

I H C

Gas and Gasoline Engines

TO OPERATE ON

GAS, GASOLINE, NAPHTHA, KEROSENE, DISTILLATE,
OR ALCOHOL—VERTICAL OR HORIZONTAL
TYPES, STATIONARY, SKIDDED, OR
PORTABLE — SIZES FROM 1
TO 50 - HORSE POWER

GASOLINE AND KEROSENE
TRACTORS FROM 12 TO
45 - HORSE POWER



SPECIAL OUTFITS

FOR
SAWING, SPRAYING
AND PUMPING



International Harvester Company of America

(INCORPORATED)

CHICAGO U S A

Advantages of Buying an I H C

In selecting a gasoline engine, of all points to be considered, by far the most important is the reputation of the manufacturers. The I H C policy of liberal treatment and fair dealing starts in the factory, where every effort is made to produce the best engine possible. I H C responsibility does not cease when the sale is made, but continues as long as the engine is in service. I H C dealers are located in nearly every community, and the owner of an I H C engine is given every assistance possible. The importance of obtaining an engine best adapted to the condition of service is too often underestimated. The I H C line includes every type and size of engine adapted to farm, shop, and mill use. Another point that should not be overlooked is repairs. I H C repair stocks are conveniently located so it is an easy matter to obtain repairs for any I H C machine on short notice.

DESIGN.—All I H C engines are of the four-cycle type. This type is noted for its great economy and reliability. The operation is as follows: The first outward stroke of the piston draws through the intake valve a charge of the fuel automatically mixed with air in the right proportion. At the end of the stroke the valve closes and the return of the piston compresses the charge. Just before the dead center the electrical ignitor is snapped, which produces a spark in the cylinder, igniting the gas. The second outward movement of the piston is the power stroke, at the end of which the exhaust valve is opened. On the return of the piston, the burnt gases are expelled and the cycle of operation is completed.

SIMPLICITY.—Every detail of I H C engines is the result of years of thorough and conscientious investigation. No part enters into their construction that is not absolutely necessary to the economical operation of the engine, and that has not been proved by the most exhaustive test to be the simplest and most efficient design that could be devised for the purpose.

The absence of all unnecessary or complicated parts on I H C engines makes them very easy to operate. It also eliminates, to a great extent, the possibility of the engine getting out of order, and makes repairing, when necessary, a simple matter. The simplicity of I H C engines contributes largely towards their popularity, as it makes it possible for even an inexperienced person to operate them.

ECONOMY.—Every effort has been made in designing I H C engines to insure a complete utilization of fuel. The pistons are accurately fitted and are provided with lap joint piston rings which prevent any loss of compression, as a loss of compression would mean a loss of power. The burning mixture which is used to drive the piston in a gasoline engine is a mixture of vaporized gasoline and air. The proportions in which these are mixed determines to a considerable degree the economy and effectiveness of the engine. The mixers used on I H C engines have received careful attention and are so constructed that liquid fuel is not forced into the cylinder and wasted, but a properly proportioned atomized mixture is fed into the cylinder at the right time to insure maximum power from the fuel.

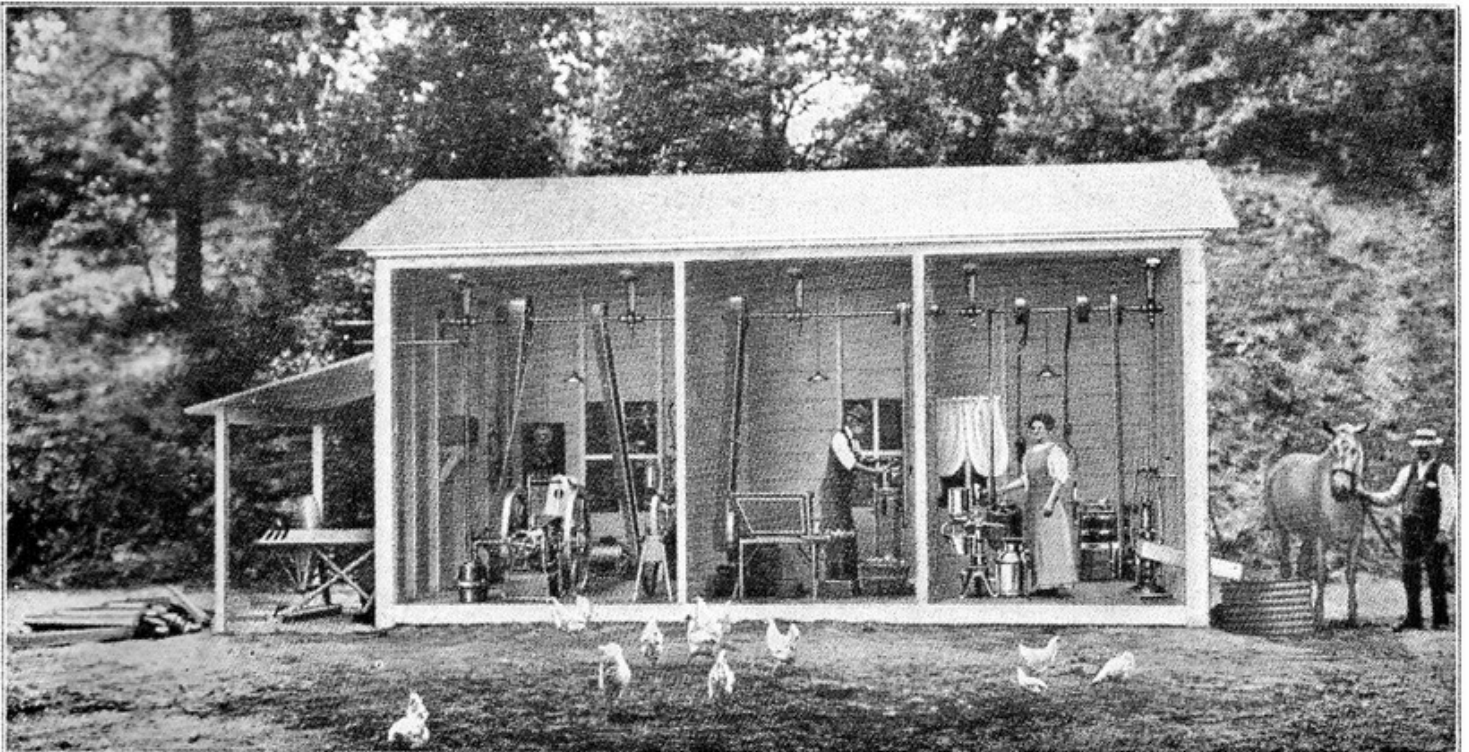
RELIABILITY.—The reliability of I H C engines is the result of the careful selection of material, conscientious workmanship, and thorough inspection practiced in the I H C factory. The material used is the best obtainable—the iron coming from I H C mines. I H C workmen are skilled mechanics who thoroughly understand engine construction. From the time the raw material is received until it reaches the final inspecting room, it receives many rigid chemical and physical tests. Through all the course of manufacture the various parts of the engines are examined by the most exacting inspectors. When the completed engines reach the final inspection room they are subjected to a severe running test under the supervision of the master inspector. Here the engines are run under conditions that would be sure to bring out the slightest defect. The result is that it is well nigh impossible for an I H C engine that is not absolutely up to standard to reach the salesroom or purchaser.

DURABILITY.—To be a profitable investment a gasoline engine must be so constructed that it will last for many years. The use of high-grade material alone is not sufficient to insure this. The different parts of the engine must be constructed strong enough and heavy enough to withstand the strain under which they operate. The designers of I H C engines have made a careful study of this subject and the result is that I H C engines are properly proportioned throughout — not too heavy — not clumsy — but neat, attractive, and equal to any emergency.

I H C GASOLINE ENGINES

GUARANTEE.—I H C engines are of the highest quality and guaranteed in every respect. They are carefully inspected and thoroughly tested before the paint is put on, and leave the factory in perfect running order. The owner of an I H C engine is further protected by the liberal policy of the company, and their reputation for the highest grade machines that will give the best economy and long service. Always remember that I H C responsibility does not cease when the sale is made, but continues as long as the engine is in service.

THE I H C LINE.—The I H C line is complete, and includes a size and style of engine for practically every purpose. There are engines built for general farm use, shop and factory use, and also engines designed to fill the requirements of those wishing power especially adapted for their particular needs. No matter what the conditions of service, the I H C line offers an unequalled opportunity for the selection of efficient and economical power.

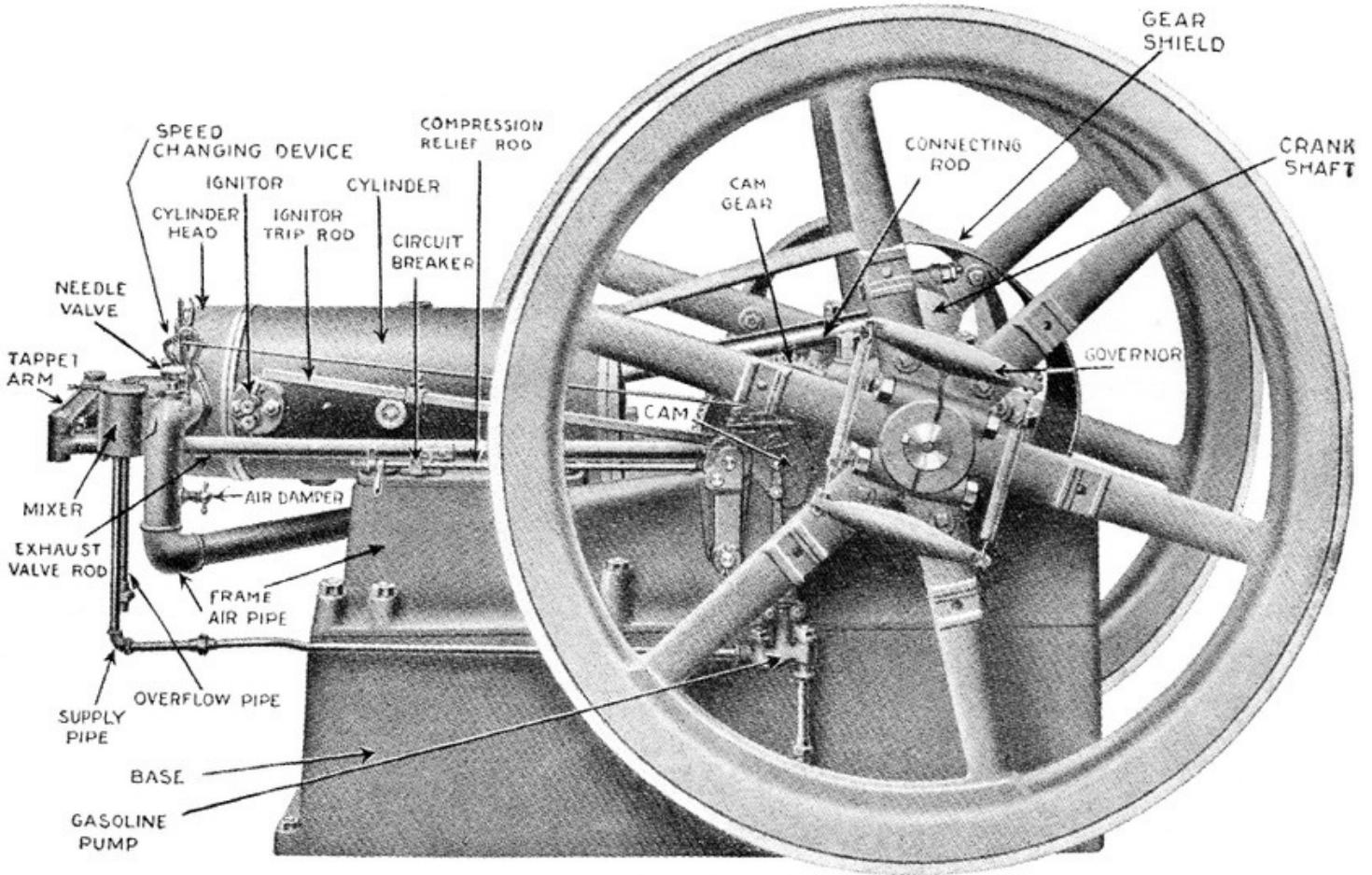


A Small Farm Power House. The Front Has Been Removed to Allow Photograph to Be Taken

A FARM POWER HOUSE.—That an I H C engine is a necessary part of the farm equipment is now conceded. Many of the most progressive farmers who own I H C engines have found that by installing their engine in a farm power house much larger profits are made; in fact the engine can soon be made to pay for itself. It not only provides a convenient place for the making of repairs and improvements on the days when the farmer cannot work outdoors, but a large saving is made by having the source of power centrally located. Several machines can be operated from the line shaft at once, thereby saving time and fuel. It also saves the farmer the time and labor of moving the engine or machines when work is to be done. Such a building provides a desirable shelter for the engine and machines, as the space around the engine can be kept clean and free from dust.

Purchasers of I H C engines who desire to erect a farm power house or convert part of a barn or other building for such a purpose are invited to correspond with the nearest I H C general agent, who will be glad to extend his help in the selection of a farm power and machinery equipment, and furnish suggestions regarding the construction and arrangement of the building. We have obtained the advice of competent engineers and architects on the arrangement and construction of such buildings, and are in a position to give our customers the benefit of their expert advice.

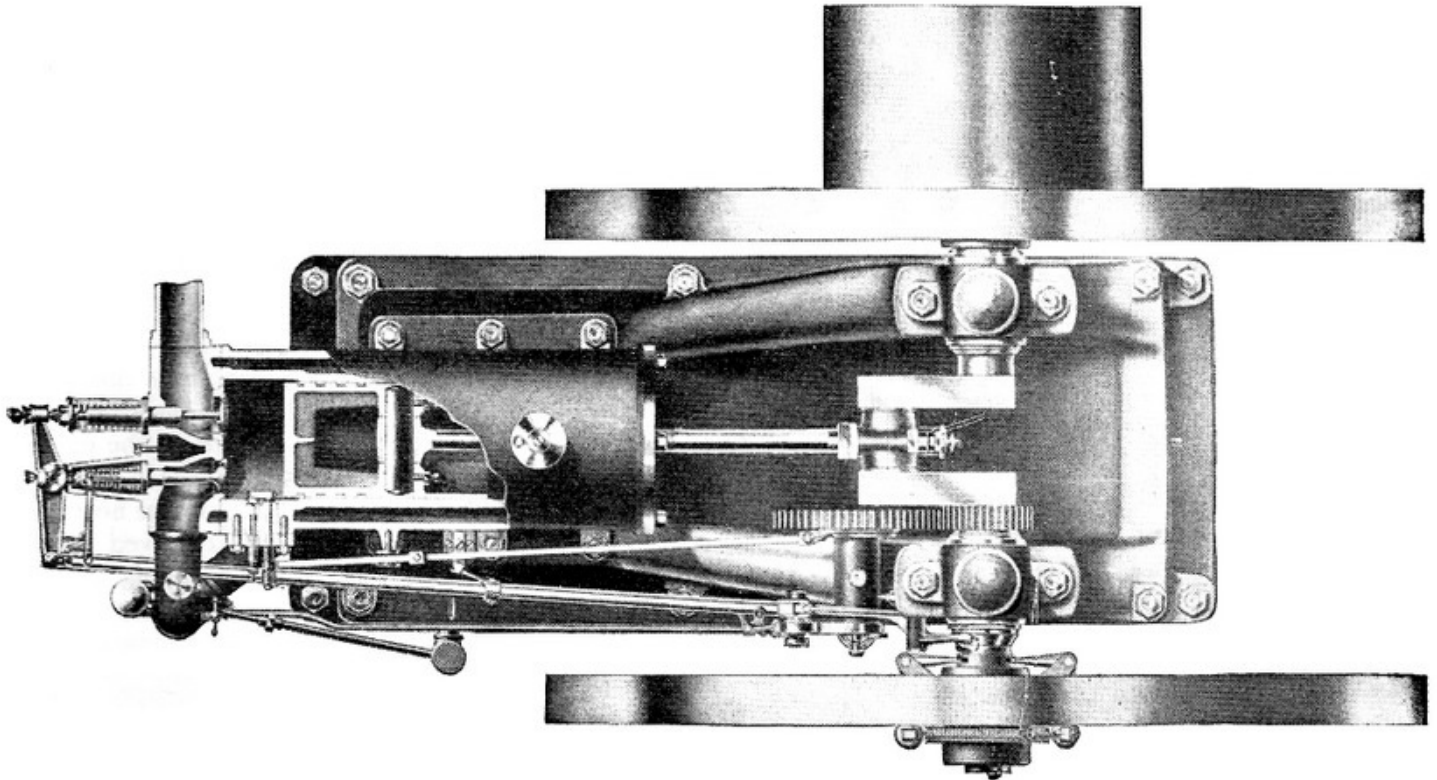
Construction of I H C Horizontal Engines



Working Side of I H C Horizontal Engine

I H C horizontal engines are designed to conform in every detail with the best gas engine construction. Manufacturing expense or cost of material has not been considered where a part could be improved or made more durable. The design is simple in the extreme. The engine frame consists of three main castings, the cylinder, base, and sub-base. This method of construction is used to save our customers unnecessary repairs and expense. Should the water jacket be allowed to freeze, a new cylinder can be put on for about half the expense of the large combination casting. The base carries all the working parts, while the sub-base forms a rigid support and can be securely bolted to a foundation when used for stationary work. On the Famous engine (page 24) the sub-base forms a receptacle for the gasoline tank and protects it from injury. The working parts, with the exception of the water pump, are all located on the right hand side, and are readily accessible for inspection or cleaning, so that it is not necessary for the operator to walk around the engine in order to oil or clean the parts. All the parts are numbered and are easily removable, so that by giving these numbers, duplicate parts can be quickly obtained, which are guaranteed to fit as accurately as the originals. The construction is of the most substantial character, each part being made as strong as need be, with a liberal factor of safety to withstand long wear and hard usage. All the machine work on these engines is done on the most modern automatic machinery for producing highly finished parts, accurate to within one-thousandth part of an inch. All castings are carefully molded and poured with the highest grade of iron. The result is smooth, clean castings of great strength and toughness.

Construction of I H C Horizontal Engines

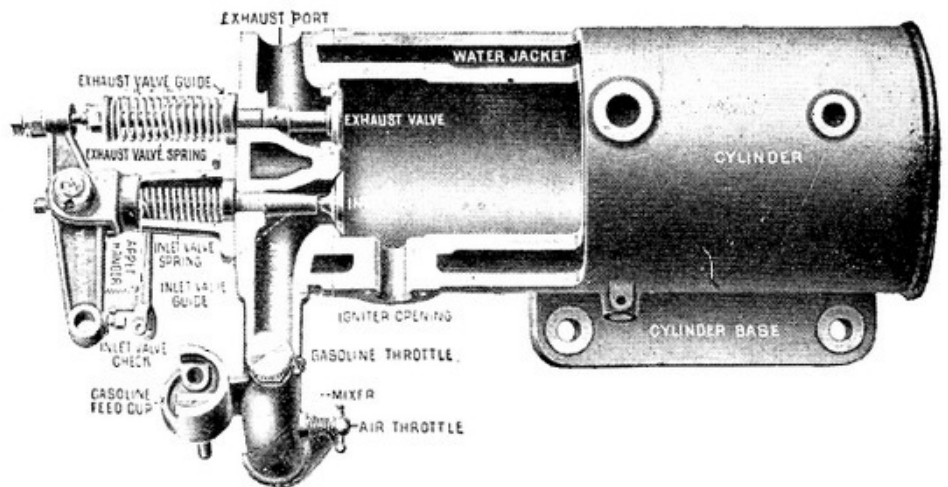


Top View of I H C Horizontal Engine Showing Section of Cylinder

CYLINDER.—The cylinder is cast from a special quality of close-grained grey iron. The interior of the cylinder presents a perfect cylindrical surface, the valves being set flush in the head. There are no valve pockets to absorb the heat and sap the power, nor projections other than the ignitor, which is so designed as to effectively prevent heating.

WATER JACKET.—The water jacket is cast integral with the cylinder and the cylinder head, and provision is made for the cooling water to flow around the valve seats and parts in the head. This is very necessary in the case of the exhaust valve, because the exhaust gases are extremely hot and would damage the valve if it were not thoroughly cooled.

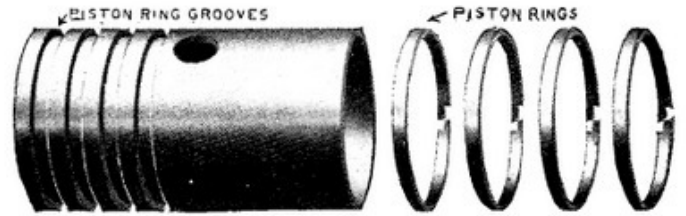
COMPRESSION.—The degree of compression of the gas in the cylinder of a gas engine largely determines the power to be obtained from it. Every precaution has been taken in the engines to prevent loss of compression. While on the testing block, each piston is taken out twice or more times and refitted until the maximum efficient compression is obtained.



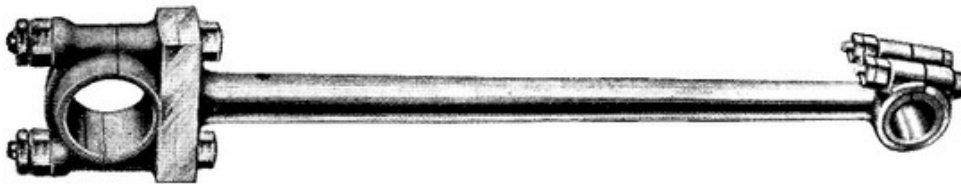
Sectional View of Cylinder and Head

Construction of I H C Horizontal Engines

PISTON.—The piston is of the trunk type and extra long to insure ample wearing surface on the cylinder. The wrist pin is at the center instead of at the end, so that the piston can not wear to a taper. The wrist pin has an unusually long and large wearing surface. A supplemental wrist pin oiler keeps the pin thoroughly oiled, so that it is never necessary to run with a dry pin. This greatly reduces wear. The wrist pin is held securely in place by two set-screws with lock nuts.



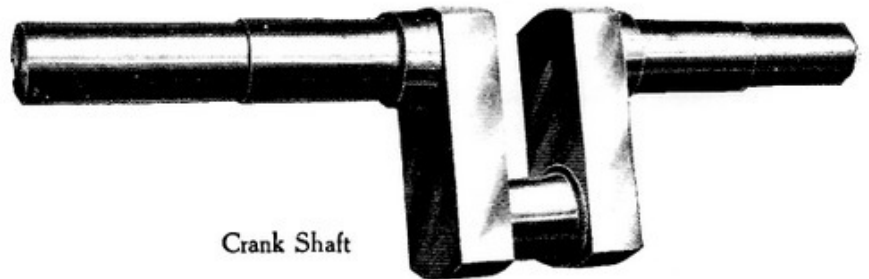
Piston and Lap Joint Piston Rings



Connecting Rod

CONNECTING ROD.—The connecting rod is of drop-forged steel, carefully machined and polished. The crank pin box is of phosphor bronze, of the divided type, securely bolted to the connecting rod. Whenever necessary, this box can be removed without disturbing the piston or wrist pin. The wrist pin bearing is provided with a phosphor bronze bushing and can be easily adjusted to take up the wear.

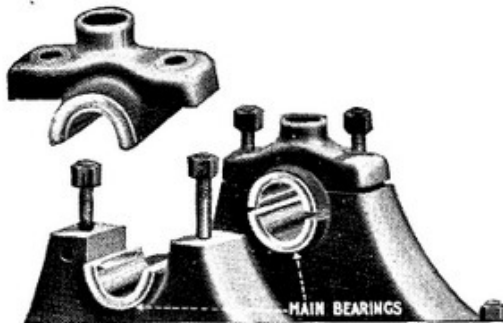
CRANK SHAFT.—I H C crank shafts are all forged from one piece of steel without welds of any kind. For the smaller sizes they are drop-forged, while for the larger sizes they are forged from solid open hearth steel billets. The crank pins are of large diameter, which gives a generous wearing surface for the connecting rod.



Crank Shaft

CRANK SHAFT BEARINGS.—The crank shaft bearings are phosphor bronze — the best known anti-friction metal. This metal is very close-grained and does not cut or wear the parts working in it.

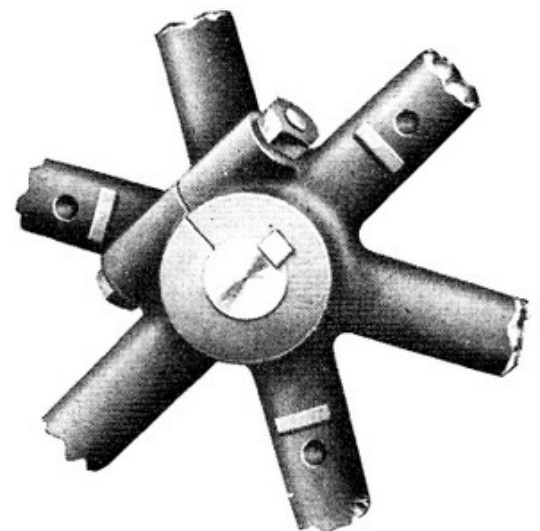
The I H C bearings are extra heavy and long, machine finished and hand-scraped to a perfect fit. They are of large diameter, thoroughly lubricated by oil cups of ample capacity.



Main Crank Bearings on Horizontal Engine

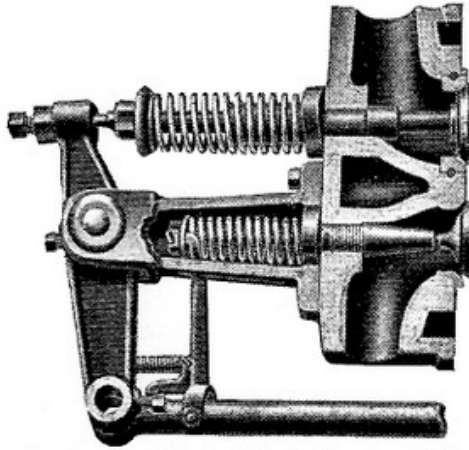
FLY WHEELS.—The fly wheels are of the split hub type and are both keyed and locked to the crank-shaft by the compression bolts in the hub, so there is no danger of their becoming loose, yet they can be easily removed if necessary. Provision is made for attaching a belt pulley on either or both wheels.

VALVE MECHANISM.—The valve mechanism is very simple and operates in a straight line. There are no delicate or complicated connections to get out of adjustment or cause friction. All parts of the mechanism are made of a high-grade steel with large wearing surfaces wherever necessary. The gears are machined from solid steel blanks, and the teeth are accurately machine cut.



I H C Split Hub Used on Horizontal Engine

Construction of I H C Horizontal Engines



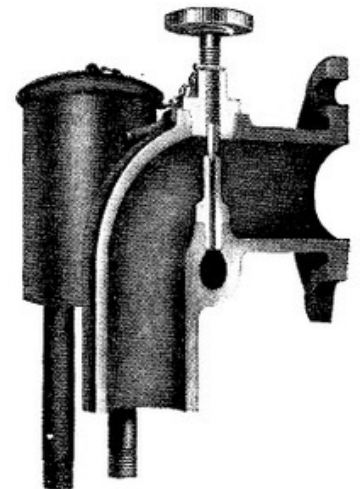
Section of Cylinder Head Showing Valves

EXHAUST VALVE.—The exhaust valve is of the most durable construction, having a steel stem. The head is large in area so that the gases are quickly exhausted from the cylinder when the valve is opened. The seat to the exhaust valve is made separate and pressed into place after the cylinder is finished. This insures a perfect seat free from blow holes or soft spots.

INLET VALVE.—The inlet valve is steel, of the poppet type. The head is large to permit a ready ingress of the fuel.

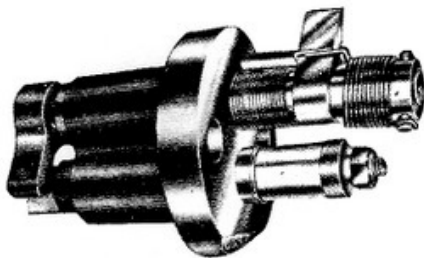
The inlet valve check is one of the most economical features of I H C engines, because this check keeps the intake valve automatically closed in cases where a speed above normal is attained. In such cases the exhaust valve is held open for the time, but no fuel is admitted to the cylinder and wasted. Letters patent have been granted to the International Harvester Company on this remarkably effective arrangement.

MIXER.—The fuel as it enters the cylinder is thoroughly atomized or broken up. The method of operation is as follows: A rush of air through the large air pipe, induced by the suction stroke of the piston, draws a small quantity of gasoline from the nozzle, which is immediately vaporized. The size of the opening of the gasoline nozzle inside the air pipe is controlled by a needle valve. This nozzle is connected with a supply cup filled with fuel by the gasoline pump, and the fuel is kept at a constant level by an overflow pipe which carries the surplus fuel back to the gasoline tank. For stationary work this method permits the use of a tank outside of the building below the level of the engine, only a very small quantity of fuel being in the building at a time.



Sectional View of Mixer

IGNITOR.—The ignitor electrodes are made from steel, and the parts within the cylinder are large, so that they cannot become incandescent and pre-ignite the charge. The ignition points are made from a special metal that will withstand the heat of the spark, as well as the effects of corrosion and oxidation.

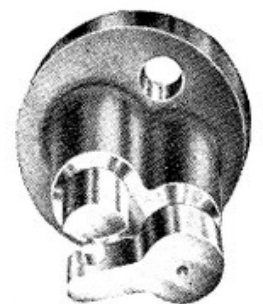


Make-and-Break Ignitor

The stationary electrode is insulated, and one wire from the battery is fastened to it. The return circuit is made through the movable electrode and the cylinder when the points are in contact.

The forward movement of the ignitor rod on the side of the engine causes the movable electrode to come in contact with the one which is stationary. This contact is maintained for a very short time, when the rod trips and allows the movable electrode to spring back quickly, breaking the circuit and producing a spark within the cylinder.

The ignitor is directly in the path of entering charges, which aids in keeping the ignitor points clean and cool. As the inlet valve opens, the mixture of fuel and air entering the cylinder passes the ignitor points with considerable velocity, cleaning or brushing off any soot that may have been deposited upon them. By removing two nuts, the ignitor plug may be easily removed from the cylinder for inspection.

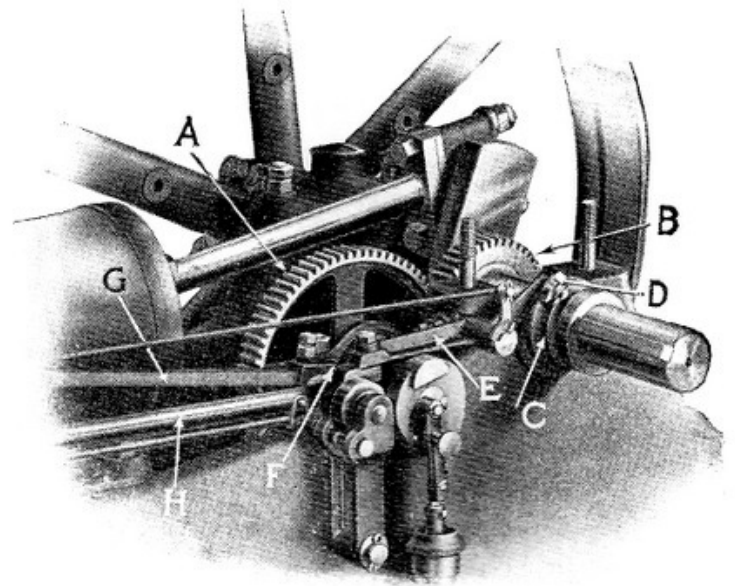


Ignitor, Showing Ignition Points

Construction of I H C Horizontal Engines

GOVERNOR. — The hit-and-miss type of governor is used on the I H C engine. This method is sensitive in regulation and reduces fuel consumption to a minimum. It so operates that when the speed is above normal the inlet valve is held closed to prevent fuel entering the cylinder, and the exhaust valve is held open to insure cleaning and cooling of the cylinder.

The method of operation is as follows: When above speed, the arm from the governor ball pulls the sleeve "C" outward, as shown in the illustration. The beveled portion presses upward on the roller "D", causing the detent arm "E" to move downward. When the long side of the exhaust cam presses the roller at the end of rod "H" outward, the detent arm "E" engages a notch at "F", holding the exhaust valve open until the speed is reduced to normal. The sleeve "C" moving back allows the detent lever to disengage "F" and the cycle of operation is again taken up. The spur pinion "B" on the crank shaft engages with "A", a spur gear of twice its diameter, thus reducing the speed of the exhaust cam, so that the exhaust valve is open every other revolution. Likewise, the ignitor is snapped by the rod "G" through the movement of the eccentric on the half speed shaft.

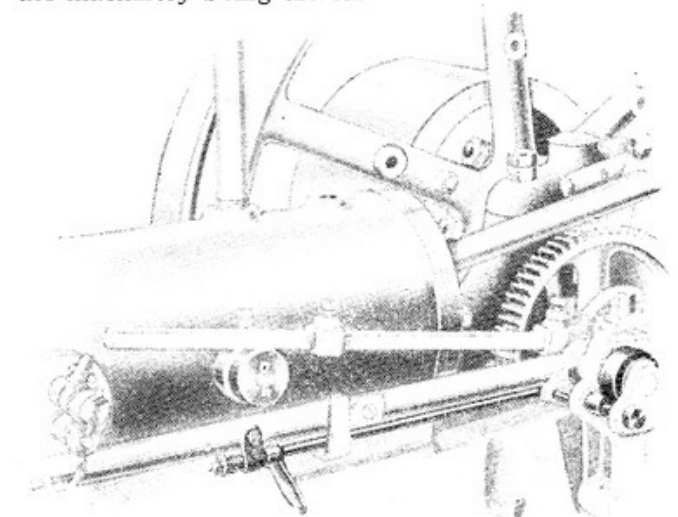
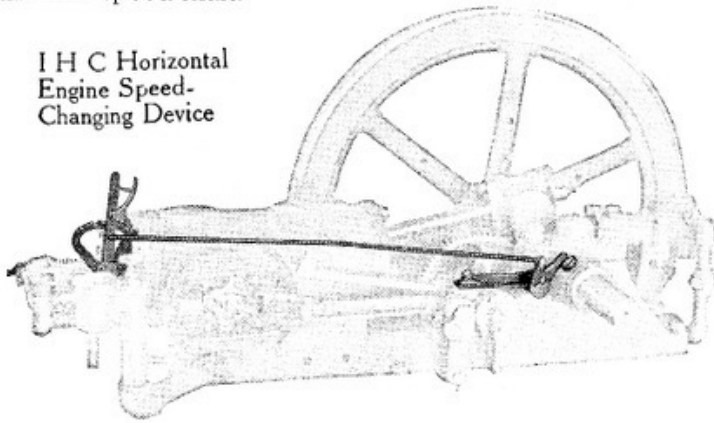


Flywheel removed to show gears and governor

so that the exhaust valve is open every other revolution. Likewise, the ignitor is snapped by the rod "G" through the movement of the eccentric on the half speed shaft.

SPEED-CHANGING DEVICE. — The speed-changing device consists of a small segment and lever, and a rod operating the detent arm upon an eccentric bushing. By rotating this eccentric bushing, the travel of the governor is varied sufficiently to give the desired change in the speed of the engine. This attachment gives a variation in speed of approximately 20 per cent. so that the speed of the engine can be regulated while running at the speed best adapted to the machinery being driven.

I H C Horizontal Engine Speed-Changing Device



I H C Horizontal Engine Starting Cam

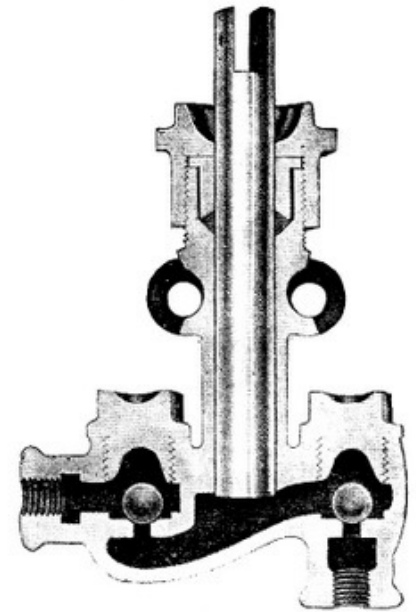
STARTING CAM.—I H C horizontal engines are equipped with a small auxiliary relief cam on the exhaust cam.

When starting the engine, the cam roller is thrown outward to engage the auxiliary relief cam by means of a small lever provided for this; the small relief cam will then operate on the exhaust valve so as to relieve the compression and make starting easy. As soon as the engine starts, having taken two or three explosions, the cam roller is thrown back to get full working compression.

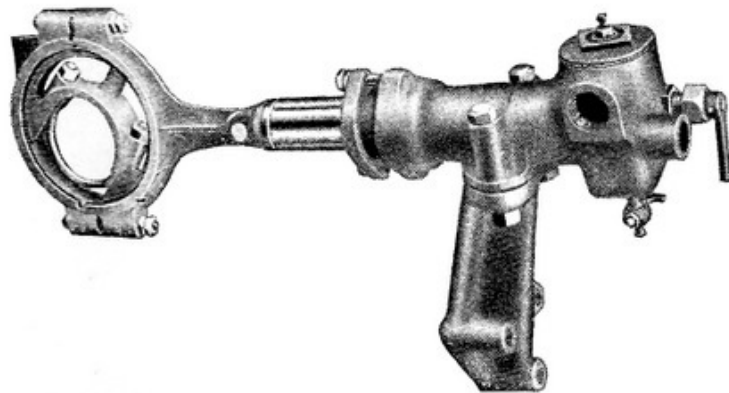
Construction of the I H C Horizontal Engines

GASOLINE PUMP.—The gasoline pump on I H C engines is an exceptionally strong feature. It is of the plunger type and entirely constructed of brass, except the plunger and ball valves, which are of steel. The upward movement of the plunger draws gasoline through the ball valve to the right, while the other valve remains seated and thus prevents suction from that direction. A downward movement of the plunger forces the gasoline out to the left and up to the mixer cup. Only one packing gland is used. This prevents gasoline leaking past the plunger.

WATER PUMP—The water pump on the 4 and 6-horse power sizes is of the rotary type, driven by a belt from the crank shaft. The larger sizes are equipped with a plunger type pump, operated by means of an eccentric from the crank shaft. The construction is very durable, the plunger and valves being of brass. Drain cocks and a handle for lifting the valves off the seats are provided. Opening these when the engine is shut down drains the pump.



Sectional View of Gasoline Pump Showing Plunger and Ball Valves

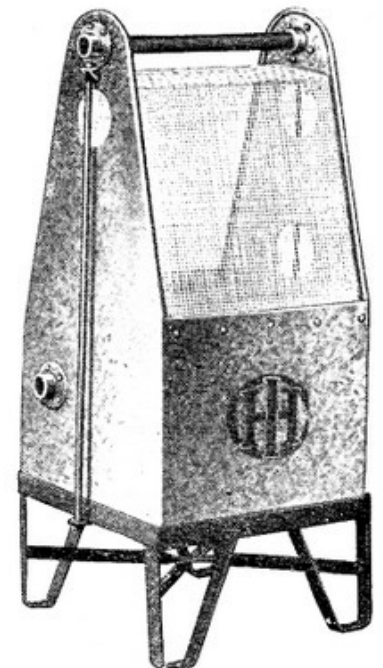


I H C Horizontal Engine Plunger Type Circulating Pump

COOLING SYSTEM.—The cooling system is both simple and effective. The water is pumped through the water-jacket on the cylinder to the top of the cooling tank, and is allowed to run down over the screen into the tank. In this way a very large cooling surface is obtained which insures rapid radiation of the heat. Another strong feature of the I H C system is that only a small amount of cooling water is required, which does away with large cumbersome tanks and makes the outfit lighter when used for portable service.

The tank and screen are substantially made and are heavily galvanized.

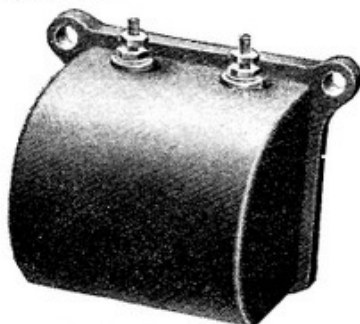
LUBRICATION.—Lubrication of I H C engines is provided for in a very thorough manner. The cylinder is lubricated by a large sight feed oil cup placed on top of the cylinder. Oil cups of ample size lubricate the main bearings and the cam shaft bearings. The crank pin bearing is provided with a grease cup which gives ample lubrication yet prevents the throwing of oil which occurs when thin oil is used. The other minor bearings are provided with suitable oil holes.



I H C Horizontal Engine Cooling Tank

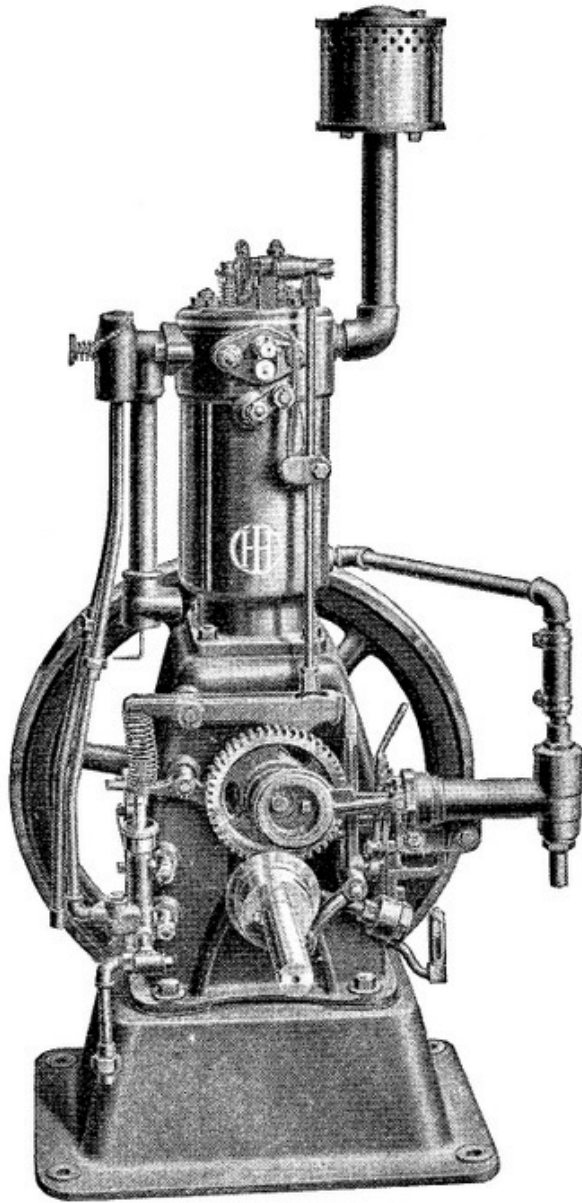
BATTERY BOX.—A neat wood battery box, nicely painted to match the engine, is furnished with these engines, complete with spark coil batteries, battery switch, and necessary wiring.

FINISH.—I H C engines present a very attractive appearance, both in design and finish. They are neatly finished in durable brewster green and red enamel with gold striping. The machined parts are carefully polished, and the brass is machined and polished.

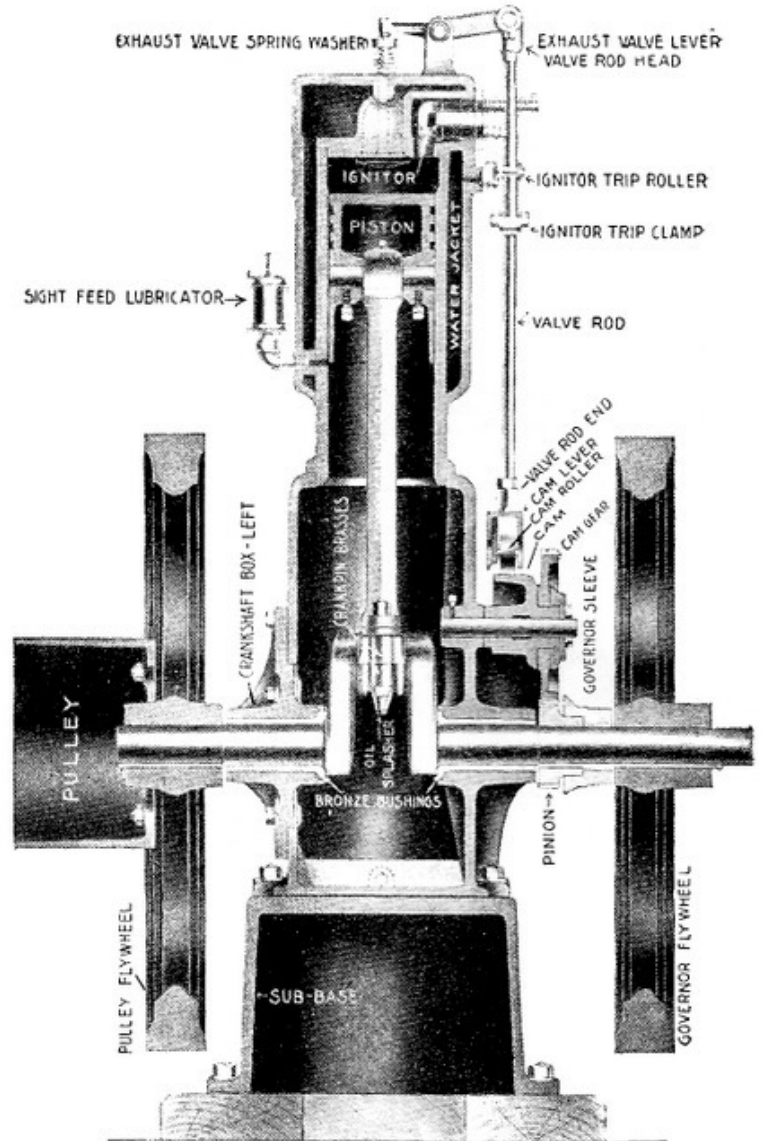


I H C Spark Coil

Construction of I H C Vertical Engines



Side View of a Victor Vertical Engine with Fly Wheel Removed, Equipped with Circulating Pump and Speed Regulator



Sectional View of a Victor Vertical Engine, Showing Working Parts

The same high-grade construction embodied in I H C horizontal engines is found in I H C vertical engines. A remarkably simple and efficient design has been attained in this engine.

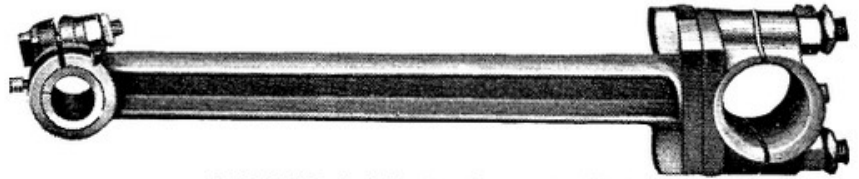
The working parts are all conveniently located in full view on the governor side, so that this engine may be operated, cleaned, or oiled from one side. All parts are numbered and interchangeable, and can be easily removed. The crank case is enclosed and effectually protects the piston from dust and dirt, and forms an oil receptacle for lubricating the connecting rod by the splash system. An oil gauge on one side shows the oil-level in the base, and enables the operator to keep the oil at the proper depth.

The cylinder base and sub-base are cast separately. The base carries the cylinder and all the working parts. The sub-base furnishes a rigid support for the engine and on the Famous engine forms a receptacle for the gasoline tank and protects it from injury. On the Victor engine, used for stationary work, it can be securely bolted to a solid foundation.

Construction of I H C Vertical Engines

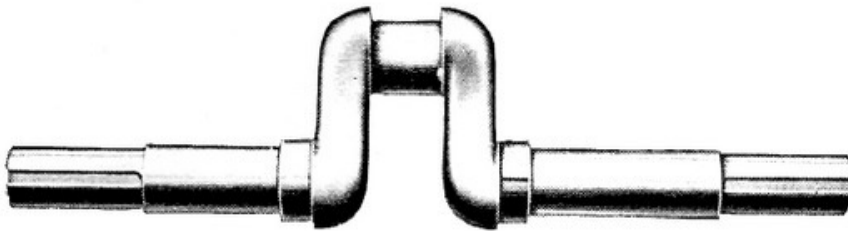
CYLINDER AND HEAD.—The cylinder and head are cast separate, the water jacket being cast integral with them. Ample space is allowed in the cylinder head jacket so that the water circulates freely around the valves and ignitor.

CONNECTING ROD.—The connecting rod is a steel drop forging of the I-section type. This style of construction gives the greatest strength, with the least weight, and insures a connecting rod that is proof against buckling. Both the crank pin and wrist pin bearings are of phosphor bronze, and easily adjustable to take up the wear.



I H C Vertical Engine Connecting Rod

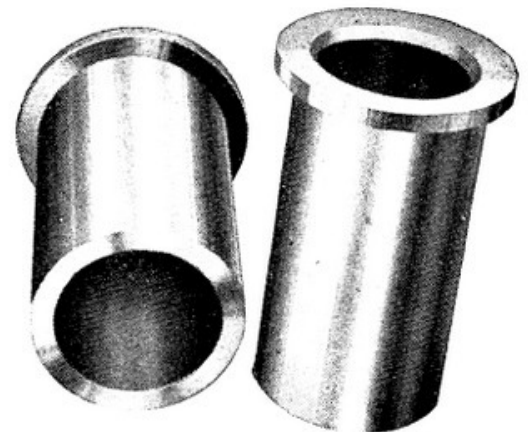
The crank pin bearings are of the split box type, bolted to the connecting rod by two heavy bolts secured by lock nuts and cotter pins. The wrist pin bearing is a split bronze bushing tile, held in place by a set screw. The wear is taken up by a bolt secured by a lock nut and cotter pin.



I H C Vertical Engine Crankshaft

CRANKSHAFT.—The crankshaft is a single steel drop forging without a weld, accurately machined to size and highly polished. I H C crankshafts are made with a liberal factor of safety and can be relied on to withstand any working strain under which the engine could operate.

CRANKSHAFT BEARINGS.—The crankshaft bearings are of phosphor bronze, the best anti-friction metal known, and made extra thick and long. They fit snugly into the engine base and are held tightly in place by set screws. They are first machined to size, then hand scraped to a perfect fit. This makes the best anti-friction bearing that it is possible to put in an engine. Each bushing is lubricated with a grease cup which is piped out within easy reach.



I H C Phosphor Bronze Crankshaft Bearings

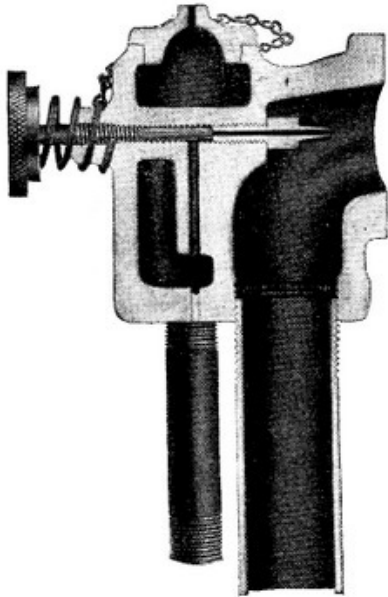
FLYWHEELS.—The flywheels are of the best accepted construction; made large in diameter, with split hubs. They are both clamped and keyed to the crankshaft so that it is practically impossible for them to become loose, though they may be easily removed if necessary. The pulley is bolted on one flywheel, the governor on the other.

Construction of I H C Vertical Engines

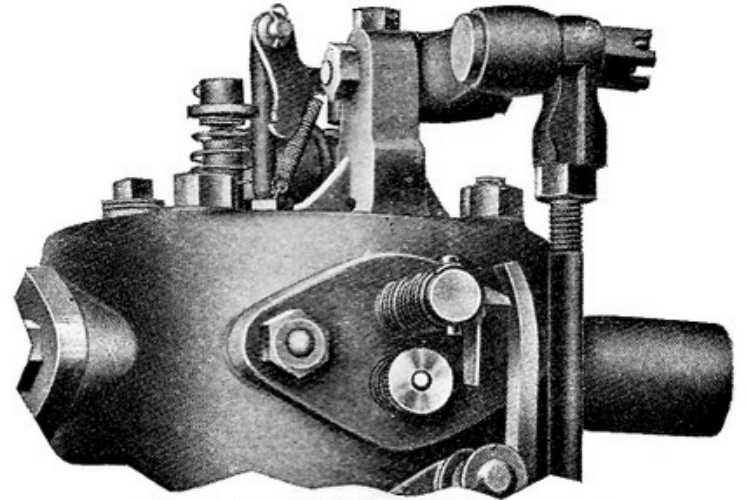
VALVE GEAR.—The valve gear is very simple and effective. It operates in a straight line and without requiring any fine adjustments. The valve rod, because of the construction of the cam upon which the cam roller turns, serves the double purpose of snapping the ignitor and opening the exhaust valve. This reduces the number of parts and makes a very efficient arrangement.

VALVES.—The valves are of the poppet type, carefully ground into their seats. The heads are of large diameter which allows the gas to freely enter and exhaust from the cylinder.

INLET VALVE CHECK.—This device prevents fuel from entering the cylinder during the period when the governor cuts out explosions. This eliminates waste of fuel, and enables the governor to regulate the fuel in proportion to the load.

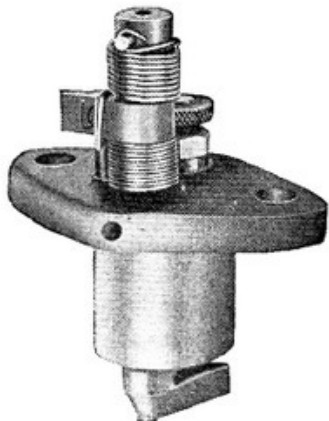


Sectional View of Mixer



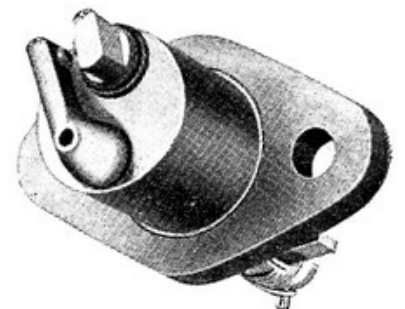
Cylinder Head, Showing Inlet Valve Check

MIXER.—The I H C mixer is exceptionally simple and effective, and is one of the most economical features of I H C engines. It has no troublesome float valve or complicate air valve to adjust. It cannot get out of order as the only movable part is the needle valve. The rapid rush of air through the air pipe sucks the gasoline into the air pipe in the form of a fine spray which is almost immediately vaporized, and enters the cylinder thoroughly mixed with proper proportion of air. As it does not depend on the evaporation of the fuel this type of mixer is less affected by weather conditions and therefore makes starting in cold weather an easy matter. Any excess of gasoline pumped into the mixer is returned to the supply tank by a large overflow pipe at the bottom of the mixer.



I H C Vertical Engine Ignitor

IGNITOR. — The ignitor is of the make-and-break type and is similar to that used on the I H C horizontal engines, except that the same push rod is used to open the exhaust valve and trip the ignitor finger. This simplifies the engine and reduces the number of moving parts. The ignitor may be easily removed at any time for inspection or cleaning.

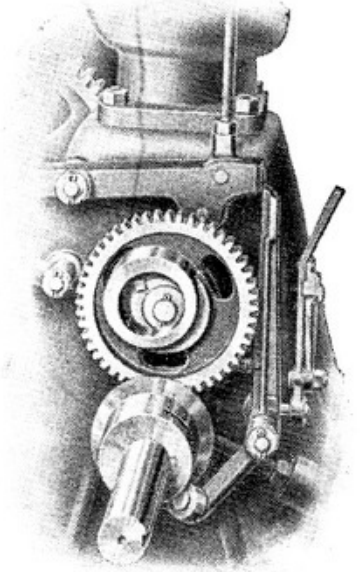


I H C Vertical Engine Ignitor

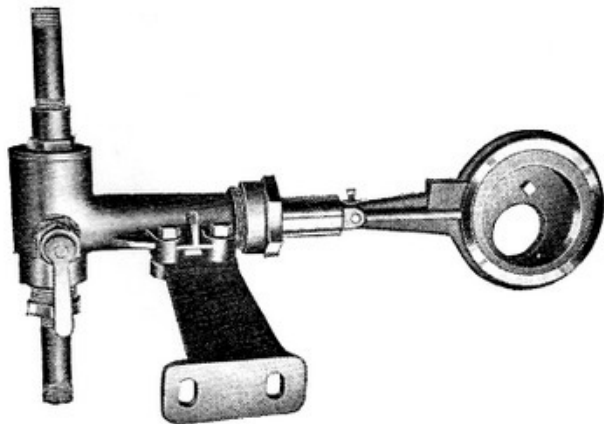
Construction of I H C Vertical Engines

GOVERNOR.—The governor is of the hit-and-miss type and operates the same as on I H C horizontal engines. It is sensitive in operation and holds the engine at a steady speed. The inlet valve check is operated in connection with the governor so that no fuel is wasted when the governor cuts out a power stroke. The governor parts are few in number and exceedingly simple.

SPEED-CHANGING DEVICE.—The speed-changing device consists of a small quadrant and lever, and a rod operating the detent arm on its shaft. By sliding this lever, the travel of the governor is varied sufficiently to give a speed variation of about 20 per cent., so that the speed best adapted to the machine being driven can be secured while the engine is running.



Speed-Changing Device and Governor

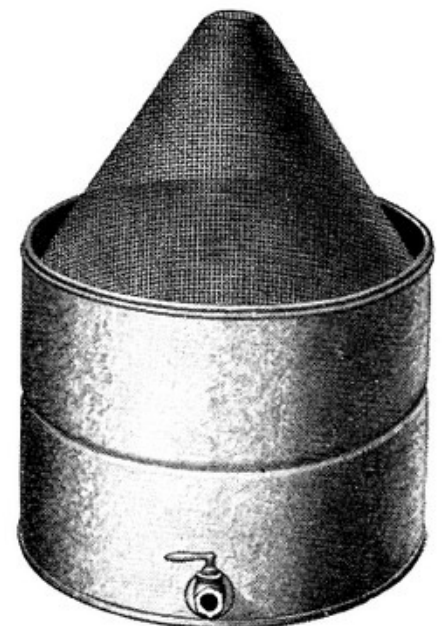


Plunger Type Circulating Pump

WATER PUMP.—A simple plunger type water pump is used on I H C vertical engines; it is operated from the cam shaft by an eccentric. This gives a slower speed to the pump, which is most desirable when the engine is being run fast. It is equipped with a lever for lifting the valves from their seats when it is necessary to drain the pump and water jacket. The plunger and valves are of brass to prevent rusting.

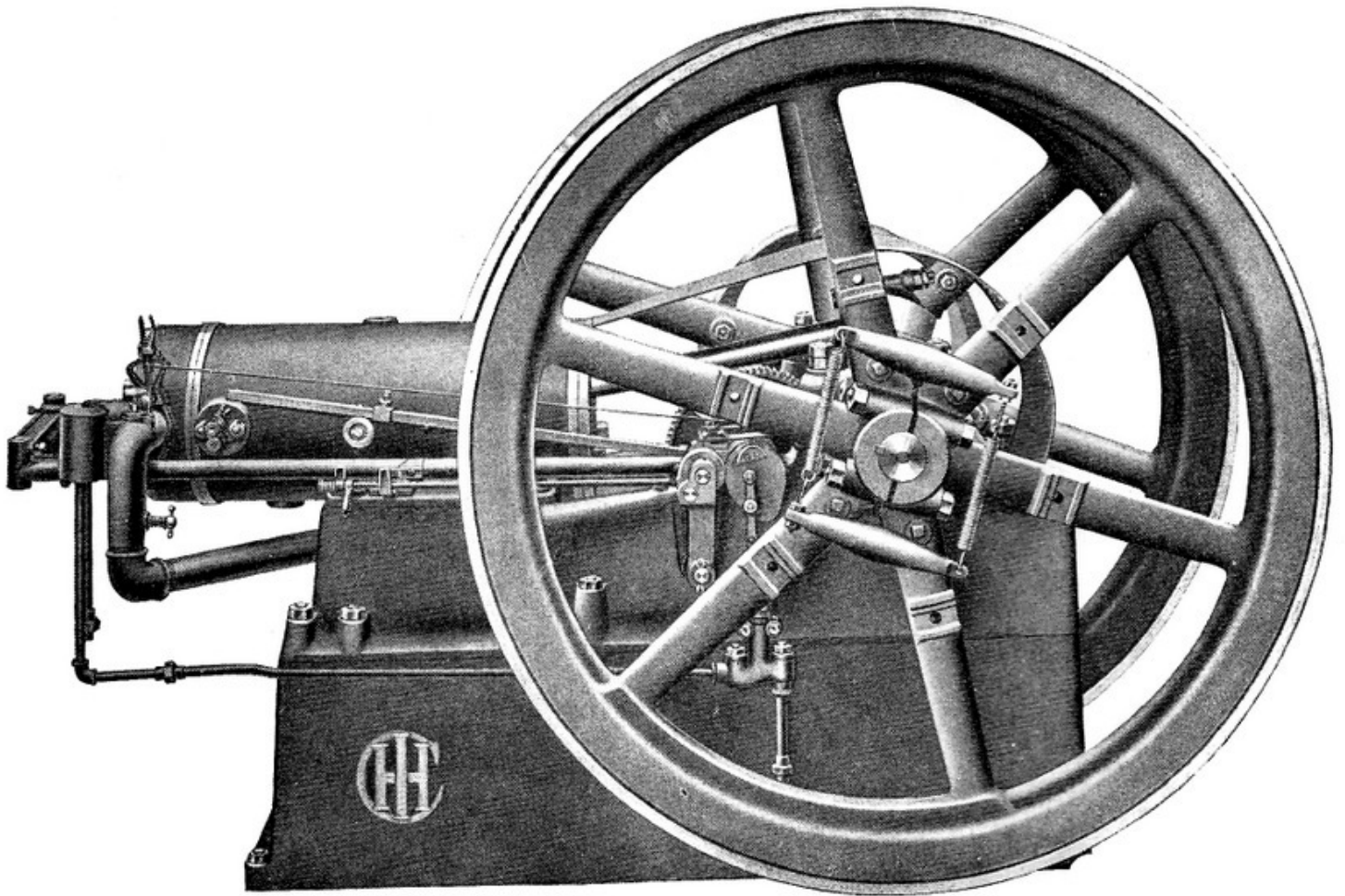
COOLING TANK.—The I H C tower cooling tank system used on these engines has many advantages over the gravity system. The cooling surface is so increased that only about one-fourth the amount of water is required. This is a great advantage especially in cold weather as when a large tank is used to cool a small engine it keeps the cylinder too cool and saps the power of the engine while the I H C tank will keep the cylinder at the proper temperature in any weather. The tank occupies but little space and is easily moved. Both the tank and screen are heavily galvanized. A drain cock located at the bottom of the tank provides means for draining the tank in cold weather.

FINISH.—The neat design and finish give I H C Engines a very handsome appearance. Though we do not believe in making our customers pay for unnecessary labor, in this respect, as no amount of extra finish can increase the efficiency of I H C engines. They are attractively enameled in the standard I H C red and Brewster green with gold striping.



I H C Vertical Engine Cooling Tank

I H C Victor Horizontal Gasoline Engines



Working Side of I H C Victor Horizontal Engine

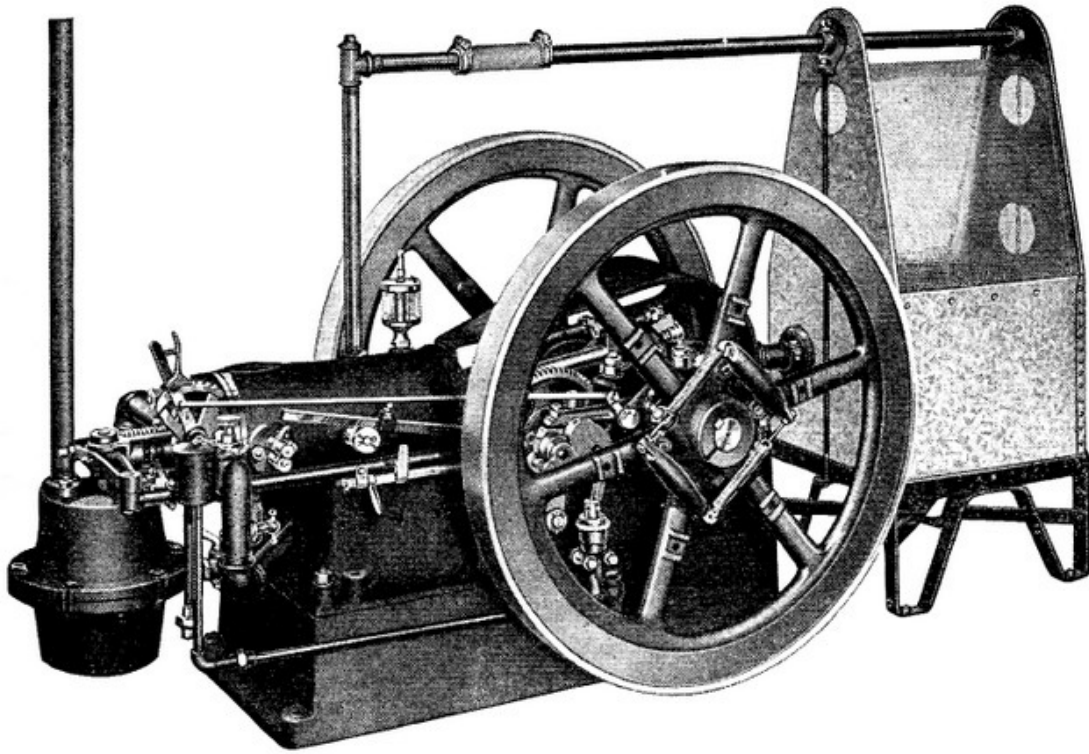
I H C Victor horizontal engines are designed for stationary use, and are adapted for all power work on the farm, in shops, small factories, grain elevators, saw mills, pumping plants, irrigation plants, grist and feed mills, hoisting plants, etc.

These engines are easy to start, simple to operate, and very economical in fuel consumption. They are regularly fitted to operate on gasoline, distillate, or naphtha, but can be equipped to operate on gas, kerosene, or alcohol. They are constructed so as to secure the measure of safety prescribed by the rules of the National Board of Fire Underwriters, and where insurance restrictions prohibit the installation of a gasoline tank within the building, they are especially desirable as the gasoline tank can be placed outside of the building at a distance from the engine. Where running water is at hand the water jacket can be connected to the water main with a small pipe, and the cooling tank dispensed with. They are equipped with the I H C speed changing device, and the speed can be varied about 20 per cent. while the engine is running. This enables the operator to regulate his engine to the best speed suited to the machinery he is running.

The belt pulley may be attached to either fly wheel so that machinery can be driven from either side of the engine, or, by supplying another pulley from both sides at once.

These engines will develop their full rated horse power under hard, continuous service, and are especially recommended where steady, reliable power is required.

I H C Victor Horizontal Gasoline Engines



I H C Victor Horizontal Engine with Cooling Tank and Exhaust Pot

I H C Victor horizontal engines are fully equipped for running and include the following accessories:

No. 1. For Gasoline Engines—One galvanized steel gasoline supply tank with two lengths of pipe and fittings to install the tank outside of the building and connect it with the engine, one galvanized steel cooling tank with pipe and fittings and rubber hose to connect it with the engine, one exhaust pot and one length of exhaust pipe, battery box and electric battery, spark coil and switch, one pulley, oil can, necessary tools, cylinder lubricator, template and anchor bolts.

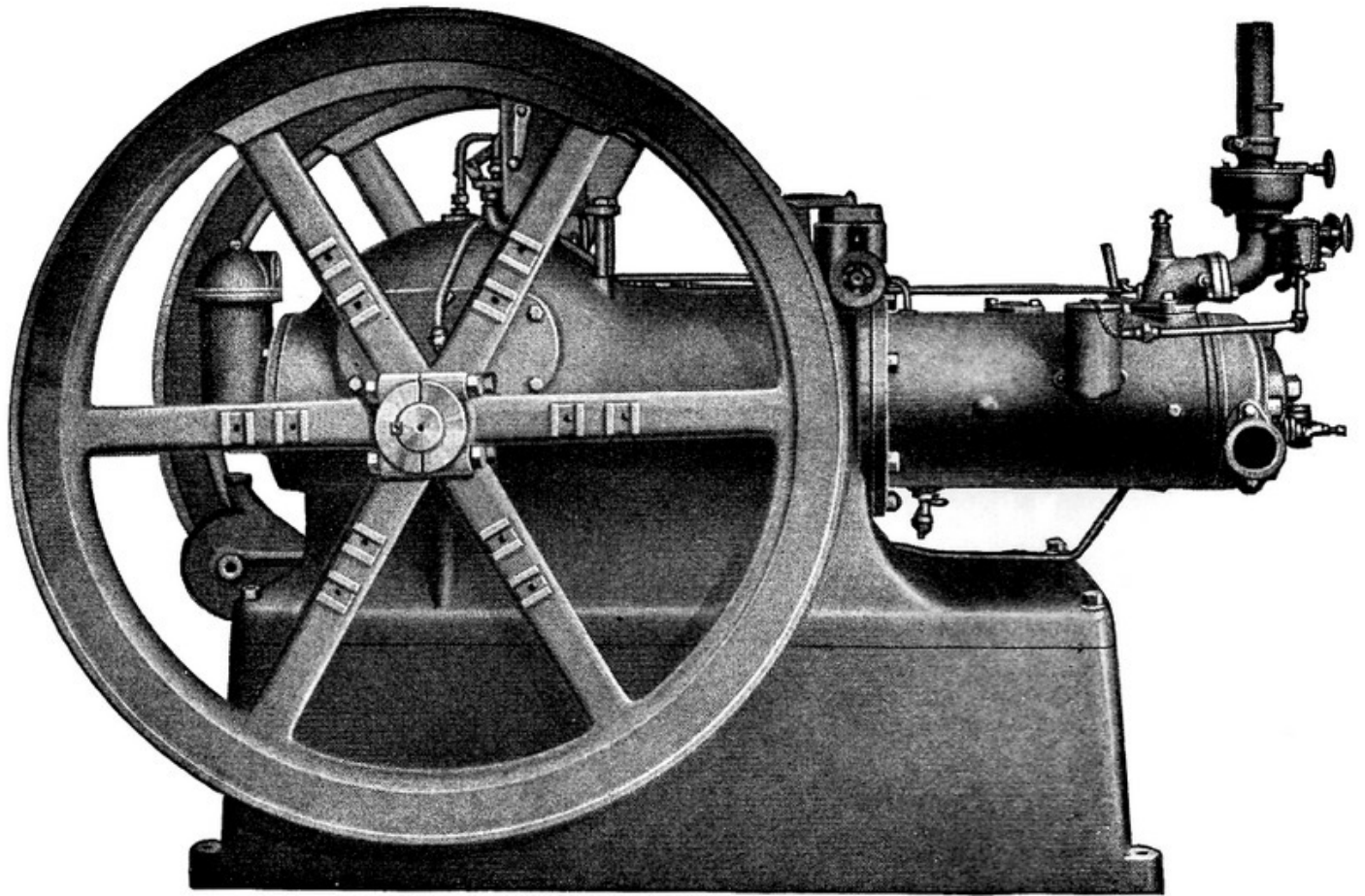
No. 2. For Gas Engines—Like equipment No. 1, except that gasoline tank and necessary fitting to connect to engine are omitted and gasometer added.

No. 3. For Combined Gas and Gasoline Engines—Like equipment No. 1, except gasometer added.

Special pulleys, friction clutch pulleys, magnetos, and other accessories can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed Chg. Device	Regular Pulley		Fly Wheel		Fuel Tank			Floor Space Inches	Height Inches	Approximate Shipping Weight Pounds		
			Dia. Inches	Face Inches	Dia. Inches	Face Inches	Length Inches	Dia. Inches	Capacity Gals.			Gasoline	With Gas Attachm't	With Comb. Attachm't
4	400	480	12	8 $\frac{3}{8}$	33	2 $\frac{1}{2}$	30	12	14	35 $\frac{1}{2}$ x 54 $\frac{5}{8}$	33 $\frac{1}{2}$	1450	1335	1425
6	325	390	16	12 $\frac{1}{4}$	40 $\frac{1}{2}$	2 $\frac{1}{2}$	48	18	54	40 $\frac{3}{16}$ x 65 $\frac{1}{16}$	40 $\frac{3}{4}$	2085	1900	1990
8	310	370	18	10 $\frac{1}{4}$	45	3	48	18	54	42 $\frac{7}{8}$ x 71 $\frac{3}{8}$	45 $\frac{1}{4}$	2770	2630	2739
10	300	360	20	10 $\frac{1}{4}$	49 $\frac{1}{2}$	3	48	18	54	43 $\frac{5}{8}$ x 77 $\frac{1}{4}$	49 $\frac{3}{4}$	3090	2870	2970
12	300	360	24	14 $\frac{1}{4}$	54	3	48	18	54	49 $\frac{5}{8}$ x 85 $\frac{1}{2}$	54 $\frac{1}{4}$	3830	3675	3770
15	250	275	26	12 $\frac{1}{4}$	63	3	48	18	54	49 $\frac{1}{4}$ x 98 $\frac{1}{2}$	63	5150	5025	5127
20	240	270	28	16 $\frac{1}{4}$	60	3 $\frac{3}{4}$	48	18	54	57 $\frac{1}{8}$ x 102 $\frac{3}{8}$	64 $\frac{1}{8}$	6285	6375	6470
25	240	270	28	16 $\frac{1}{4}$	60	4 $\frac{1}{2}$	48	18	54	62 $\frac{1}{8}$ x 139 $\frac{1}{2}$	60 $\frac{1}{2}$	7765	7839	7930

I H C 20-H. P. Stationary Kerosene Engine



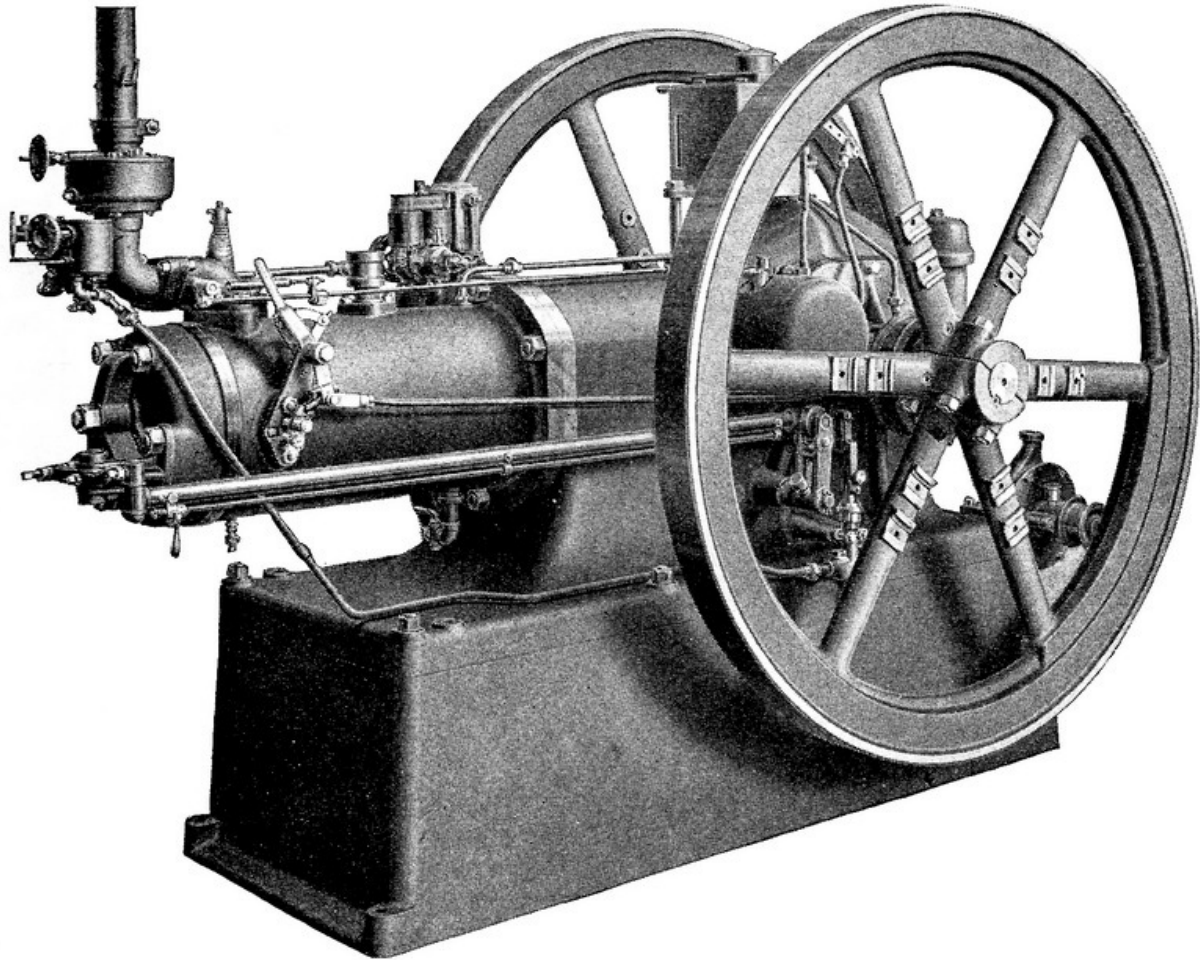
I H C 20-H. P. Stationary Kerosene Engine

This engine is especially designed for stationary use in localities where it is advantageous to operate on kerosene, naphtha or distillate.

The crank case is inclosed, which is very desirable when the engine is operated in a dusty or dirty place, and is provided with a breather to relieve the compression in the crank case so that the lubricating oil will not work out from the bearings. The exhaust valve is mounted in the cylinder head in a removable cage, and the inlet valve is mounted on top of the cylinder, together with the combination mixer, which will use either gasoline, kerosene, distillate or naphtha. The mixer consists of the auxiliary gasoline mixer and cup for starting, the fuel mixer, and the water valve. The method of operating on kerosene is as follows: To start the engine, the gasoline cup is filled with about a pint of gasoline and the engine is started on gasoline. When the engine is thoroughly warmed up, the kerosene and water valves are gradually opened and the gasoline gradually shut off. If desired, the engine can be run as a straight gasoline engine.

A throttling governor regulates the quantity of gas entering the cylinder, according to the load on the engine. This type of governor gives very close regulation and insures high economy at all loads. The ignitor is equipped with a lever and quadrant for advancing or retarding the spark. An auxiliary relief cam operated by lever for relieving a part of the compression when starting is a part of the equipment. A 5-feed mechanical oiler lubricates the crankshaft and cam shaft bearings and the cylinder. The centrifugal pump for circulating the cooling water is mounted on the base of the engine and driven from the crankshaft by a belt. This engine is thoroughly reliable in every respect and the speed regulation is very close.

I H C 20-H. P. Stationary Kerosene Engine



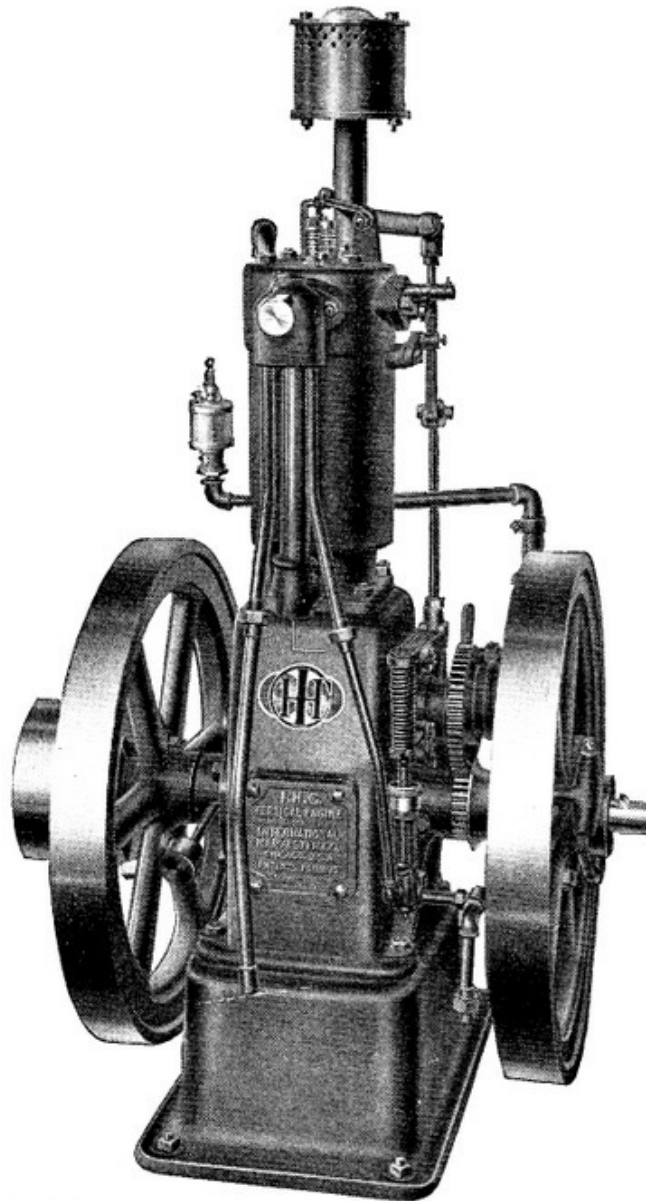
I H C 20-H. P. Stationary Kerosene Engine

EQUIPMENT.—This engine is fully equipped—ready to run—with the following accessories: Galvanized fuel tank, galvanized water cooling tank, centrifugal water circulating pump, friction clutch pulley, exhaust pot, batteries, spark coil, switch, auto sparker, tools, template, anchor bolts, oil can, and can of lubricating oil, and necessary piping to connect engine up complete, ready to run.

SPECIAL ACCESSORIES.—Special size pulleys, magneto, etc., can be furnished on special order. See pages 54 to 58.

Horse Power	Speed, R. P. M.	Regular Pulley		Fly Wheel		Capacity of Fuel Tank, Gallons	Capacity of Water Tank, Gallons	Floor Space, Inches	Height of Engine	Approx. Shipping Weight, Pounds
		Diameter, Inches	Face, Inches	Diameter, Inches	Face, Inches					
20	240	36	10	60	33¼	54	440	57½ x 102¾	72	5350

I H C Victor Vertical Gasoline Engines



I H C Victor 2 and 3-Horse Power Vertical Gasoline Engines

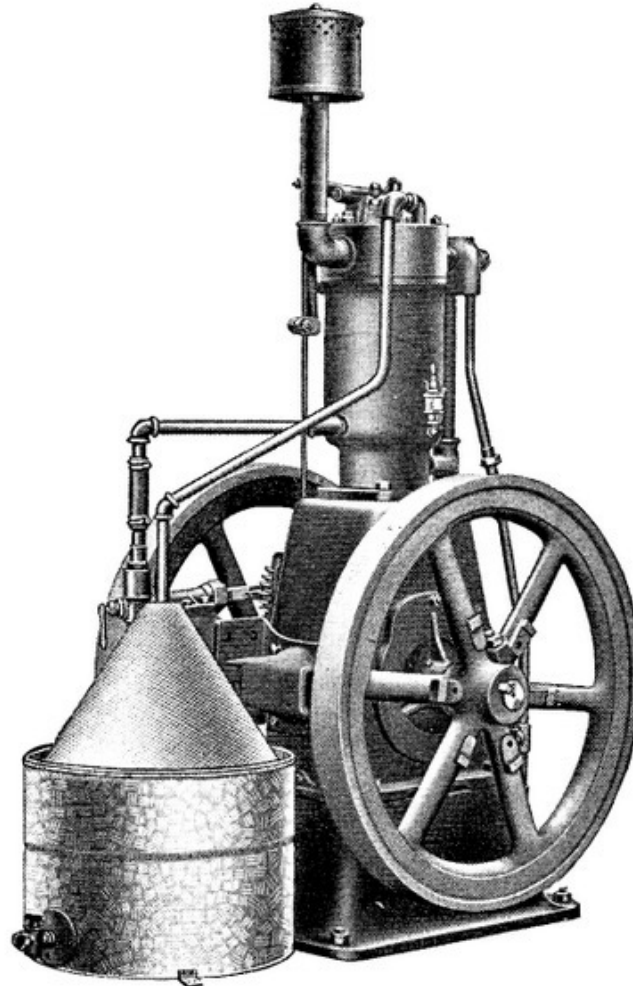
I H C Victor vertical engines are constructed to secure the measure of safety prescribed by the rules of the National Board of Fire Underwriters, and are especially adapted for installation in buildings where insurance restrictions prevent the fuel tank being kept within the building, as the fuel tank can be placed outside at any convenient point. They are regularly fitted to operate on gasoline, distillate, or naphtha, but can be equipped to operate on gas, kerosene, or alcohol.

The I H C speed changing device is a feature of these engines by means of which the speed can be varied about 20 per cent. while the engine is running.

They can be used to good advantage for driving line shafts, for running small machines in dairies, printing offices, blacksmith shops, etc., or can be belted direct to feed grinders, wood saws, pumps and the like. They occupy but a small floor space and can be installed in very narrow quarters. Where running water is at hand, a small supply pipe can be connected to the water jacket and the cooling tank dispensed with.

In buying one of these engines, the purchaser can be sure that he is getting full rated power with a generous surplus.

I H C Victor Vertical Gasoline Engines



I H C Victor Vertical Engine Connected Up with
Cooling Tank and Muffler

EQUIPMENT.—The regular equipment of all I H C Victor vertical engines is complete and includes the following accessories:

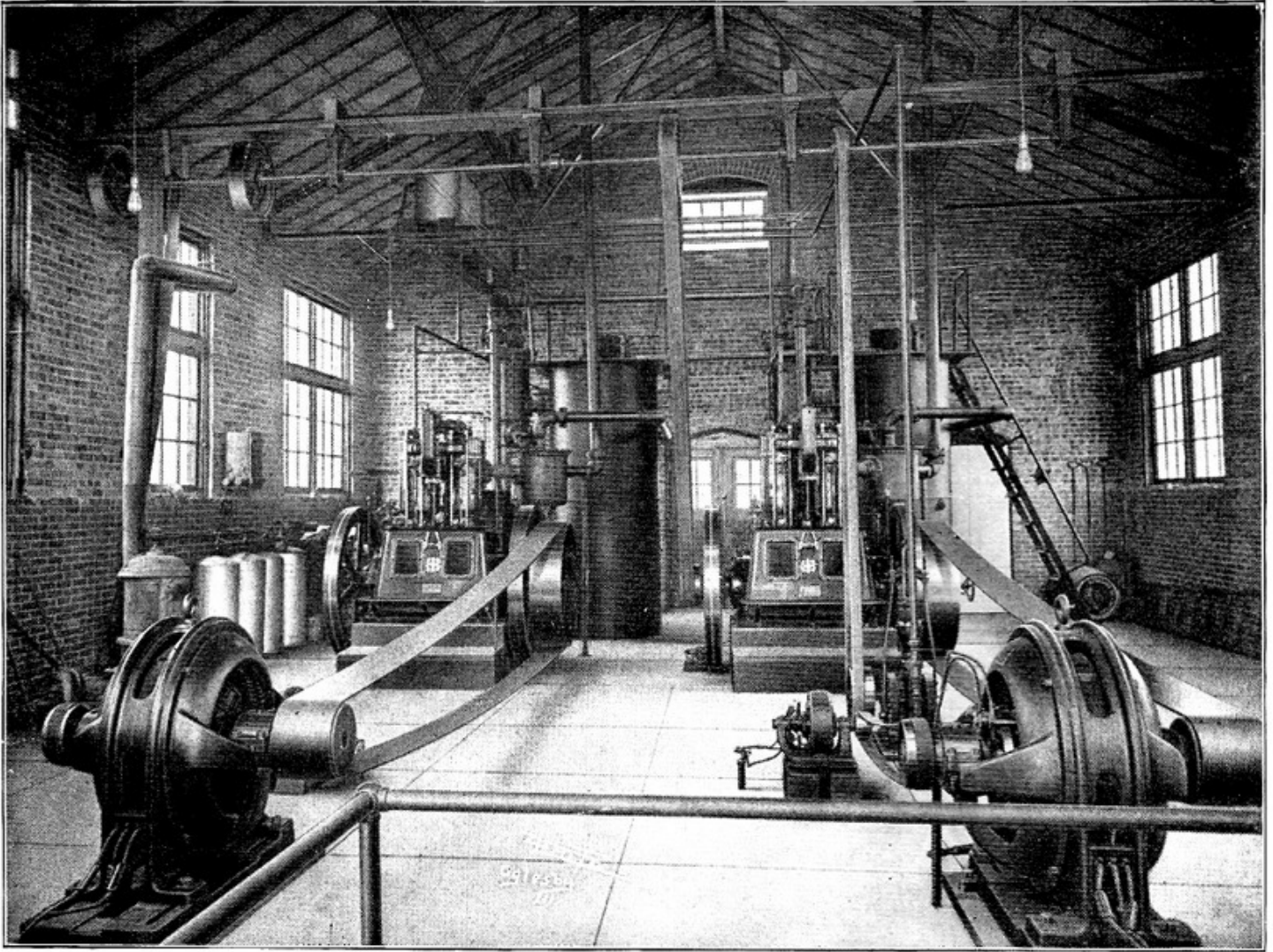
No. 1. For Gasoline Engines—One pulley, one muffler, one galvanized steel gasoline tank with two lengths of pipe and also fittings to install the tank outside the building and connect it to the engine, one galvanized steel cooling tank with pipe and fittings and hose to connect it to the circulating pump on the engine, electric battery, spark coil, switch and battery box, one length of exhaust pipe, cylinder lubricator, one oil can, and all necessary tools. An exhaust muffler is regularly furnished with this outfit, but a cast iron exhaust pot can be supplied upon special order.

No. 2. For Gas Engines—Like equipment No. 1, except that gasoline tank and fittings are omitted and gasometer added.

No. 3. For Combined Gas and Gasoline Engines—Like equipment No. 1, except gasometer added.
For special pulleys, friction clutch pulleys, magnetos, see special accessories, pages 53 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed Chg. Device	Regular Pulley		Fly Wheel		Fuel Tank			Floor Space Inches	Height Inches	Approximate Shipping Weight Pounds		
			Dia. Inches	Face Inches	Dia. Inches	Face Inches	Cap'city Gal.	Length Inches	Dia. Inches			Gasoline Equip.	Gas Equip.	Comb. Gas & Gasoline
2	400	480	8	5	24	2½	9	20	12	30½ x 24	45	835	840	883
3	360	440	9	5½	26½	2½	9	20	12	31 ¾ x 26½	48	970	950	1027

I H C Two-Cylinder Vertical Stationary Engines

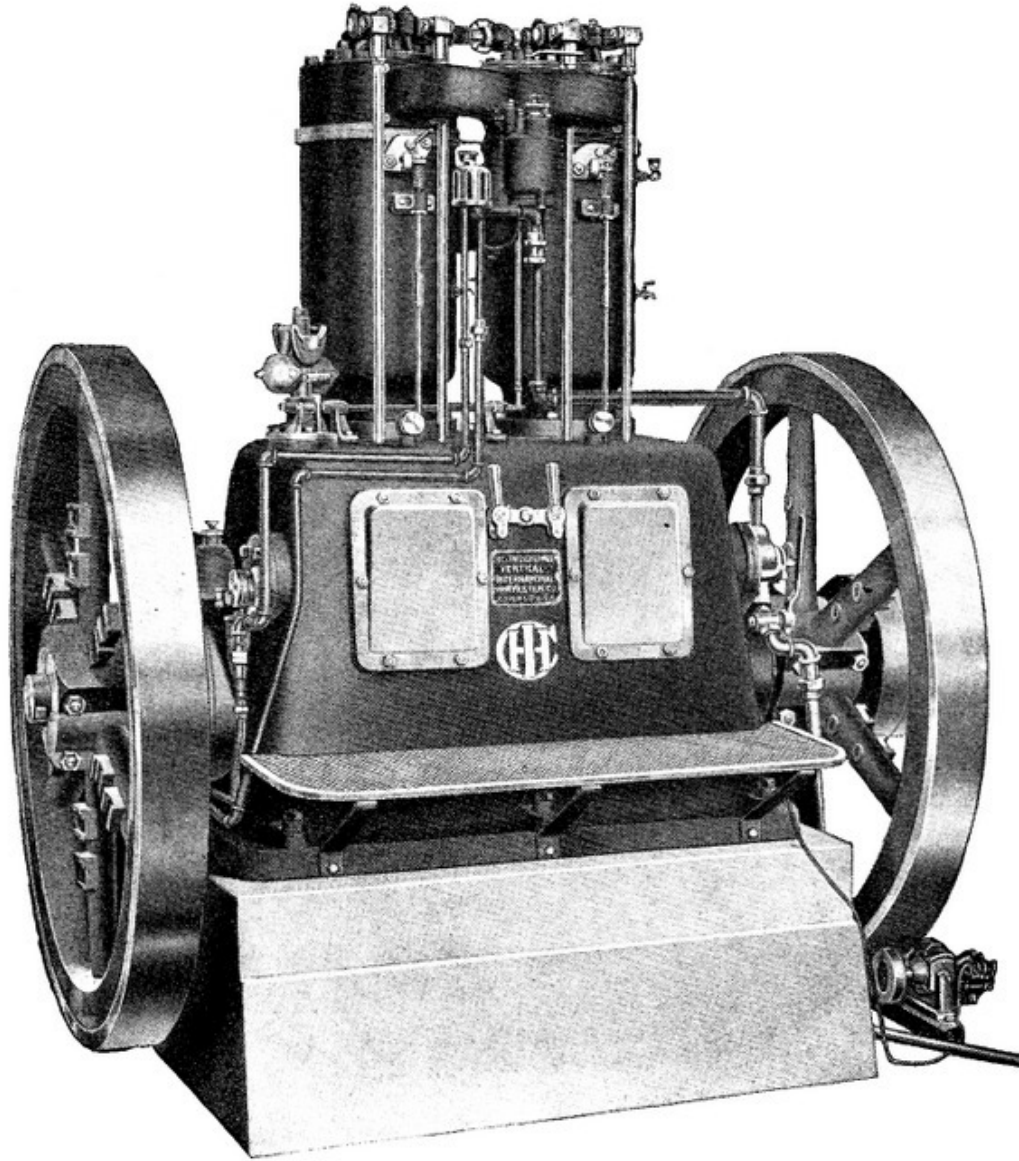


Two 35-H. P. I H C Vertical Engines operated on producer gas, Portland, Ill., Electric Light Plant

The I H C Two Cylinder vertical 25 and 35-horse power engines have a remarkably close regulation of speed and therefore prove excellent engines for private and small municipal electric-lighting plants, water-works, factories, shops and cotton gins. The speed regulation of these engines is as close as that of a high-grade steam engine, and consequently they may be belted or direct connected to generator. The engines are constructed so as to secure the measure of safety prescribed by the rules of the National Board of Underwriters. Those who require safe, reliable and economical power will find it to their advantage to thoroughly investigate these engines.

In design, they embody many of the standard features of vertical, single acting, four-cycle engine construction, and they also have distinctive features that make them the most desirable engines of this size and type. There are no "rights and lefts" on the I H. C engines, but instead absolute interchangeability is insured. The crank case is enclosed and a splash system of lubrication provided. Push rods and rockers operate the valves in the cylinder head. Where running water is at hand, the water jacket can be connected by a small pipe to the water main and the cooling tank and circulating pump dispensed with. These engines are equipped to operate on gasoline, distillate, or naphtha, but on special order can be equipped to operate on city gas, natural gas, or producer gas.

I H C Two-Cylinder Vertical Stationary Engines



Front View Two-Cylinder Engine Equipped With Gasoline Mixer

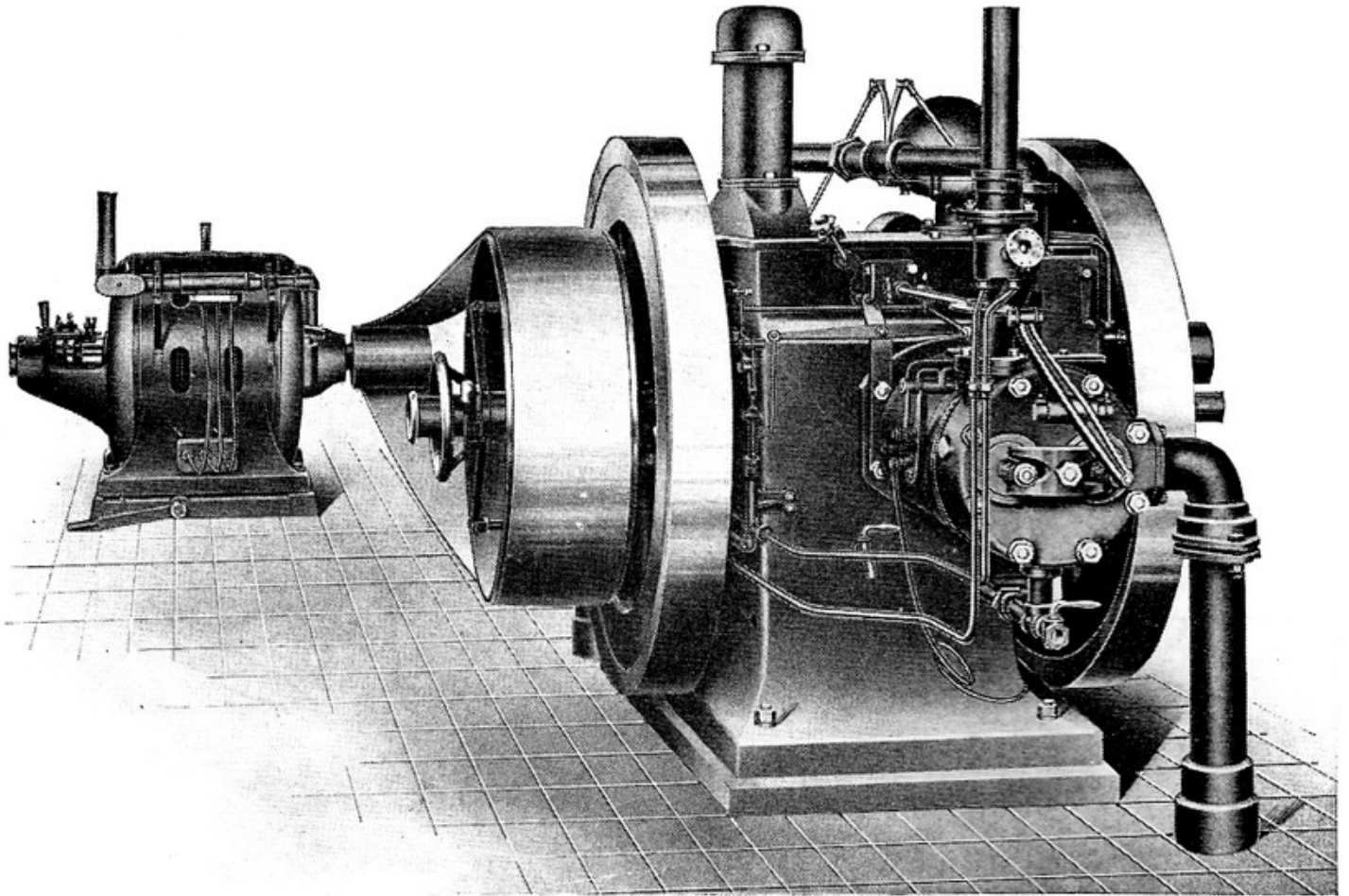
The regular equipment of I H C two-cylinder vertical engines is complete and includes the following accessories:

For Gasoline Engines—one galvanized steel gasoline supply tank with two lengths of pipe, one 440-gallon water cooling tank with necessary piping, compressed air starting equipment, battery box with batteries, switch, and spark coil, auto sparker, friction clutch pulley, air starting valve, template, anchor bolts, oil can, oil, and necessary tools and wrenches.

For Gas Engines—City, natural and producer gas attachments furnished on special order; a shaft coupling for direct connection to line shaft or generator can also be furnished on special order.

H. P.	Speed R. P. M.	Regular Pulley		Fly Wheel		Fuel Tank Gallons	Water Tank Gallons	Floor Space		Height Inches	Net Weight Lbs.	Shipping Weight, Pounds
		Dia. Inches	Face Inches	Dia. Inches	Face Inches			Length Inches	Width Inches			
25	335	42	10½	54	5	54	440	86	55	86	6500	9090
35	335	42	10½	54	5	54	440	86	55	86½	6700	9285

I H C Giant 50-H. P. 2-Cylinder Opposed Engine

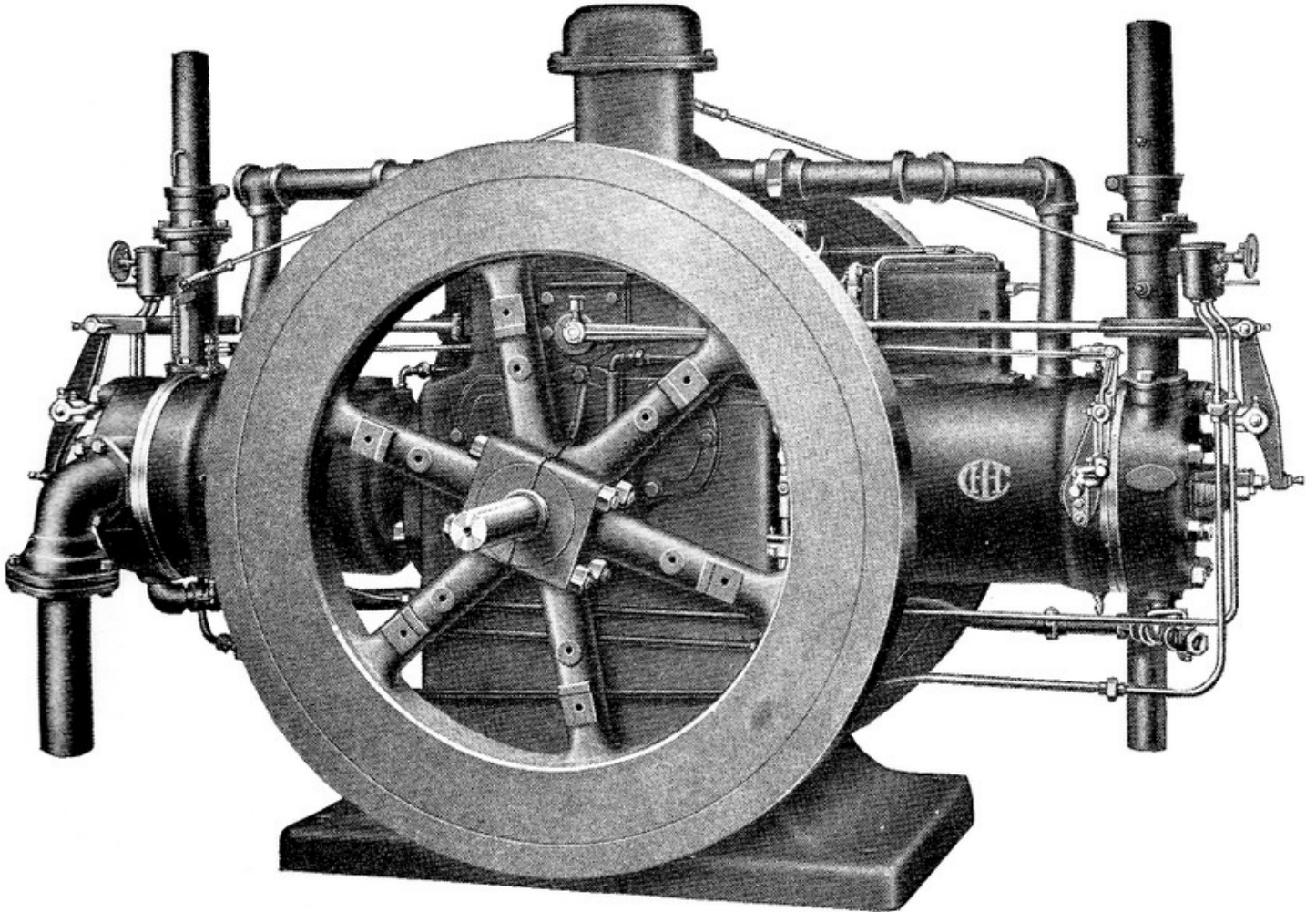


I H C 50-H. P. Two-Cylinder Opposed Engine Belted to Generator

The I H C 50-H. P. two-cylinder opposed engine is designed for all power work, and is especially adapted for operating machinery where close regulation is necessary. The engine occupies very small space, and although the construction is heavier than ordinary it is much lighter, due to its compact design, than other types of stationary engines of the same power. The construction embodies many individual features not found on other engines. The crank case is enclosed, which protects the cam shaft, gears and pistons from dust and dirt. A breather with a spring diaphragm is mounted on the crank case to relieve the compression in the crank case so that the lubricating oil will not work out of the crank case and cylinders. The cam shaft is provided with phosphor bronze bearings, and the crankshaft with anti-friction bearings of special design. A six-feed mechanical oiler lubricates the crankshaft and cam shaft bearings, and the cylinders and connecting rods. Make-and-break ignition is used, current being furnished by a Bosch magneto, which is gear driven from the cam shaft. Both inlet and exhaust valves are mounted in cages in the cylinder head, and can easily be removed by loosening a single nut without disturbing the cylinder head or other parts.

The mixers are similar to the standard I H C mixer used so successfully on other types of I H C engines. The governor is of the fly ball type, gear driven from the cam shaft, and acts on a butterfly valve in the mixers, so that the engine gets an impulse every revolution, although only just enough fuel is used to keep the engine running at a uniform speed. The cylinders are cooled by water from a belt-driven centrifugal pump bolted to the engine base.

I H C Giant 50-H. P. 2-Cylinder Opposed Engine



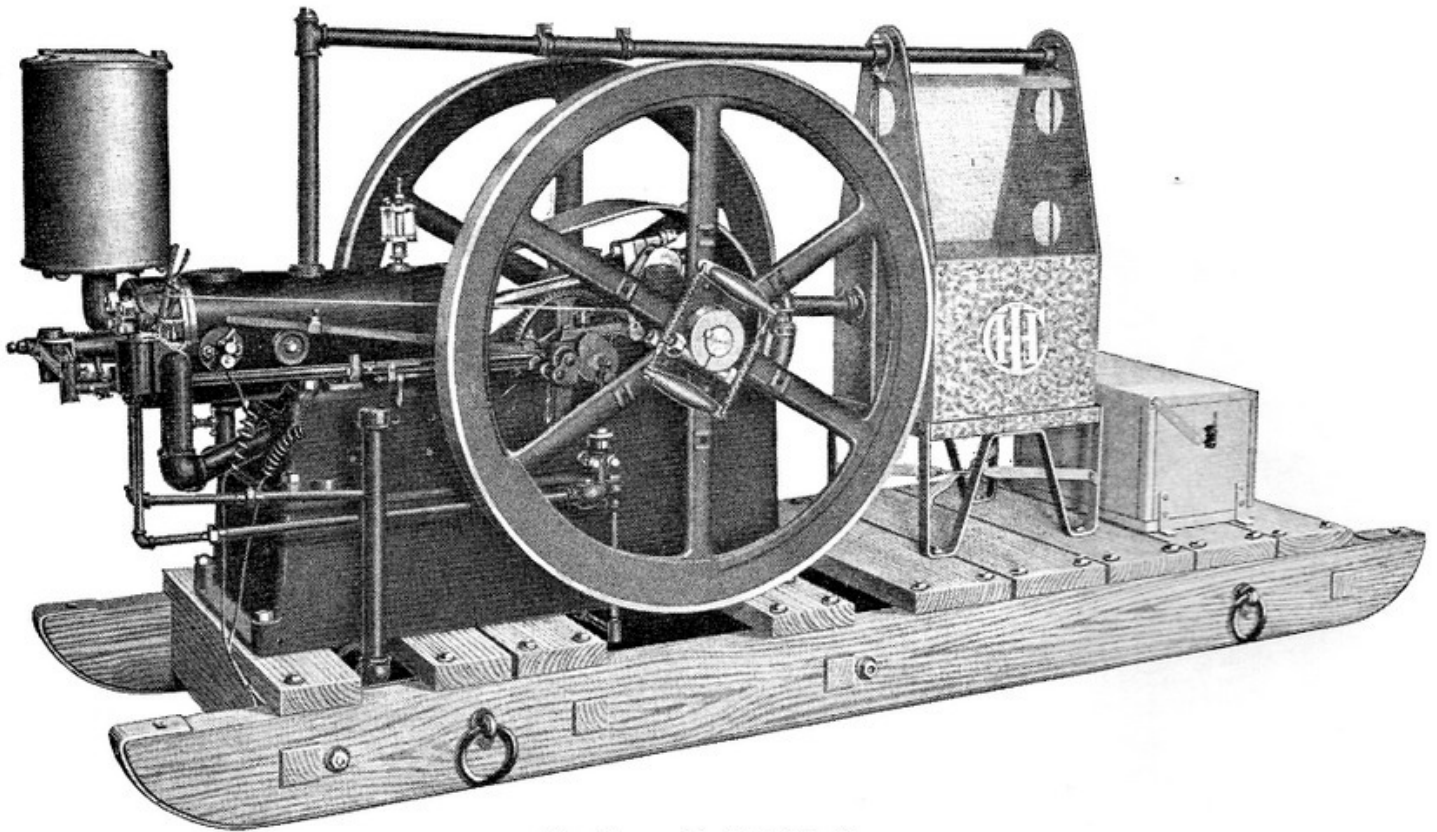
I H C Giant 50-H. P. 2-Cylinder Opposed Gasoline Engine

EQUIPMENT.—The I H C 50-H. P. two-cylinder opposed engine is fully equipped—ready to run—with the following accessories: Galvanized fuel tank, galvanized water tank, centrifugal circulating pump, friction clutch pulley, exhaust pot, batteries, spark coil, switch, Bosch magneto, template, anchor bolts, tools, oil can, can of lubricating oil, and necessary piping for connecting up engine complete, ready to run.

SPECIAL ACCESSORIES.—Special size pulleys, etc., can be furnished on special order. See pages 54 to 58. On special order these engines can be equipped to operate on natural gas, illuminating gas or producer gas.

Horse Power	Speed, R. P. M.	Regular Pulley		Fly Wheel		Capacity of Fuel Tank, Gallons	Capacity of Water Tank, Gallons	Floor Space		Approximate Shipping Weight, Pounds
		Diameter, Inches	Face, Inches	Diameter, Inches	Face, Inches			Length, Feet	Width, Feet	
50	350	28	10	54	5¼	54	440	10	8	7500

I H C Famous Horizontal Engines



The Famous Horizontal Engine

I H C Famous Horizontal engines are designed especially for farm service and for all power purposes where a reliable self-contained outfit is required. The ease with which they can be moved and set to work anywhere, and the great variety of uses for which they are adapted, make them invaluable to farmers, contractors, lumbermen; in fact for all who have use for a reliable semi-portable power.

The engine is essentially the same as the standard I H C Victor horizontal gasoline engine, except that the fuel tank is placed in the base of the engine where it is out of the way and protected from damage.

They are regularly fitted to operate on gasoline, distillate or naphtha, but on special order can be equipped to operate on gas, kerosene, or alcohol.

Pulleys may be bolted to either or both fly wheels which is a great advantage in driving more than one machine without a line shaft. It is also a convenience in operating machines in narrow quarters and oftentimes saves the trouble of turning the engine around.

These engines are equipped with the I H C speed-changing device by means of which the speed of the engine can be varied about 20 per cent. and regulated to the speed best adapted to the particular machinery being driven.

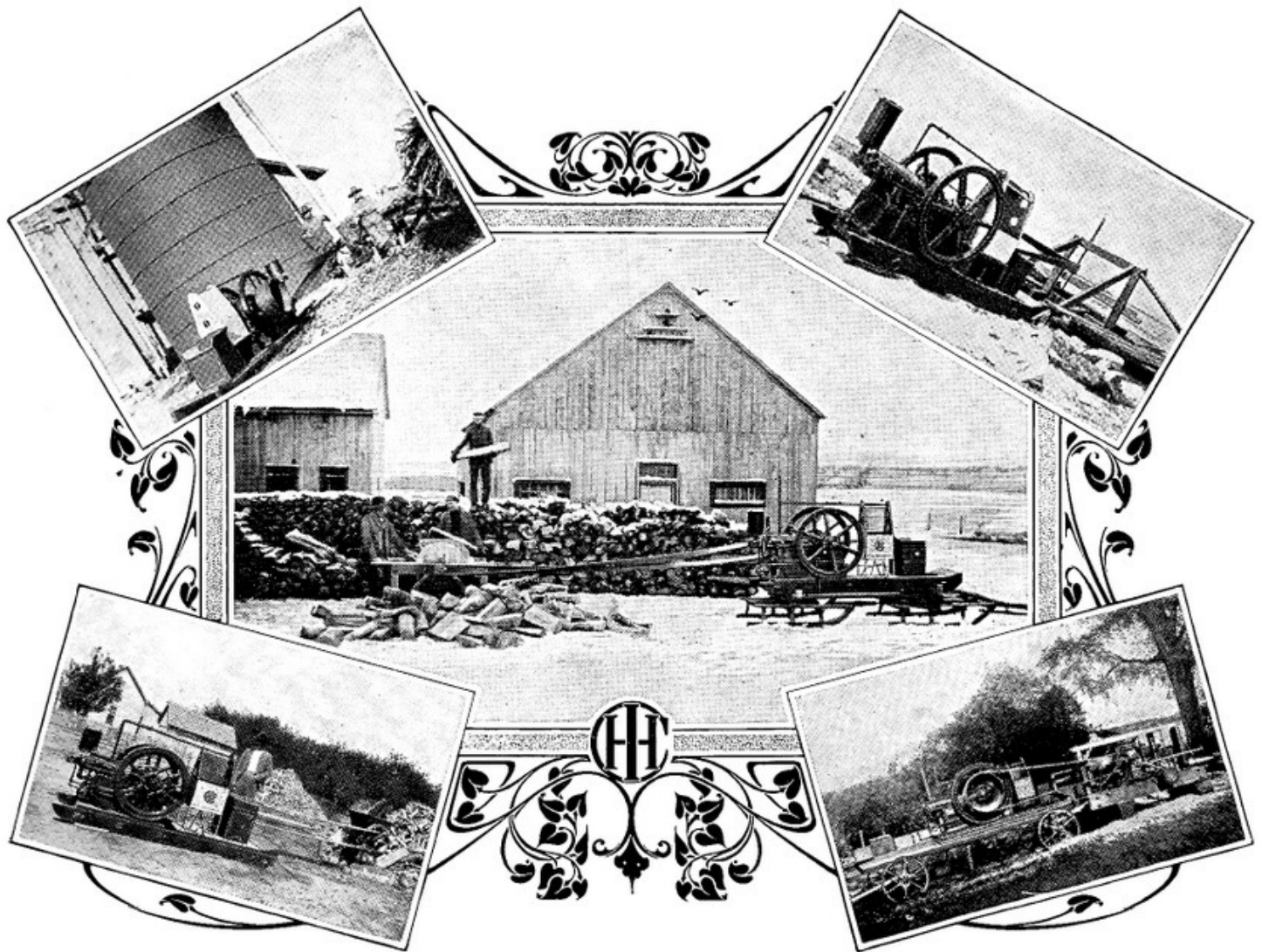
The small amount of water required for the I H C cooling system makes this outfit comparatively light and more easily moved than the old style gravity outfits.

The engine, cooling tank, and battery box are all mounted on substantial wood skids, thus forming a compact, self-contained power plant which can be moved about at will.

These engines are capable of hard, continuous service, and will develop more than their rated horse power. For farmers, contractors, general purpose work, etc., they are the best investment that can be made.

I H C GASOLINE ENGINES

I H C Famous Horizontal Gasoline Engines

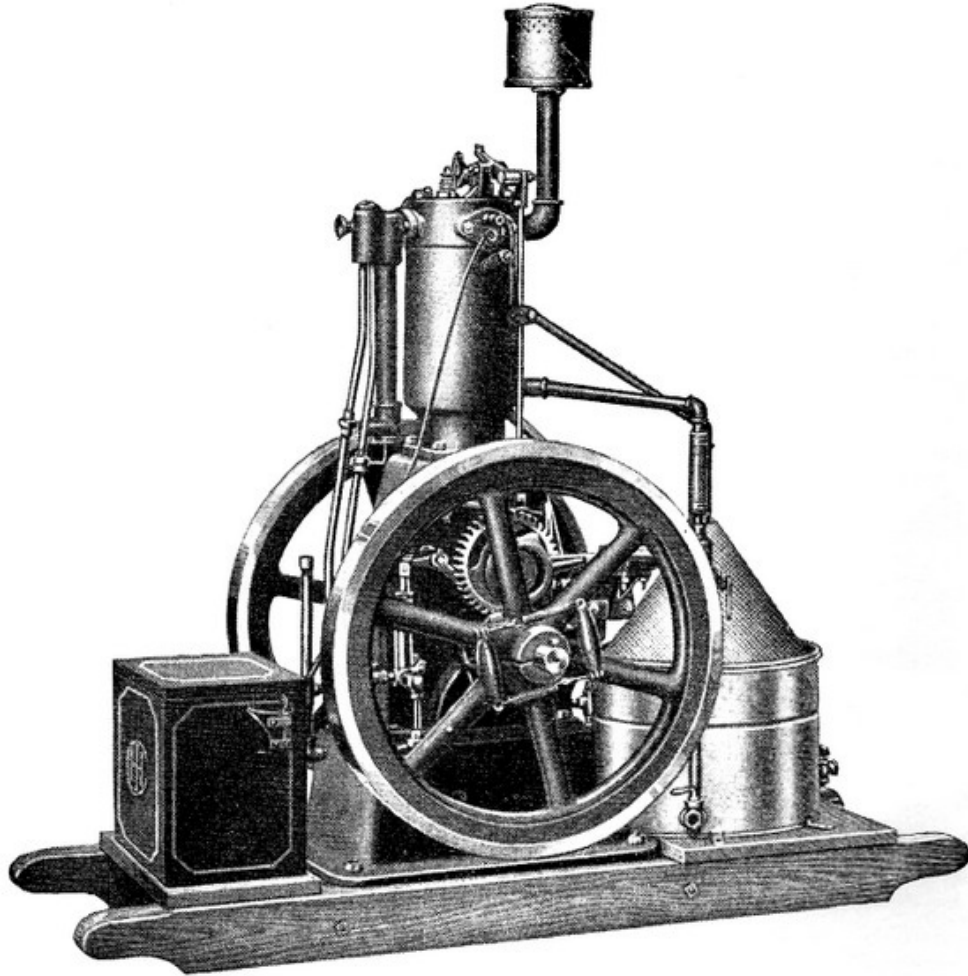


EQUIPMENT.—I H C Famous Horizontal engines are equipped complete for running with the following accessories: One galvanized steel gasoline tank in the base of the engine, galvanized steel cooling tank, one regular size pulley, muffler, tool and battery box with tools and batteries, switch and spark coil, cylinder lubricator, oil can, and large can of the best gas engine lubricating oil, all mounted on substantial wooden skids, making a compact self contained outfit.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, magnetos, and other special accessories can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed Chg. Device	Regular Pulley		Fly Wheel		Fuel Tank Gallons	Floor Space		Height Inches	Approximate Shipping Weight, Pounds
			Dia. Inches	Face Inches	Dia. Inches	Face Inches		Length of Skids, In.	Width of Skids, In.		
4	400	480	12	8 $\frac{3}{8}$	33	2 $\frac{1}{2}$	7	108	28	50	1505
6	325	390	16	12 $\frac{1}{4}$	40 $\frac{1}{2}$	2 $\frac{1}{2}$	15	120	32	53	2075
8	310	370	18	10 $\frac{1}{4}$	45	3	20	132	32	60 $\frac{1}{2}$	2760

I H C Famous Vertical Gasoline Engines



I H C Famous Vertical Engine

I H C Famous Vertical Engines are unquestionably the most popular engines manufactured for the many small jobs around the farm and for general purpose work where a small, reliable power is required. They are especially adapted for country homes, stock farms and dairy farms, for pumping water, grinding feed, etc., as they take up but little room, are easily moved from job to job, and are so simple and reliable that a minimum of attention is required. Contractors find them desirable for operating concrete mixers, pumps and other machinery requiring small power. The engine is the same as the I H C Victor vertical engine except that the gasoline tank is located in the sub-base, where it is out of the way and protected from damage. They are regularly fitted to operate on gasoline, distillate, or naphtha, but can be equipped to operate on gas, kerosene, or alcohol, on special order.

The I H C speed changing device is a feature of these engines and enables the operator to change the speed of the engine while running to the speed best adapted to the machinery being driven.

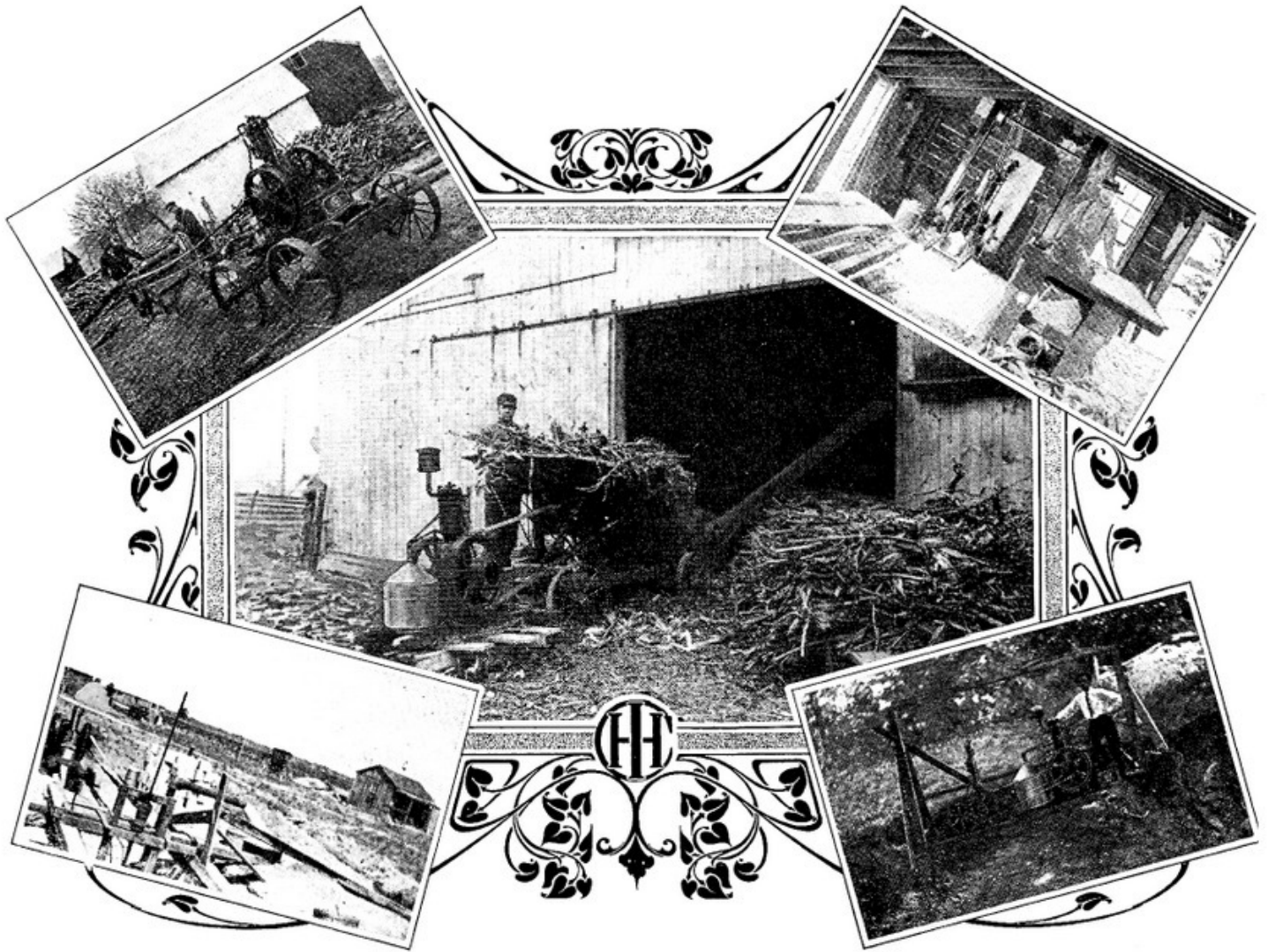
The I H C cooling system is also a strong point in their favor as only a small part of the water used with the old style gravity system is required to cool the cylinder.

The engine together with the battery box and cooling tank, is mounted on substantial hard wood skids making a simple, self-contained outfit that is compact and can be easily moved.

These engines are built for hard work and will deliver their full rated horse power under hard, continuous service.

I H C GASOLINE ENGINES

I H C Famous Vertical Gasoline Engines

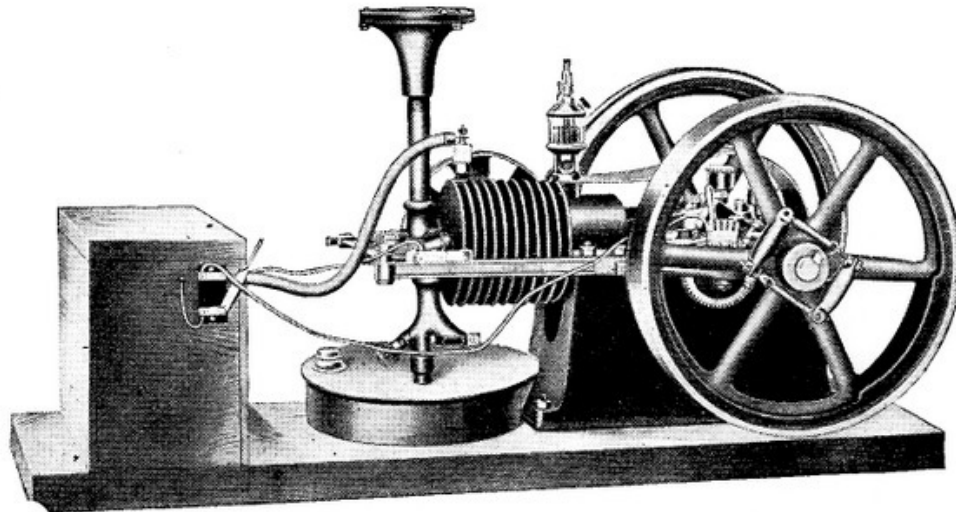


EQUIPMENT.—I H C Famous vertical engines are equipped complete for running with the following accessories: One galvanized steel gasoline tank in the base of the engine, galvanized steel cooling tank, one regular size pulley, muffler, tool and battery box with tools and batteries, spark coil, switch, oil can and large can of the best gas engine lubricating oil, all mounted on a substantial wooden base, making a compact self-contained outfit that can be moved at will.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, magnetos, hand trucks, and other accessories can be furnished on special order. See pages 53 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed Chg. Device	Regular Pulley		Fly Wheel		Fuel Tank Capacity Gal.	Floor Space, Inches		Height Over All, Inches	Approximate Shipping Weight, Pounds
			Dia. Inches	Face Inches	Dia. Inches	Face Inches		Length of Skids	Width of Skids		
2	400	480	8	5	24	2½	3½	62	18¼	48	795
3	360	440	9	5½	26½	2½	3½	63	20¾	51	945

Tom Thumb Famous Air-Cooled Gasoline Engines



Tom Thumb Famous 1-Horse Power Engine

This little helper will do more work in a day than two men—pumps all the water needed on an ordinary farm, runs cream separator, grindstone, fanning mill, washing machine, domestic water works, small shop machines such as emery wheel, drill press, etc.; in fact, any machine not requiring over 1-H. P.

Tom Thumb is the simplest engine of its kind made, no complicated parts to get out of order; air-cooled—no water-cooling system to freeze in the winter; light weight, and easily moved.

This little engine develops more than 1-H. P. and is made of the same high grade materials and in the same careful manner that distinguishes all I H C engines.

CONSTRUCTION.—The engine is provided with a hit-and-miss type of governor, very sensitive in its action. No gasoline pump is used, but, instead, a simple mixer placed over the gasoline tank. A partial vacuum is produced in the pipe by the suction stroke of the piston and a flow of gasoline is induced into the mixer. The gasoline is regulated by the needle valve. The valve mechanism is very simple. Both valves may be removed by unscrewing one bolt in the cylinder head. A belt driven fan aids in cooling the cylinder.

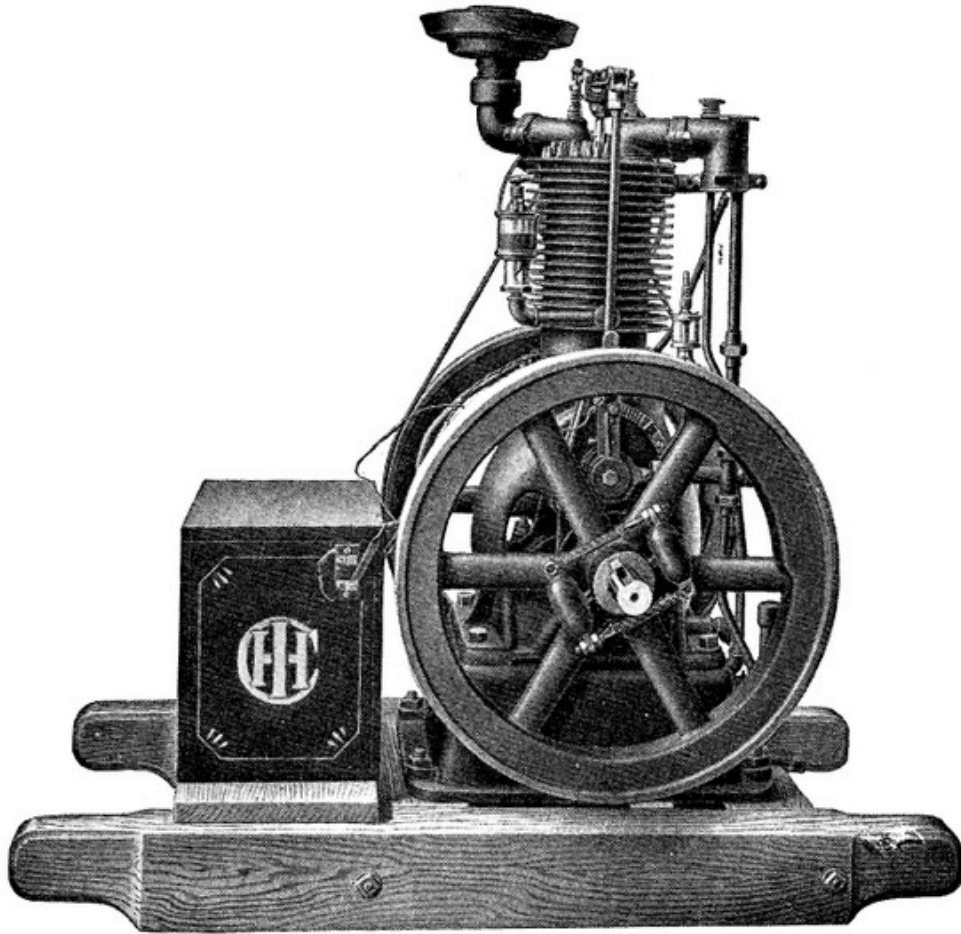
IGNITION.—Jump spark ignition is used, for which five dry cell batteries, jump spark coil and a spark plug are regularly furnished.

EQUIPMENT.—Tom Thumb engines are equipped complete—ready to run—with the following accessories: Galvanized steel gasoline tank, a plain pulley, 6 inches in diameter with a 2½-inch face, also complete pulley arrangement for driving a cream separator, consisting of a reducing gear and a 4-inch pulley with a 2-¾ inch face, capable of transmitting ½-horse power, battery box, batteries, jump spark-coil switch, spark plug, oil can, and necessary tools, all mounted on a solid wood base.

SPECIAL ACCESSORIES.—A 6-inch pulley with a 5-inch face that can be used for operating the standard and walking beam pumping jacks can be supplied on special order. A 4-inch pulley with either a 2½ inch or 5-inch face may also be had on special order. A magneto and bracket and a special hand truck can be furnished for this engine on special order. See pages 53 and 57.

H. P.	Speed R. P. M.	Regular Pulley		Fly Wheel		Capacity of Fuel Tank Gallons	Base Measures Inches	Height Inches	Approximate Shipping Weight, Pounds
		Diameter Inches	Face Inches	Diameter Inches	Face Inches				
1	600	6	2½	15½	2¼	¾	12 x 42	21	259

I H C Famous Vertical Air-Cooled Gasoline Engines



I H C Famous Vertical Air-Cooled Gasoline Engine

I H C Famous air-cooled gasoline engines are especially adapted for use around the farm.

These outfits are much lighter than the water-cooled engines and are very easy to move from place to place. They are also used extensively by contractors for running concrete mixers, pumps, etc.

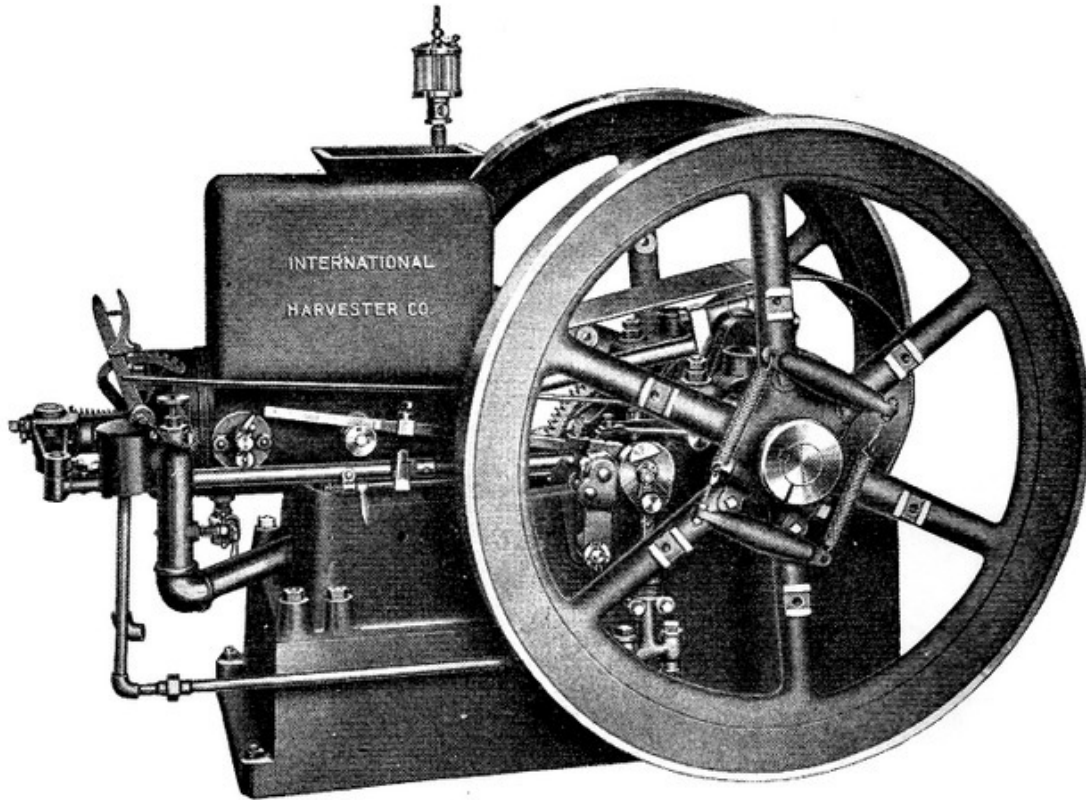
CONSTRUCTION.—Their general construction and working parts are much the same as those of the well-known I H C Victor and Famous vertical engines, with the exception of the cooling apparatus and crank case. The cylinder is made in the form of a radiator with a belt-driven fan on one side to aid in cooling. On small engines, this system of cooling is very satisfactory, and as no cooling water is required, there is never any danger of it freezing. Sight feed oilers are used on main bearings and piston. The gasoline tank is located in the sub-base. Jump spark ignition is used. The batteries, gasoline tank, and engine are all mounted on substantial wooden skids.

EQUIPMENT.—I H C Famous air-cooled engines are completely equipped—ready to run—with the following accessories: One galvanized gasoline tank, battery box, batteries, jump spark coil, spark plug, switch, oil can, oil and necessary tools. A 5x5-inch pulley is furnished with the 2 horse-power engine, and a 5-inch pulley with a 5½-inch surface is furnished with the 3 horse-power engine.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, etc., can be furnished on special order. See page 58.

H. P.	Speed	Regular Pulley		Fly Wheel		Capacity of Fuel Tank Gallons	Base Measures Inches	Height Inches	Approximate Shipping Weight, Pounds
		Diameter Inches	Face Inches	Diameter Inches	Face Inches				
2	650	5	5	17½	2¼	1¾	18¼ x 38	37	375
3	500	5	5½	22	2¼	2¾	18¼ x 49½	54	566

I H C Victor Stationary Hopper-Cooled Engines



I H C Victor Stationary Hopper-Cooled Gasoline Engine

I H C Victor hopper-cooled engines have many advantages which should be considered by the prospective engine purchaser. With the exception of the water jacket construction, the working parts are the same as those of the well-known I H C Victor and Famous tank-cooled engines. In place of the enclosed water jacket and water-circulating system, the water jacket is open at the top and enlarged to form a box-shaped tank. Only a small amount of water is required to fill this tank and cool the engine cylinder. This does away with the cooling tank and makes the outfit more compact. No water pump is required, thus reducing the number of parts and making the engine simpler. This outfit is especially desirable in cold weather, as the hopper is easily drained.

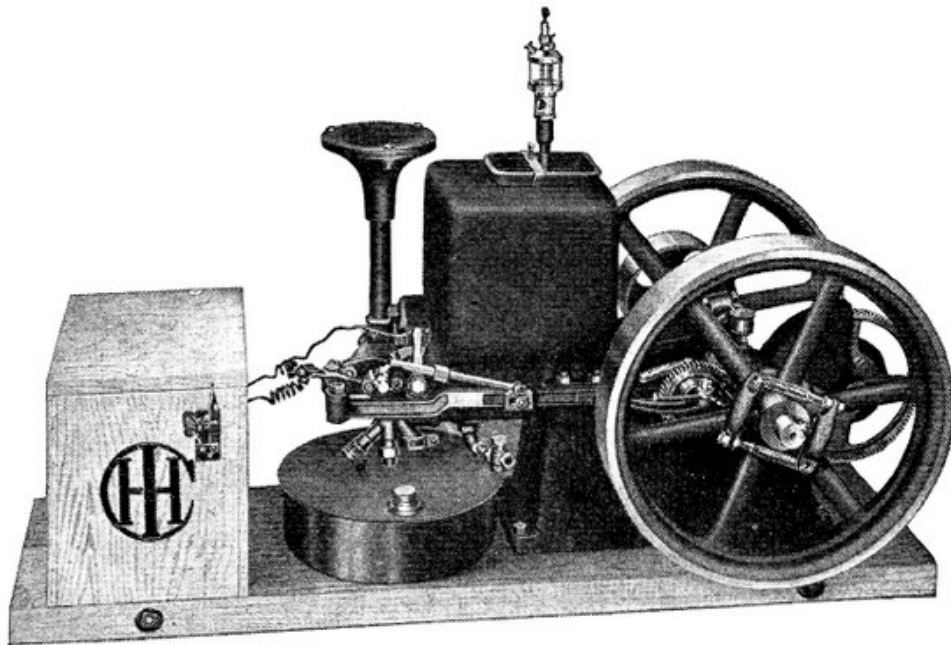
These engines are constructed so as to secure the measure of safety prescribed by the rules of the National Board of Fire Underwriters so that they are especially adapted for use in insured buildings. They are fitted for use with gasoline, distillate, or naphtha, but on special order can be equipped to operate on kerosene or alcohol, also gas except the 2½-H. P. size.

EQUIPMENT.—I H C Victor hopper-cooled engines are equipped complete for running with the following accessories: One galvanized iron gasoline tank with two lengths of pipe and fittings, one regular size pulley, exhaust pot with one length of pipe, battery box with batteries, spark coil and switch, template, anchor bolts, can of oil, and necessary tools.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch, pulleys, magneto, etc., can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Speed R. P. M. with Speed Changing Device	Regular Pulley		Fly Wheel		Capacity of Hopper Gallons	Capacity of Fuel Tank Gallons	Floor Space, Inches	Approximate Shipping Weight, Pounds
			Diameter Inches	Face Inches	Diameter Inches	Face Inches				
2½	500	550	5	5½	22	2¼	3½	9	28½ ₁₆ x 41	
4	400	480	12	8¾	33	2½	6	14	35 ½ x 54 ⅝	1360
6	325	390	16	12¼	40½	2½	12	54	40¾ ₁₆ x 65½ ₁₆	1947
8	310	370	18	10¼	45	3	16	54	42 ⅞ x 71 ⅜	2623

I H C Famous Hopper-Cooled Engines



I H C I-H. P. Famous Hopper-Cooled Gasoline Engine

I H C Famous 1-H. P. Hopper-cooled engines are particularly desirable for the light work around the farm and in country homes such as pumping water, running cream separator, churn, washing machine, bone cutter, fanning mill, grindstone, etc.; for operating domestic water works, etc.; and in the shop for operating drill press, forges, emery wheels, small saws, and all other machines not requiring over one horse-power. These powerful little engines are perfect in every respect, embodying many of the features used on our larger engines.

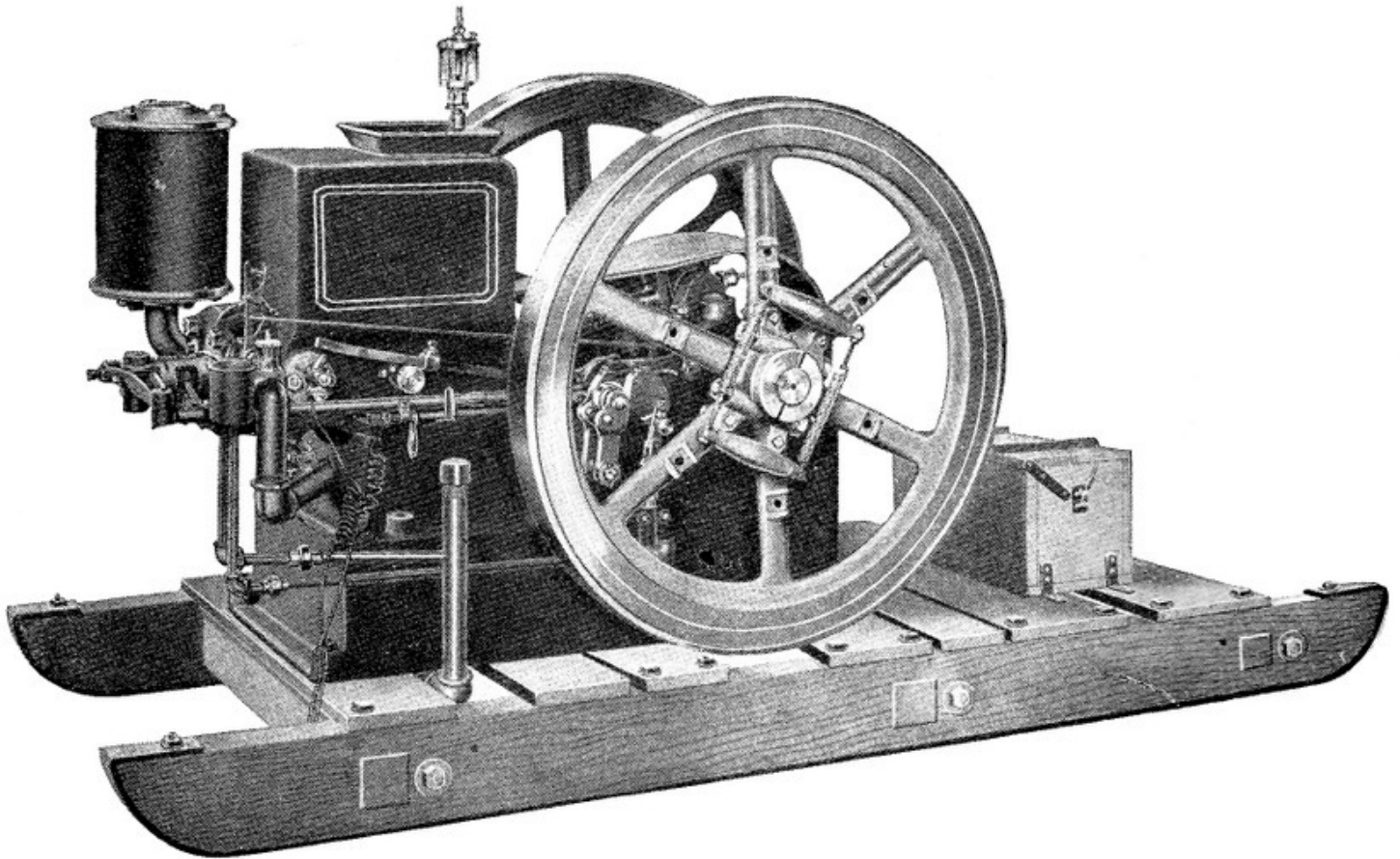
CONSTRUCTION.—They have the same main frame, fly wheels, crank shaft, governor, gears, detent, muffler, mixer, gasoline tank, and skids, as are used on the 1 horse-power Tom Thumb engines. The ignition is the make and break type, the same as the large I H C engines, and the inlet valve is so arranged that the incoming mixture passes over the ignitor points and keeps them clean and cool. The timing of the ignitor can be adjusted while the engine is running, which facilitates the starting of the engine. This engine has a hopper-jacketed cylinder with water-cooled head. Besides the main belt pulley on the crank shaft, a complete pulley arrangement for operating a cream separator is regularly furnished consisting of a reducing gear and a 4-inch pulley capable of transmitting one-half horse power. These engines are high grade in every respect, and for those desiring a reliable small power, cannot be equalled for simplicity, economy, and convenience.

EQUIPMENT.—I H C 1-horse-power hopper-cooled engines are completely equipped—ready to run—with the following accessories: One 6-inch pulley with 2½-inch face, one 4 inch pulley with reducing gear for cream separator, one galvanized gasoline tank, battery box, batteries, spark coil, switch, oil can, lubricating oil, and necessary tools, all mounted on a substantial solid wood base.

SPECIAL ACCESSORIES.—A special 6-inch pulley with a 5-inch face can be supplied on special order for operating the standard and walking beam pump jacks, also a special 4-inch pulley with either a 2½-inch or 5-inch face. Special hand trucks can be supplied for these engines. See page 53.

H. P.	Speed R. P. M.	Regular Pulley		Fly Wheel		Capacity of Hopper Gallons	Capacity of Fuel Tank Gallons	Base Measures Inches	Height of Outfit Inches	Approximate Shipping Weight Pounds
		Diameter Inches	Face Inches	Diameter Inches	Face Inches					
1	600	6	2½	15½	2¼	1½	¾	12 x 42	21	280

I H C Famous Horizontal Hopper-Cooled Engines



I H C Famous Horizontal Hopper-Cooled Engine

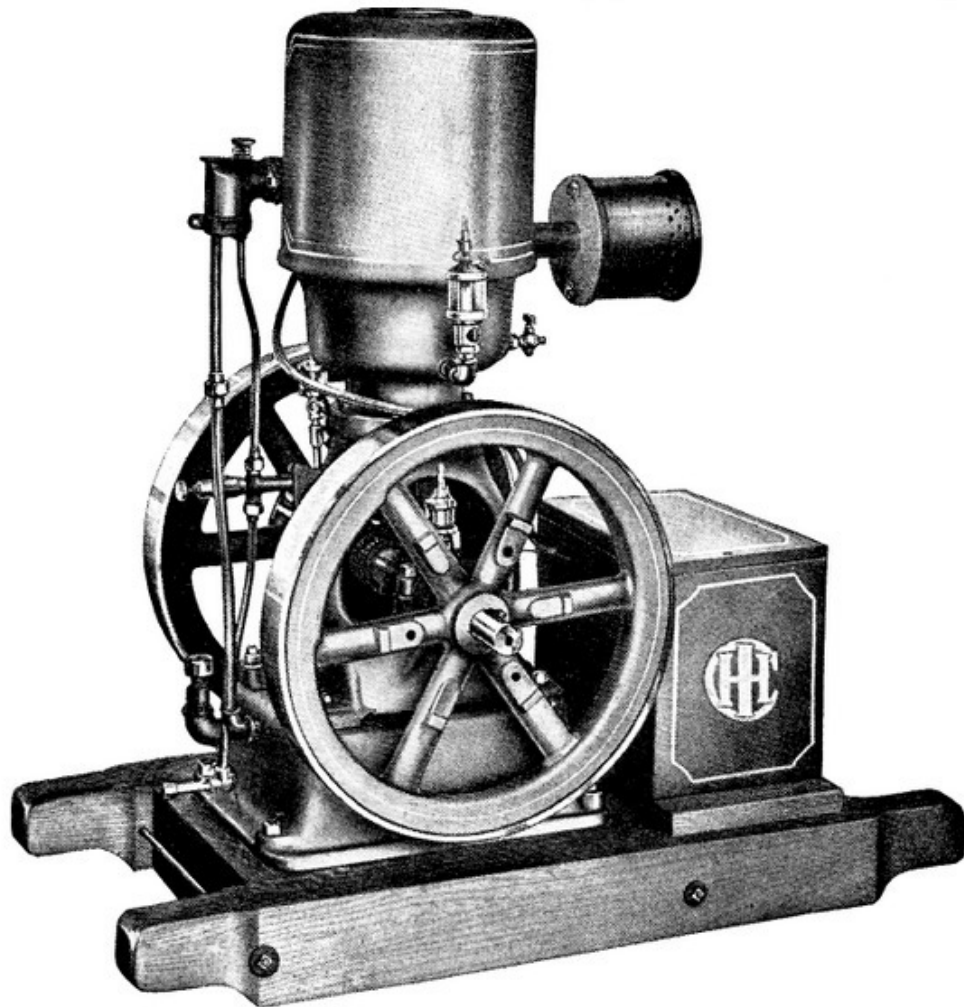
I H C Famous hopper-cooled engines are especially adapted for farm work and service where space is a factor and portability is desired. These engines are identical with the I H C Victor hopper-cooled engines except that the gasoline tank is located in the engine sub-base, out of the way, and protected from damage, and the complete outfit, including the battery box, is mounted on substantial wood skids. They are regularly fitted to operate on gasoline, distillate, or naphtha, but on special order can be equipped to operate on kerosene, or alcohol, also on gas except the 2½-H. P. size. On account of the hopper-cooling feature and the omission of the regular cooling tank, these engines are lighter and take up much less space than the skidded tank-cooled engines. Where a compact reliable power is desired with portable features this engine is strongly recommended.

EQUIPMENT.—I H C Famous Horizontal hopper-cooled engines are completely equipped—ready to run—with the following accessories: one regular size pulley, one muffler, one galvanized gasoline tank, battery box batteries, spark coil and switch, oil can, oil, and necessary tools—all mounted on substantial wood skids.

SPECIAL ACCESSORIES.—Different size pulleys, friction clutch pulleys, special mixers, magneto, etc., and hand truck for 2½ H. P. engine can be furnished on special order, see pages 53 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed-Changing Device	Regular Pulley		Fly Wheel		Capacity of Hopper Gallons	Capacity of Fuel Tank Gallons	Base Measures Inches		Height of Outfit, Inches	Approximate Shipping Weight, Pounds
			Diameter Inches	Face Inches	Diameter Inches	Face Inches			Width of Skids	Length of Skids		
2½	500	550	5	5½	22	2¼	3½	3	18¼	54	26 ¾	650
4	400	480	12	8¾	33	2½	6	7	28	84	40 ⅞	1430
6	325	390	16	12¼	40½	2½	12	15	32	93	47 ¾	1930
8	310	370	18	10¼	45	3	16	20	32	97¾	52 ¼	2555

I H C Famous Vertical Hopper-Cooled Engines



I H C Famous Vertical Hopper-Cooled Engine

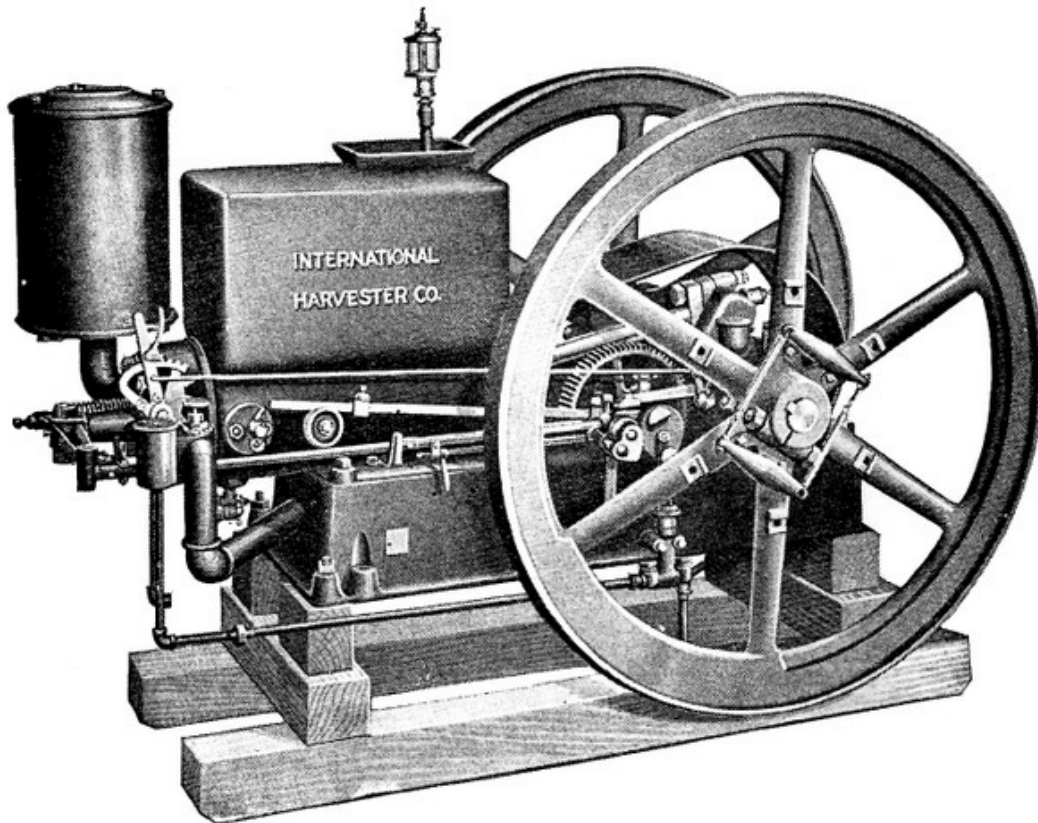
These engines are designed to meet the ordinary needs of the farmers, owners of country homes, contractors, etc. They are adapted for pumping water, sawing wood, grinding feed, operating domestic water works, running small shop machines, and such other work as comes within the range of their power. Many prefer these engines to the tank-cooled engines on account of their greater simplicity due to omission of the extra cooling tank, circulating pump, and piping, and their convenience due to their lighter weight, compactness, and the small quantity of cooling water required.

CONSTRUCTION.—These engines are equipped with fly-wheel type of governor. Sight feed oilers are used on main bearings and piston. The gasoline tank is located in the sub-base and fuel is pumped into the mixer by a plunger type pump. Jump spark ignition is used. These engines are regularly fitted to operate on gasoline, distillate, or naphtha. **EQUIPMENT**—I H C vertical hopper-cooled engines are equipped complete ready to run and include the following accessories: One regular size pulley, one galvanized gasoline tank, muffler, battery box, batteries, spark coil, spark plug, switch, oil can, and oil—all mounted on substantial wood skids.

SPECIAL ACCESSORIES.—For special size pulleys, friction clutch pulleys, etc., see page 58.

H. P.	Speed R. P. M.	Regular Pulley		Fly Wheel		Capacity of Hopper Gallons	Capacity of Fuel Tank Gallons	Base Measures Inches		Height of Outfit Inches	Approximate Shipping Weight Pounds
		Diameter Inches	Face Inches	Diameter Inches	Face Inches			Width of Skids	Length of Skids		
2	650	5	5	17½	2¼	2¼	1¾	18¼	38	37¾	440
3	500	5	5½	22	2¼	4½	2¾	18¼	49½	46¾	640

I H C Famous Hopper-Cooled Mounting Engines



I H C Famous Hopper-Cooled Mounting Engine

I H C Famous Hopper-Cooled Mounting engines are designed to meet the demand for an engine that can easily be mounted on a farm truck, bob sled, or skid, making a portable outfit, or in connection with any special machinery such as well drills, concrete mixers, saw rigs, portable pumping plants, and the like. These engines are especially adapted for such work on account of the compactness of the outfit, their moderate weight, and the small amount of water required for cooling. The hopper-cooled feature also does away with much of the danger of the cylinder or jacket being cracked by freezing, because the hopper is open at the top, thus allowing the freezing water to expand.

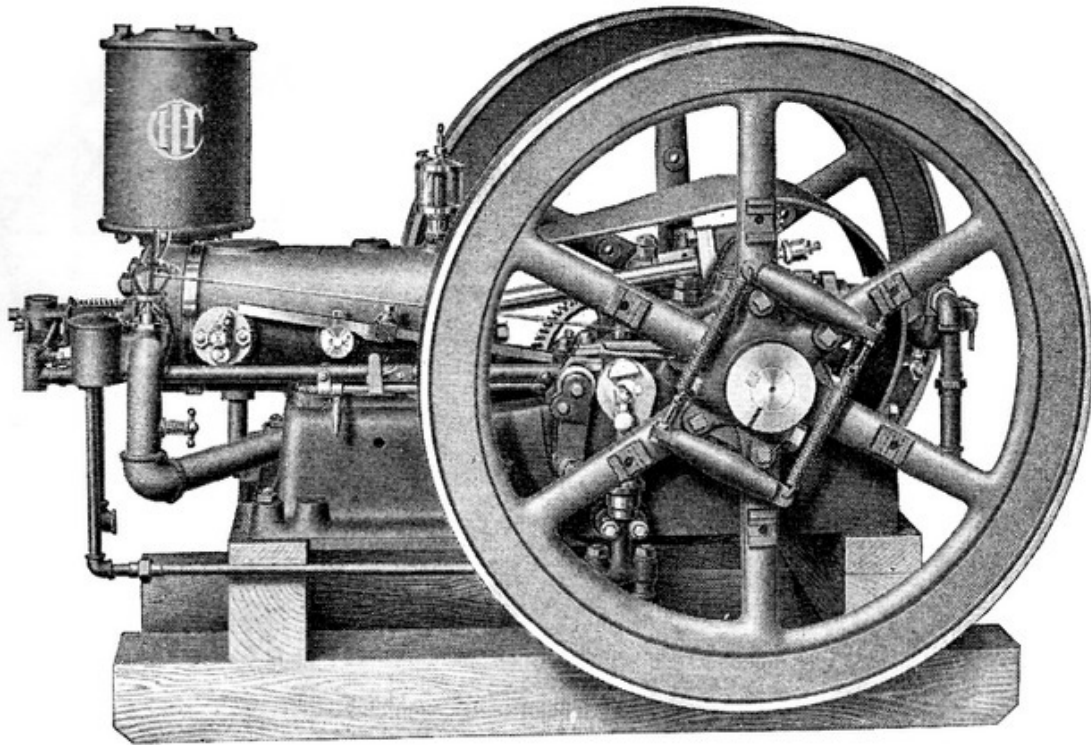
The engine is the same as the I H C Victor horizontal hopper-cooled engine, except that the engine is shipped without sub-base, and mounted on temporary shipping skids. They are regularly fitted for operating on gasoline, distillate, or naphtha, but on special order can be equipped to operate on kerosene, or alcohol, also on gas except the 2½-H. P. size.

EQUIPMENT.—I H C Famous Hopper-cooled Mounting engines are equipped complete—for running—with the following accessories: One regular size pulley, one square galvanized gasoline tank, one muffler, one battery box with batteries, spark coil, switch, and wire, oil can, oil and necessary tools.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, special mixers, magnets, etc., can be furnished on special order, see pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed-Changing Device	Regular Pulley		Fly-Wheel		Capacity of Hopper Gallons	Capacity of Fuel Tank Gallons	Base Measures Inches		Approximate Shipping Weight, Pounds
			Diameter Inches	Face Inches	Diameter Inches	Face Inches			Width of Frame	Length of Frame	
2½	500	550	5	5½	22	2¼	3½	3	11	27¾	610
4	400	480	12	8¾	33	2½	6	7	15¼	33⅝	1235
6	325	390	16	12¼	40½	2½	12	15	17	40¼	1670
8	310	370	18	10¼	45	3	16	20	20	43¾	2265

I H C Famous Tank-Cooled Mounting Engines



I H C Famous Tank-Cooled Mounting Engine on Shipping Skids

I H C Famous tank-cooled mounting engines fill the requirements of those who desire an engine which can be readily converted into a portable outfit. These engines are shipped mounted on temporary shipping skids, and can be used either as stationary engines or mounted on farm trucks, bobsleds, etc. They are especially adapted for use with saw rigs, concrete mixers, well drills, portable pumps, and the like, as they can be mounted on trucks with the machine to form a compact self-contained plant that can be hauled anywhere.

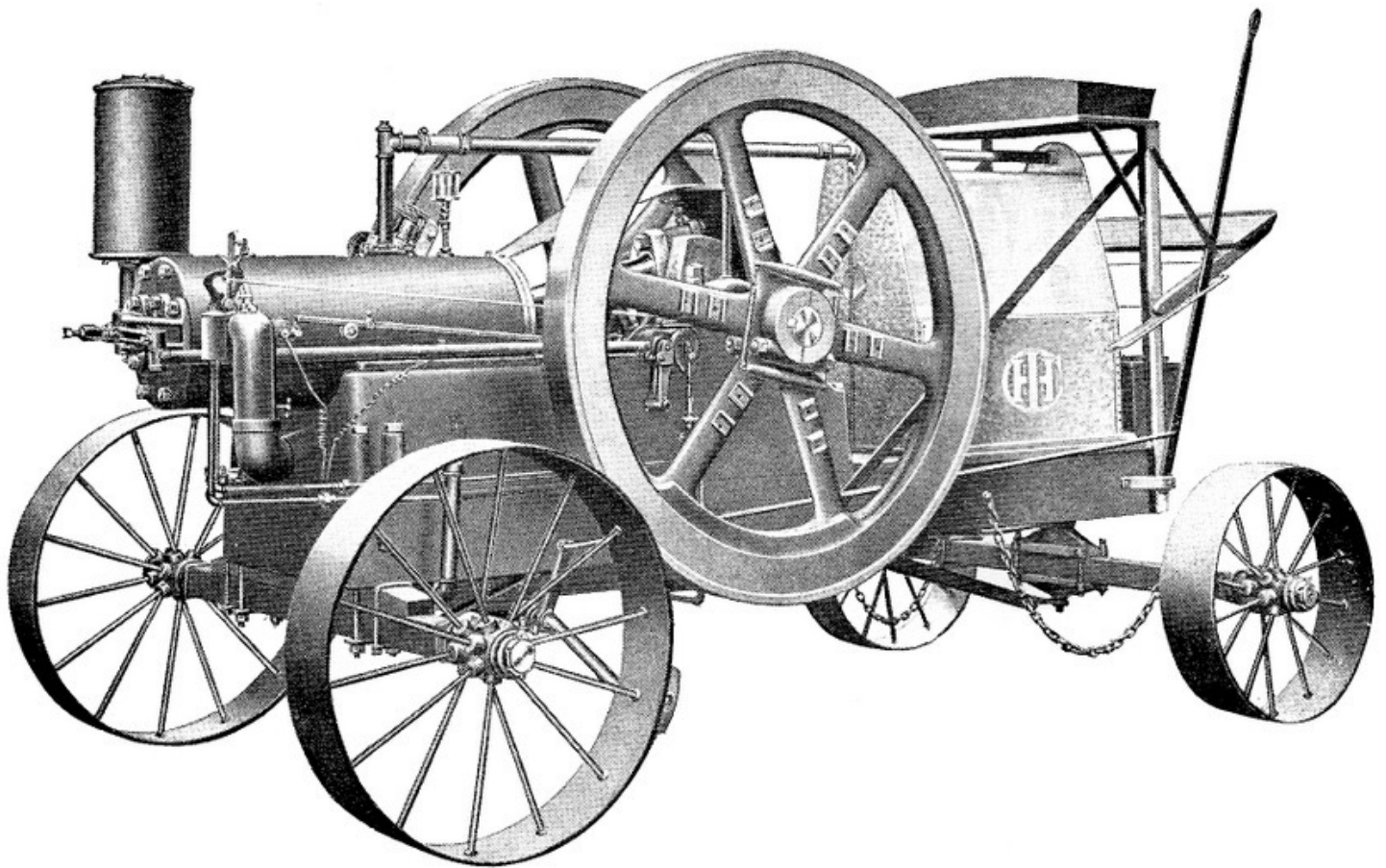
CONSTRUCTION.—These engines are the same as the I H C Victor engines, except that they are shipped without sub-base and mounted on temporary shipping skids. They are regularly fitted for operating on gasoline, distillate, or naphtha, but can be equipped for operating on gas, kerosene, or alcohol on special order. They are designed for long, continuous service, and will deliver more than their rated horse power. These engines are especially recommended for hard service, and for all work where continuous power is required.

EQUIPMENT.—I H C Famous tank-cooled mounting engines are equipped complete for running, with the following accessories: One regular size pulley, one square galvanized gasoline tank, one galvanized steel water cooling tank, muffler, battery box with batteries, spark coil, switch, wire, oil can, oil, and necessary tools.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, magnetos, auto sparker, special mixers, etc., can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Chg. Device	Regular Pulley		Fly Wheel		Capacity Fuel Tank Gallons	Base Measure, In.		Height Inches	Weight
			Dia. In.	Face In.	Dia. In.	Face In.		Width of Frame	Length of Frame		
4	400	480	12	8 ³ / ₈	33	2 ¹ / ₂	12	15 ¹ / ₄	33 ⁵ / ₈	33 ¹ / ₂	Owing to variation in the equipment of Famous engines for mounting by purchasers, accurate weights cannot be given. Approximate weights may be obtained by referring to the tables covering similar size Victor engines.
6	325	390	16	12 ¹ / ₄	40 ¹ / ₂	2 ¹ / ₂	12	17	40 ¹ / ₄	40 ³ / ₄	
8	310	370	18	10 ¹ / ₄	45	3	15	20	43 ³ / ₄	45 ¹ / ₄	
10	300	360	20	10 ¹ / ₄	49 ¹ / ₂	3	15	20	46 ¹ / ₄	49 ³ / ₄	
12	300	360	24	14 ¹ / ₄	54	3	15	21 ³ / ₄	51 ³ / ₄	54 ¹ / ₄	
15	250	275	26	12 ¹ / ₄	63	3	40	23 ¹ / ₄	61 ⁷ / ₈	63	
20	240	270	28	16 ¹ / ₄	60	3 ³ / ₄	42	25 ¹ / ₂	64 ¹ / ₂	64	

I H C Horizontal Tank-Cooled Portable Engines



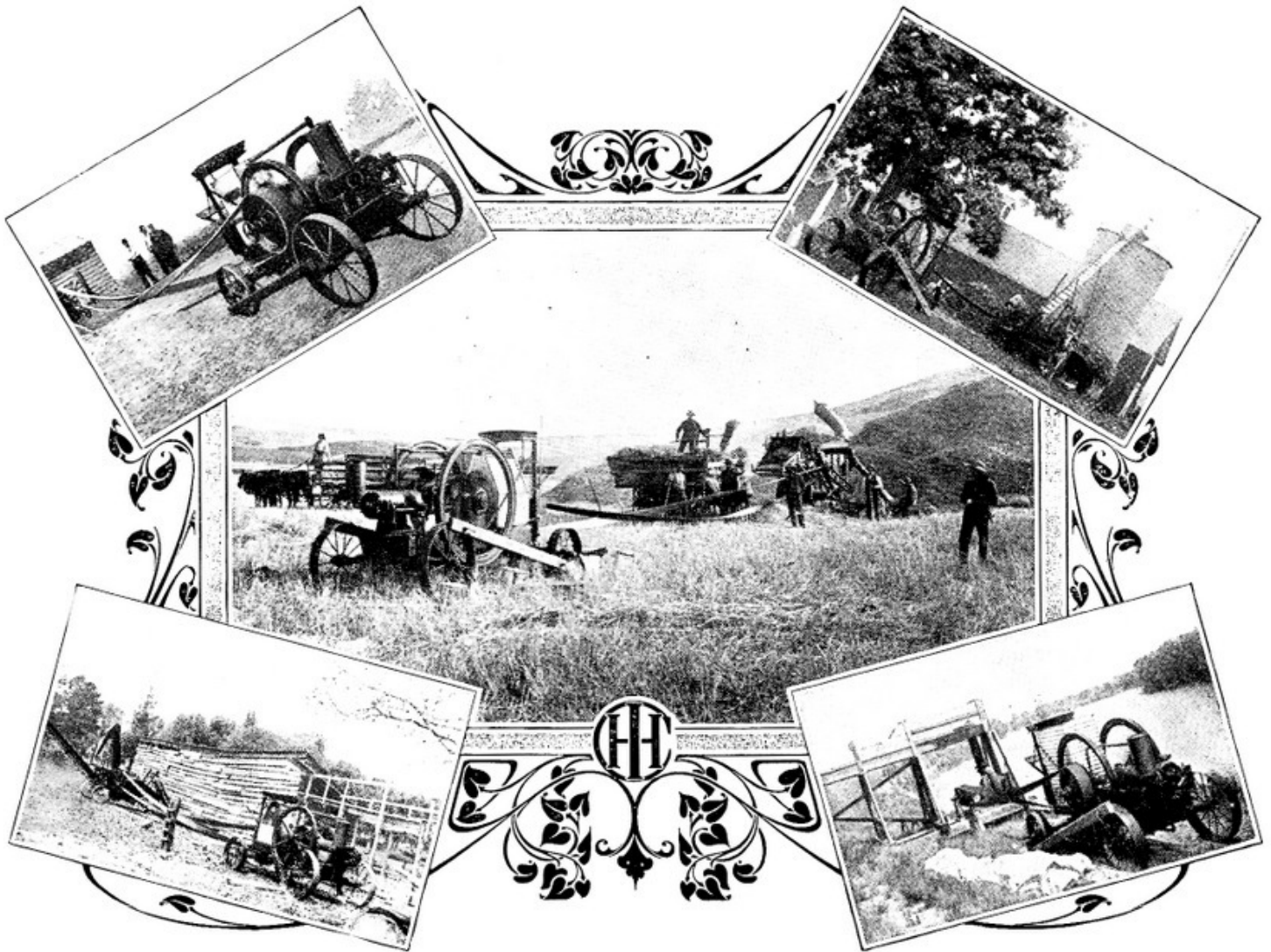
I H C Horizontal Tank-Cooled Portable Engines

I H C Horizontal tank-cooled portable engines have a wide range of adaptability. They meet the demand of farmers and contractors who desire reliable power which can be easily transferred from place to place. They furnish the most efficient and economical power for operating threshers, huskers and shredders, shellers, silage cutters, pumps, saws, and other farm machines. They are especially desirable for threshing and for use around strawstacks as there is no danger from fire. Contractors find them excellent outfits for well drilling, stone crushing, pumping water out of sewers and low lands, for operating temporary electric light plants and other work requiring an engine which can be readily moved from one place to another as desired.

ENGINE.—The engine is the I H C Famous tank-cooled mounting engine. This engine is especially adapted for portable work and will give the most economical and reliable power under all conditions of service. It is regularly equipped to operate on gasoline, distillate, or naphtha, but on special order can be fitted to operate on gas, kerosene or alcohol. This engine is regularly equipped with the I H C speed changing device which enables the operator to vary the speed about 20 per cent. while the engine is running. The belt pulley can be bolted to either fly-wheel, which is a very desirable feature in this type of engine. A friction clutch pulley is regularly furnished with this engine which makes it possible to start gradually without jerking or jarring the machine which is being driven. An auto sparker dynamo is also part of equipment. It is securely mounted on a special bracket on the frame where it is out of the way.

TRUCKS.—These engines are mounted on specially constructed steel trucks which are light, but at the same time strong and rigid enough to stand up under the jarring and jolting resulting from being hauled over the rough roads. The axles are solid bars of steel turned to size at the ends to form bearings for the wheels. The wheels are steel with the exception of the hubs, which are high grade castings.

I H C GASOLINE ENGINES

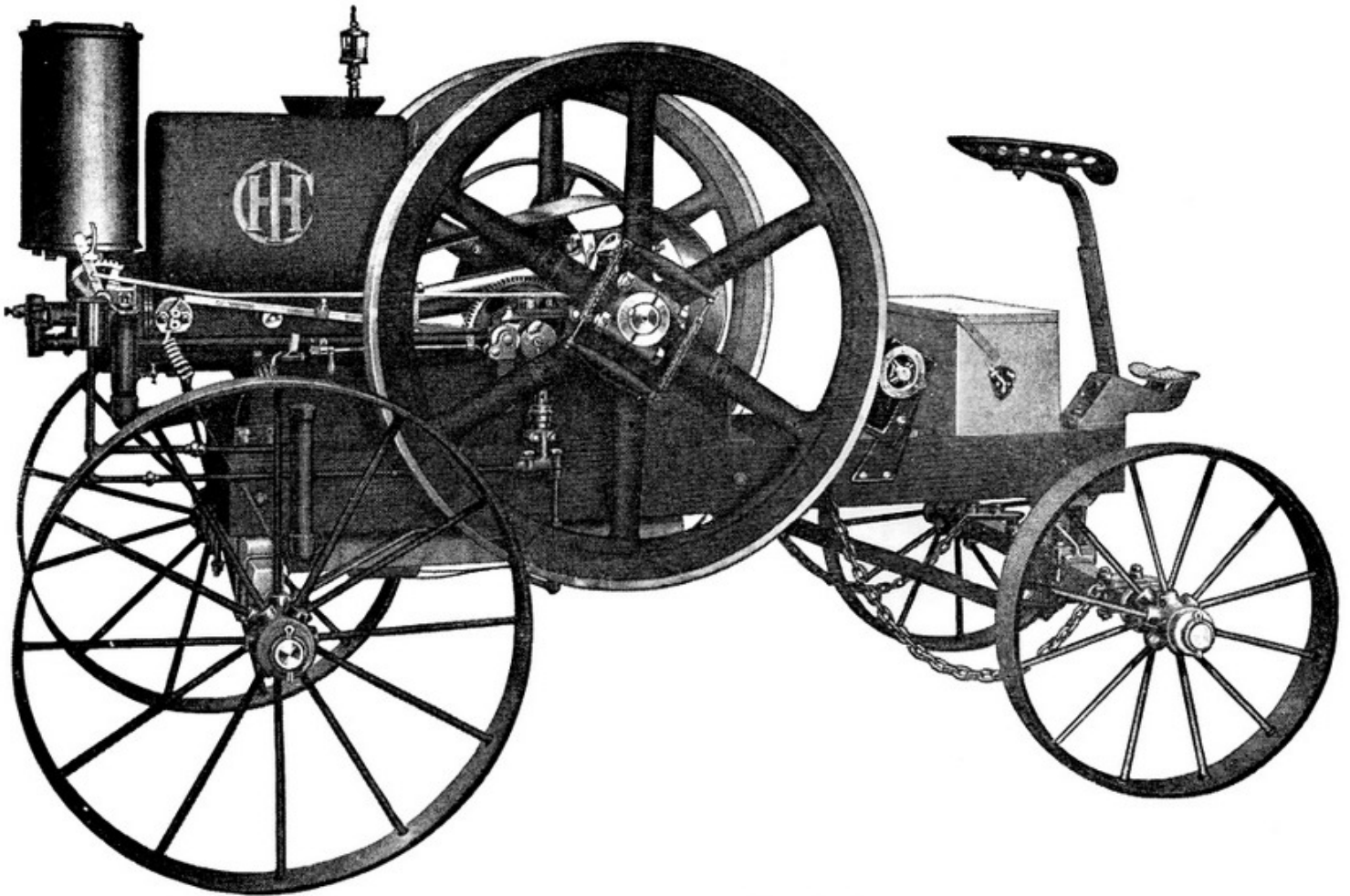


EQUIPMENT.—I H C tank-cooled portable engines are completely equipped ready to run with the following accessories: One galvanized cooling tank, one galvanized gasoline tank, exhaust muffler, friction clutch pulley, auto sparker, battery box, batteries, spark coil, switch, necessary tools, oil can, oil, doubletrees, pole, neck yoke and wheel braces. A brake is regularly furnished with all 20 and 25-H. P. portable engines and can be furnished as an extra on special order for all other sizes. Wheels with 8-inch face can be furnished on special order for the 20-H. P. portable engine truck. These wheels cannot, however, be furnished for engines in the field.

SPECIAL ACCESSORIES.—Special size pulleys, magneto, special mixers, etc., can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Change Device	Regular Friction Clutch Pulley		Fly Wheel		Capacity Fuel Tank Gallons	Tread Inches	Size Truck Wheels Inches		Height Inches	Approximate Shipping Weight Pounds
			Diameter Inches	Face Inches	Diameter Inches	Face Inches			Front	Rear		
4	400	480	20	6½	33	2½	7	44	24 x 3½	28 x 3½	64½	1993
6	325	390	24	6½	40½	2½	15	46	26 x 3½	34 x 3½	67½	2588
8	310	370	26	6½	45	3	20	49⅞	30 x 4	30 x 4	76½	3413
10	300	360	28	7½	49½	3	20	49⅞	30 x 4	38 x 4	76½	3773
12	300	360	30	9½	54	3	30	57⅞	30 x 6	38 x 6	77½	4558
15	250	275	36	9½	63	3	40	57⅞	30 x 6	38 x 6	77½	5733
20	240	270	40	10½	60	3¾	42	68	30 x 6	38 x 6	77½	6755
25	240	270	40	10½	60	4½	42	68½	30 x 8	38 x 8	78	8845

I H C Horizontal Hopper-Cooled Portable Engines



I H C Horizontal Hopper-Cooled Portable Engine

I H C hopper-cooled portable engines are particularly desirable for portable work. The absence of the cooling tank makes them more compact, lighter, and simpler than the tank-cooled outfits. The engine is the I H C Famous hopper-cooled mounting engine, equipped to operate on gasoline, distillate, or naphtha. On special order they can be fitted to operate on gas, kerosene, or alcohol. These engines embody many desirable features, including the I H C speed changing device, auto sparker, and friction clutch pulley which can be bolted to either fly wheel.

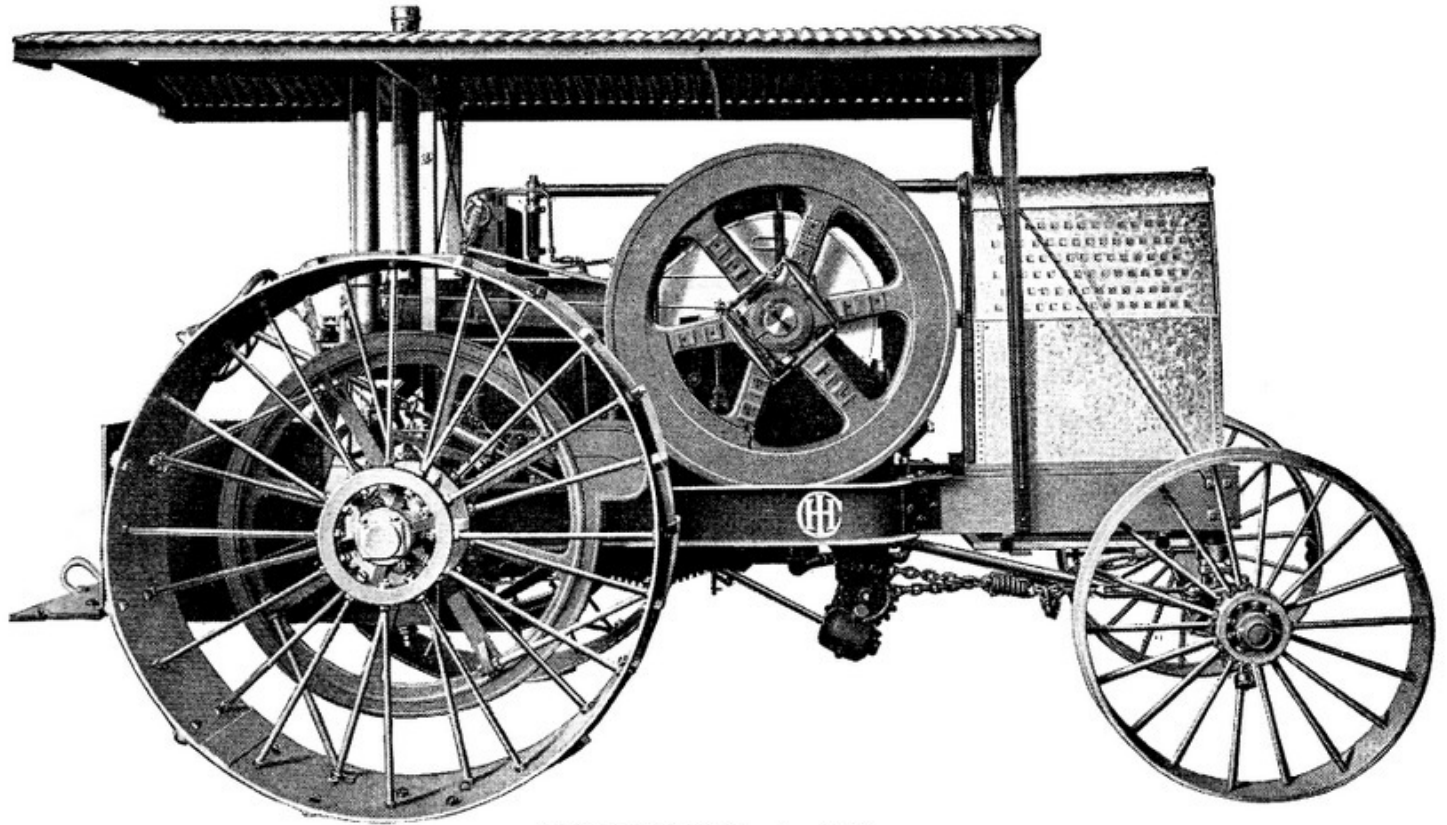
The trucks are especially designed for this service, and will stand the wear and tear of the roughest roads. They are light, but exceptionally strong and well made, being constructed almost entirely of steel.

EQUIPMENT.—I H C hopper-cooled portable engines are completely equipped for running, with the following accessories: One galvanized gasoline tank, exhaust muffler, friction clutch pulley, auto sparker, battery box, batteries, spark coil switch, necessary tools, oil can, oil, doubletrees, pole, neckyoke, and wheel braces.

SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, special mixers, etc., can be furnished on special order. See pages 54 to 58.

H. P.	Speed R. P. M.	Max. R. P. M. with Speed Chg. Device	Regular Friction Clutch Pulley		Fly Wheel		Capacity Fuel Tank Gallons	Capacity Hopper Gallons	Tread Inches	Size of Truck Wheels, Inches		Height Inches	Approximate Shipping Weight, Pounds
			Dia. In.	Face In.	Dia. In.	Face In.				Front	Rear		
4	400	480	20	6½	33	2½	12	6	44	24x3½	28x3½	47 ¼	1988
6	325	390	24	6½	40½	2½	15	12	46	26x3½	34x3½	56 11/16	2578
8	310	370	26	6½	45	3	20	16	49¾	30x4	38x4	62 7/8	3418

I H C Gasoline and Kerosene Traction Engines



I H C 20-H. P. Traction Engine

I H C gasoline and kerosene tractors are proving a profitable investment to those farmers who, keeping pace with 20th century advancement, are replacing the expensive and inefficient animal power by the more modern, more efficient, cheaper mechanical power. The horse and the ox, for plowing, have each seen their day, and the man behind the plow is entering a new era of progress.

I H C gasoline and kerosene tractors have proved to be the most economical and satisfactory for plowing, disking, and harrowing, harvesting, hauling loads, and also for delivering power from the belt to operate threshers, shellers, shredders, and many other large machines. Contractors have also found them the most economical and efficient power for road grading, hauling, operating stone crushers, large concrete mixers, etc. The reasons for this superiority are not hard to find. The engine — the power plant — is the well-known I H C engine, thousands of which are in use throughout the country. It is noted for its remarkably low fuel consumption. The truck is very substantial, and the power transmission, though simple, is extremely efficient.

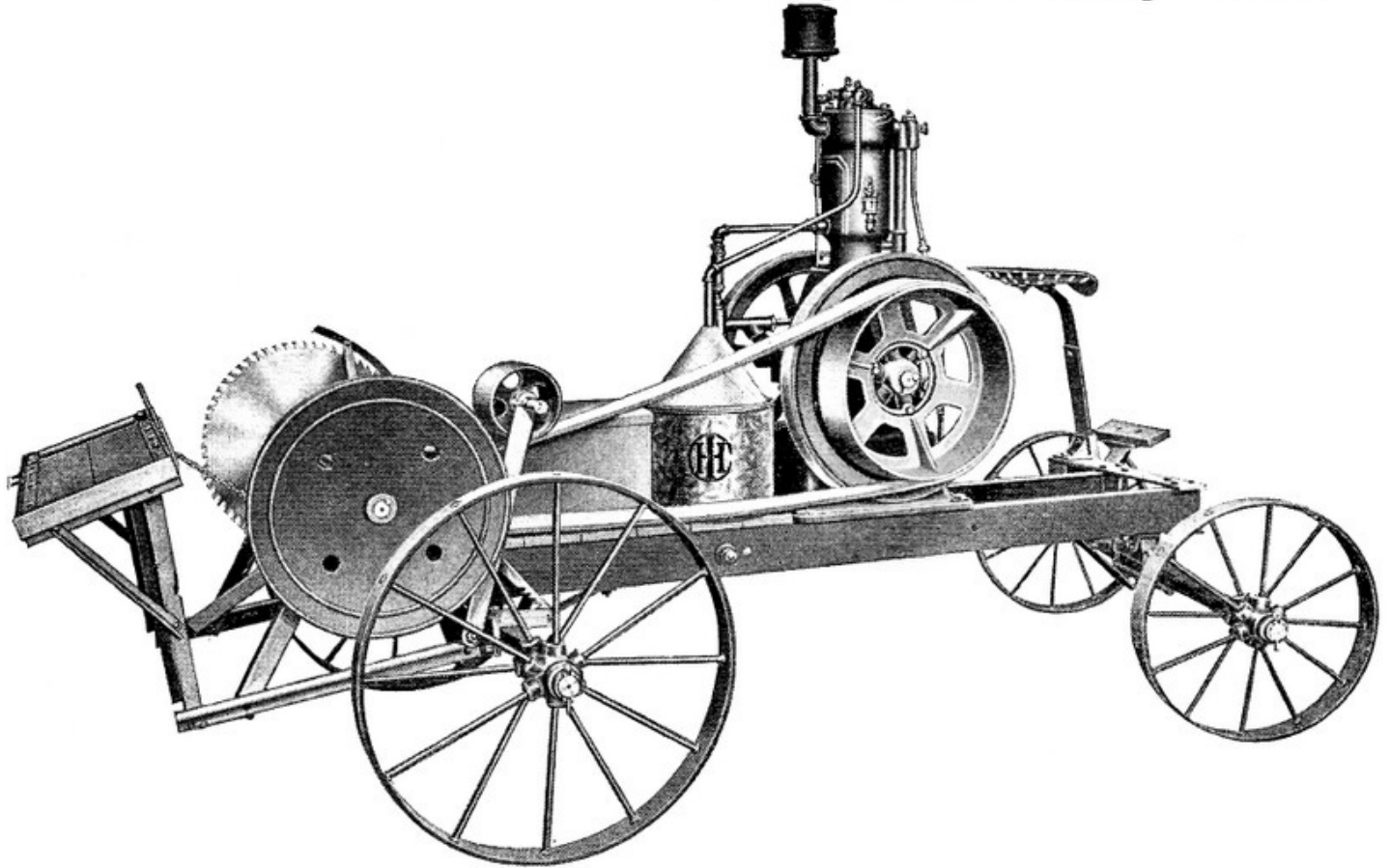
But the most important point, and the one which determines the real value of a tractor, is reliability. If a tractor gives trouble during the plowing season, valuable time is lost which cannot be made up and it represents a substantial money loss. I H C gasoline and kerosene tractors were designed by men whose long success in designing farm machinery has given them an insight into every condition of farm service. They knew the importance of reliability, and the result is that I H C tractors are capable of withstanding the wear and tear of the hardest service, and are equal to working 24 hours a day, every day in the week, if necessary.

The absence of all unnecessary and complicated parts on I H C tractors eliminates to a great extent the possibility of their getting out of order, and makes it easier for an inexperienced operator to become familiar with them.

These tractors can be used around strawstacks, barns, etc., without danger of fire, and can be moved over soft ground that would mire heavier tractors.

They are made in several types and 12, 15, 20, 25, and 45-horse power sizes.

I H C Famous Tank-Cooled Tilting Table Sawing Outfits



I H C 3-H. P. Vertical Tank-Cooled Engine Tilting Table Sawing Outfit

The I H C 3-horse power portable saw outfit is designed for the farmer who desires to saw his own wood and possibly to do some small jobs for neighbors. Conservatively rated, this outfit will handle soft wood up to 7 or 8 inches in diameter, or hard wood up to 4 or 5 inches in diameter, at the rate of about two cords per hour, making two cuts in each four-foot stick.

The outfit consists of the I H C Famous 3-horse power, tank-cooled vertical engine mounted on a substantial steel truck equipped with a tilting table saw frame. The saw tables are made in two types—right hand with the working table on the right, and left hand with the working table on the left. In ordering, state whether right hand or left hand table is wanted. No saw is furnished with this outfit, unless it is specially ordered, at an extra cost.

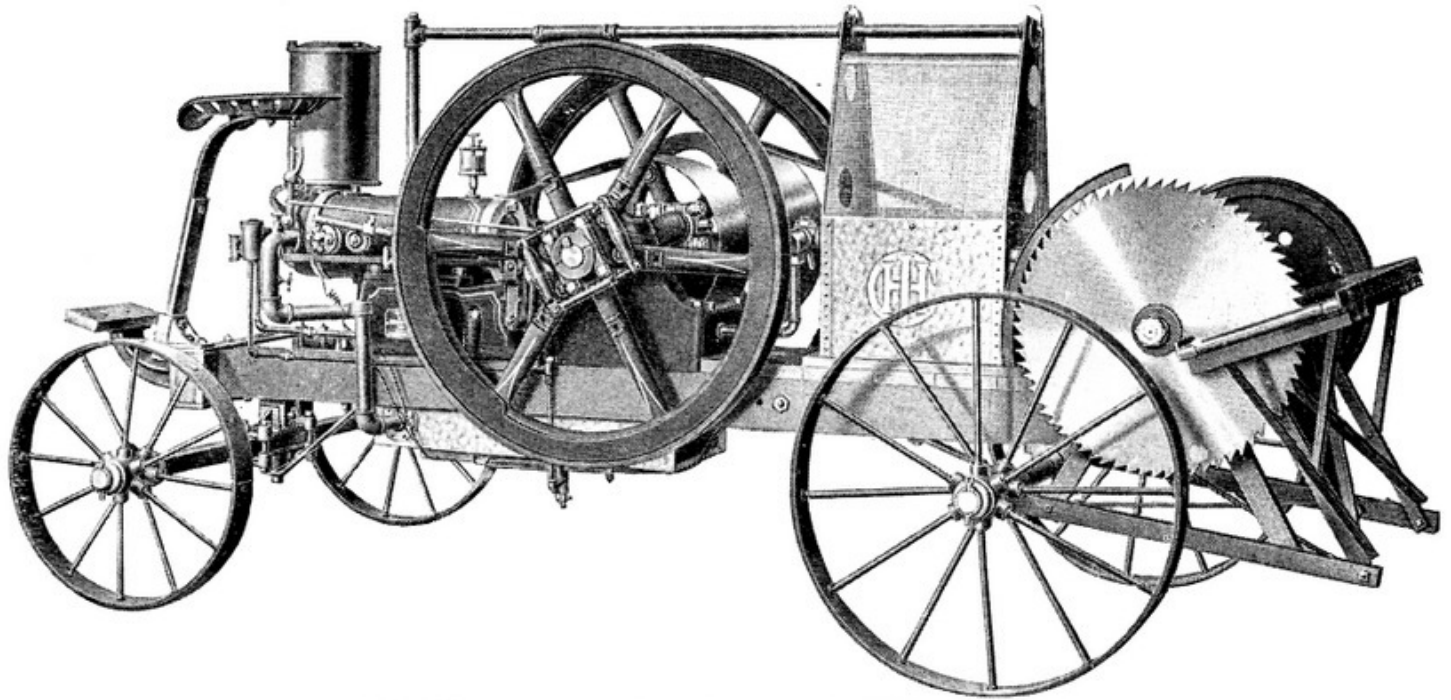
The engine can also be used as a portable engine or can be dismounted and used as a stationary.

EQUIPMENT.—I H C 3-horse power portable saw outfits are equipped complete with the exception of the saw, and include the following accessories: Galvanized gasoline tank, galvanized cooling tank, muffler, battery box with batteries, spark coil and switch, necessary tools, oil can, oil, belt, spring seat, pole, doubletree, and neckyoke. Brake and wheel braces can be furnished on special order.

SPECIAL ACCESSORIES.—Special sized pulleys, friction clutch pulleys, special mixers, magneto or auto sparker, etc., can be furnished on special order. See pages 54 to 58.

Engine H. P.	Speed R. P. M. of Engine	Speed R. P. M. of Saw	Size of Engine Pulley		Dia. of Saw Pulley, Inches	Saw Dia. Recom- mended, Inches	Cap. of Water Tank Gallons	Cap. of Fuel Tank Gallons	Truck Measurements Inches				Approx. Ship. Wt. Truck only Pounds	Ship. Wt. Complete Pounds	
			Dia. Inches	Face Inches					Tread	Reach	Dia. Front Wheel	Dia. Rear Wheel			Width of Tires
3	360	1370	20	5½	5¼	24	7½	3½	56½	86½	26	34	3½	1090	2075

I H C Famous Tank-Cooled Tilting Table Sawing Outfits



I H C Horizontal Tank-Cooled Engine Tilting Table Sawing Outfit

I H C 4 and 6-H. P. portable saw outfits are of ample capacity for most custom sawing. Rated conservatively the 4-H. P. outfit will handle soft wood up to 8 or 9 inches in diameter and hard wood up to about 6 inches in diameter at the rate of about 3 cords per hour. The 6-H. P. outfit will handle soft wood up to about 10 or 11 inches in diameter and hard wood up to about 7 or 8 inches in diameter at the rate of about 4 cords per hour.

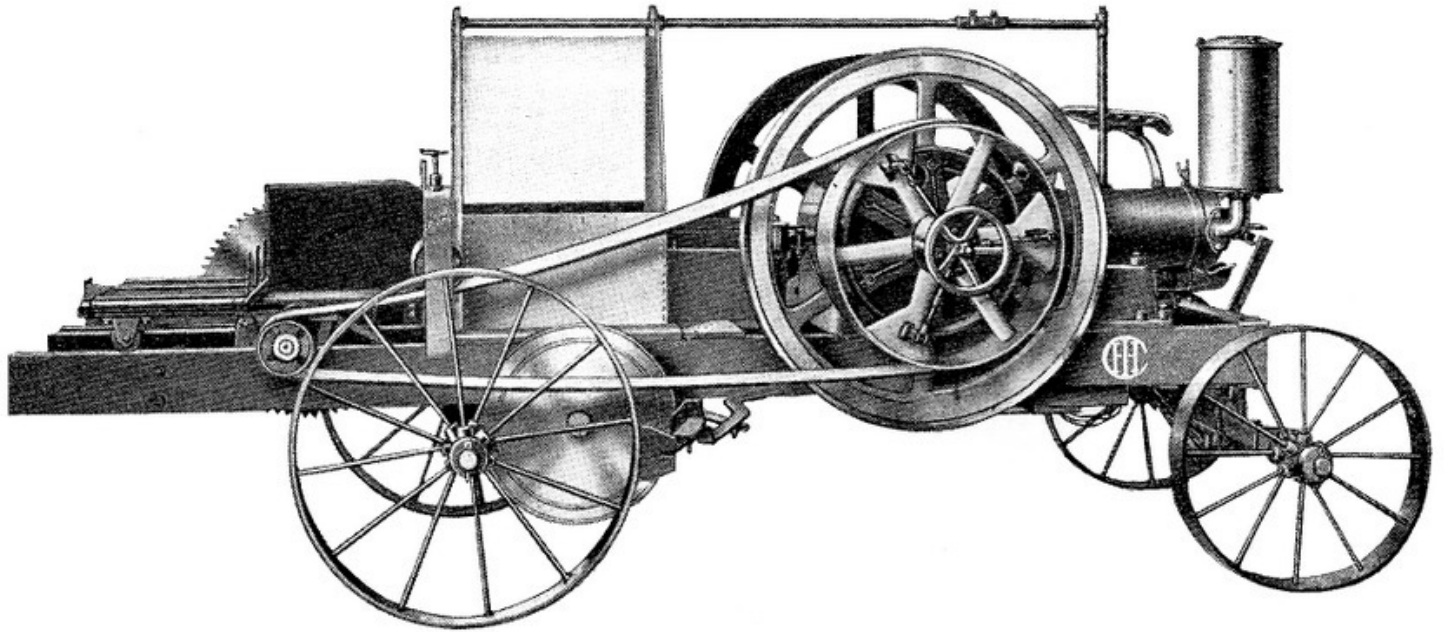
The outfit consists of the I H C Famous horizontal, tank-cooled mounting engine, mounted on a specially constructed steel truck on the rear of which is mounted the tilting table saw frame. The truck is strongly constructed and will stand the wear and tear of the roughest roads. A steel guard is placed over the saw for the safety of the operator. The saw tables are made in two types—right hand with the table on the right of the operator and left hand with the table at the left of the operator. In ordering state whether right hand or left hand table is wanted. Where not used for sawing, the engine can be used as a portable engine or it can be dismantled and used as a stationary engine by supplying skids for a base. No saw is supplied with these outfits unless ordered specially. Wheel braces and brake can be supplied on special order.

EQUIPMENT.—I H C 4 and 6-H. P. portable saw outfits are completely equipped with the exception of the saw and include the following accessories: Galvanized gasoline tank, galvanized water tank, muffler, battery box with batteries, spark coil and switch, necessary tools, oil can, oil, belt, spring seat, pole, doubletrees and neckyoke.

SPECIAL ACCESSORIES.—Wheel braces, brake, special sized pulleys, friction clutch pulleys, mag-neto or auto sparker, etc., can be furnished on special order. See pages 54 to 58.

Engine H. P.	Speed R. P. M. of Engine	Speed R. P. M. of Saw	Size of Engine Pulley		Diameter of Saw Pulley, Inches	Saw Diam- eter Recom- mended Inches	Capa- city of Water Tank, Gallons	Capa- city of Fuel Tank, Gallons	Truck Measurements Inches			Approx. Ship- ping Weight Truck Only, Pounds	Ship- ping Weight Com- plete, Pounds		
			Diam- eter Inches	Face Inches					Tread	Reach	Diam- eter Front Wheel			Diam- eter Rear Wheel	Width of Tires
4	400	1370	18	10 $\frac{1}{4}$	5 $\frac{1}{4}$	26	9	7	56 $\frac{1}{2}$	86 $\frac{1}{2}$	26	34	3 $\frac{1}{2}$	1090	2402
6	325	1360	22	10 $\frac{1}{4}$	5 $\frac{1}{4}$	28	12	15	56 $\frac{1}{2}$	86 $\frac{1}{2}$	26	34	3 $\frac{1}{2}$	1090	2803

I H C Famous Tank-Cooled Sliding Table Sawing Outfits



I H C Horizontal Tank-Cooled Engine Sliding Table Sawing Outfit

I H C 8 and 10-H. P. sliding table saw outfits are capable of handling large custom sawing. The fly wheel on this outfit is located below the table which permits the sawing of poles of any length. The engine is the I H C Famous tank-cooled mounting engine equipped with the I H C portable engine gasoline tank and friction clutch pulley. The strong point of this engine is its rating. While we always advise a customer to be sure that he is getting an engine large enough to handle his work with ease, and to meet future needs, he can be sure when buying an I H C engine that he is getting full rated power, with a generous surplus, so that should the engine be momentarily over-loaded it will not be stalled.

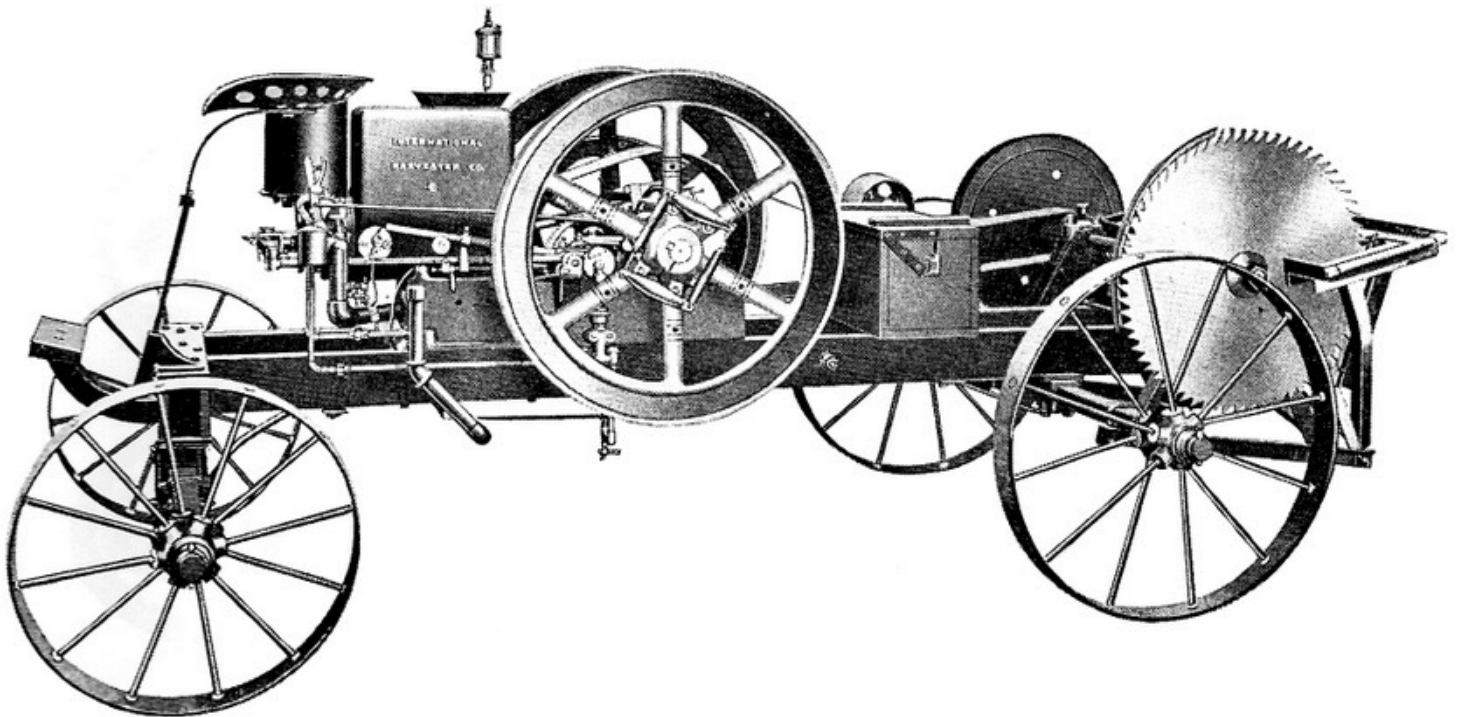
The trucks are steel, rigidly constructed to withstand the rough service of country roads. A spring seat is provided for the driver. The table is of the sliding type mounted on rollers, and is on the right of the operator. No saw is supplied with this outfit unless ordered. When not needed for sawing, the engine can be used for other work.

EQUIPMENT.—I H C 8 and 10-H. P. portable saw rigs are completely equipped, with the exception of the saw, and include the following accessories: Galvanized gasoline tank, galvanized cooling tank, muffler, friction clutch pulley, battery box with batteries, spark coil, and switch, necessary tools, oil can, can of best grade gas engine lubricating oil, belt, steel spring seat, pole, doubletrees, neckyoke and brake. Wheel braces can be furnished on special order.

SPECIAL ACCESSORIES.—Special sized pulleys and friction clutch pulleys, magneto, auto sparker, special mixers, etc., can be supplied on special order. See pages 54 to 58.

Engine H. P.	Speed R. P. M. of Engine	Speed R. P. M. of Saw	Size of Engine Pulley		Dia. of Saw Pulley, Inches	Saw Dia. Recommended Inches	Cap'y of Water Tank, Gallons	Cap'y of Fuel Tank, Gallons	Truck Measurements, Inches					Ship. Weight Truck Only, Pounds	Ship. Weight Complete, Pounds
			Dia. In.	Face In.					Tread	Reach	Dia. Front Wheel	Dia. Rear Wheel	Width of Tires		
8	310	1445	28	7½	6	28	23	20	51	162	30	38	4	1630	4007
10	300	1400	28	7½	6	28	23	20	51	162	30	38	4	1630	4290

I H C Famous Hopper-Cooled Sawing Outfits



I H C Famous Horizontal Hopper-Cooled Tilting Table Sawing Outfit

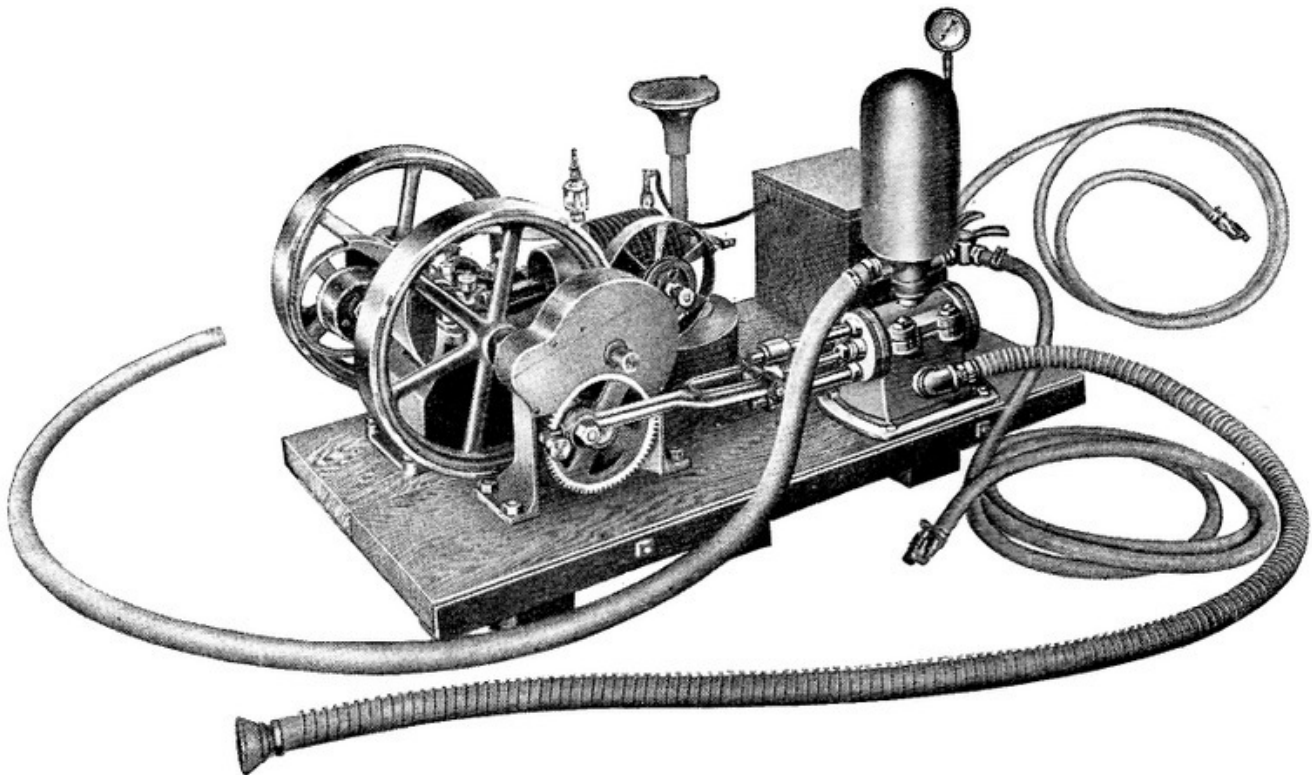
I H C Famous hopper-cooled saw rigs have many advantages for this work. They are not so liable to be injured by freezing and are more easily drained than other engines. Their lighter weight and low center of gravity make them especially desirable for hilly country. They do about the same amount of work as the same size tank-cooled outfits. The outfits consist of the I H C Famous hopper-cooled mounting engines mounted on especially constructed steel trucks which are amply strong to withstand the rough service of country roads. The 4 and 6-H. P. saw table is of the tilting table type and is equipped with a steel guard to protect the operator. The saw table is made in two styles—right hand with the table on the right, and left hand with the table on the left. In ordering please state which is wanted. The 8-H. P. size is equipped with a sliding saw table, right hand style only, with the fly wheel underneath out of the way. No saw is furnished with these outfits unless ordered extra. When not needed for sawing, the engine can be used for other work.

EQUIPMENT.—I H C Famous hopper-cooled saw outfits are completely equipped, with the exception of the saw, with the following accessories: Galvanized gasoline tank, muffler, battery box with batteries, spark coil, and switch, oil can, can of best gas engine lubricating oil, belt, steel spring seat, doubletrees, pole, and neckyoke. Brake regular on 8-H. P. size, special on other sizes.

SPECIAL ACCESSORIES.—Special sized pulleys, friction clutch pulleys, magneto, auto sparker, special mixers, wheel braces, etc., can be supplied on special order. See pages 54 to 58.

H. P.	Speed R. P. M. of Engine	Speed R. P. M. of Saw	Regular Size of Engine Pulley		Dia. of Saw Pulley, Inches	Dia. of Saw Recom- mended, Inches	Cap'city of Hopper, Gallons	Cap'city Fuel Tank, Gallons	Truck Measurements Inches					Approx. Shipping Weight Pounds
			Dia. Inches	Face Inches					Tread	Reach	Dia. front Wheel	Dia. Rear Wheel	Width Tires	
4	400	1370	18	10¼	5¼	26	6	7	56½	86½	26	34	3½	2325
6	325	1360	22	10¼	5¼	28	12	15	56½	86½	26	34	3½	2760
8	310	1445	28	7½	6	28	16	20	51	162	30	38	4	3895

I H C Famous Air-Cooled Spraying Outfits



Famous 1-Horse Power Spraying Outfit Mounted on Platform

This outfit is suitable for spraying medium-size orchards, vineyards, fields, etc. The engine is the I H C Famous air-cooled 1-horse power Tom Thumb and is particularly adapted for spraying orchards where the ground is soft or sandy, as the engine is light and requires no cooling tank.

The pump is a Myers' Jr., gear drive, Pitman power pump, geared direct to the engine. The gear studs are case-hardened and ground. The crank gear is fitted with bronze bushings and supplied with a grease cup. The pump has a 2-inch brass-lined cylinder, 5-inch stroke, ground brass valve seats, and brass valves. Either of the valves can be removed without disturbing the other. The outfit is mounted on a substantial wood platform 45½ inches long and can be placed on a wagon or truck for hauling through the orchard. When not used for spraying, the engine can be easily disconnected from the pump and used for other work.

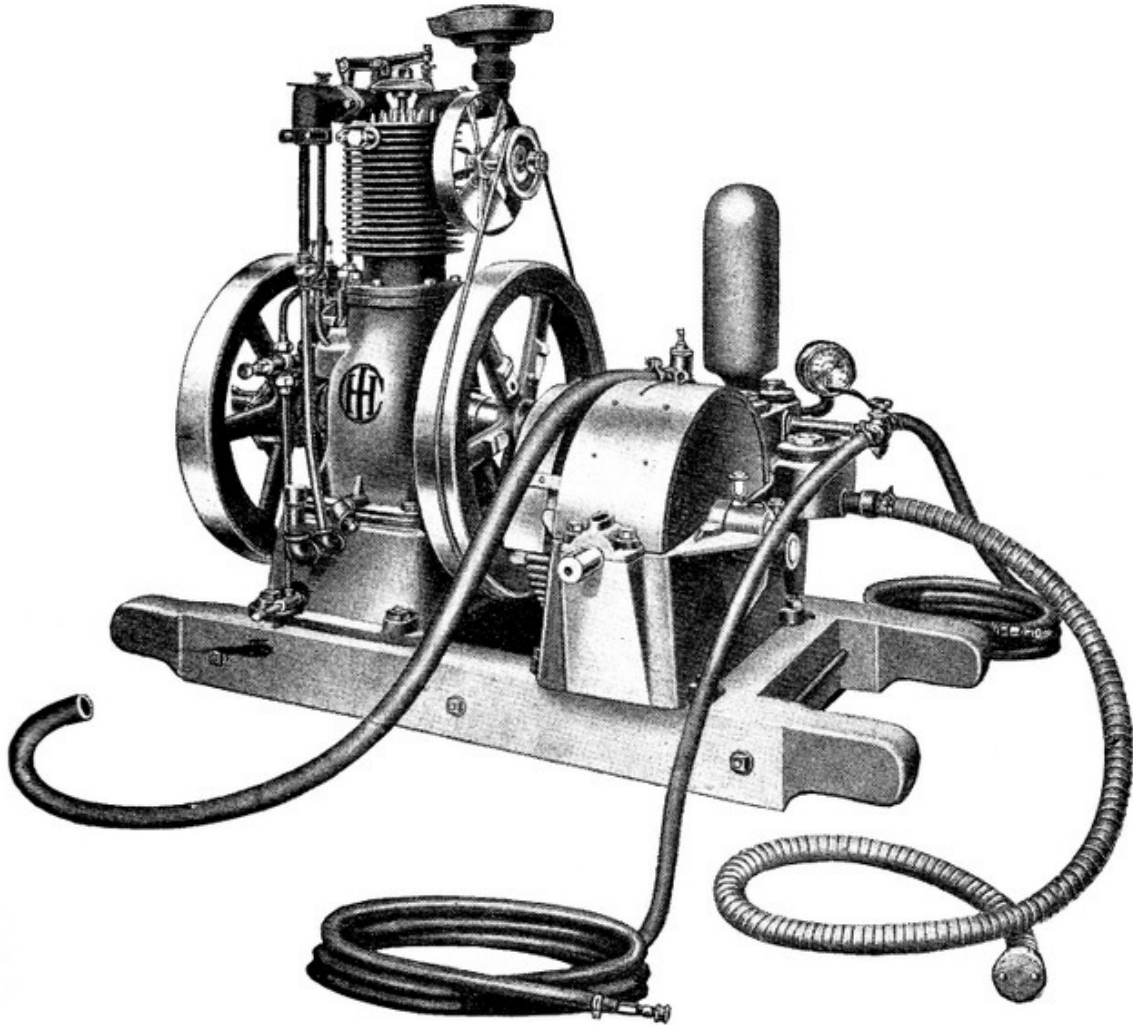
EQUIPMENT.—I H C 1-horse power spray outfits are equipped with the following accessories: Galvanized gasoline tank, reducing gear, and 4-inch pulley for running cream separators, battery box with batteries, spark coil, switch, spark plug, necessary tools, oil can, oil, 8 feet of suction hose with strainer and pressure gauge, one 25 foot discharge hose, and an 8 foot overflow hose, relief valve, and 2 Vermorel nozzles.

It is equipped to operate on gasoline, naphtha or distillate.

SPECIAL ACCESSORIES.—A 6-inch pulley with a 2½ or 5-inch face or a 4x2½-inch or 5-inch face pulley can be furnished on special order, also a magneto. See page 57.

Engine H. P.	Engine				Spray Pump					Mounting		Height Over All In.	Shipping Weight Complete, Pounds	
	Speed Revolutions per Minute	Size of Pulley, In.		Dia. of Fly Wheels Inches	Cap'y of Fuel Tank, Gallons	Name	Speed Revolutions per Minute	Dia. of Cylinder inches	Stroke Inches	Cap'y of Pump Gallons Per Minute	Length of Skids Inches			Width of Outfits Inches
1	600	...	...	15½	¾	Myers & Bros. 313 A	49	2	5	6.6	45¼	28½	30½	485

I H C Famous Air-Cooled Spraying Outfits



I H C 2-H. P. Famous Air-Cooled Spraying Outfit

The I H C 2-H. P. air-cooled spray outfit is of ample capacity for large work.

The power is furnished by the I H C Famous 2-H. P. air-cooled engine mounted on substantial skids and geared direct to the pump. The gasoline pump on the engine is furnished with a brass plunger to avoid corrosion from the spray mixture.

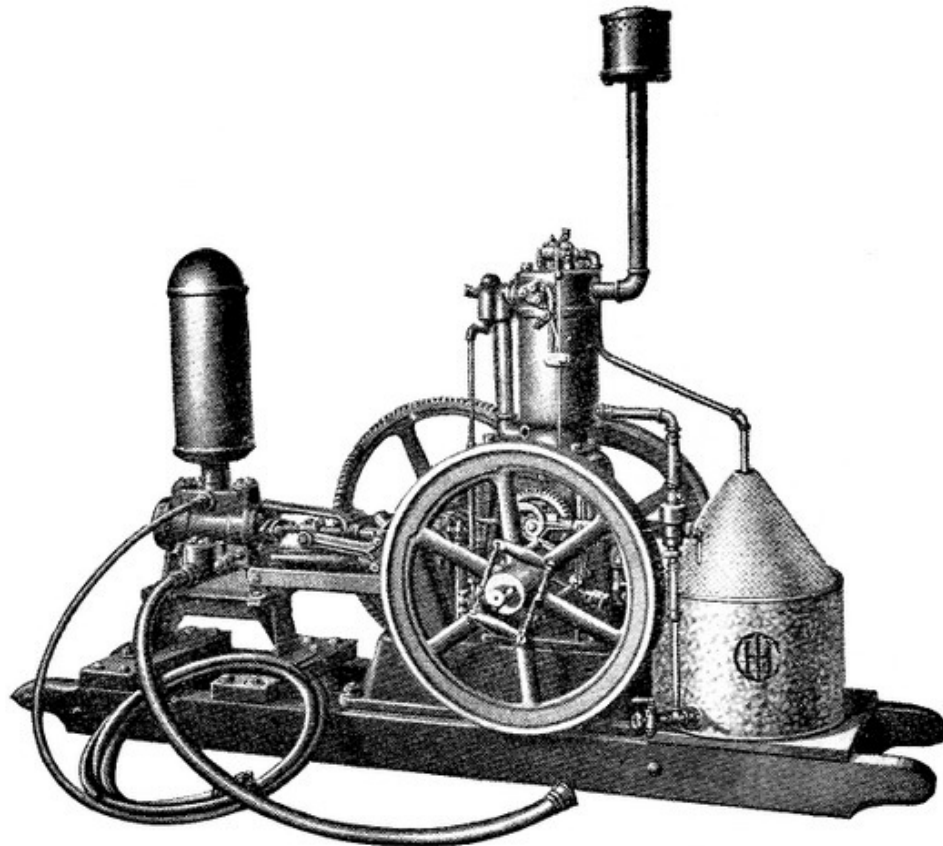
The pump is a Lucas power spray pump with a 2½-inch cylinder and a 5-inch stroke. The cylinder is brass lined and removable. The valves and valve seats are brass and so set that they wash themselves, thus clogging is eliminated. The valve guide studs and nuts are so designed that they are not affected by the corroding action of the spray fluid. When not needed for spraying, the engine can be used for other work.

EQUIPMENT.—This outfit includes the following accessories: Galvanized gasoline tank, battery box, batteries, spark coil switch, necessary tools, oil can, oil, 8 feet of suction hose with strainer, pressure gauge, relief valve, 8 foot overflow hose, 25 feet of discharge hose, 2 Vermorel nozzles, 3-way cock and necessary fittings to connect hose to pump.

SPECIAL ACCESSORIES.—Pulleys, can be supplied on special order. See page 58.

Engine				Spray Pump					Mounting		Height Over All, In.	Shipping Weight Complete, Pounds
H. P.	Speed Revolutions Per Minute	Dia. of Fly Wheels Inches	Cap'ty of Fuel Tank, Gals.	Name	Speed Revolutions Per Minute	Dia. of Cyl. Inches	Stroke Inches	Cap'ty of Pump Gals. per Minute	Length of Skids Inches	Width of Skids Inches		
2	650	17½	1¾	Lucas, The Alert No. 2	40½	2½	5	8½	43¾	39	38¼	635

I H C Famous Tank-Cooled Spraying Outfit



I H C 2-H. P. Tank-Cooled Spraying Outfit

I H C 2-H. P. tank-cooled spray outfits are adapted for large orchards, etc., and are very desirable for all around work. The engine is the I H C Famous vertical tank-cooled engine, with gearing for direct connecting to Myers' Century spray pump, Fig. No. 439-A or a Gould spray pump Fig. No. 1509. The pump is not included with the outfit but can be shipped with the engine on special order or secured direct from the manufacturers by the purchaser. This outfit is economical and thoroughly reliable in every respect and will give better service and more power than the lighter weight engines of similar rating. The gasoline pump is furnished with a brass plunger to avoid corrosion from the spray mixture.

When not needed for spraying, this engine can be used to good advantage for the many other jobs around the farm.

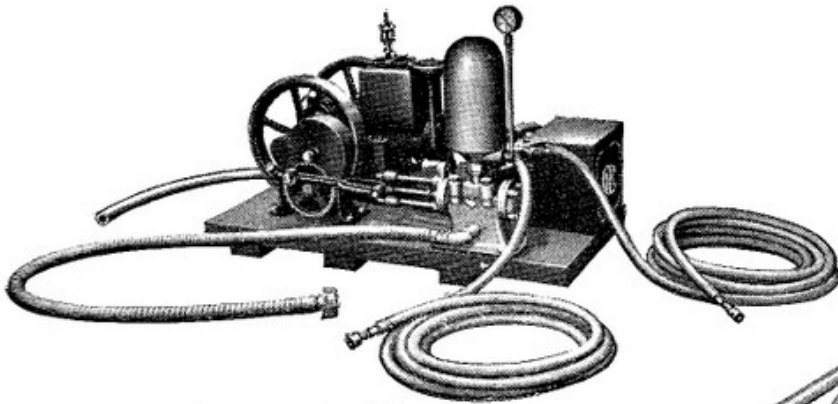
EQUIPMENT.—I H C 2-H. P. tank-cooled spray engine includes the engine only, mounted on skids with the necessary gearing and the following accessories: Galvanized gasoline tank, galvanized cooling tank, muffler, pulley, battery box with batteries, spark coil, switch, necessary tools, oil can, and oil. When pump is shipped the following accessories are also furnished: 8 ft. suction hose, pressure gauge, relief valve, 8 ft. overflow hose, and 25 ft. discharge hose with Vermorel nozzle.

SPECIAL ACCESSORIES.—Special sized pulleys, friction clutch pulleys, special mixers, etc., can be furnished on special order. See pages 54 to 58.

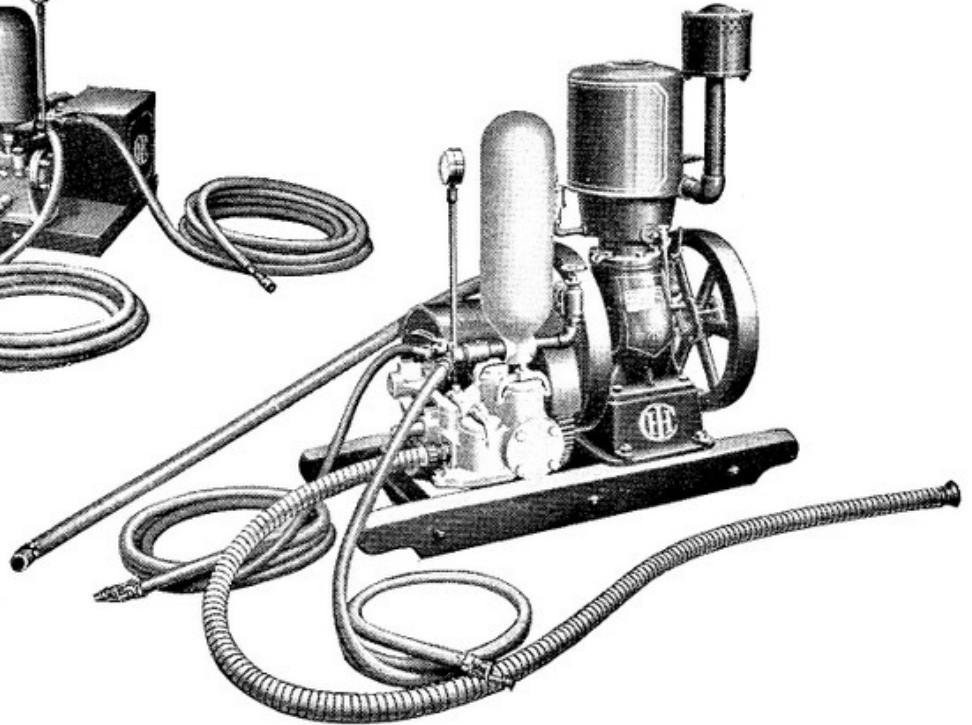
Engine					Spray Pump					Mounting		Height over all, inches	Shipping Weight Complete, with Batteries, Pounds	
H. P.	Speed Revolutions Per Minute	Size of Pulley Inches		Dia. of Fly Wheels Inches	Capacity of Fuel Tank Gallons	Name	Speed Revolutions Per Minute	Dia. of Cylinder Inches	Stroke Inches	Cap. of Pump Gals. per Minute	Length of Skids, Inches			Width of Skids, Inches
		Diam.	Face											
2	400	8	5	24	3¾	Goulds, Fig. No. 1509, or Myers & Bros., 439A . . .	48½	2½	5	10	87¾	28½	48	*1080 †1277

* Without Pump. † With Pump.

I H C Famous Hopper-Cooled Spraying Outfits



I H C 1-H. P. Hopper-Cooled Spraying Outfit



I H C 2-H. P. Hopper-Cooled Spraying Outfit

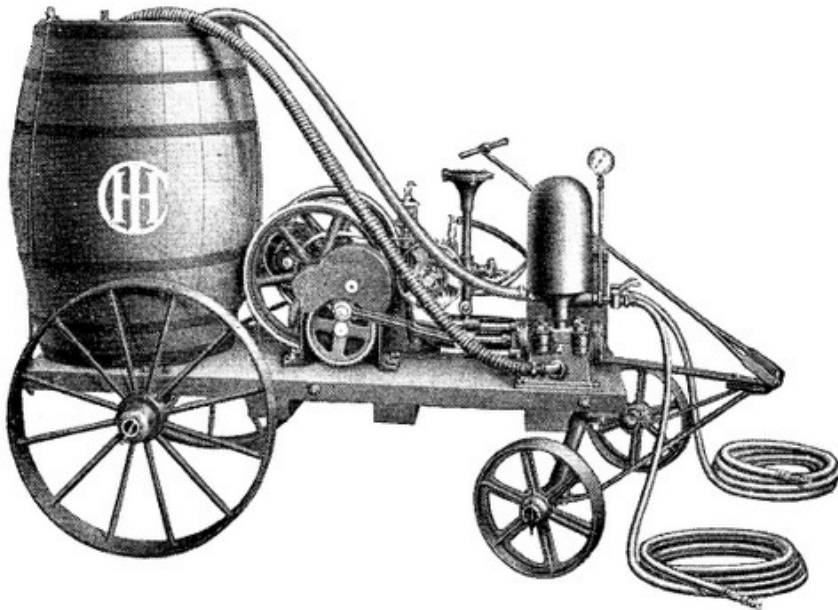
I H C hopper-cooled spray outfits are made in 1 and 2-H. P. sizes. These outfits are lighter and more compact than tank-cooled outfits on account of the hopper cooling features and are especially desirable for use in the winter, and in orchards where the ground is soft or sandy. The engine is the I H C Famous hopper-cooled engine mounted on special skids and geared direct to the pump. These engines are economical and reliable under all conditions and will give most satisfactory service. The gasoline pump is equipped with a brass plunger to prevent corrosion from the spray solution. The pumps are built for high pressure and designed especially for spraying and are equipped with brass lined cylinders and brass valves to prevent corrosion. When not needed for spraying, these engines can be easily disconnected from the pump and used to good advantage for other work around the farm.

EQUIPMENT.—This outfit includes the engine and pump with the following accessories: Galvanized gasoline tank, muffler, battery box, batteries, spark coil, switch, necessary tools, oil can, oil, 8 feet of suction hose with strainer, pressure gauge, relief valve, 25 feet of 1/2 inch discharge hose, and 8 feet of overflow hose, two Vermorel nozzles, and necessary hose connections.

SPECIAL ACCESSORIES.—Plain pulleys for 1-H. P., plain pulleys and friction clutch pulleys for 2-H. P. can be furnished on special order. See page 58.

Engine					Spray Pump					Mounting		Height Over All Inches	Shipping Weight Complete, Pounds
H. P.	Type	Speed Revolutions Per Minute	Dia. of Fly Wheel Inches	Capacity of Fuel Tank, Gallons	Name	Speed Revolutions Per Minute	Dia. Cylinder Inches	Stroke Inches	Capacity of Pump Gallons per Minute	Length of Skids Inches	Widths of Outfits Inches		
1	Hor.	600	15 1/2	0.3/4	Myers & Bros. 313A . .	49	2	5	6.6	45 1/4	28 1/2	21	464
2	Ver.	650	17 1/2	1 3/4	Lucas, The Alert No. 2 .	40 1/2	2 1/2	5	8.5	43 3/8	39	37 3/4	710

I H C Portable Spraying Outfits



I-H P Air-Cooled Portable Spraying Outfit

The I H C 1-H. P. mounted outfit consists of the 1-H. P. air-cooled spray engine shown on page 44 with a Meyers' 313A pump securely mounted on a hand truck. This is an excellent outfit for spraying small orchards, vineyards, gardens, etc., as it can be hauled by hand and operated by one man. Then, too, it can be used for a portable engine when not needed for spraying. The truck is substantially constructed with metal wheels and axles. It is equipped with a hand tongue. No barrel is furnished. The dimensions are as follows: Length, 60 inches; width, $38\frac{3}{8}$ -inches; height (without barrel) $40\frac{3}{4}$ inches; tread of truck $31\frac{7}{8}$ inches; shipping weight with engine and pump, without barrel, 710 lbs.

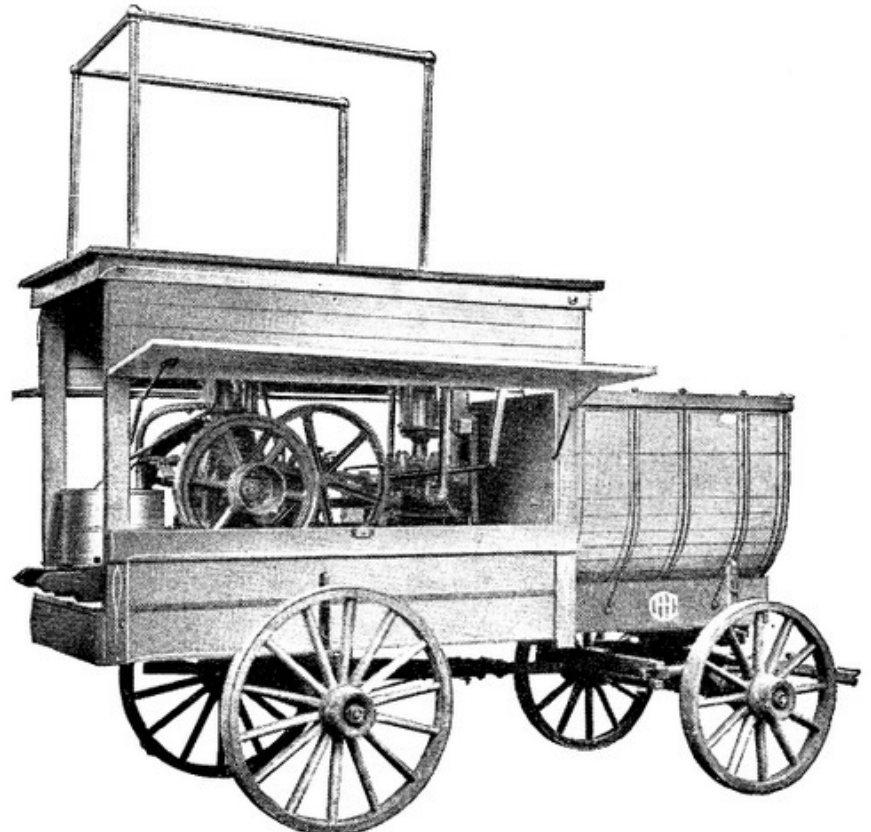
I H C Spraying Wagon for Large Orchards

The I H C spray wagon has been designed to fill the demand for a practical up-to-date spray wagon which can be built at home. To our customers who desire to build one of these wagons we supply free of charge, complete blue print specifications, and instructions for building. The outfit is so designed that it can be mounted on any farm truck the owner may have. It consists of a 200-gallon spray mixture tank and a housing for the engine which forms a roomy platform for the operators to stand on.

It is a good plan to use a truck which has wide tires as they will not cut into soft ground as easily and they provide more traction than a narrow tire.

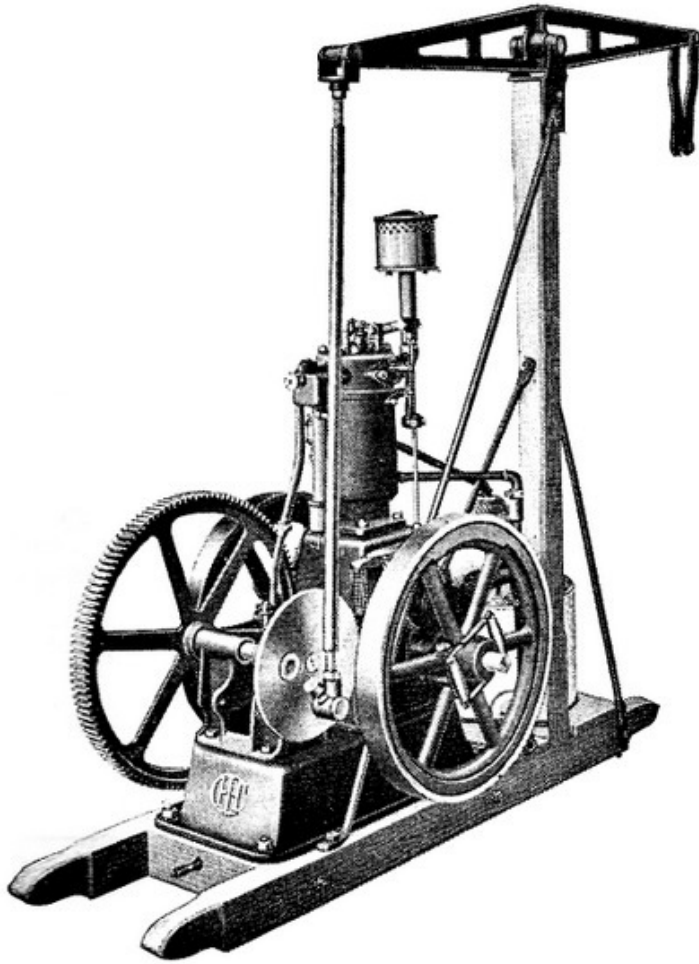
The purchaser of an I H C outfit is enabled in this way to build his spray wagon wherever he desires without paying transportation charges which, because of its size and weight, would amount to considerable.

These specifications can be secured from I H C agents or upon application to the main office.

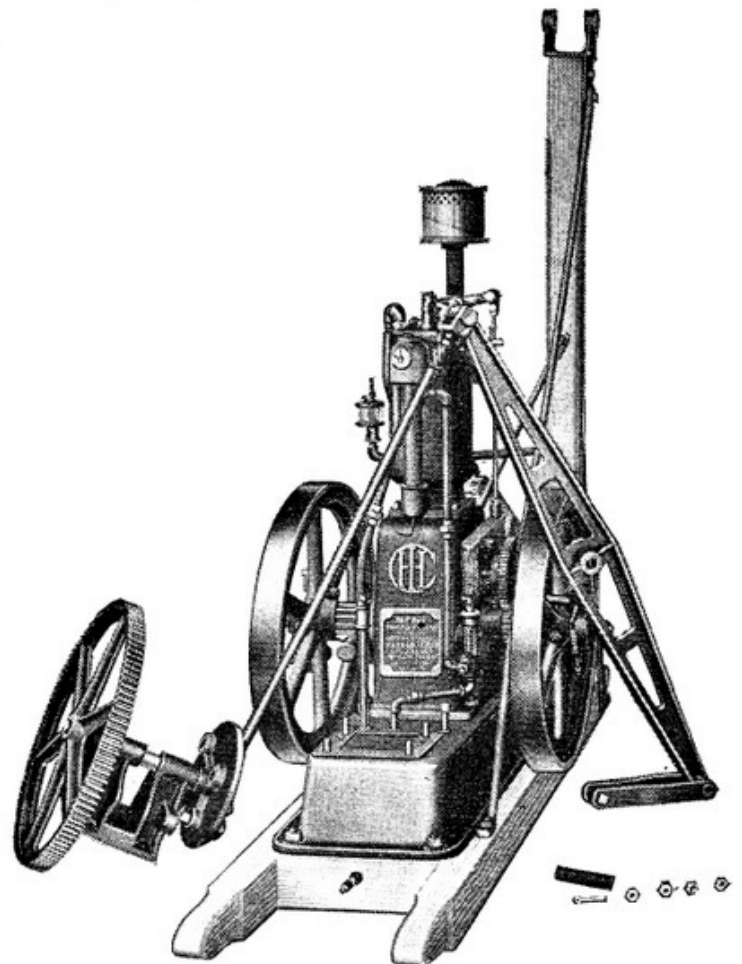


I H C Spraying Wagon

I H C Famous Pumping Engine



I H C Famous 2-H. P. Pumping Engine



I H C Famous 2-H. P. Pumping Engine With Walking Beam Removed

The I H C Famous 2-H. P. tank-cooled pumping outfit is a combined pump jack and engine, all mounted on the same base, that can be used both for pumping and for other work. By detaching the walking beam from the engine (see above illustration) this outfit becomes similar to our regular 2-H. P. Famous vertical engine. It is mounted on skids and can be easily transported from place to place. The engine is the same in every respect as the I H C Famous 2-H. P. vertical engine except that the iron sub-base is extended to form a base for the pumping gears, and a small pinion is added on the crank shaft for driving the pumping gear. This outfit is especially desirable on stock farms, ranches, dairy farms, etc., where a large amount of water must be pumped and where an engine large enough for grinding feed, etc., is needed. It can be directly connected to a windmill pump and will furnish all the water needed on an ordinary farm.

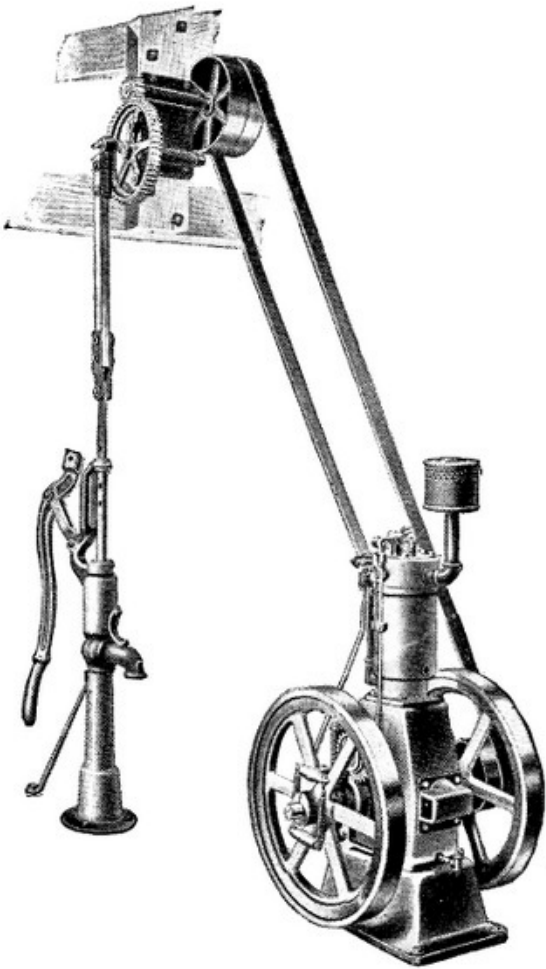
The walking beam and gears are strongly constructed to stand the strain of deep well pumping. The pitman stroke is adjustable to either 5, 7, or 10 inches.

EQUIPMENT.—I H C 2-H. P. pumping engines are completely equipped and include the following accessories: Galvanized gasoline tank, galvanized cooling tank, belt pulley, muffler, battery box, batteries, spark coil, switch, necessary tools, oil can, and oil.

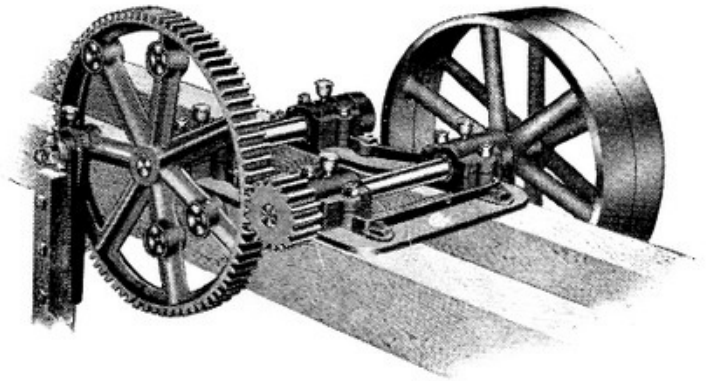
SPECIAL ACCESSORIES.—Special size pulleys, friction clutch pulleys, magneto, auto sparker, special mixers, etc., can be furnished on special order. See pages 54 to 58.

H. P.	Speed of Engine ft. P. M.	Strokes Pump per Min.	Length of Stroke, Inches	Gear Number of Teeth	Pinion Number of Teeth	Capacity Fuel Tank, Gallons	Length Walking Beam, Inches	Height Walking Beam, Inches	Length of Skids, Inches	Width of Skids, Inches	Total Width Inches	Regular Pulley		Approx. Shipping Weight Pounds
												Dia. Inches	Face Inches	
2	400	50	5-7-10	124	15	3 $\frac{3}{4}$	56	71 $\frac{3}{8}$	68	18 $\frac{1}{4}$	28 $\frac{1}{2}$	8	5	1037

I H C Belted Pump Jacks



Regular Belted Pump Jack



Heavy Belted Pump Jack

REGULAR BELTED JACK

This jack is suitable for ordinary farm pumping where the lift is not high and the work is light. It is well made with long bearings and heavy cast gears.

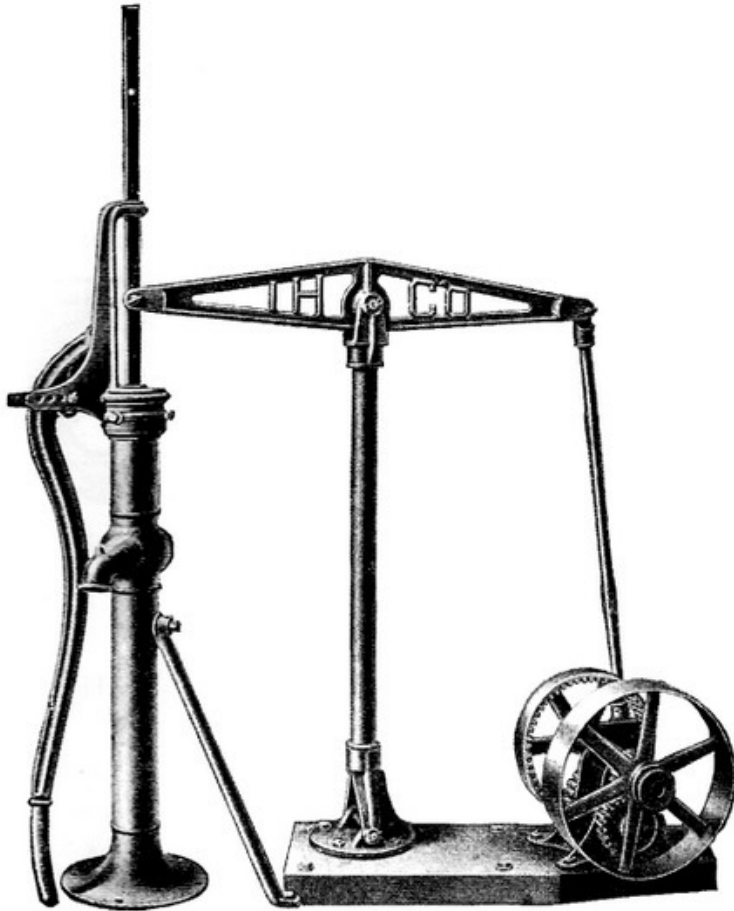
HEAVY BELTED JACK

The heavy belted pumping jack is an excellent jack for use in lifting water in wells not deeper than 400 feet. It is considerably heavier than the regular jack and has unusual strength and durability. It is designed to be used with engines up to and including 12-horse power. Stockmen and farmers who have deep wells find this heavy jack very desirable. It can be used for lifting water for small irrigation systems, gardens, etc.

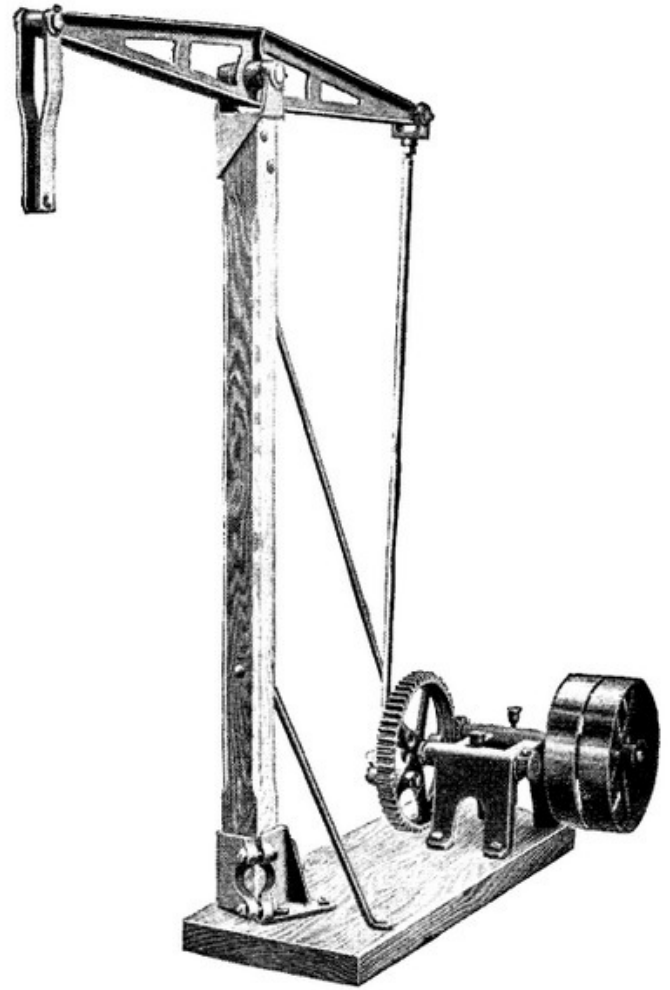
Type of Pump Jack	Maximum Head, Feet	Length of Stroke, Inches	Strokes Per Minute	Size of Engine to be used with	Ratio of Gears	Pulley			
						Size Inches	Face Inches	Speed R. P. M.	Weight, Pounds
Regular Belted Jack	200' with 4½" Cyl.	5, 7, 10	40	1 to 3-H.P.	4.66 to 1	14	3	185	145
Heavy Belted Jack	400'	12, 14, 15, 18, 20	32	4 to 12-H.P.	5 to 1	24	4½	160	515

When pump jacks are used to pump with a smaller head, the size of the pump cylinder can be increased

I H C Walking Beam Pump Jacks



Walking Beam Pumping Jack No. 1



Walking Beam Pumping Jack No. 2.

WALKING BEAM JACK No. 1

This jack is all iron except the base. It should not be used for pumping against a greater head than 50 feet with a 2½-inch cylinder, or its equivalent—a 100 foot head with a 2¼-inch cylinder. The jack is well constructed from the best grade of materials, and with proper care should last a lifetime.

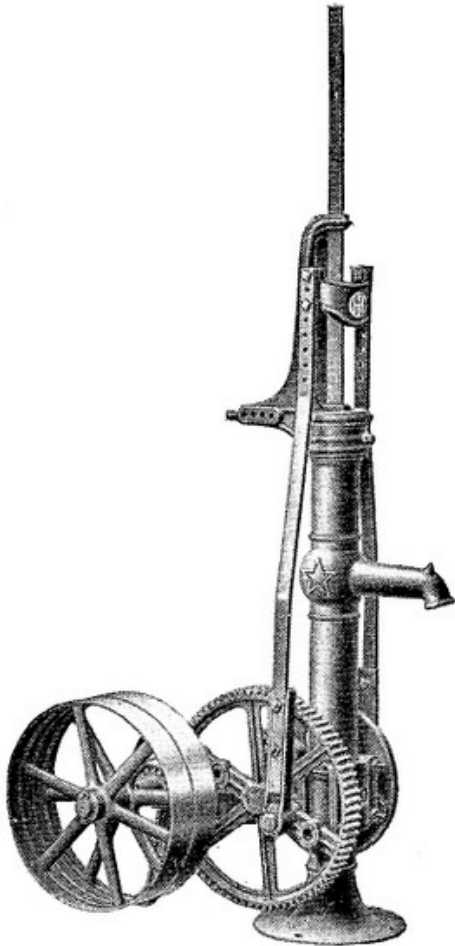
WALKING BEAM JACK No. 2

This walking beam pumping jack is a heavier jack than the No. 1 and can be used to lift water in wells not deeper than 200 feet. It is all constructed of iron except the base and upright which are of wood. The safe working load on the end of the walking beam is 1,200 lbs., which is equivalent to a 4½-inch cylinder pumping against a 200 foot head.

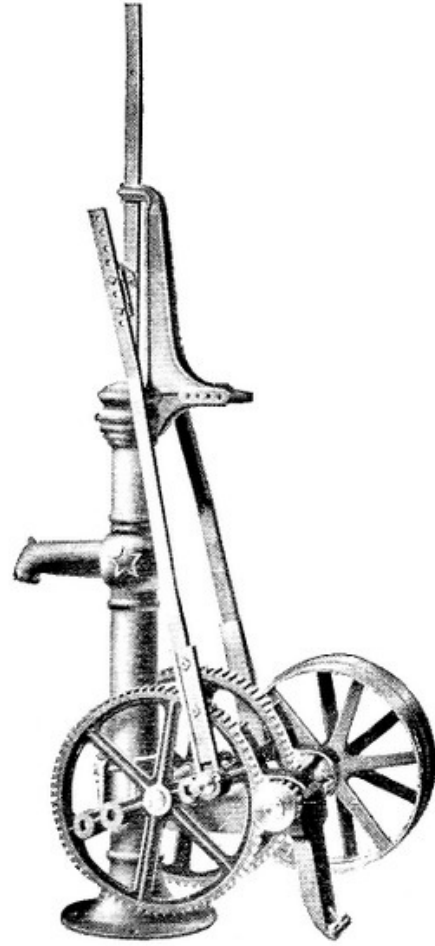
Type of Pump Jack	Maximum Head Feet	Length of Stroke, Inches	Strokes per Minute	Size of Engine to be used with	Ratio of Gears	Pulley			
						Size Inches	Face Inches	Speed R. P. M.	Weight, Pounds
Walking Beam No. 1	100' with 2¼" Cyl.	5 to 9¾	40	1 to 2-H. P.	7.1 to 1	13¼	2¾	285	152
Walking Beam No. 2	200' with 4½" Cyl.	5, 7, 10	40	2 to 3-H. P.	4.66 to 1	14	3	185	505

When pump jacks are used to pump with a smaller head, the size of the pump cylinder can be increased.

I H C Standard Pump Jacks



I H C Standard Pump Jack No. 1



I H C Standard Pump Jack No. 2

STANDARD JACK No. 1

This jack is designed to attach direct to the standard of any common windmill pump and will pump all the water needed on the ordinary farm. It is substantially constructed of iron and should last a life time. It is clamped to the pump and bolted to the well cover or pump foundation. The No. 1 is recommended for pumping from wells up to 50 foot deep with a 3½-inch cylinder or up to 100 foot head with a 2½-inch cylinder.

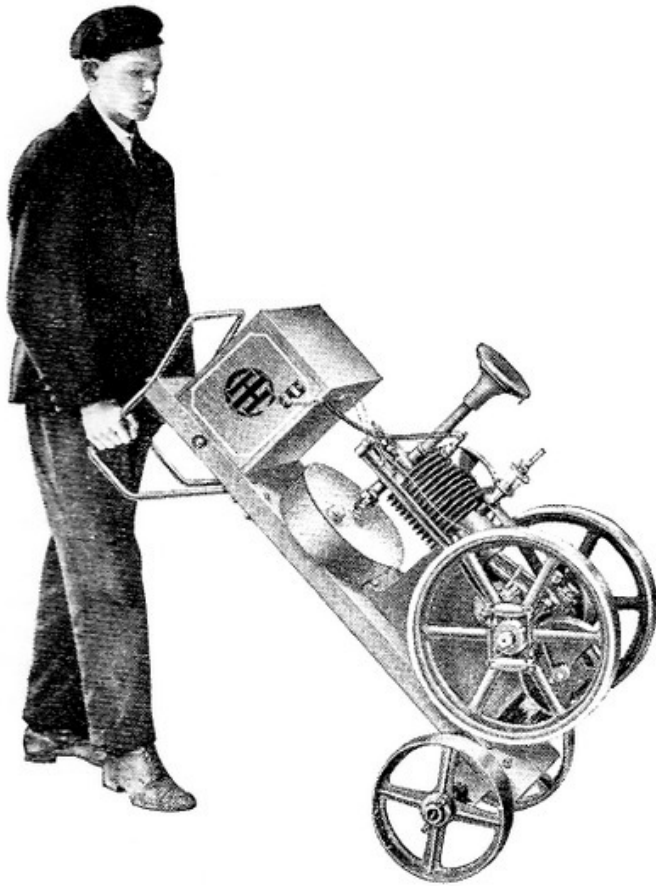
STANDARD JACK No. 2

The Standard No. 2 jack is similar to the No. 1, but is built heavier and is suitable for pumping from wells up to 200 feet deep. It is used extensively on ranches, stock farms, dairy farms and for pumping from deep artesian wells where a powerful jack is required. Like No. 1, it can be attached to a common windmill pump. This jack is strongly constructed of iron with heavy cast double gears and will give best of service.

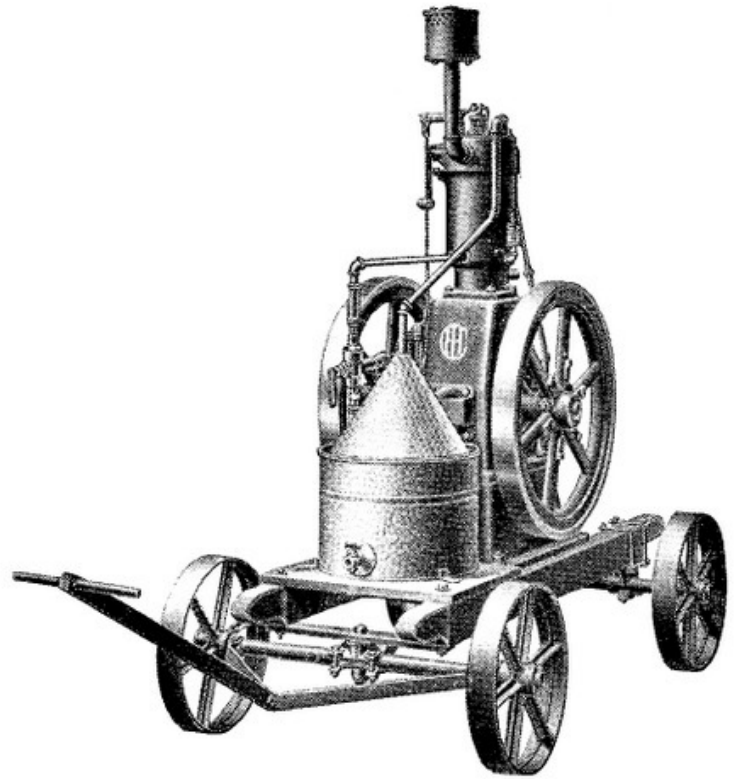
Type of Pump Jack	Maximum Head, Feet	Length of Stroke, Inches	Strokes Per Minute	Size of Engine to be used with	Ratio of Gears	Pulley			
						Size Inches	Face Inches	Speed R. P. M.	Weight, Pounds
Standard No. 1	100' with 2¼" Cyl.	5, 7, 9, 11	40	1 to 2-H. P.	5.7 to 1	14¼	2½	230	120
Standard No. 2	200' with 2¼" Cyl.	5, 7, 9, 11	40	2-H. P.	5.7 to 1	14¼	2½	220	139

When pump jacks are used to pump with a smaller head, the size of the pump cylinder can be increased.

I H C Hand Trucks



I H C Two-Wheel Hand Truck



I H C Four-Wheel Hand Truck

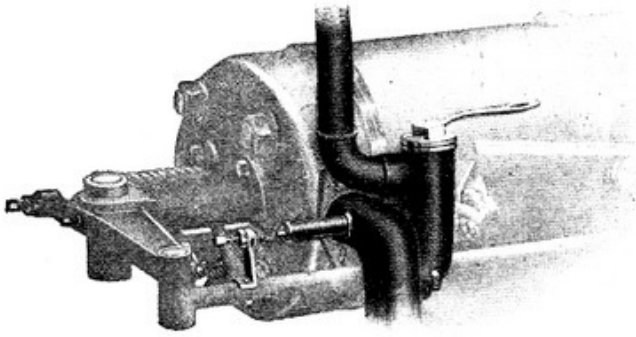
TWO - WHEEL HAND TRUCK ATTACHMENT FOR I H C FAMOUS 1-H. P. ENGINES

This truck consists of an iron handle, front wheels and axle and can be supplied for I H C 1-horse power engines in the field or the engine can be shipped mounted from the factory. The axle is located so that when the end is lifted by the handles the outfit nearly balances and can be used like an ordinary hand truck. It is strongly constructed with heavy cast iron wheels and an iron axle for use where an engine is used to operate small machines at different points on the farm. Such a truck will pay for itself by the time and labor it saves.

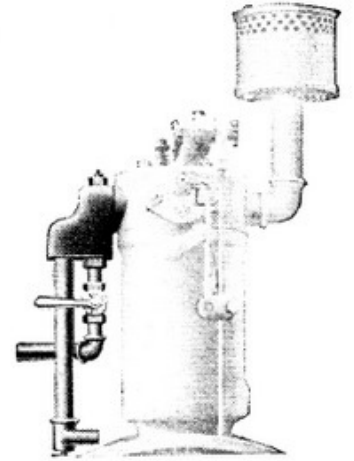
FOUR - WHEEL HAND TRUCK ATTACHMENT FOR I H C FAMOUS 2, 2½, and 3-H. P. ENGINES

This truck consists of rear axle, wheels and clips, front axle, wheels, clips and tongue and can be furnished for I H C 2, 2½, and 3-horse power Famous engines, in the field, or the engines can be shipped mounted from the factory. It is substantially constructed with four heavy cast iron wheels and axles with iron hand tongue. This truck provides a means of moving the engine from one machine to another without lifting or delay. One man can easily handle an engine mounted in this way and can save the time and trouble required to move an ordinary skidded engine.

I H C Special Mixers



Gas Attachment on I H C Victor Horizontal Engine

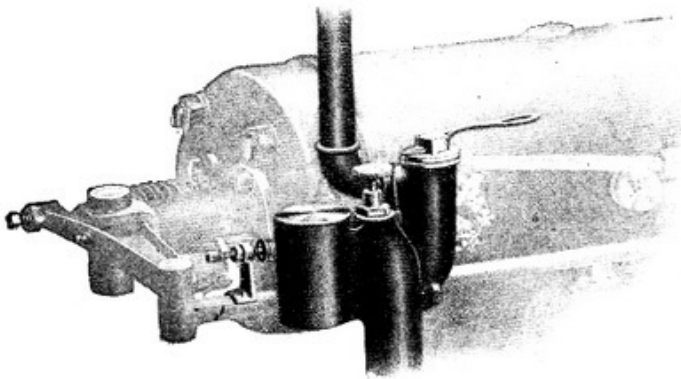


Gas Attachment on I H C Victor Vertical Engine

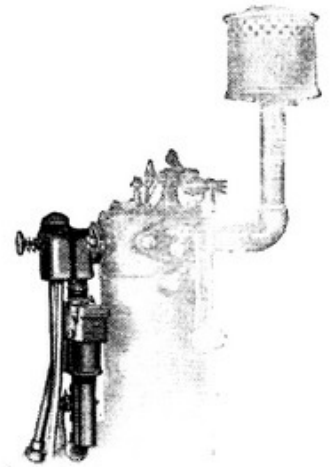
I H C Victor and Famous engines can be supplied with a gas attachment, which is easily attached in place of the gasoline mixer. With this attachment, artificial gas may be used as fuel with excellent results.

When artificial gas is to be used, it is necessary to change the entire cylinder and piston, as artificial gas has a less number of heat units than either natural gas or gasoline vapor. This makes greater compression necessary, to secure the same efficiency which, in turn, requires a new cylinder and piston. Therefore, when artificial gas is to be used it should be so stated when ordering the engine, so that an engine especially for this fuel can be shipped.

A combination gas and gasoline attachment is also furnished on special order for the I H C Victor and Famous engines. This attachment has been designed especially for use in localities where natural gas is available part of the time. It is so designed that natural gas alone may be used as a fuel until pressure is so low that artificial vapor must be supplied, which may be accomplished by slightly opening the needle valve and allowing gasoline vapor to enter with the natural gas in order to produce an explosive mixture in the cylinder rich enough to explode; or, the gas may be cut off entirely and the engine run on gasoline. No change of piston need be made with this attachment, but when working with artificial gas there is a slight decrease in the power of the engine, according to the quality of the gas. The change from one fuel to another may be made instantly and without stopping the engine.

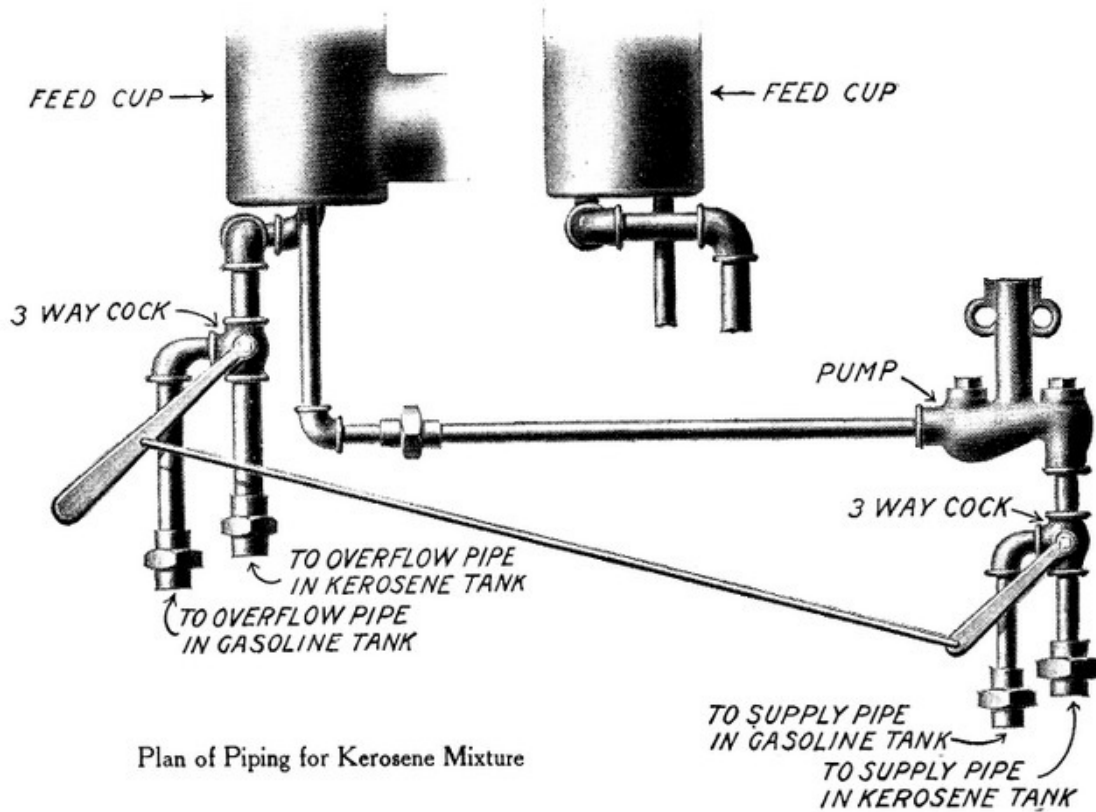


Combination Gas and Gasoline Attachment on I H C Victor Horizontal Engine



Combination Gas and Gasoline Attachment for I H C Victor Vertical Engine

Operating I H C Gasoline Engines With Kerosene



On account of the high compression necessary in properly designed gasoline engines to obtain the highest power from the fuel, kerosene alone cannot be used with success because it ignites before the proper time, due to the heat generated by the high compression. Either a small quantity of water must be injected with the kerosene, or it must be mixed with some other fuel, like gasoline, benzine, etc.

In cases where a Victor or Famous gasoline engine is working under a constant load of one-half its rated horse power or more, it will be found economical to operate the engine with a mixture of kerosene and gasoline. This should be mixed in the proportion of one part of gasoline to four or five parts of kerosene. Some have found that by using kerosene it is possible to reduce the cost of operating 20 to 33 $\frac{1}{3}$ per cent. With an engine of large horse power, under continuous operation, this reduction in fuel bills will mean a considerable saving in the course of a year.

SUPPLY TANKS.—To use a kerosene mixture properly, it is necessary to have two tanks—one for gasoline alone, and another for the mixture of gasoline and kerosene, in proportions of 1 to 4 or 5. These tanks are both connected to the engine pump, as shown in the illustration, and are shut off by means of a three-way cock. Two overflow pipes from the feed cup, also operated by a three-way cock, carry the overflow of kerosene mixture and of gasoline back to the supply tanks. No change in the engine itself is necessary.

STARTING THE ENGINE.—To start the engine, throw the three-way cock so that the supply of gasoline is turned on, and the supply of kerosene mixture shut off. This will permit a supply of gasoline to be pumped into the feed cup. Start the engine on the gasoline as ordinarily, and let it run for about one-half hour, so that the engine is well warmed up, then shut off the gasoline and turn on the kerosene mixture.

STOPPING THE ENGINE.—At the end of the run, shut off the kerosene mixture, turn on the gasoline, and allow the engine to run for five or ten minutes before closing down. In this way all the kerosene mixture is cleaned out of the feed cup and pipes, so that when the engine is finally stopped it contains nothing but gasoline. The engine is thus made ready to start up the next time without delay.

Security Long Distance Gasoline Supply

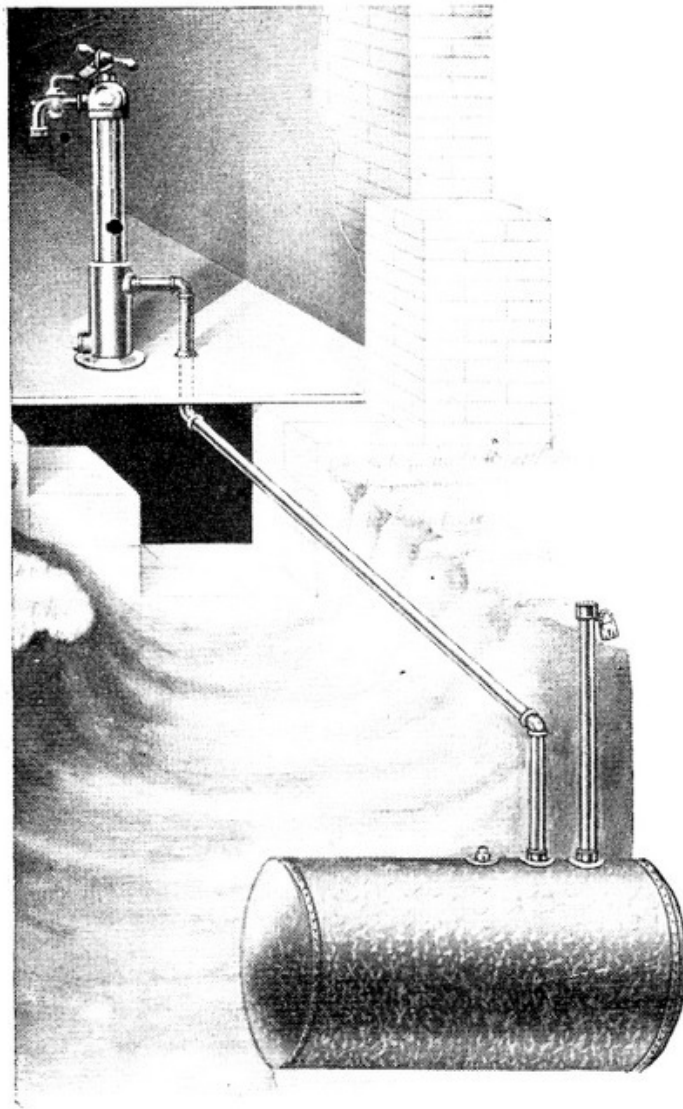


Illustration Shows Method of Installing Security Long Distance Gasoline Supply

This gasoline supply system provides the safest and most satisfactory arrangement for storing and pumping gasoline. By burying the tank in the ground the gasoline can be kept cool so that the evaporation is reduced to a minimum.

TANK.—The tank is made of rust-proof, galvanized, sheet steel, and is specially built to be buried in the ground away from the building.

These tanks can be furnished in two sizes—54 gallons and 120 gallons capacity. The tank is filled by means of a fill-and-vent pipe, provided with a patented cap which can be locked in place with an ordinary padlock to prevent anyone meddling with the contents.

PUMP.—The pump is a combination suction and force pump, which provides a means of drawing the contents of the storage tank quickly.

The pump can be located in the building and at the most convenient point for the delivery of the gasoline. The surplus can be drained back into the gasoline tank in a moment's time, thus affording the greatest measure of protection. It is equipped with a padlock similar to the filling cap.

The pump is furnished with a 3/4-inch brass hose connection faucet.

This outfit, as shipped, consists of a 54-gallon tank or a 120-gallon tank, as desired, and pump, together with two bundles of 1-inch galvanized pipe and necessary couplings to connect it.

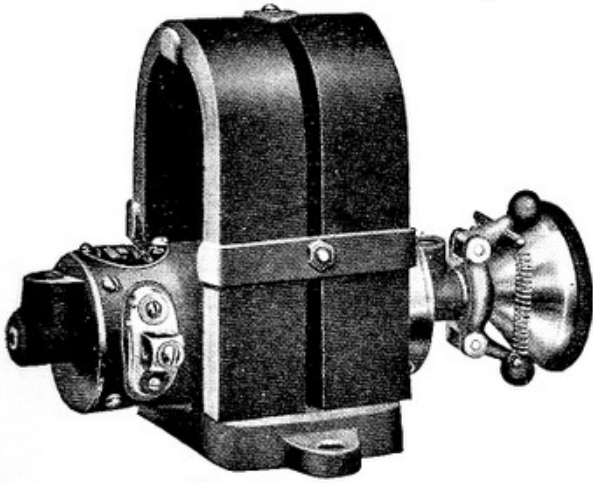
The tank is furnished with flanges for 3-inch, 1 1/4-inch, and 1/2-inch pipe. The 3-inch opening is for the fill-and-vent; the 1 1/4-inch opening is for the suction pipe, and is fitted with a 1 1/4 x 1-inch bushing, into which is screwed a 1-inch street elbow and a piece of 1-inch pipe (with wire gauze soldered on the end) extended to

the bottom of the tank. The 1/2 inch opening is not used with the long distance storage system.

WEIGHTS

54 gallon tank complete		70 pounds
120 gallon tank complete		120 pounds
4 lengths of 1-inch pipe and fittings	(about)	70 pounds
Pump		15 pounds
Net weight of outfit, complete with 54 gallon tank and pipe		155 pounds
Shipping weight of outfit, complete with 54 gallon tank and pipe	(about)	162 pounds
Net weight of outfit, complete with 120 gallon tank and pipe		205 pounds
Shipping weight of outfit, complete with 120 gallon tank and pipe	(about)	212 pounds

Magnetos and Dynamos

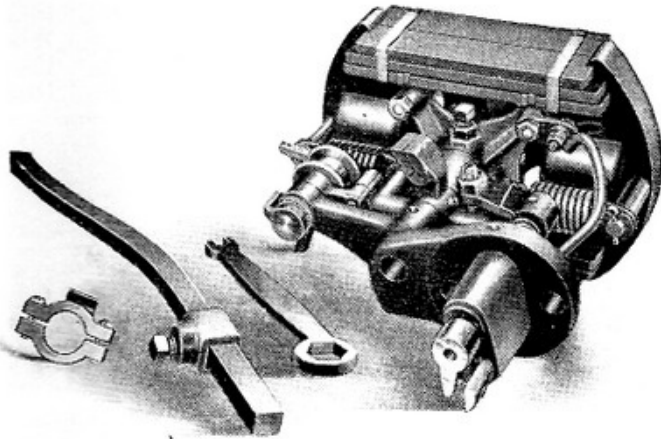


Wizard Magneto

WIZARD MAGNETOS

When specially ordered, the Wizard magneto can be furnished for all engines with make-and-break ignition. This magneto is comparatively cheap, and may be easily placed on the engine. It is driven by friction contact with the fly wheel of the engine. Through its use, it is often possible to start the engine without the aid of batteries inasmuch as the fields are permanent magnets.

A special bracket is furnished with this magneto for mounting on I H C engines.

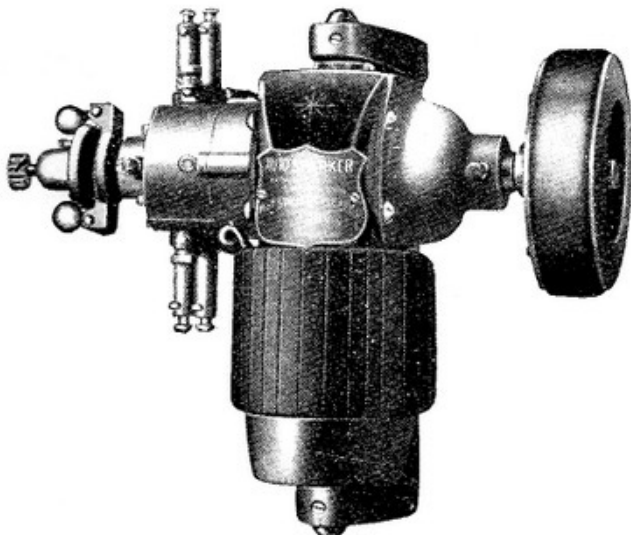


Webster Magneto with all Parts

WEBSTER MAGNETOS

The Webster magneto can be furnished on special order for all I H C gas, gasoline, kerosene, or alcohol engines, with make-and-break ignition—stationary, portable, and traction—from 2-horse power up, with the exception of the 2-cylinder vertical engines and the 2½ horse-power hopper-cooled engines. Batteries are not necessary when this magneto is used, as the magneto generates a fat hot spark. The engines can be equipped with magnetos before being shipped, or the magnetos may be put on engines in the field.

In ordering, state the size of engine on which the magneto is to be used, as there are several sizes of ignitor plugs. Take out the old ignitor plug, and put on the one sent with the magneto, as explained by the instructions sent.



The Auto Sparker

AUTO SPARKER

The auto sparker is an automatically governed dynamo. It differs from a magneto in that it does not depend on permanent magnets, but is built on the plan of large lighting dynamos, and its magnets are kept automatically magnetized while running by the current from the machine itself.

The auto sparker can be attached to any engine, but those using a jump-spark plug must use a special coil designed by the manufacturers.

By using the auto sparker, the engine is started on batteries, after which the current is turned off and the spark supplied by the auto sparker. This auto sparker is furnished regularly on all portable and traction engines.

It can be supplied on special order for other engines together with a special bracket for mounting.

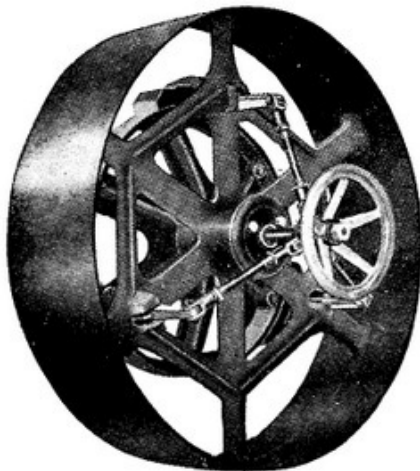
Special Pulleys for I H C Engines

SPECIAL PULLEYS FOR I H C HORIZONTAL PORTABLE AND STATIONARY ENGINES
TANK-COOLED AND HOPPER-COOLED

Friction Pulley—Width of Face, Inches									Plain Pulley—Width of Face, Inches								
Dia.	4-H. P.	6-H. P.	8-H. P.	10-H. P.	12-H. P.	15-H. P.	20-H. P.	25-H. P.	Dia.	4-H. P.	6 H. P.	8-H. P.	10-H. P.	12-H. P.	15-H. P.	20-H. P.	25-H. P.
...	.....	.....	.....	.....	.....	.....	.....	.....	8	12 or 12¼	12	12¼	.....	.....	.....	.....	.....
...	.....	.....	.....	.....	.....	.....	.....	.....	10	8⅝ or 12¼	12¼	6	.....	.....	10	10	10
...	.....	.....	.....	.....	.....	.....	.....	.....	12	8⅝ or 12¼	12¼	.....	.....	.....	.....	.....	.....
14	6½	6½	6½	6½	.....	.....	.....	.....	14	8⅝ or 12¼	12¼	12¼	12¼	.....	.....	.....	.....
16	6½	6½	6½	6½	8½	8½	12½	.....	16	12¼	12¼	12¼	12¼	14¼	12½	12½	12½
18	6½	6½	6½	6½	8½	8½	10½	12½	18	10¼	10¼	10¼	10¼	14¼	.....	.....	.....
20	6½	6½	6½	6½	8½	8½	10½	12½	20	10¼	10¼	10¼	10¼	12¼	16¼	.....	.....
22	6½	6½	6½	6½	9½	9½	10½	12½	22	10¼	10¼	10¼	10¼	16¼	14¼	.....	.....
24	6½	6½	6½	6½	9½	9½	10½	12½	24	9½	9½	10¼	10¼	14¼	14¼	16¼	16¼
26	6½	6½	6½	6½	9½	9½	10½	12½	26	9½	9½	10¼	10¼	12¼	12¼	14¼	14¼
28	6½	6½	7½	7½	9½	9½	10½	10½	28	9½	9½	10¼	10¼	12¼	16¼	16¼	16¼
30	6½	6½	7½	7½	9½	9½	10½	10½	30	9½	9½	10¼	10¼	12¼	16¼	16¼	16¼
32	.....	6½	7½	7½	9½	9½	10½	10½	32	.....	9½	10¼	10¼	10¼	14¼	14¼	14¼
34	.....	6½	7½	7½	9½	9½	10½	10½	34	.....	9½	10¼	10¼	10¼	14¼	14¼	14¼
36	.....	6½	7½	7½	9½	9½	10½	10½	36	.....	9½	10¼	10¼	10¼	14¼	14¼	14¼
38	.....	.....	.....	.....	9½	9½	10½	10½	38	.....	.....	.....	.....	10¼	12¼	12¼	12¼
40	.....	.....	.....	.....	9½	9½	10½	10½	40	.....	.....	.....	.....	9¼	12¼	12¼	12¼
42	.....	.....	.....	.....	9½	9½	10½	10½	42	.....	.....	.....	.....	.....	.....	10¼	10¼

SPECIAL SIZES OF PULLEYS FOR I H C VERTICAL ENGINES

Diameter	Face		Diameter	Face	
	2-H. P.	3-H. P.		2-H. P.	3-H. P.
3 inches	5 inches	.....	16 inches	5 inches	5½ inches
4 inches	5 inches	5½ inches	18 inches	5 inches	5½ inches
5 inches	9 inches or 5 inches	5½ inches	20 inches	5 inches	5½ inches
6 inches	5 inches	.....	22 inches	.....	.....
7 inches	5 inches	5½ inches	24 inches	.....	.....
8 inches	5 inches	7½ or 5½ inches	26 inches	.....	.....
10 inches	5 inches	5½ inches	28 inches	.....	.....
12 inches	5 inches	5½ inches	30 inches	.....	.....
14 inches	5 inches	5½ inches			



I H C Friction Clutch Pulley

FRICTION CLUTCH PULLEYS FOR 2 AND 3-H. P. VERTICAL 2½-H. P. HOPPER-COOLED AND 50-H. P. ENGINES

2-H. P. Vertical		3-H. P. Vertical and 2½-H. P. Hopper Cooled (Horizontal).	50-H. P. 2-Cylinder Opposed
Diameter	Face		
10	4½	4½	
12	4½	4½	
14	4½	4½	
16	4½	4½	
18	4½	4½	
20	4½	4½	
22	4½	4½	
24			10
28			10
32			10
34			10



Pipe Furnished With Each of the Different Sizes of Stationary Engines

All stationary engines will be furnished with sufficient pipe and fittings to connect up the engines under ordinary installing conditions.

2 AND 3-H. P. VERT. ENG.	{	<ul style="list-style-type: none"> 18 Ft. of $\frac{1}{4}$" Gasoline Supply Pipe. 18 Ft. of $\frac{3}{8}$" " Return Pipe. 8 Ft. of $1\frac{1}{4}$" Exhaust Pipe. 12 Ft. of $\frac{3}{4}$" Gas Pipe (For Gasometer).
4-H. P. ENGINE	{	<ul style="list-style-type: none"> 18 Ft. of $\frac{3}{8}$" Galv. Gasoline Return Pipe. 18 Ft. of $\frac{1}{4}$" " Supply Pipe. 12 Ft. of $1\frac{1}{4}$" Exhaust Pipe. 12 Ft. of 1" Pipe for Gasometer.
6-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 12 Ft. of 1" Gas Pipe (For Gasometer). 18 Ft. of $1\frac{1}{2}$" Exhaust Pipe.
8-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 12 Ft. of 1" Gas Pipe (For Gasometer). 18 Ft. of 2" Exhaust Pipe.
10-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 12 Ft. of $1\frac{1}{4}$" Gas Pipe (For Gasometer). 18 Ft. of 2" Exhaust Pipe.
12-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 18 Ft. of $2\frac{1}{2}$" Exhaust Pipe. 12 Ft. of $1\frac{1}{4}$" Gas Pipe (For Gasometer).
15-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 12 Ft. of $1\frac{1}{4}$" Gas Pipe (For Gasometer). 18 Ft. of 3" Exhaust Pipe.
20-H. P. ENGINE 25-H. P. ENGINE	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply Pipe. 36 Ft. of $\frac{3}{8}$" " Return Pipe. 12 Ft. of $1\frac{1}{4}$" Gas Pipe (For Gasometer). 20 Ft. of 4" Exhaust Pipe.
25-H. P. 2-CYL. VERT. 35-H. P. 2-CYL. VERT. 50-H. P. 2-CYL. HORIZ.	{	<ul style="list-style-type: none"> 36 Ft. of $\frac{1}{4}$" Galv. Gasoline Supply. 36 Ft. of $\frac{3}{8}$" " Return. 12 Ft. of $\frac{3}{4}$" from Air Tank to Air Starter. 20 Ft. of 4" Exhaust. 10 Ft. of 3" Exhaust Pipe from Yoke to Muffler, 25-H.P. 10 Ft. of $3\frac{1}{2}$" " " " " " " " " " " 35-H.P. 4 Ft. of $\frac{1}{2}$" from Air Compressor to Tank. 10 Ft. of 1" Water Pipe. 4 Ft. of $1\frac{1}{4}$" Water Pipe.



Useful Information

HORSE-POWER OF SHAFTS FOR GIVEN DIAMETER AND SPEED

Diameter of Shaft Inches	Revolutions per Minute									
	100	125	150	175	200	225	250	300	350	400
1 $\frac{3}{16}$	2.4	3.0	3.6	4.2	4.8	5.4	6.0	7.2	8.4	9.6
1 $\frac{7}{16}$	4.3	5.4	6.5	7.6	8.6	9.8	10.8	13.0	15.2	17.2
1 $\frac{11}{16}$	6.5	8.0	9.7	11.2	13.0	14.6	16.0	19.4	22.4	26.0
1 $\frac{15}{16}$	10.0	12.5	15.0	17.5	20.0	22.5	25.0	30.0	35.0	40.0
2 $\frac{3}{16}$	14.0	17.8	21.0	24.5	28.0	31.5	35.6	42.0	49.0	56.0

HORSE-POWER BELTING WILL TRANSMIT

Width of Belt Inches	H. P. Per 100 Feet Belt-Speed		Width of Belt Inches	H. P. Per 100 Feet Belt-Speed		Width of Belt Inches	H. P. Per 100 Feet Belt-Speed	
	Single Belt	Double Belt		Single Belt	Double Belt		Single Belt	Double Belt
1	.09	.18	9	.82	1.64	20	1.82	3.64
2	.18	.36	10	.91	1.82	22	2.00	4.00
3	.27	.55	11	1.00	2.00	24	2.18	4.36
4	.36	.73	12	1.09	2.18	28	2.55	5.09
5	.45	.91	14	1.27	2.55	32	2.91	5.82
6	.55	1.09	16	1.45	2.91	36	3.27	6.55
7	.64	1.27	18	1.64	3.27	40	3.64	7.27
8	.73	1.46	....	.....	.....	....	.....	.....

RULES FOR DETERMINING THE SPEED OF PULLEYS

1. To find the number of revolutions of the driven shaft when the diameter of the driving pulley and its speed are given, multiply the diameter of the driving pulley by its number of revolutions per minute, and divide the product by the diameter of the driven pulley; the quotient will be the speed of the driven pulley expressed in revolutions per minute.

Example: Driving pulley is 24 inches in diameter and makes 125 revolutions per minute. At what rate would a pulley eight inches in diameter be driven?

$$\frac{24 \times 125}{8} = 375 \text{ revolutions per minute.}$$

2. To find the diameter of the driven pulley when the diameter and number of revolutions of the driving pulley are given, multiply the diameter of the driving pulley by the number of its revolutions, and divide the product by the number of revolutions the driven pulley is to make.

Example: What would be the diameter of the driven pulley making 375 revolutions per minute, if the driving pulley is 24 inches in diameter and makes 125 revolutions per minute?

$$\frac{24 \times 125}{375} = 8 \text{ inches in diameter.}$$

3. To find the number of revolutions of the driving pulley when its diameter and the diameter and speed of the driven pulley are given, multiply the diameter of the driven pulley by its revolutions and divide the product by the diameter of the driving pulley; the quotient will be the speed of the driving pulley expressed in revolutions per minute. Example:

$$\frac{8 \times 375}{24} = 125 \text{ revolutions per minute.}$$

4. To find the diameter of the driving pulley, multiply the diameter of the driven pulley by the number of its revolutions per minute, and divide the product by the number of revolutions of driving shaft; the quotient will be the diameter of the driving pulley required. Example:

$$\frac{8 \times 375}{125} = 24 \text{ inches in diameter.}$$