210.00	Low Hand	Cinder		
6	410	285.00	Comport	415	320.00	High Hand	Conceco	\$25.00	\$15.00
6				408	350.00	One Horse	Conceal	25.00	15.00
9	410	400.00	Compound	408	510.00	One Horse	Concern	30.00	15.00
9				412	*550.00	Two Horse	Condign	Included	15.00
13	410	550.00	Compute	412	*710.00	Two Horse	Conduce	Included	15.00
15	410	700.00	Con	412	*890.00	Two Horse	Confect	Included	15.00

*Price includes Standard Sized Friction Clutch Pulley, Brake, Trees and Neck Yoke.
Complete AUXILIARY IGNITION SYSTEM (with Dry Batteries and Tool Box), \$12.00 extra.
Accessories—Subject to market prices.

11½ H. P. Engine illustrated pages 2 and 3 has been discontinued and 2 H. P. Engine listed above in its stead.

ALL STEEL TRUCKS FOR MOUNTING ENGINES

Page	Figure	Truck Number	For Size Engine	Style of Truck	Price	Code	Allowance for Brake	Allowance for Trees and Neck Yoke
9	416	29	3½ & 6 H. P.	High Hand	\$40.00	Confronting		
9	402	19	6 H. P.	One Horse	85.00	Confusion		
9	401	21	9 H. P.	One Horse	120.00	Confuser		
9	401	21	9 H. P.	Two Horse	†146.00	Confusty		
9	401	22	13 H. P.	Two Horse	†150.00	Confute	\$12.00	\$8.00
9	401	23	15 H. P.	Two Horse	†175.00	Confuting	12.00	8.00
5	390	Running Gear Only	3½ H. P.	Low Hand	25.00	Confronter		

†Price includes Brake, Trees and Neck Yoke, when not wanted deduct allowance given.

PRICES JANUARY 1, 1920.
FRICION CLUTCH PULLEYS FOR DOMESTIC ENGINES.

Illustrated Bulletin 19-E. Page 13.

All Prices f. o. b. Shippensburg, Penna. Subject to Change Without Notice.

Diameter Pulley Inches	Face Pulley Inches	Price Pulley for Size Engine Given Below				
		3½ H. P. Engine	6 H. P. Engine	9 H. P. Engine	13 H. P. Engine	15 H. P. Engine
10	6	\$32.00	\$32.00			
12	6	*32.00	34.00			
14	6	35.00	35.00			
16	6	36.00	*36.00	\$40.00		
18	6	-----	38.00	42.00	\$47.50	
20	6	-----	39.00	*43.50	49.00	
24	8	-----	-----	50.00	*56.00	
26	8	-----	-----	53.00	59.00	\$67.00
28	10	-----	-----	-----	63.50	72.00
28	8	-----	-----	56.00	61.00	69.50
32	10	-----	-----	-----	66.00	*74.75
32	10	-----	-----	-----	72.00	81.00
36	10	-----	-----	-----	78.50	87.75

*Indicates Standard Size Pulley.

PRICES OF EXTRA STANDARD SIZE PLAIN PULLEYS
 Pulleys Key to Engine Crank Shaft

Pulley Size		Standard for Size Engine	Price
Diameter	Face		
5"	6"	2 H. P.	\$2.00
12"	6"	3½ H. P.	3.50
16"	6"	6 H. P.	7.50
20"	6"	9 H. P.	10.75
24"	8"	13 H. P.	19.00
28"	10"	15 H. P.	37.50

For Price of Friction Clutch Pulley ordered with Engine IN PLACE of Standard Plain Pulley, ADD Difference between Price of Standard size Plain Pulley and Price of Friction Clutch desired as given above.

"DOMESTIC" PUMP JACKS—BULLETIN 20-J.

- Fig. 435. Full Base Standard Jack—Code word—Congre, ----- \$21.00
 Fig. 30. Overhead Standard Jack—Code word—Confer, ----- 16.00