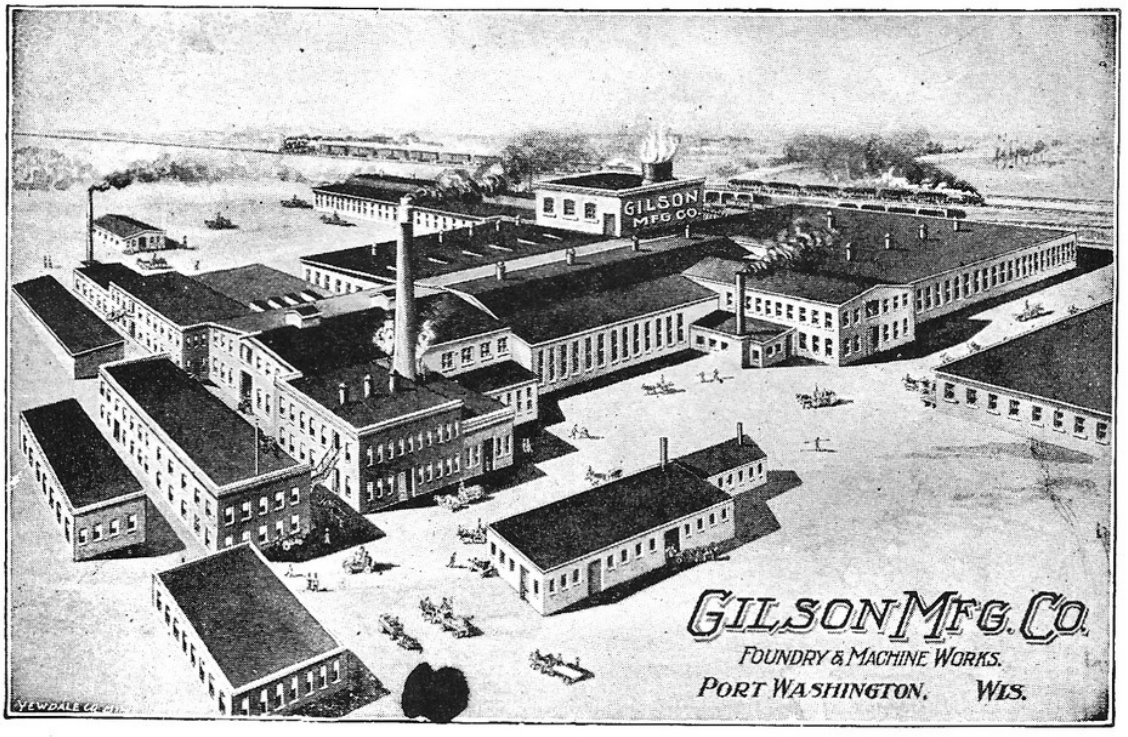
GILSON
Manufacturing Company

PORT WASHINGTON, WIS.
U. S. A.



GILSON MANUFACTURING CO. LTD.
GUELPH, ONT., CANADA

BUILDERS OF

Gasoline Engines

Introductory

For small and medium power the gasoline engine stands unrivalled in economy, convenience and safety.

Three qualifications are absolutely essential in a successful gasoline engine:

RELIABILITY,
DURABILITY,
EASE OF OPERATION.

These essential principles are incorporated in all the engines we produce.

Our engines are unsurpassed in ECONOMY OF OPERATION. Every engine has a surplus over its rated horse power.

Our engines are

SIMPLE,
SUBSTANTIAL,
EASY TO UNDERSTAND.

They give satisfaction.

Only the very best material is used. The workmanship is of the highest grade.

We operate both foundry and machine works. Our plant has a modern equipment throughout. From pig iron and rough steel to the finished engine, we do all the work in our plant.

We want to secure and retain the good will and patronage of all gasoline engine users by furnishing them with the best that is made.

We invite correspondence.

General Description

We make four different types of engines, viz.: horizontal, vertical, water cooled and air cooled.

All our engines operate on the four stroke cycle. The fundamental principle of this cycle of operations was first proposed in France in 1862 by Beau de Roches, and remains practically unchanged at the present time. Our efforts have been directed toward using this principle to greatest advantage.

THE OPERATION

A detailed explanation of the four cycle principle is as follows: A charge or mixture of gasoline and air is drawn into the cylinder with the first outward stroke of the piston. The piston returning on its first inward stroke compresses the charge, which explodes on the second outward stroke, giving the engine its power. The piston on the second inward stroke exhausts the burnt charge, completing the cycle. This is repeated. It will thus be seen that two entire revolutions of the crank shaft or four strokes of the piston are required for each working impulse, viz.: suction, compression, explosion or working stroke, and exhaust.

THE BED

The bed in all our engines is of ample length and width and is designed to withstand great strain. It has a broad bearing surface on the foundation throughout its full length. Ample provision is made for the engine to stand rigid, the great strain between the cylinder and the main bearings being reduced by concentrating metal between these two points.

THE CYLINDER

It is made from close grained iron especially adapted to this purpose, and has a long acting bearing on the bed, to which it is securely bolted. In horizontal engines this is far superior to the overhanging cylinder. In our water cooled engines the cylinder is made with a water jacket running its entire length.

IGNITION

We use the electric spark for igniting the charge, as it is the only mode of ignition that can be depended upon with all kinds of mixtures. It can be timed at any position of the crank. The ignition, except in style E, which uses jump spark, is of the latest hit and miss type, using the very best induction coil. It entirely eliminates the inconvenience, danger and loss of energy incurred by a hot tube ignition. It is constructed on the most modern lines.

THE GOVERNOR

The governor on each of our different styles is of our own design, and is so operated that it absolutely controls the exhaust valve. Our engines are built on the hit and miss plan. By this method the same amount of gas is admitted into the cylinder at each charge, but is cut out, as soon as the engine speed runs above normal, by the governing device which holds the exhaust valve open, during which time the engine gets no fuel or spark until speed drops to normal again. The speed can be changed quickly and easily.

GAS MIXER OR CARBURETER

The gasoline mixing valve is of the suction type, insuring a good mixture at all times. It is superior to any gravity feed arrangement, in that no gasoline can flow into the cylinder, unless the engine is put in motion. This makes a safe and reliable mixture.

The gasoline pump, used only on our style C engines, is entirely of bronze, with the overflow tank cast in one piece with it, and has no packing around the plunger or stem. This removes a source of annoyance and danger due to leaks and repairs to plunger. The pump can be worked by hand, prior to starting engine, without disconnecting any parts.

CRANK SHAFT

The crank shafts are made of open hearth steel forgings drawn from the solid billet, and are machined to size. They are made of ample weight, to withstand all strains they may be subjected to.

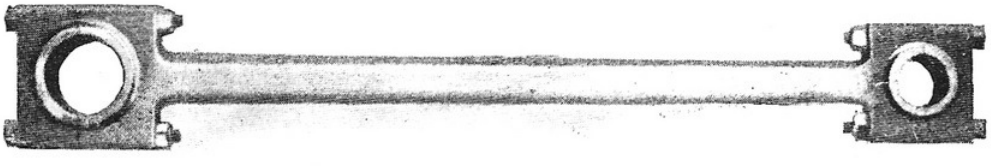


FIG. 1—CONNECTING ROD

THE CONNECTING ROD

The connecting rod is made of malleable iron of I beam section in the engines from one to four and a half horse power, and of the best grade of steel with high grade phosphor bronze bearings in the six H. P. and larger sizes. They have liberal bearings adjusted to take up wear at both ends.

LUBRICATION OF MOVING PARTS

All moving parts are easily lubricated, and where necessary are fitted with improved oil cups. Oil cups and lubricators are adjusted to suit the engine and require no further attention than regular oiling. The oil cups are large, and can be filled while engine is running.

FUEL CONSUMPTION

The fuel consumption will vary with the quality of gasoline used and atmospheric conditions. The usual consumption per H. P. per hour is 1-10 or less of one gallon of gasoline, 74 degrees gravity.

SAFETY

The feed on the Gilson engine is a suction feed. There is no possibility of leaks in the suction feed because there is nothing to leak; in fact, there are no pipe joints of any kind on the Gilson engine through which liquid gasoline circulates. The Gilson feed is the safest feed that can be used on any engine. It is impossible for any spark from the explosion in the cylinder to get to the gasoline tank; a fire can not be started from the Gilson engine itself; it must come, if ever, from an outside source. This is a strong argument when insurance rates are considered.

CONSTRUCTION

The construction of our engines throughout is strictly high grade. The material is of the best for the purpose. All castings are smooth and well finished. The general appearance of our engines is neat and very attractive in every respect.

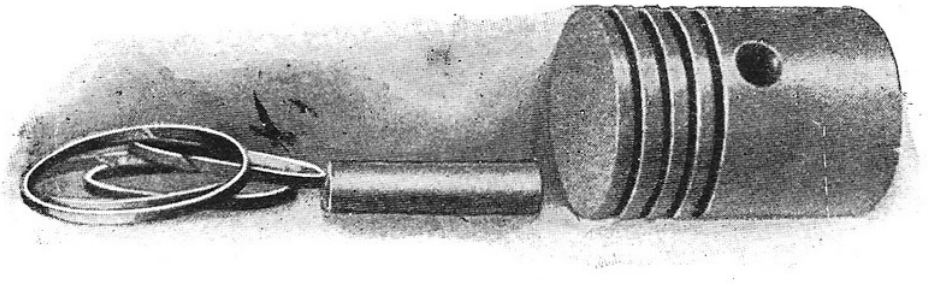


FIG. 2—THE PISTON

THE PISTON

The piston is of the trunk pattern, extra long, and fitted with special self aligning piston rings.

THE FLY WHEELS

The fly wheels are extra heavy, being of sufficient size to carry the required amount of energy, and are carefully turned. There are two fly wheels on each engine, accurately counterbalanced, making a symmetrical design, and insuring durability and close regulation.

THE VALVES

The valves are two in number, with ground joints. Both valves are so placed as to be easily removed, and having long bearings producing smooth action and durability.

BEARINGS

All bearings, other than those on connecting rod (as described above), are extra long and lined with the best high speed metal, designed for severe service. Provision is made for ample lubrication.

OUR WARRANTY

We warrant our engines to be constructed in every respect as described in this catalogue. We guarantee our engines to develop the full horse power as rated. We will replace at our expense any of the parts failing on account of defective material or workmanship within one (1) year from date of sale, natural wear and tear and missuage considered not as defects.

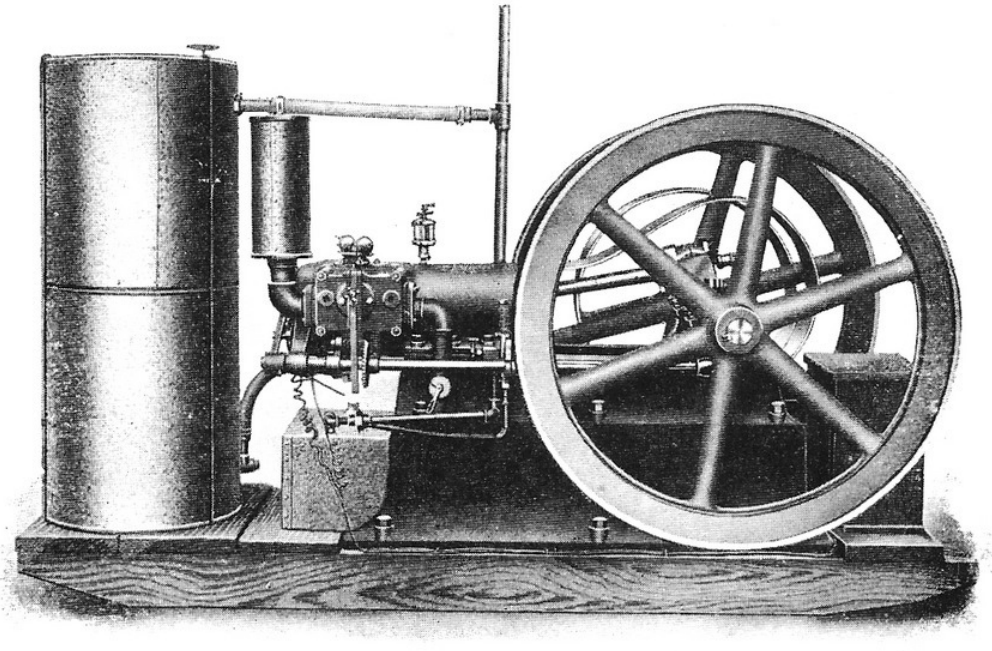


FIG. 3—SIDE VIEW OF STYLE C ENGINE

Air-Cooled Engines

This is the Engine that

Goes Like Sixty

Sells Like Sixty

Sells For Sixty

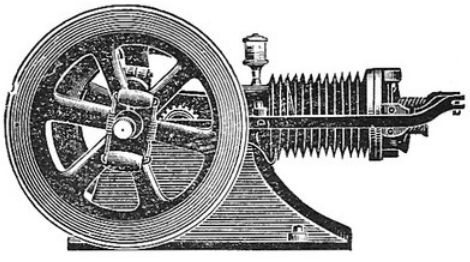


FIG. 4—THE GILSON 1 H. P. AIR COOLED GASOLINE ENGINE

This engine meets the demand for a small power for light work. It develops one horse power at 500 revolutions per minute.

It is economical, using but a quart to a quart and a half a day.

There is no waste of power, as a sensitive governor cuts out both gasoline and batteries when the engine is at its proper speed, and resumes charges as soon as speed slackens.

As the engine is air-cooled and uses no water there is no danger of a cracked cylinder in cold weather. It can be operated in any kind of temperature.

It is light in weight and can be easily moved and used for a multitude of purposes. Will operate cream separators, churns, fans, sewing and washing machines, ice cream freezers, meat choppers, printing presses, and in fact all kinds of light machinery. It is an ideal pumping engine.

It is made of the best materials, with as careful attention to detail as the larger and more expensive engines. Each engine is mounted on a skid with gasoline tank and battery box, ready to run.

Engines are thoroughly tested before shipping.

Air-Cooled Engines

Unequalled in Reliability, Convenience, Durability

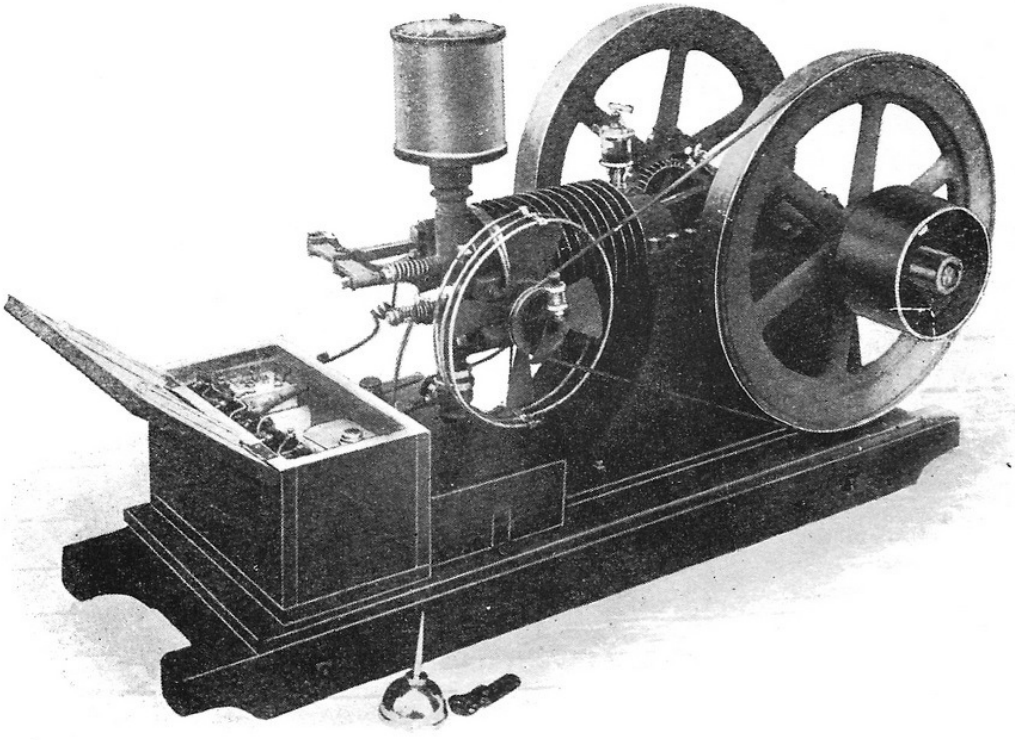


FIG. 5—STYLE E AIR COOLED 2½ H. P.

The Gilson Style E Air Cooled Horizontal Engines are made in three sizes, 1, 1½ and 2½ horse power. They are the most practical and reliable engines in their class. Always ready, winter or summer, whenever power is needed. The cost of operation stops instantly when the work is done. These engines use only a quart to a quart and a half of gasoline per day per horse power—a record for economy that cannot be beat. Both gasoline and electric current are cut off by a sensitive governor when engines attain their proper speed, thus avoiding all waste.

Anybody can operate these engines, in any kind of temperature. No experience necessary.

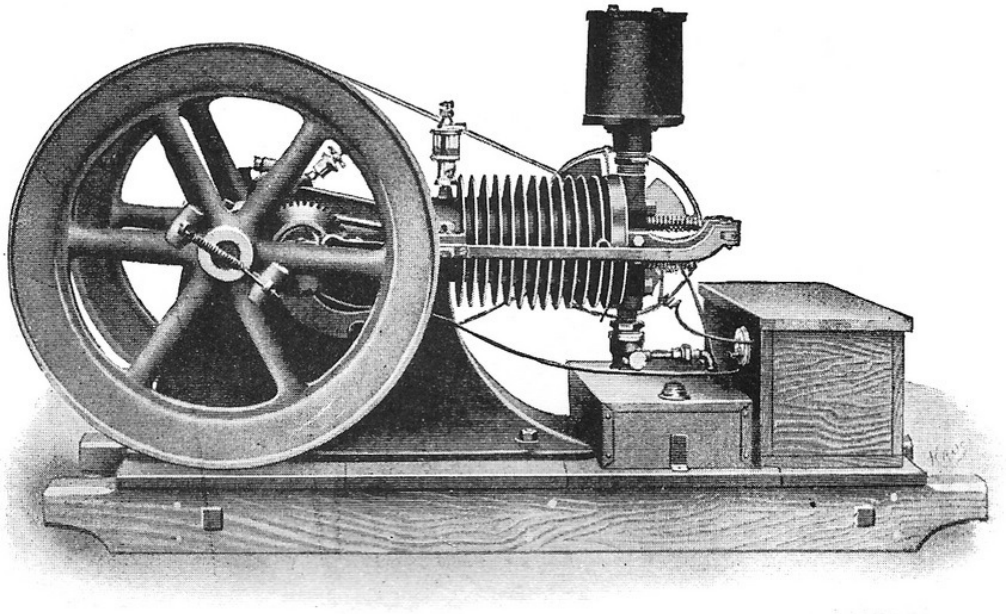


FIG. 6—STYLE E SIDE VIEW

A very attractive feature of our Style E engines is the perfect air cooling system, which is secured by means of a number of thin flanges around the cylinder, furnishing a large radiating surface, supplemented in the 1½ and 2½ by a fan revolving at high speed. The 1 H. P., as illustrated on preceding page, has no fan, but this can be furnished at a trifling additional cost. This cooling system has been carefully tested and is entirely successful. It is a great convenience. It does away with the work of filling the water tank, saves space, weight and expense. It avoids entirely the danger of a cracked cylinder in cold weather, due to freezing of water around the cylinder.

We recommend these engines as the most satisfactory power for running dynamos, printing presses, ice cream freezers, cream separators, churns, meat choppers, fans, washing, sewing and laundry machinery, corn shellers, horse clippers, small grinders, wood saws, and all kinds of light machinery. They are the most successful engines for pumping and spraying ever produced.

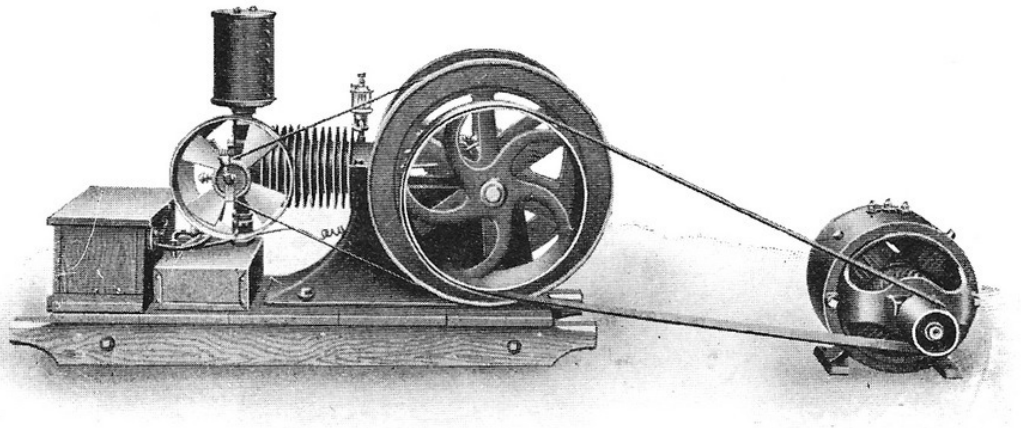


FIG. 7—STYLE E ENGINE ATTACHED TO DYNAMO

GENERAL DESCRIPTION

The design and construction of our Style E engines is of the highest grade throughout, with as careful attention to detail as the larger and more expensive engines.

The governor is very simple, and is contained in balance wheel of engine. It can not get out of order. The crank shaft is of drop forged steel, and the connecting rod is malleable iron, with liberal bearings. The piston is unusually long, giving a large bearing area in the cylinder. It has three well fitted packing rings. Jump spark ignition furnishes the spark. All bearings are supplied with oil and grease cups for proper lubrication.

Each engine is mounted on a skid, with battery and gasoline tank, carefully tested before shipping, and ready to run as soon as it is uncrated, and supplied with gasoline and lubricating oil. Fully guaranteed.

H. P.	Style Horizontal Air Cooled	Rev. per minute	Cylinder	Stroke	Dia. Fly Wheels	Wt. of each Fly Wh.	Size of Crank Shaft	Shipping Wt.	Pulleys Dia.	Pulleys Face	Floor space on Skids
1	E	500	$3\frac{3}{4}$	4	$15\frac{1}{2}$	38	$1\frac{1}{4}$	300	2	2	22x48
$1\frac{1}{2}$	E	475	$3\frac{3}{4}$	$4\frac{1}{2}$	$16\frac{1}{2}$	51	$1\frac{1}{4}$	330	3	3	22x49
$2\frac{1}{2}$	E	450	$4\frac{1}{2}$	6	$22\frac{1}{2}$	95	$1\frac{1}{2}$	500	6	5	26x56

A Handy Outfit

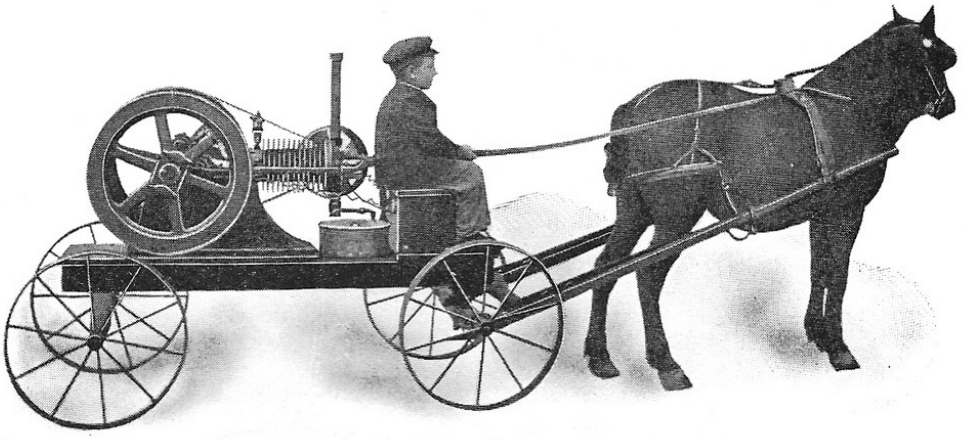


FIG. 30—STYLE E PORTABLE OUTFIT

(This outfit is furnished regularly with straight handle, instead of thills, as shown above.)

The above illustration shows our style "E" 2½ H. P. engine mounted on a truck. This is a great convenience where the engine is used for several purposes at different places. If the engine is to operate a pump, cream separator, fan, washing machine, churn, etc., it can be moved without difficulty and in a moment's time. A boy can draw the outfit easily.

We furnish these outfits in the style E 1½ and 2½ H. P. sizes, and style D 2 H. P. and 3 H. P. sizes.

The trucks are substantially constructed with iron axles, steel skeins, and steel wheels, with convex tires, 18-inch diameter.

Our New Style "D" Engine

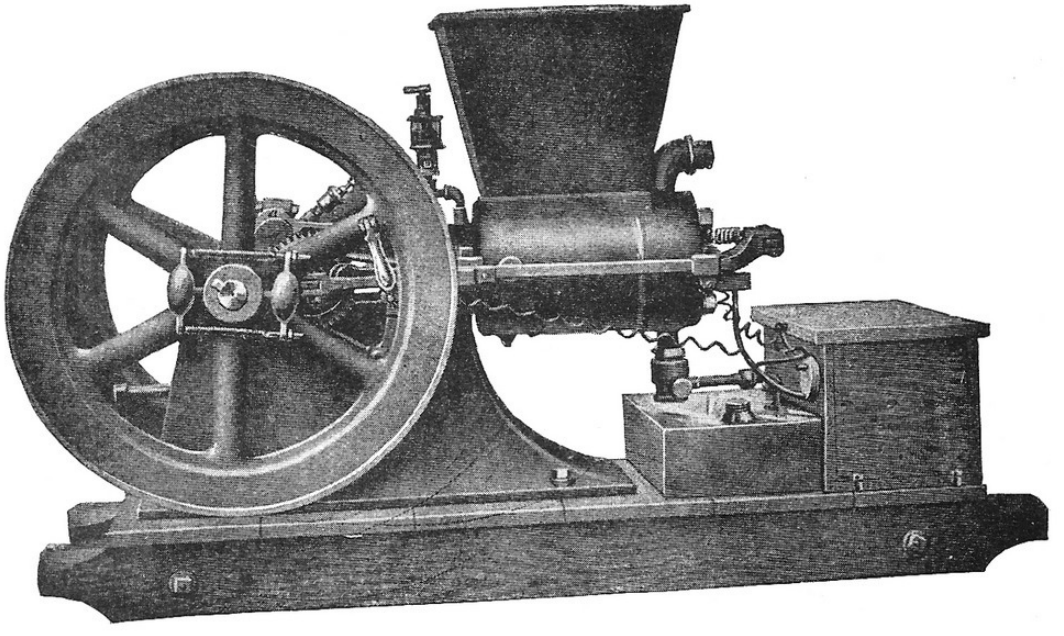


FIG. 33—2 AND 3 H. P. HOPPER WATER COOLED

This engine is built on the same general lines as our Style E air cooled engines, so favorably known everywhere, and possesses all the strikingly popular qualities of these engines. The only difference is that this style is equipped with a water jacket and hopper instead of the flanged cylinder and fan of the Style E air cooled engine. This is by far the most convenient water cooling arrangement yet produced.

This engine is especially adapted for extra heavy and continuous duty, and will give excellent service for operating all kinds of machinery within its scope.

H. P.	Style	Rev. per Min.	Cylinder Dia.	Cylinder Str.	Fly Wheels Dia.	Fly Wheels Wt. each	Dia. Cr'k Shaft	Shipping Wt.	Pulleys Dia. Face	Floor Space on Skids
2	D	475	3¾	4½	16½	51	1¼	360	3x3	22x49
3	D	450	4½	6	22½	95	1½	550	6x5	26x56

A Powerful and Serviceable Engine Especially Adapted for Farm and Outdoor Work of All Kinds

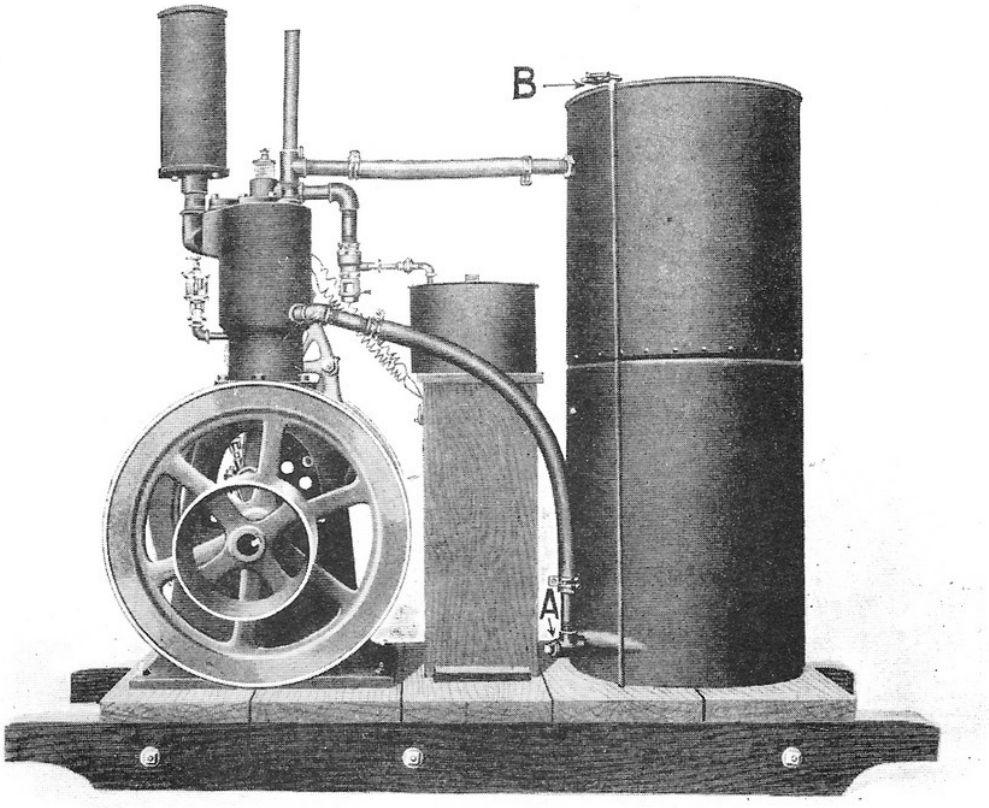


FIG. 8—STYLE A 4½ H. P. GILSON ENGINE

For all-around hard service this engine stands alone in its class. It is rated at 4½ H. P., but delivers a liberal excess over this figure. In fact, many of our Style A engines have shown more actual power and endurance than most 5 and 6 H. P. engines.

All the parts are extra strong and substantial, and made to stand heavy duty and hard service.

It has a solid head, requiring no packing, consequently water can not leak into the cylinder.

The base is enclosed. Oil can not spatter about by action of the crank.

We recommend this engine for running cord wood and pole saws, pumps, feed grinders, emery wheels, cream separators, churns, hoisting machines, dynamos, cement mixers, printing presses, and all kinds of machinery requiring medium power.

We call special attention to the fact that the exhaust valve and igniter are operated by one Rocking Arm. Nothing can be simpler. The suction feed will also commend itself, overcoming objections of insurance inspectors who condemn gravity feed engines. This does away with a pump. The nearness of the gasoline tank and mixing valve to the cylinder insures a perfect mixture at all times. The mixing valve is of the most approved type.

The Style A Gilson Engine is the ideal power for the farm and workshop, and embodies all the latest and best improvements. There can be no mistake in buying this engine when power within its scope is needed.

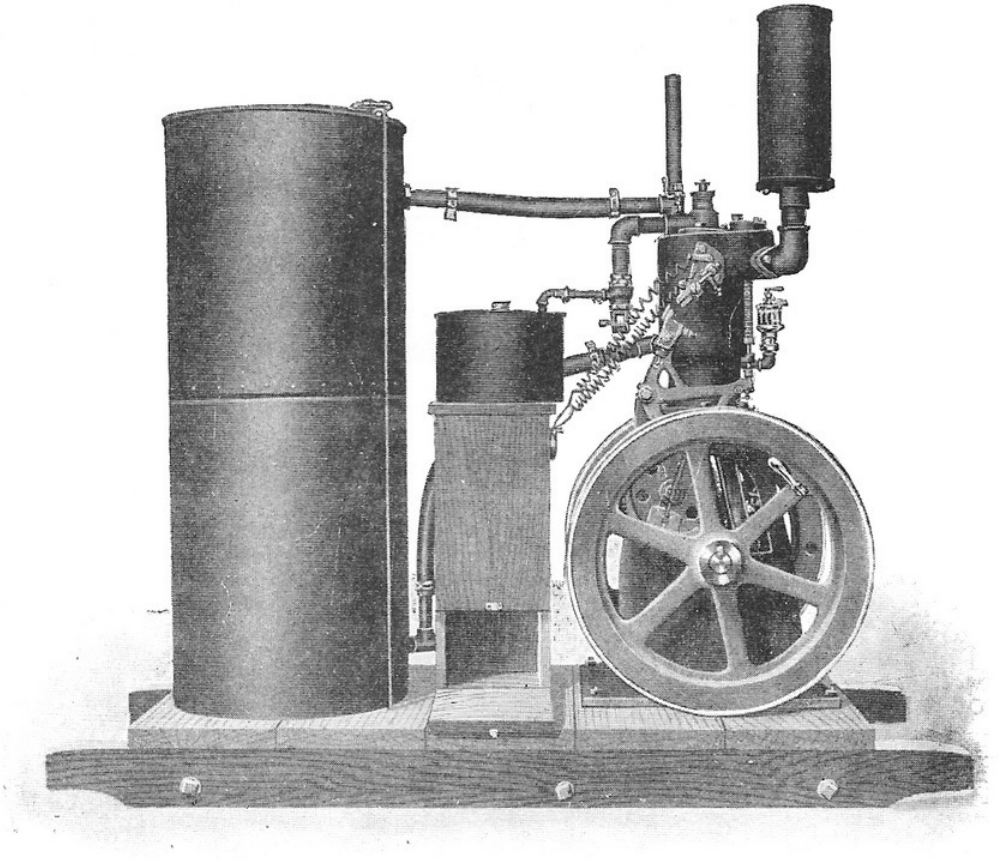


FIG. 9

H. P.	Style	Rev. per Min.	Cylinder	Stroke	Diam. Fly Wheels	Wt. Fly Wheels	Size Crank Shaft	Pulley Dia.	Pulley Face	Floor Space Engine Alone	Floor Space on Skids	Shipping Wt.
4½	A	425	5¼	7	24	150	1⅝	10	7	27x24	29x66	850

Standard size pulleys always furnished unless otherwise specified.

The Gilson Engines have stood the test of service. They are being operated by practical, up-to-date farmers, and are meeting with their unqualified approval. They combine a liberal surplus of power with the greatest simplicity and ease of operation. We guarantee each of our engines to develop power in excess of its rated H. P.

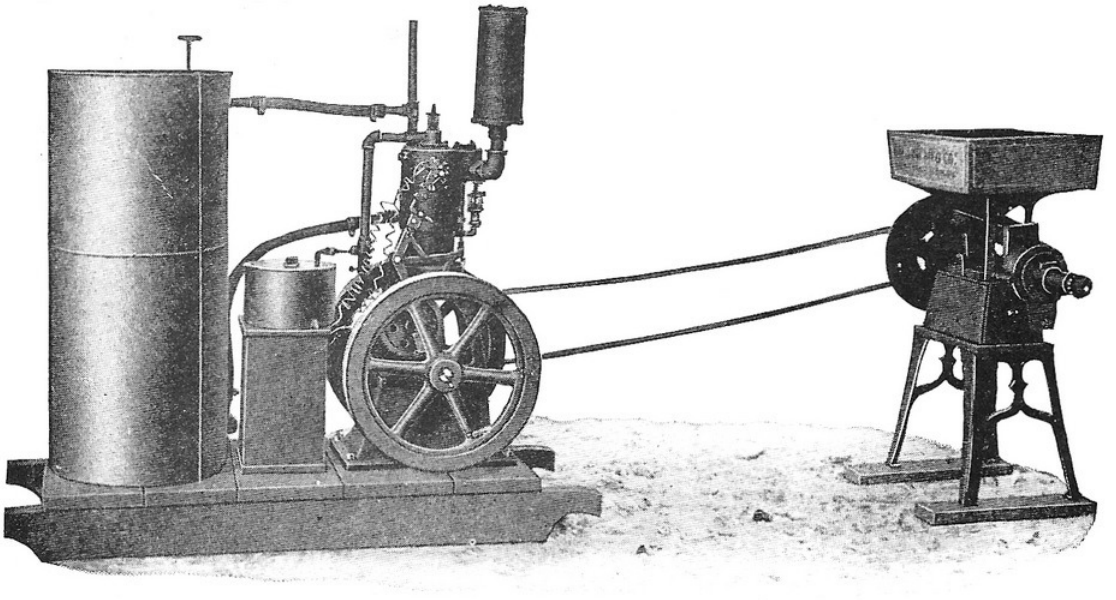


FIG. 10—JEWEL FEED MILL OPERATED BY 4½ H. P. GILSON ENGINE

The Gilson Engine is unequalled for simplicity, economy and highest efficiency. All parts are easy of access. The highest grade of material is used and the best of workmanship employed in its construction. Its adaptability is universal.

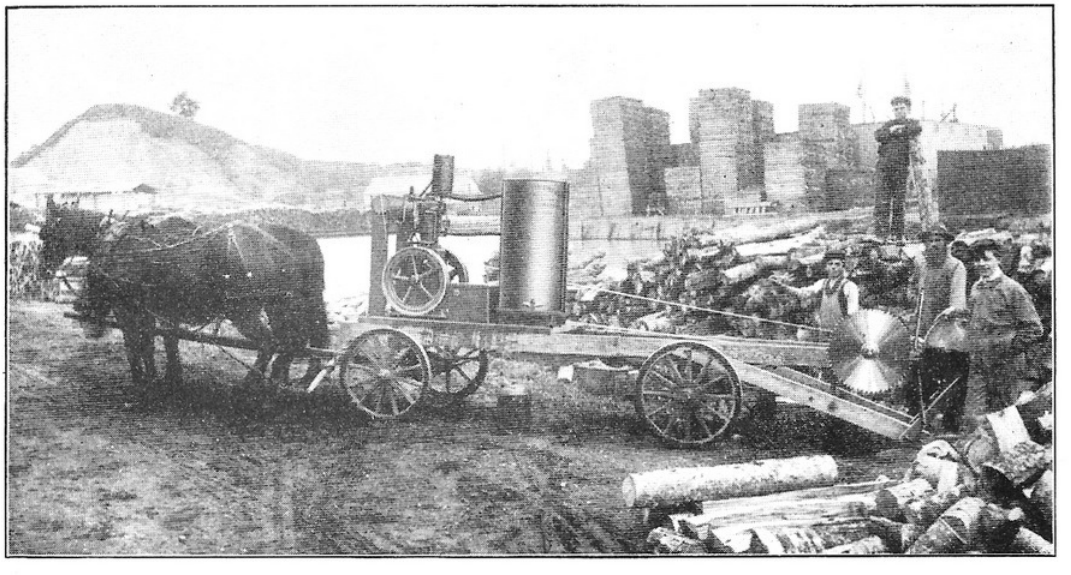


FIG. 11—A HOME MADE SAWING RIG

The above is a photographic illustration of a home made sawing rig. The owner bought one of our Style A 4½ H.P. engines and mounted it on a truck himself. It is a great success.

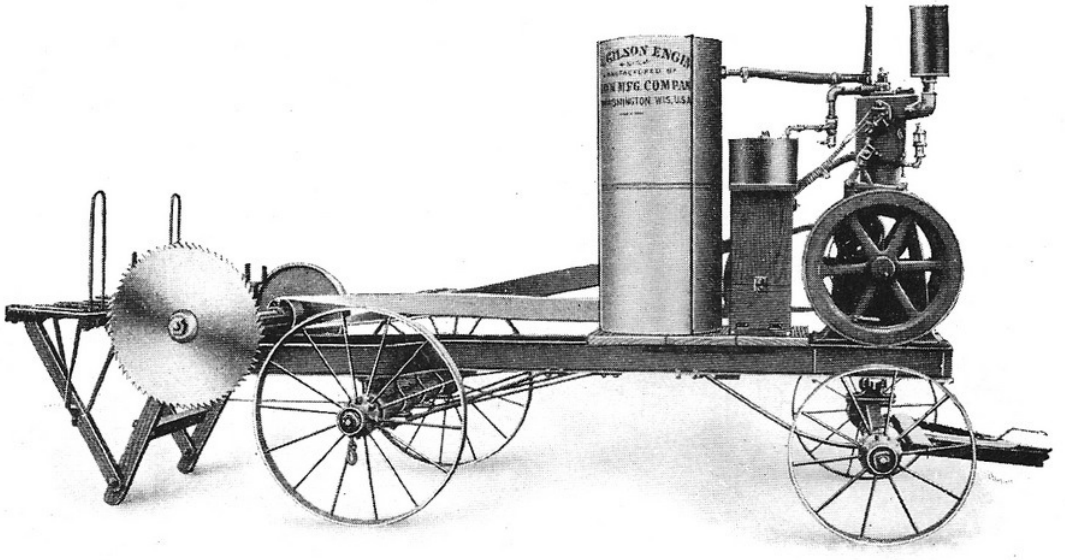


FIG. 12—A PORTABLE WOOD-SAWING RIG

The above picture represents a portable wood-sawing machine operated by a Style A Gilson Gasoline Engine. The whole outfit is mounted on a solid steel truck. In the hands of a practical person this outfit is a money-maker.

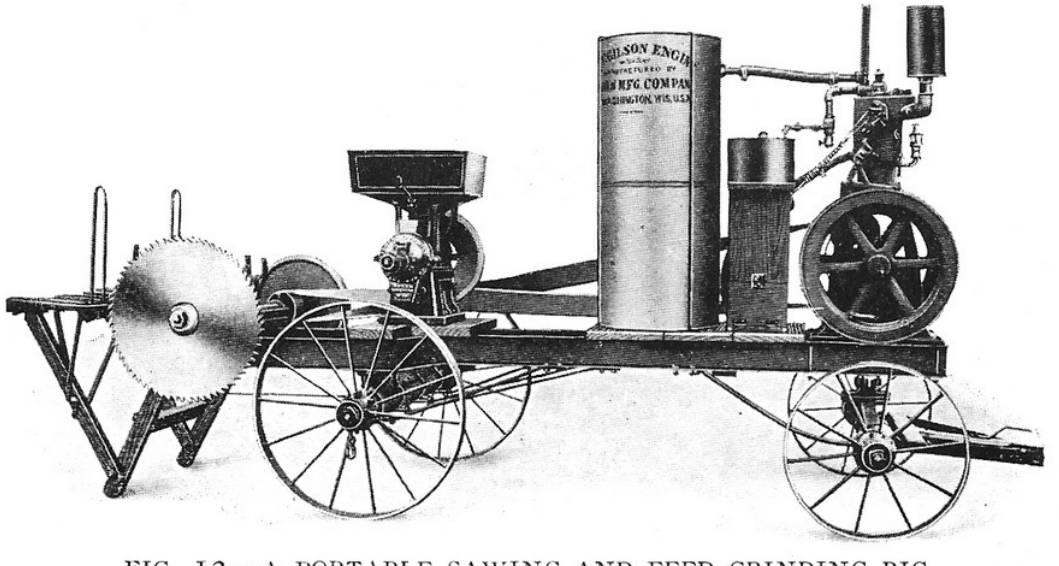


FIG. 13—A PORTABLE SAWING AND FEED GRINDING RIG

This is the same outfit as shown at the top of page, with the addition ewel Feed Mill. It is a very popular outfit.

The Engine of Satisfaction

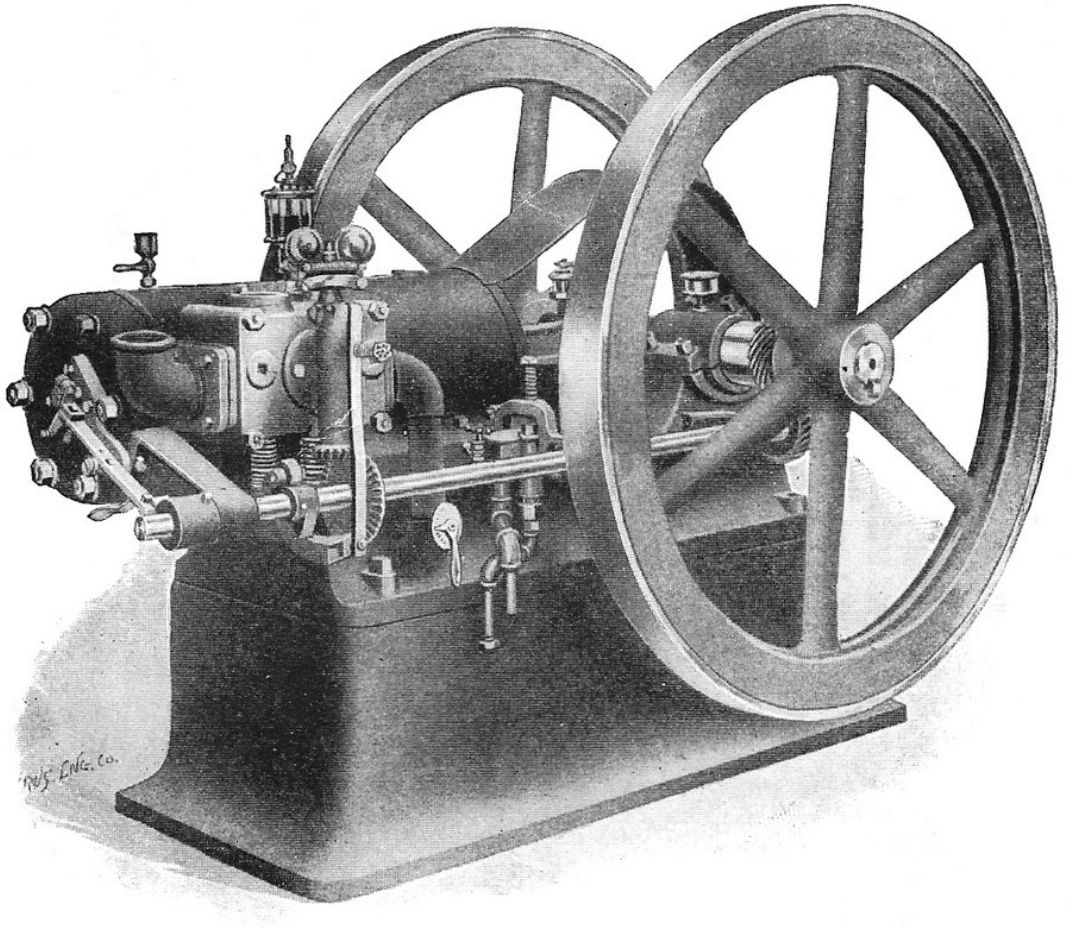


FIG. 14—THE STYLE C GILSON ENGINE. MADE IN TWO SIZES—6, 8 H. P.

The Style C engine is a model of all that a gasoline engine of this class should be. It embodies all the latest improvements, is of the highest grade of construction, in material, workmanship and design, is unsurpassed in economy of operation, and is above all *thoroughly reliable.*

Our Style C engine is a powerful motor, adapted to all power purposes, more especially where close regulation, smoothness and reliability are required. It is very economical and steady, and almost noiseless in operation.

While our Style C is the ideal power for the workshop, it is equally desirable for farm work. It is a favorite with farmers, because it can be relied upon, is easily operated and understood. It is just the engine for hard service.

Some of the leading features of the Style C engine are:

The especially liberal bearings, permitting the engine to stand the severest strains.

An adjustable speed governor, permitting a liberal variation of speed while the engine is running. The speed is steady and uniform.

A single shaft operated by noiseless spiral gears, and running on the half time, opens the exhaust valve, and trips the igniter. It also operates the gasoline pump.

The gasoline mixing valve is of the suction type, insuring a good mixture at all times. It is superior to any gravity feed arrangement, in that no gasoline can flow into the cylinder, unless the engine is put into motion. This makes a safe and reliable mixture.

The gasoline pump is entirely of bronze, with the overflow tank cast in one piece with it and has no packing around the plunger.

The removable valve chest, bolted to the side of cylinder, is a very strong feature. This permits of easy access to the valves and valve chamber, and also of renewal at a very slight expense. The valves are placed in a vertical position, securing smooth action and durability.

Extra heavy and perfectly balanced fly wheels, carefully turned, producing power, and inducing close regulation.

The igniter is of the latest hit and miss spark, using the very best induction coil. Its construction is of the most modern type, including means for retarding the time of ignition when starting engine, thereby making it impossible for engine to kick back when starting. With our sparking outfit our customers will never experience the inconvenience and loss of energy, and the danger incurred by a hot tube ignition.

The construction of the base or bed and sub-base will appeal to all. The cylinder is bolted securely to the bed on a long acting bearing. This construction is far superior to the overhanging cylinder. This bed in turn is bolted to the sub-base when used as a stationary engine, thus permitting our Style C engines to be used without alteration for either stationary or portable purposes.

ACCESSORIES—With every engine we furnish a set of batteries, consisting of six 3½x8 cells, one spark coil and switch, all in neat box; galvanized iron cooling tank with pipe and fittings to connect to engine, muffler and exhaust pipe, monkey wrench, one gallon each gas engine and engine oil, together with directions for setting up, starting and taking care of engine.

H.P.	Style	Rev. per Min.	Cylinder Bore	Cylinder Stroke	Fly Wheels Dia.	Fly Wheels Wt.	Crank Shaft Dia.	Shipping Wt.	Floor Space Engine only	Floor Space On Skids
6	C	325	6½	8	38	242	2 5-16	1,800	42x66	42x89
8	C	300	7	10	42	325	2 5-16	2,000	42x71	42x96

Solid pulleys of above dimensions will be furnished unless otherwise specified.

Friction clutch pulleys furnished when specified at a slightly additional cost.

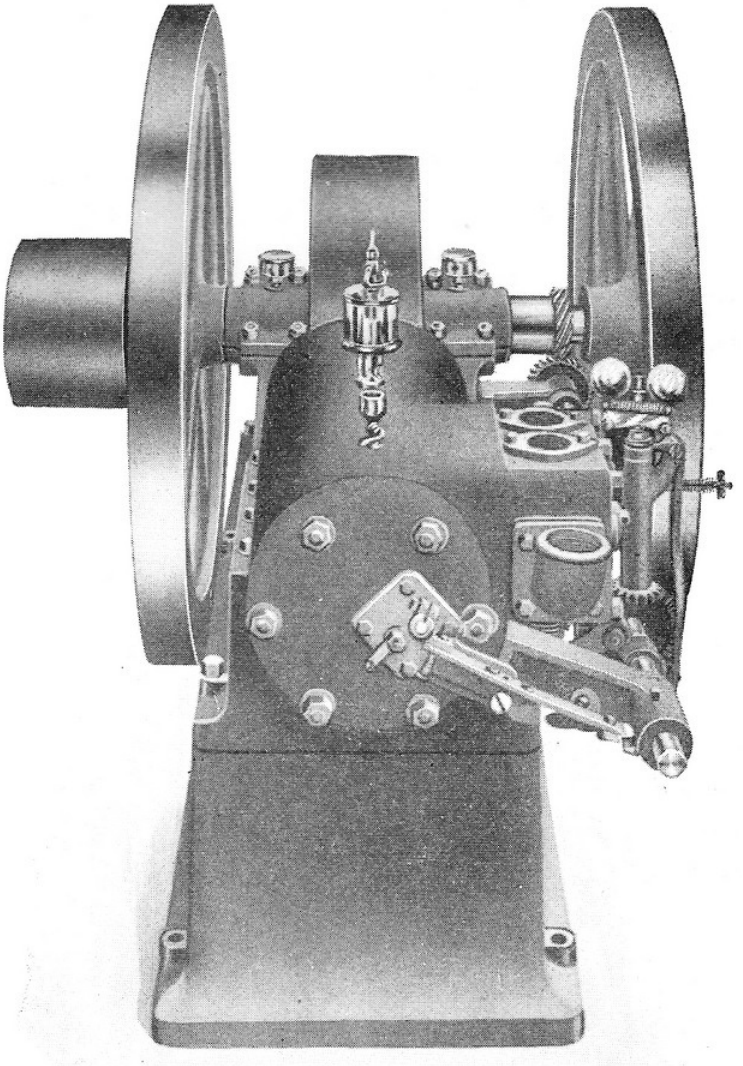


FIG. 15—REAR VIEW OF STYLE C ENGINES

The Gilson Style C Portable Engine with Wood Sawing Attachment

On the opposite page we illustrate our Style C Engine mounted on an all steel truck, with standard cooling system. This is our regular Style C stationary engine, which can be mounted by simply unbolting the sub-base. It can be converted into a stationary engine by setting the engine on a sub-base, and bolting it on.

These portable engines are becoming very popular for farm use, being specially adapted for heavy farm work such as feed cutting and grinding, wood sawing, fodder shredding, threshing, and filling silos. They require no engineer or coal—can be started and stopped instantly. Absolutely no danger of fire or explosion. Much superior to portable steam outfits.

We can supply all our engines from 4½ H. P. upwards mounted, with and without wood sawing attachments as specified.

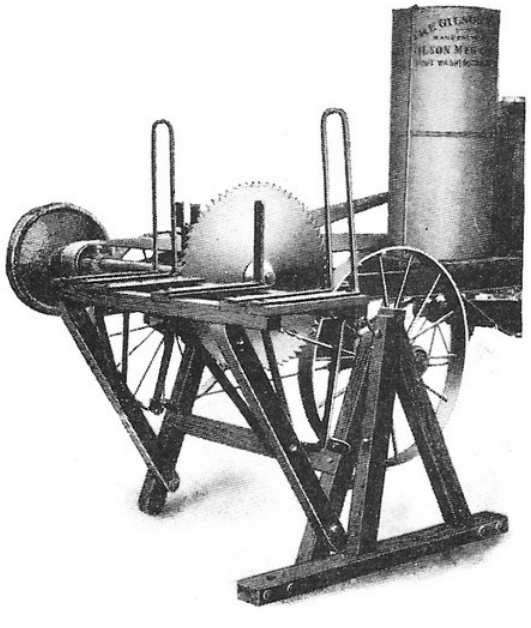


FIG. 16—POLE SAW ATTACHMENT—THIS CAN BE FURNISHED ON ANY OF OUR SAWING OUTFITS

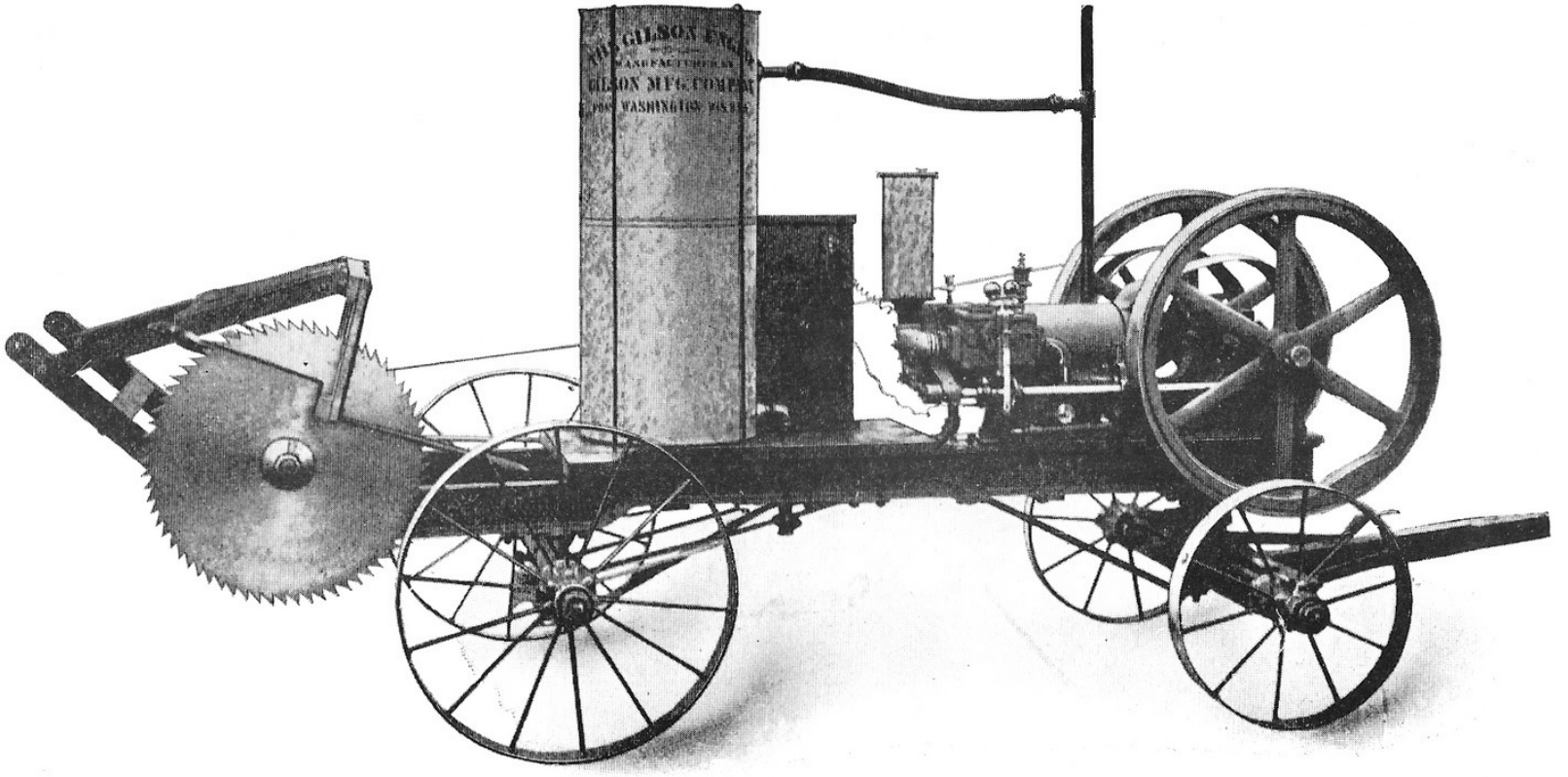


FIG. 17—STYLE C PORTABLE ENGINE WITH STANDARD COOLING SYSTEM AND WOOD SAWING ATTACHMENT

Improved Screen-Cooling System

On the opposite page is an illustration of our Style C Engine mounted on a Steel Truck, and fitted with our *Improved Screen Cooling System.* We furnish the standard or improved system with any of our water cooled stationary or portable engines, as desired, the latter at an additional charge.

The improved cooling system consists of a cylindrical screen with a distribution pan at the top supported inside of a shallow tank, and a rotary pump and connections. A small quantity of water is poured into the tank. When the engine runs the water is pumped through the water jacketed space around the cylinder to the distributing pan at the top of cylinder, and run down the screen in a thin sheet over the entire surface of the screen.

This system of cooling has proved to be very desirable for portable engines on account of the small amount of water required. It saves much labor and weight, and is a great convenience.

Oil can be used instead of water when desired for this improved cooling system, thereby changing the engine from a water cooled to an oil cooled engine without alterations. Simply draw off water and put in its place enough artic oil to fill water jacketed space around the cylinder. This gives the very best oil cooling system offered, and is much more convenient than the Radiator.

Thus it will be seen that we offer in our improved cooling system, one that can be used with either oil or water, without making any changes. By using oil in winter, the danger of water freezing and breaking the cylinder and water jacket is eliminated entirely.

We furnish all our engines with the standard water cooling system unless our improved system is ordered, in which case there is an extra charge. The improved cooling system can be furnished with *any* of our water cooled engines, horizontal or vertical.

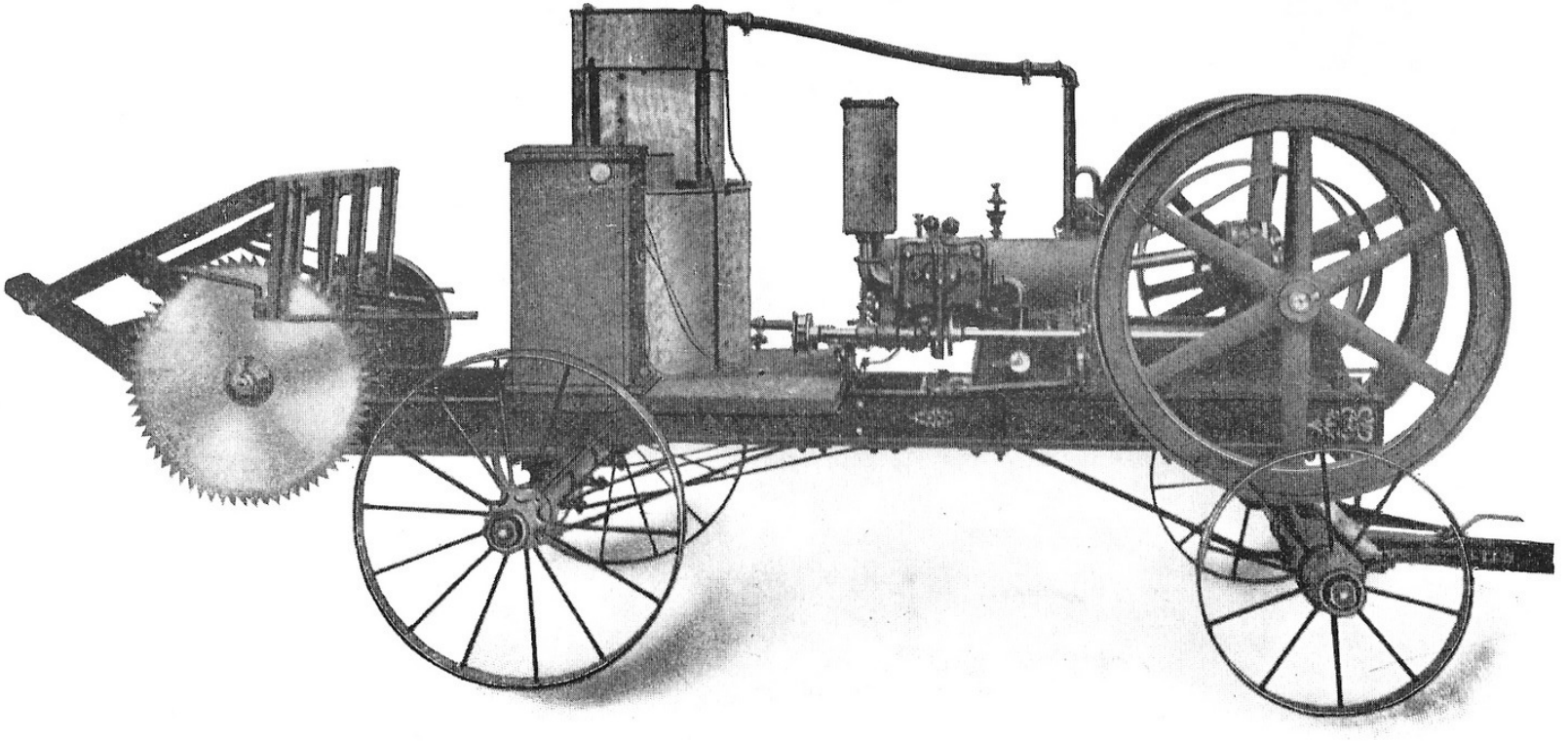


FIG. 18—STYLE C PORTABLE ENGINE WITH IMPROVED WATER COOLING SYSTEM AND WOOD SAWING ATTACHMENT

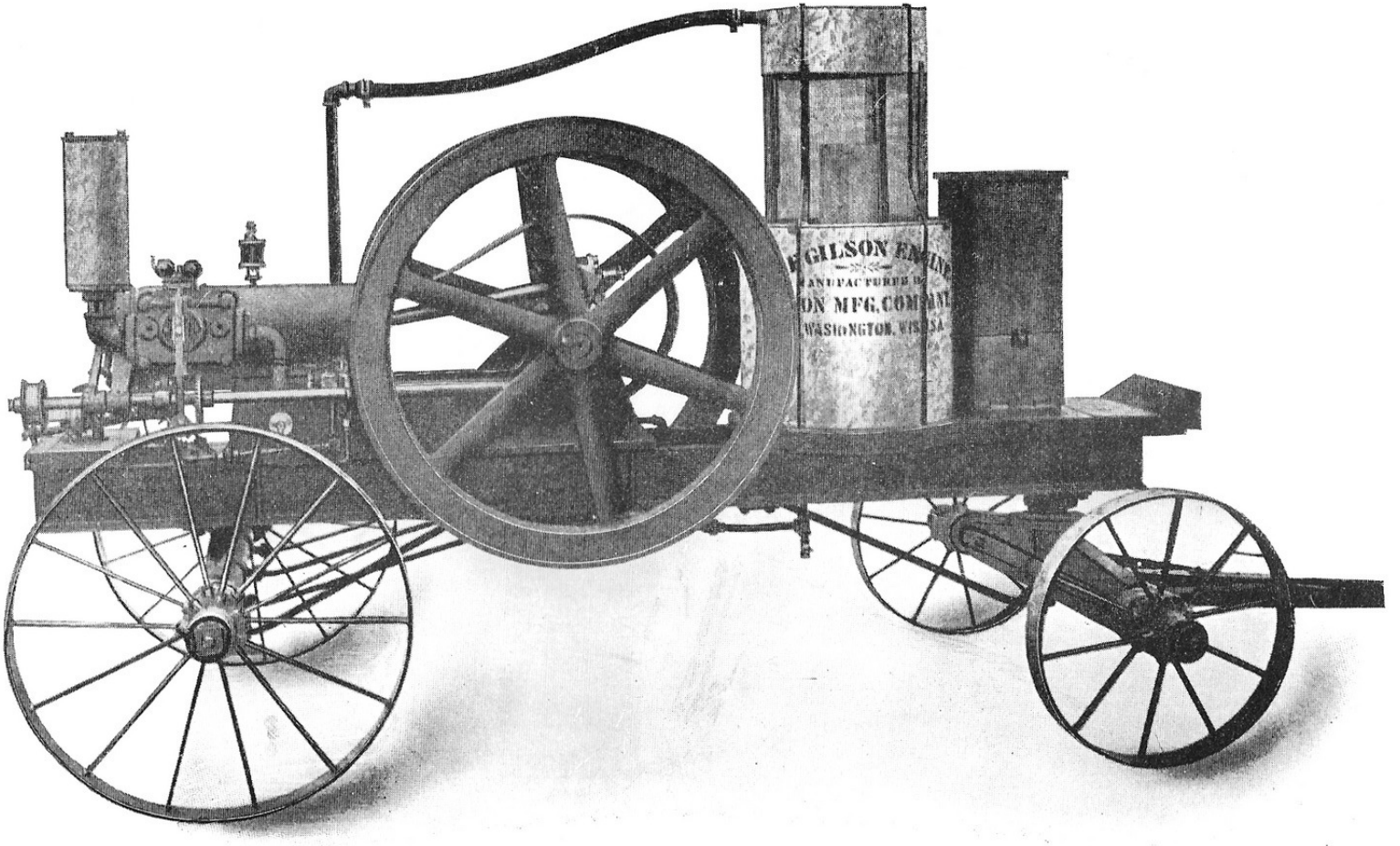


FIG. 19—STYLE C PORTABLE ENGINE WITH IMPROVED COOLING SYSTEM

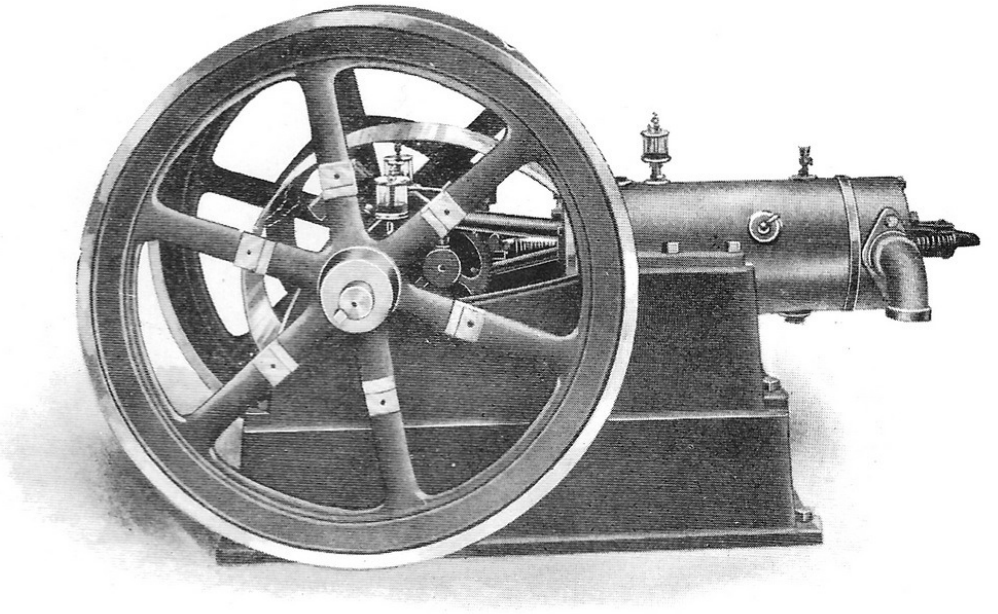


FIG. 32—STYLE K—12 AND 15 H. P.

The style K engine above illustrated resembles in general lines the other styles shown, with a few minor changes.

These engines are in use and giving the best results in flour mills, grain elevators, mines, grist mills, machine shops, irrigating plants, coal elevators and railroad pumping stations. Besides this they cannot be beat for farm use in operating shredders, threshers, feed grinders, feed cutters, wood saws, etc. No danger, no engineer, no coal. Started and stopped instantly. More economical and durable than any other power.

The Reliable Style K Engine

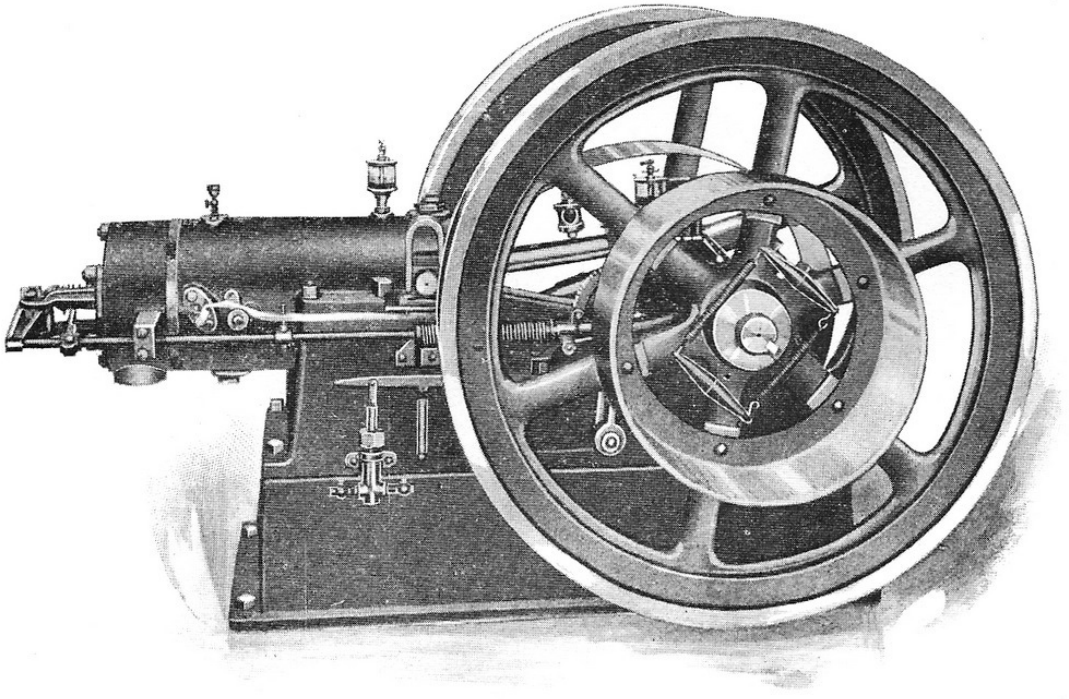


FIG. 31—STYLE K—12 AND 15 H. P.

There is no engine that gives better service for constant use and hard work, than our style K engine. Note the substantial and massive construction throughout. Special care is taken in inspecting and testing every piece of material used. After the engine is ready it is subjected to continued and severe tests. These precautions insure a perfect engine when it is ready for shipment.

H. P.	Style	Rev. per Min.	Cylinder Bore	Cylinder Str.	Fly Wheels Dia.	Fly Wheels Wt.	Crank Shaft Dia.	Shipping Wt.	Floor Space Engine only
12	K	300	8	10	44	515	$2\frac{3}{4}$	2750	76x46
15	K	275	8	12	48	675	$2\frac{3}{4}$	3000	78x46

Friction Clutch Pulley

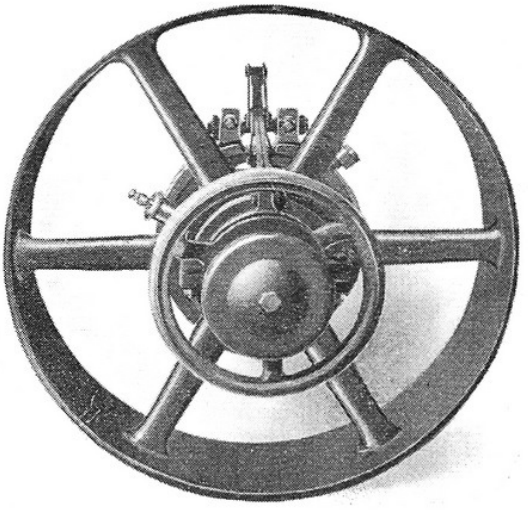


FIG. 20—FRICTION CLUTCH PULLEY

The Gilson Engines are regularly furnished with solid pulleys, but on special order and at a small additional cost we will furnish a Friction Clutch Pulley as illustrated. On the larger sizes this is desirable in order that the machinery may be started gradually, and stopped at will without stopping the engine. The engine may also be started without running the machinery.

This clutch pulley works surely and easily, and is satisfactory in every way.

Magneto Sparking Dynamo with Governor

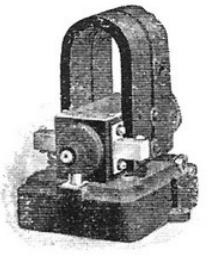
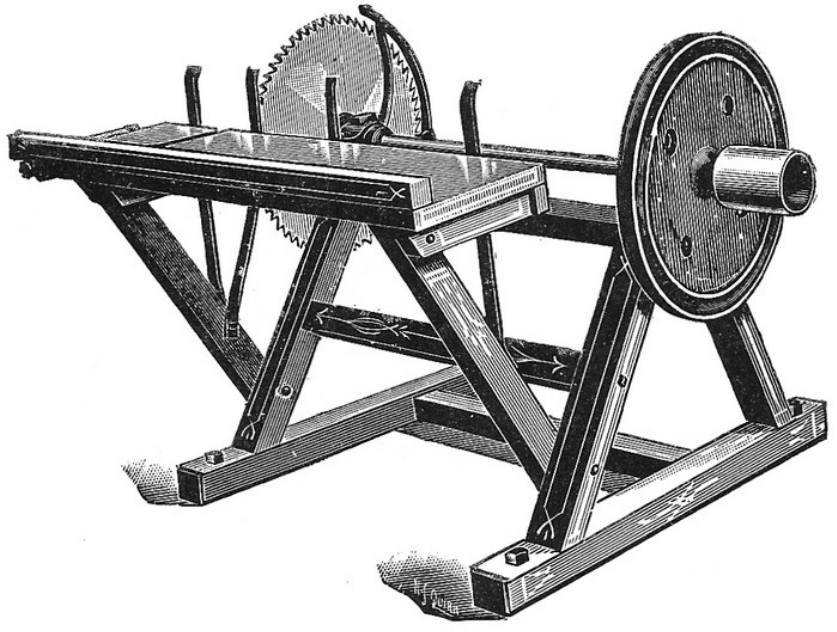


FIG. 21—MAGNETO SPARKER

The above cut shows our Magneto Sparker, which takes the place of batteries entirely in our engines from 1 to 4½ H. P. and is used in connection with starting batteries on the larger sizes. It has a governor which regulates its speed regardless of the speed of the engine; insuring a constant and uniform spark.

This magneto has large self-oiling bearings, is dust and moisture proof, and is well built in every respect. It will last, with proper care, the life of an ordinary engine. This magneto can be operated in connection with either Gasoline or Gas Engines. We will equip our engines with one of these Magneto Sparkers at a small additional cost.

Fig. 22—Wood Frame Tilting Table Wood Saw



Size of Pulley—5-in. diameter by 6-in. face, or 6-in. diameter by 6-in. face.

Speed Required—1,000 to 1,500 revolutions a minute.
Weight—298 lbs., without saw blade.
List Price—$28.00, without saw blade.

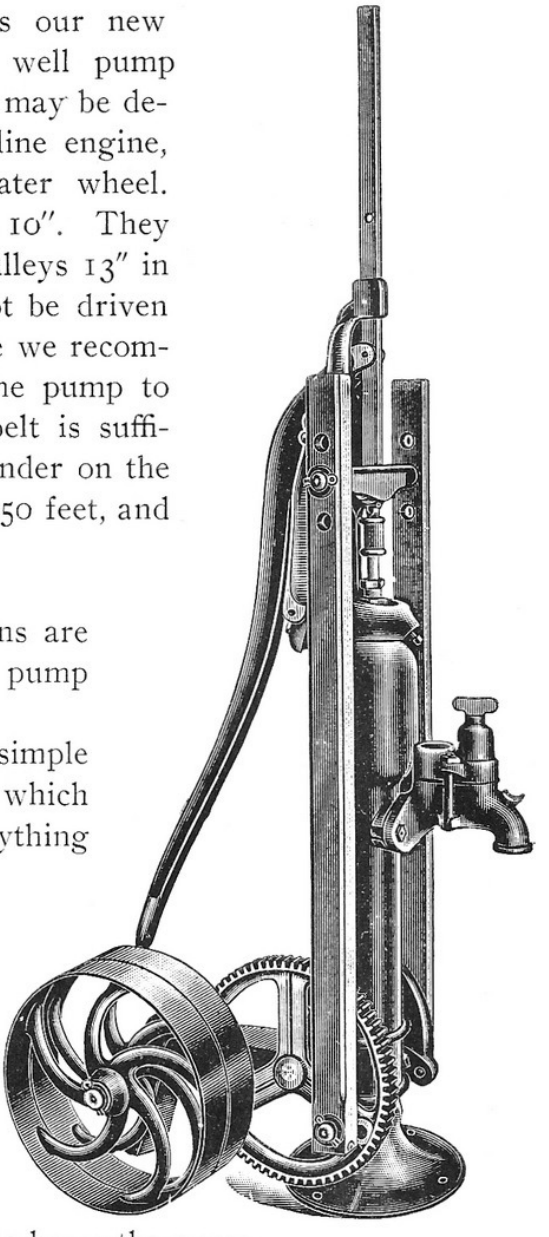
This Tilting Table Saw Frame has maintained the lead in its class for very many years. It is constructed of carefully selected, thoroughly seasoned lumber of ample size and strength to withstand any amount of hard work and wear, strongly mortised and bolted together and firmly braced in every direction.

It has all the latest improvements in wood saw construction, such as a heavy guard over the blade, patented, dust-proof, adjustable, self-oiling boxes, which never heat, freedom from gears and other complications, etc.

A roller at one end of the tilting table makes it easy to handle long poles, although this style frame is primarily intended for sawing cord wood.

It is adapted to any size saw blade from 20 inches in diameter up to 30 inches.

Fig. 23—Belt Power Pump Jack



The accompanying cut illustrates our new pump jack for operating ordinary well pump standards by belt power. The power may be derived from any source, such as gasoline engine, power wind mill, tread power or water wheel. They have three strokes, 5″, 7½″ and 10″. They are furnished with tight and loose pulleys 13″ in diameter for 2″ belt which should not be driven over 200 turns per minute. As a rule we recommend 160 turns, which will cause the pump to make 39 strokes per minute. The belt is sufficient for raising water with a 3″ cylinder on the 5″ stroke 200 feet; on the 7½″ stroke 150 feet, and on the 10″ stroke 100 feet.

It will be observed:—

1st—On the up stroke the pitmans are vertical and put no side wear on the pump piston bar.

2d—The pump jack is extremely simple in design and has only one gearing which is covered with a shield to prevent anything getting into the gearing.

3d—The pump jack is fastened to the pump standard by means of a clamp and four bolts making it convenient to fasten to all ordinary pump standards.

4th—There is a foot on the back part of the jack that rests on the platform and serves to help support the pump jack and also to brace the pump.

5th—The crank shaft presses down and holds the pump down when the pitmans are pushing the piston bar up and lifting the water, while when an engine operates the pump by means of a walking beam, it tends to lift the pump bodily.

6th—There is much less difficulty in getting a good foundation for an engine when it can be set a few feet away from the well than when it must be set partly over the well as is necessary when the engine operates the pump by means of a walking beam.

7th—When the pump is set under a wind mill, the pump may be operated by three different means: the wind mill, the engine and by hand, and one can quickly change from one to the other by simply changing the pump pin.

The Jewel Feed Mill

The Jewel Feed Mill is built for hard work and durability. It is a pulley mill operated by belt, and is adapted for use with engine, horse power or windmill. When the power is unsteady, as in the case of a windmill, the shake-feed ceases to deliver grain to the burrs when motion runs down, and allows them to clear themselves and be ready for work when sufficient power is again applied.

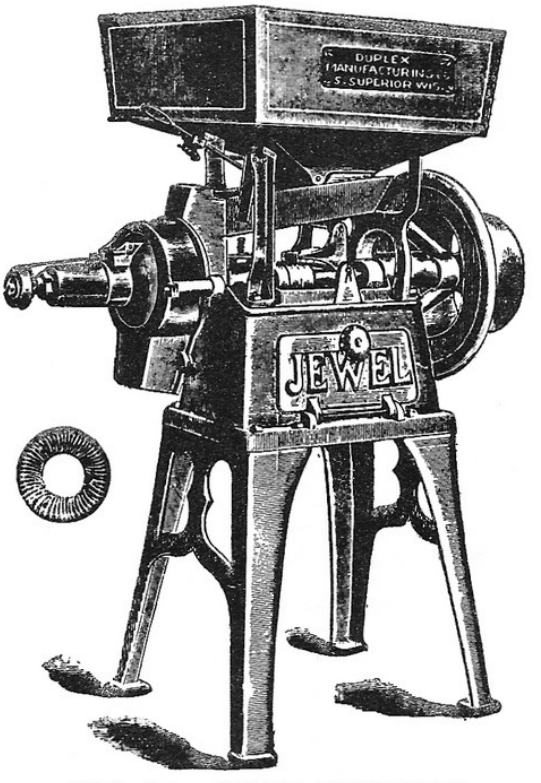


FIG. 24—JEWEL FEED MILL

Each mill is furnished with a set each of medium and fine grinding burrs. The stationary burr is bolted to the face of the main frame and the running burr to a face plate which is firmly attached to the main shaft. The fineness of grinding is regulated by a hand wheel, with a spring device to allow the burrs to separate enough to pass a nail or other hard substance without breaking the burrs. Back springs on shaft prevent burrs from running together when hopper is empty. An adjustable shake feed insures an even run of grain to the burrs.

The mill will grind from 10 to 30 bushels per hour, according to the speed at which it is run, the condition of the grain and the power used. The finer the grain is ground the more power is required to do the work.

Table of Theoretical Horse Power Required to Raise Water to Different Heights

Feet.....	5	10	15	20	25	30	35	40	45	50	60	75	90	100	125	150	175	200	250	300	350	400	.... Feet
Gals. per Minute	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	H P	Gals. per Minute
5.....	.006	.012	.019	.025	.031	.037	.044	.05	.06	.06	.07	.09	.11	.12	.16	.19	.22	.25	.31	.37	.44	.50	 5
10.....	.012	.025	.037	.050	.062	.075	.087	.10	.11	.12	.15	.19	.22	.25	.31	.37	.44	.50	.62	.75	.87	1.00	 10
15.....	.019	.037	.056	.075	.094	.112	.131	.15	.17	.19	.22	.28	.34	.37	.47	.56	.66	.75	.94	1.12	1.31	1.50	 15
20.....	.025	.050	.075	.100	.125	.150	.175	.20	.22	.25	.30	.37	.45	.50	.62	.75	.87	1.00	1.25	1.50	1.75	2.00	 20
25.....	.031	.062	.093	.125	.156	.187	.219	.25	.28	.31	.37	.47	.56	.62	.78	.94	1.09	1.25	1.56	1.87	2.19	2.50	 25
30.....	.037	.075	.112	.150	.187	.225	.262	.30	.34	.37	.45	.56	.67	.75	.94	1.12	1.31	1.50	1.87	2.25	2.62	3.00	 30
35.....	.043	.087	.131	.175	.219	.262	.306	.35	.39	.44	.52	.66	.79	.87	1.08	1.31	1.53	1.75	2.19	2.62	3.06	3.50	 35
40.....	.050	.100	.150	.200	.250	.300	.350	.40	.45	.50	.60	.75	.90	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	 40
45.....	.056	.112	.168	.225	.281	.337	.394	.45	.51	.56	.67	.84	1.01	1.12	1.41	1.69	1.97	2.25	2.81	3.37	3.94	4.50	 45
50.....	.062	.125	.187	.250	.312	.375	.437	.50	.56	.62	.75	.94	1.12	1.25	1.56	1.87	2.19	2.50	3.12	3.75	4.37	5.00	 50
60.....	.075	.150	.225	.300	.375	.450	.525	.60	.67	.75	.90	1.12	1.35	1.50	1.87	2.25	2.62	3.00	3.75	4.50	5.25	6.00	 60
75.....	.093	.187	.281	.375	.469	.562	.656	.75	.84	.94	1.12	1.40	1.69	1.87	2.34	2.81	3.28	3.75	4.69	5.62	6.56	7.50	 75
90.....	.112	.225	.337	.450	.562	.675	.787	.90	1.01	1.12	1.35	1.68	2.02	2.25	2.81	3.37	3.94	4.50	5.62	6.75	7.87	9.00	 90
100.....	.125	.250	.375	.500	.625	.750	.875	1.00	1.12	1.25	1.50	1.87	2.25	2.50	3.12	3.75	4.37	5.00	6.25	7.50	8.75	10.00	 100
125.....	.156	.312	.469	.625	.781	.937	1.094	1.25	1.41	1.56	1.87	2.34	2.81	3.12	3.91	4.69	5.47	6.25	7.81	9.37	10.94	12.50	 125
150.....	.187	.375	.562	.750	.937	1.125	1.312	1.50	1.69	1.87	2.25	2.81	3.37	3.75	4.69	5.62	6.56	7.50	9.37	11.25	13.12	15.00	 150
175.....	.219	.437	.656	.875	1.093	1.312	1.531	1.75	1.97	2.19	2.62	3.28	3.94	4.37	5.47	6.56	7.66	8.75	10.94	13.12	15.31	17.50	 175
200.....	.250	.500	.750	1.000	1.250	1.500	1.750	2.00	2.25	2.50	3.00	3.75	4.50	5.00	6.25	7.50	8.75	10.00	12.50	15.00	17.50	20.00	 200
250.....	.312	.625	.937	1.250	1.562	1.875	2.187	2.50	2.81	3.12	3.75	4.69	5.62	6.25	7.81	9.37	10.94	12.50	15.62	18.75	21.87	25.00	 250
300.....	.375	.750	1.125	1.500	1.875	2.250	2.625	3.00	3.37	3.75	4.50	5.62	6.75	7.50	9.37	11.25	13.12	15.00	18.75	22.50	26.25	30.00	 300
350.....	.437	.875	1.312	1.750	2.187	2.625	3.062	3.50	3.94	4.37	5.25	6.56	7.87	8.75	10.94	13.12	15.31	17.50	21.87	26.25	30.62	35.00	 350
400.....	.500	1.000	1.500	2.000	2.500	3.000	3.500	4.00	4.50	5.00	6.00	7.50	9.00	10.00	12.50	15.00	17.50	20.00	25.00	30.00	35.00	40.00	 400
500.....	.625	1.250	1.875	2.500	3.125	3.750	4.375	5.00	5.62	6.25	7.50	9.37	11.25	12.50	15.62	18.75	21.87	25.00	31.25	37.50	43.75	50.00	 500

The theoretical horse power required to elevate water is found by multiplying the gallons pumped per minute by the total lift (including friction) in feet, and dividing by 4,000. A close approximation to the actual horse power required for 100-foot lift is 1.7 times the theoretical; for 200-foot lift, 1.45 times; and for 300-foot lift, 1.3 times for triplex pumps.

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