International harvester co.

Farm implements.

v. 1

GASOLINE ENGINES

I H C

Victor and Famous

Gas and Gasoline Engines

OPERATED WITH

GASOLINE, NATURAL, MANUFACTURED OR
PRODUCER GAS, KEROSENE OR ALCOHOL

VERTICAL AND HORIZONTAL TYPES -- STATIONARY AND PORTABLE
TANK-COOLED, HOPPER-COOLED, AND AIR-COOLED
1 TO 35-HORSE POWER

Gasoline Tractors

12 TO 45-HORSE POWER

SAWING, SPRAYING, HOISTING, AND PUMPING OUTFITS

IT IS A SEAL OF EXCELLENCE 

AND A GUARANTEE OF QUALITY

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED)

CAT. 48 A CHICAGO U S A

I H C GASOLINE ENGINES

The I H C line of gasoline engines offers unequalled opportunity for selecting efficient and economical power. This line includes engines of almost every type and size adapted to farm, shop, and mill use, and every engine is characterized by simple and durable construction.

Every feature of I H C gasoline engines is the result of years of thorough and conscientious investigation of every phase of engine construction. No effort has been spared to make these engines simple, reliable, and capable of utilizing fuel to the greatest possible advantage.

STRENGTH—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.

SIMPLICITY—Everyone appreciates the fact that simplicity of design in any machine is highly desirable, but few realize how difficult it is to attain. The absence of all unnecessary or complicated parts on I H C engines makes them very easy to operate, start, or stop. 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 and constructing I H C engines to insure a proper 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 explosive charge 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 resulting explosion.

RELIABILITY—The material used in the construction of I H C engines is the best procurable and they are built by workmen who thoroughly understand engine construction. A very extensive system of testing and inspection is used in the factory where I H C engines are constructed. 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 and cause their rejection. 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.

ADAPTABILITY—Not only have I H C gasoline engines been constructed with a general aim towards efficiency and reliability, but different engines in the line have been developed for special purposes. There are engines built for general, farm, and shop use, and also engines designed to fill the requirements of those wishing power especially adapted to their particular needs. In the I H C line will be found engines of from 1 to 45-horse power and in a great variety of styles.

REPAIRS—One of the great advantages of I H C engines lies in the fact that all parts are perfectly interchangeable. Accidental breakage never throws an I H C engine out of commission for any length of time as repairs can always and easily be secured.

The following pages are devoted to a detailed description and explanation of the various engines in this line.

OPERATION OF FOUR-CYCLE ENGINES

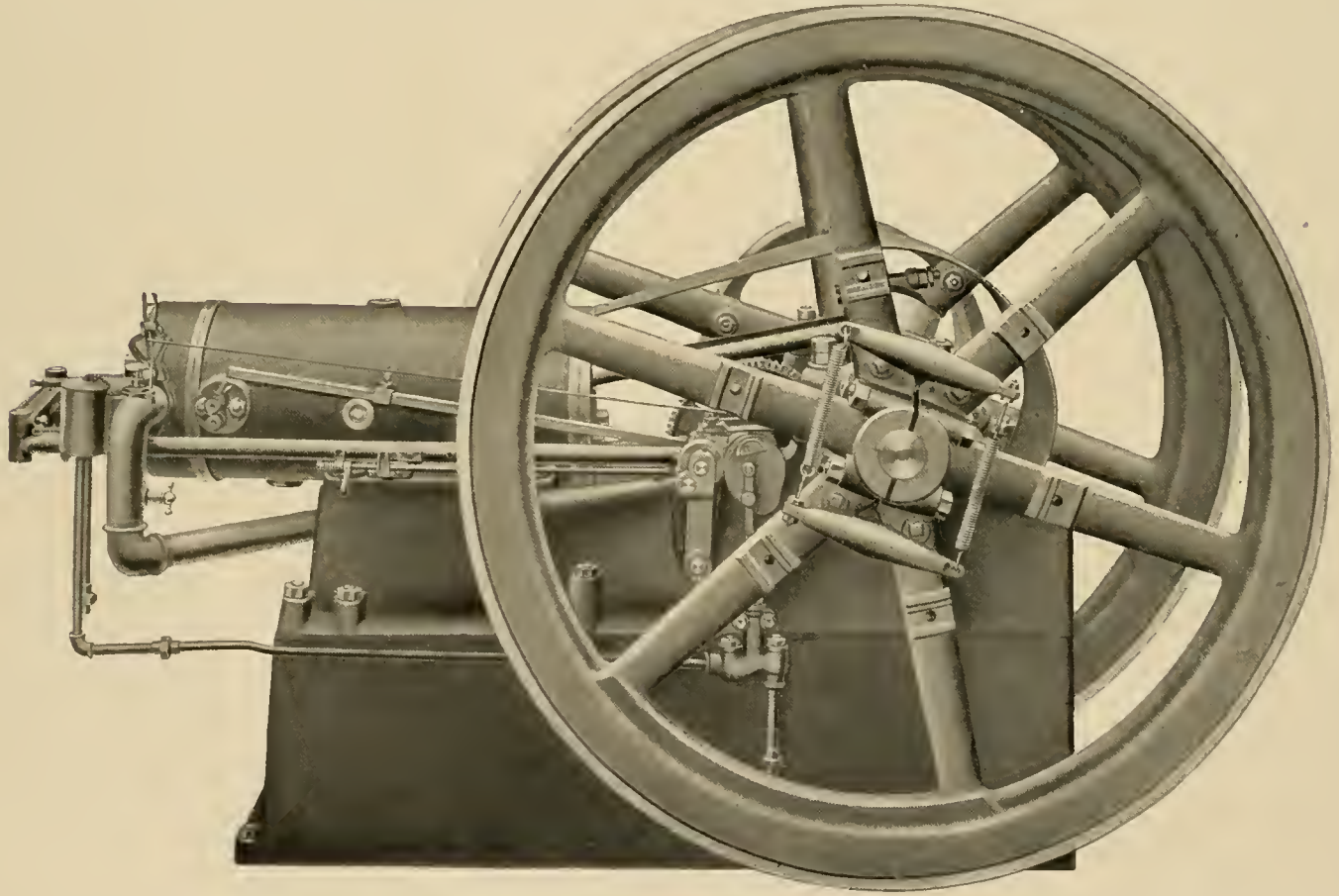
The operation of the large majority of internal combustion engines is based upon the same principle, termed "four-cycle." The theory was first formulated by M. Beau de Rochas in 1862 and requires four strokes of the piston, as follows: The first outward stroke draws through the intake valve a charge 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 electric ignitor is snapped, which produces a spark in the cylinder, exploding 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 operations is completed. It will be noted that one explosion is obtained for every two revolutions of the fly wheels.

I H C engines are of this four-cycle type. But there are many two-cycle engines also. The two-cycle engine requires only two strokes or one revolution of its fly wheel for each impulse. The incoming charge necessarily mixes somewhat with the burned gases not yet thoroughly driven out, and for this reason the two-cycle engine is neither as economical nor as reliable as the four-cycle engine. However, the two-cycle is used extensively and to good advantage under many different conditions, particularly in marine engine construction.

Gasoline Engines

I H C VICTOR HORIZONTAL GASOLINE ENGINES

4, 6, 8, 10, 12, 15, 20, AND 25-HORSE POWER



Working Side of I H C Victor Horizontal Engine

Complete specifications of this engine will be found on page 11. Accessories for this engine are described on pages 42 to 47, inclusive
List of pulleys furnished on special order will be found on page 10

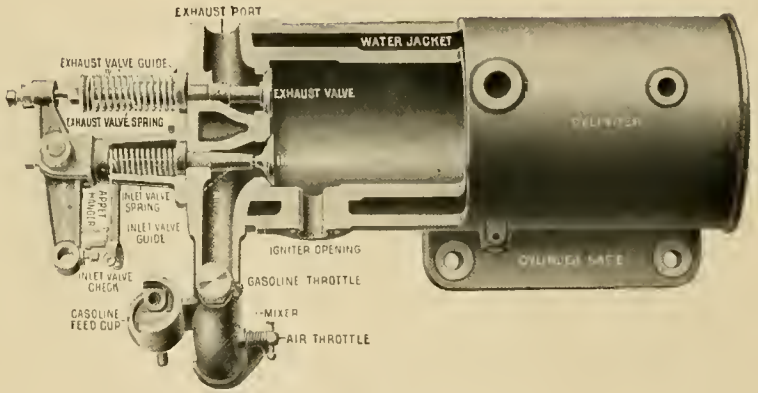
I H C VICTOR HORIZONTAL GASOLINE ENGINES

4-6-8-10-12-15-20-25-HORSE POWER

The I H C Victor horizontal engine is a strong, simple, and reliable engine, adaptable to many uses on the farm and in the shop and mill. It is successfully used for threshing, filling silos, grinding feed, sawing, pumping, irrigating, operating grain elevators, grist and feed mills, hoisting plants, pumping stations, and for all power purposes to which an engine of this size is adapted.

It is never necessary to have an open flame near this engine, and therefore permission may be obtained to use it in an insured building.

This engine is regularly equipped for using gasoline, but with slight alterations, natural or artificial gas, alcohol, or kerosene may be used.



Sectional View of Cylinder and Head

CYLINDER AND HEAD—The cylinder and water jacket are cast integral and ample space is allowed for a free circulation to the cooling water. The jacket may be opened at both ends, which makes it easy to clean. The cylinder and head are both cast from a special quality of close-grained iron. Four or six large studs, depending upon the size of the engine, are of use to hold the cylinder firmly to the engine base.

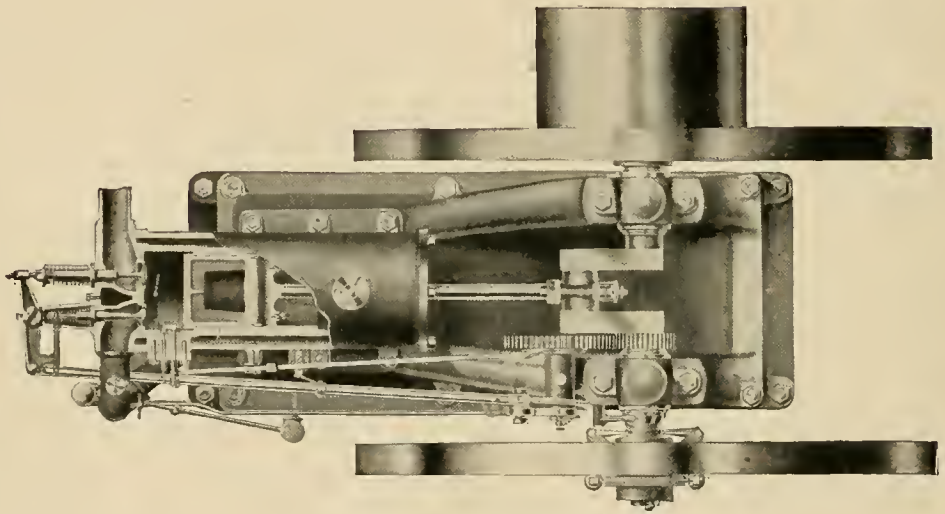
Piston and Lap Joint Piston Rings

The water jackets of the cylinder and head register, which allows 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 atomized fuel in the cylinder is highly compressed, so that a powerful explosion results. Every precaution is taken to prevent loss of compression, as this would result in loss of power. The valves seat properly and the piston rings fit snugly.

PISTON AND WRIST PIN—The piston is of the trunk type and extra long to insure ample wearing surface on the cylinder. It is as long as the stroke and 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.

Lap joint piston rings, ground to an exact diameter, prevent loss of compression past the piston.

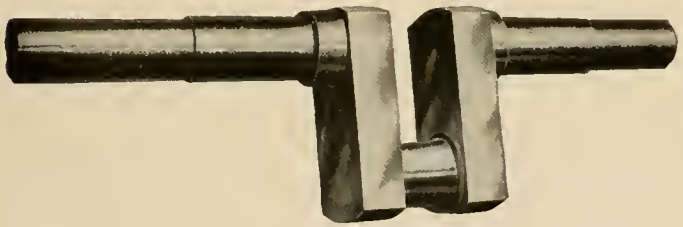


Plan View of Horizontal Engine

CRANK SHAFT AND MAIN BEARINGS—The smaller size crank shafts are drop-forged. The larger sizes are forged from solid, open hearth steel billets, without welds of any kind. They are interchangeable. The proportions are liberal and adequate to the strain under which these parts work. Large diameter of the crank pin gives ample wearing surface.

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 thoroughly lubricated by oil cups of large diameter.



Crank Shaft

CONNECTING ROD—The steel connecting rod is drop-forged, carefully machined and polished. A divided box securely bolted to the connecting rod is used in the crank end. Whenever necessary, this box can be removed without removing piston or wrist pin. The wrist pin bearing has a phosphor bronze bushing which can be adjusted by the bolts in the head.

Connecting Rod

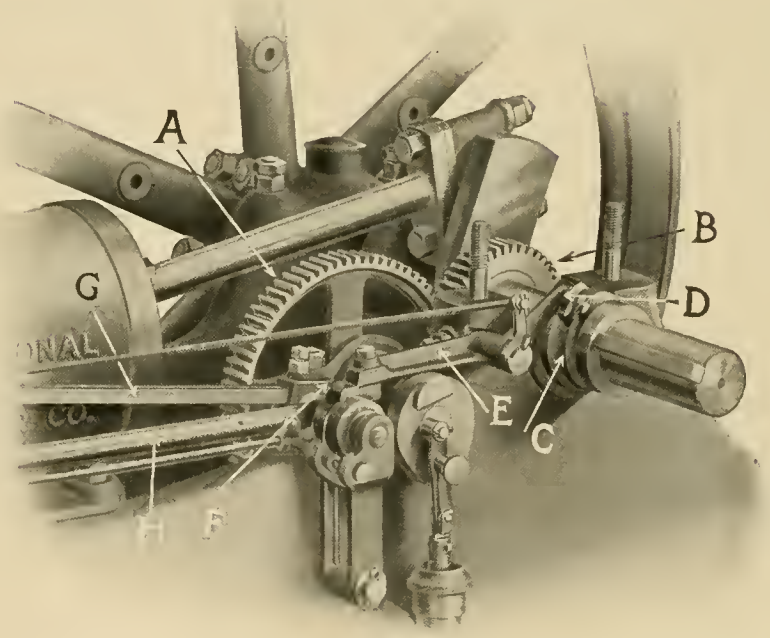
INLET VALVE—The inlet valve is steel, of the poppet type. It is large to permit a ready ingress of the fuel.

INLET VALVE CHECK—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.

EXHAUST VALVE—The exhaust valve is of the most durable construction, having a steel stem and cast iron head. The seat is removable—a desirable feature, for, if the seat should become pitted by the hot gases, an entirely new cylinder head would not be required.

VALVE MECHANISM—The valve mechanism operates in a straight line. There are no delicate 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.

GOVERNOR—The hit-and-miss style 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 of the cylinder.



Detail View of I H C Horizontal Engine with Fly Wheel Removed to Show Gears, Governor, and Valve Mechanism

The method of operation is as follows: When above speed, the arm from the governor balls 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.

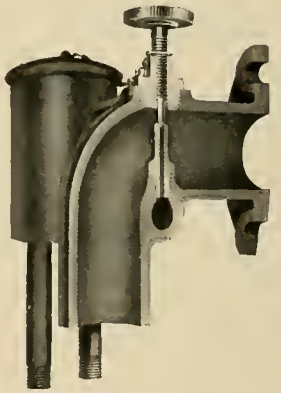
Gasoline Engines

STARTING—The I H C engine is easy to start because a small auxiliary cam on the exhaust cam can be thrown in to engage the roller and relieve compression. When the roller is thrown back into place the engine works under full compression.

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 to the left.

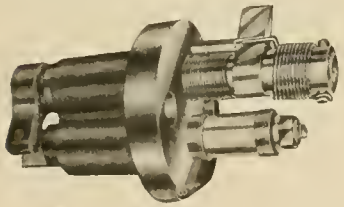
The exact openings of the nozzle necessary to start and operate the engine are marked on the dial of the needle valve, so that the proper mixture is insured.

The overflow from the supply cup is carried back to the fuel tank, so that any danger from overflowing of gasoline is eliminated.



Sectional View of Mixer

IGNITOR—The body of the ignitor is made from cast iron, the electrodes from steel, and the ignition points from a special material that will withstand the heat of the spark, as well as the effects of corrosion and oxidation.



Make-and-Break Ignitor

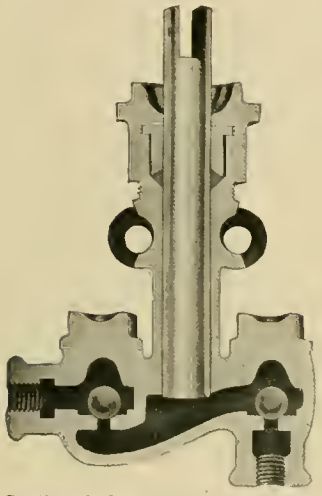
The stationary electrode is insulated, and one wire from the battery is fastened to it. The return circuit is made through the movable electrode and the cylinder when the points are in contact.

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 allows the movable electrode to spring back quickly, breaking the circuit and producing a spark within the cylinder.

As will be seen from the illustration, the parts within the cylinder are large, so that they cannot become incandescent and pre-ignite the charge.

The ignitor is directly in the path of entering charges of explosive vapor, which aids in keeping the ignitor points clean and cool. As the inlet valve opens, the mixture of gasoline and air passes the ignitor points with considerable velocity when entering the cylinder, cleaning or brushing off any soot that may have been deposited upon them. The ignitor plug may be easily removed from the cylinder when it is necessary to clean the ignitor points.

Ignitor, Showing Ignition Points



Sectional View of Gasoline Pump Showing Plunger and Ball Valves

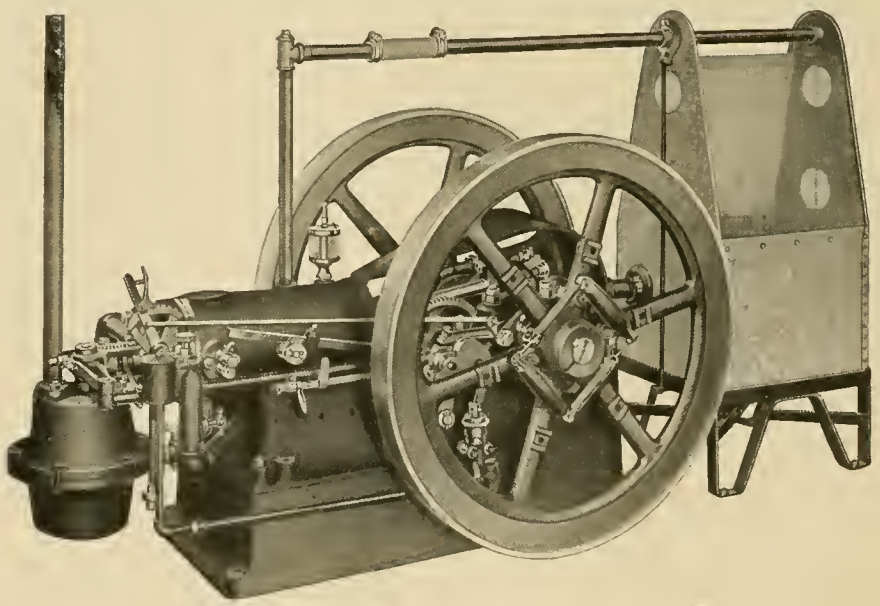
ENGINE BASE—This base consists of two parts, the main frame and sub-base, which are firmly bolted together. It is neat in design and appearance, yet possesses ample strength and rigidity to hold all mechanism in perfect alignment.

FLY WHEELS—The fly wheels are very securely attached to the crank shaft, yet they may be easily removed in case of necessity. The hubs are split, and in addition to being keyed to the crank shaft, are clamped by means of bolts running through the hub.

GASOLINE PUMP—I H C gasoline engines are fitted with a plunger type gasoline pump. A very novel and effective valve arrangement is used. The upward movement of the plunger draws gasoline through the ball valve to the right, while the other one 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. The escape of gasoline past the plunger is prevented by a packing gland of accepted construction.

All parts of the pump are brass with the exception of the plunger and balls, which are steel.

TANK-COOLED—The wire gauze cooling tank is small, so that a few pails of water are sufficient to keep the engine cylinder from overheating. The plunger pump, which is part of the equipment, keeps the water circulating through the jacket. The pump is provided with drain cocks and a handle for lifting the valves off the seats. Opening these as soon as the engine is shut down drains the pump. The galvanized gauze or screen may be easily removed and can be renewed at slight expense.

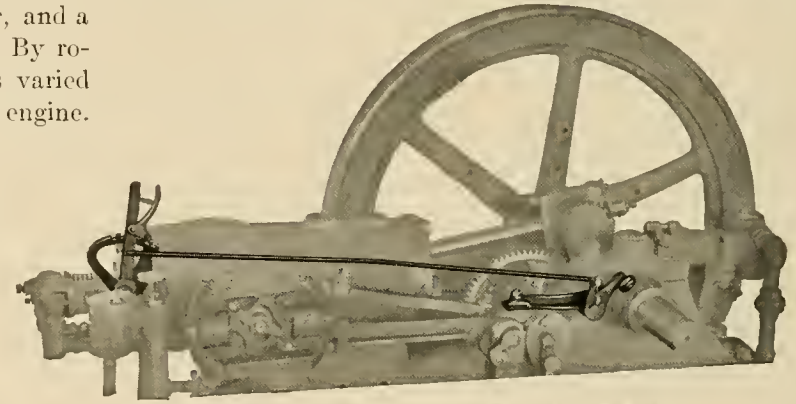


I H C Victor Horizontal Engine with Cooling Tank and Muffler

SPEED-CHANGING DEVICE

The speed-changing device here illustrated is part of the regular equipment of all horizontal tank and hopper-cooled engines. This device consists of a small segment and lever, and a rod operating the new 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 as follows:

H. P.	Normal Speed R. P. M.	Maximum Speed R. P. M.
4	400	480
6	325	390
8	310	370
10	300	360
12	300	360
15	250	275
20	240	270
25	240	270



Victor Engine with Speed-Changing Device and Magneto

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

FRICTION PULLEY—Width of Face, Inches									PLAIN PULLEY—Width of Face, Inches								
Diam.	4-H. P.	6-H. P.	8-H. P.	10-H. P.	12-H. P.	15-H. P.	20-H. P.	25-H. P.	Diam.	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	12	....	....	....	....	....	....
..	...	...	...	...	...	...	....	....	10	8½	12¼	6	....	....	....	....	....
..	...	...	...	...	...	...	....	....	12	8½	12¼	....	....	....	10	10	10
14	6½	6½	6½	6½	...	...	....	....	14	8½	12¼	12¼	12¼	....	....	....	....
16	6½	6½	6½	6½	8½	8½	....	....	16	12¼	12¼	12¼	12¼	14¼	12½	12½	12½
18	6½	6½	6½	6½	8½	8½	10½	10½	18	10¼	10¼	10¼	10¼	14¼	....	....	....
20	6½	6½	6½	6½	8½	8½	10½	10½	20	10¼	10¼	10¼	10¼	12¼	16¼	....	....
22	6½	6½	6½	6½	9½	9½	10½	10½	22	10¼	10¼	10¼	10¼	16¼	14¼	....	....
24	6½	6½	6½	6½	9½	9½	10½	10½	24	9½	9½	10¼	10¼	14¼	14¼	16¼	16¼
26	6½	6½	6½	6½	9½	9½	10½	10½	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	....	9¼	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

SIZES AND SPECIFICATIONS OF I H C VICTOR HORIZONTAL STATIONARY ENGINES—TANK-COOLED

H. P.	Fuel	Mounting	Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. with speed chg. device	Fuel Tank			Approximate Shipping Weight	Floor Space Inches	Height Inches	Equipment
			Diameter Inches	Face Inches	Diameter Inches	Face Inches			Gal. Capacity	Length Inches	Diameter Inches				
4	Gasoline	Cast-Iron Sub-Base	12	8½	33	2½	400	480	14	30	12	1,405 lbs.	35½x54⅝	33½	No. 1
4	Gas		12	8½	33	2½	400	480	..	..	..	1,335 lbs.	35½x54⅝	33½	No. 2
4	Gas and Gasoline		12	8½	33	2½	400	480	14	30	12	1,425 lbs.	35½x54⅝	33½	No. 3
6	Gasoline		16	12¼	40½	2½	325	390	54	48	18	1,970 lbs.	40 3/16x65 1/16	40¾	No. 1
6	Gas		16	12¼	40½	2½	325	390	..	..	..	1,900 lbs.	40 3/16x65 1/16	40¾	No. 2
6	Gas and Gasoline		16	12¼	40½	2½	325	390	54	48	18	1,990 lbs.	40 3/16x65 1/16	40¾	No. 3
8	Gasoline		18	10¼	45	3	310	370	54	48	18	2,719 lbs.	42 7/8x71 3/8	45¼	No. 1
8	Gas		18	10¼	45	3	310	370	..	..	..	2,630 lbs.	42 7/8x71 3/8	45¼	No. 2
8	Gas and Gasoline		18	10¼	45	3	310	370	54	48	18	2,739 lbs.	42 7/8x71 3/8	45¼	No. 3
10	Gasoline		20	10¼	49½	3	300	360	54	48	18	2,949 lbs.	43⅝x77¼	49¾	No. 1
10	Gas		20	10¼	49½	3	300	360	..	..	..	2,870 lbs.	43⅝x77¼	49¾	No. 2
10	Gas and Gasoline		20	10¼	49½	3	300	360	54	48	18	2,970 lbs.	43⅝x77¼	49¾	No. 3
12	Gasoline		24	14¼	54	3	300	360	54	48	18	3,750 lbs.	49⅝x85½	54¼	No. 1
12	Gas		24	14¼	54	3	300	360	..	..	..	3,675 lbs.	49⅝x85½	54¼	No. 2
12	Gas and Gasoline		24	14¼	54	3	300	360	54	48	18	3,770 lbs.	49⅝x85½	54¼	No. 3
15	Gasoline		26	12¼	63	3	250	275	54	48	18	5,107 lbs.	49¼x98½	63	No. 1
15	Gas		26	12¼	63	3	250	275	..	..	..	5,025 lbs.	49¼x98½	63	No. 2
15	Gas and Gasoline		26	12¼	63	3	250	275	54	48	18	5,127 lbs.	49¼x98½	63	No. 3
20	Gasoline		28	16¼	60	3¾	240	270	54	48	18	6,450 lbs	57⅛x102⅜	64⅛	No. 1
20	Gas		28	16¼	60	3¾	240	270	..	..	..	6,375 lbs.	57⅛x102⅜	64⅛	No. 2
20	Gas and Gasoline		28	16¼	60	3¾	240	270	54	48	18	6,470 lbs.	57⅛x102⅜	64⅛	No. 3
25	Gasoline		28	16¼	60	4½	240	270	54	48	18	7,909 lbs.	62⅛x139½	60½	No. 1
25	Gas		28	16¼	60	4½	240	270	..	..	..	7,839 lbs.	62⅛x139½	60½	No. 2
25	Gas and Gasoline		28	16¼	60	4½	240	270	54	48	18	7,930 lbs.	62⅛x139½	60½	No. 3

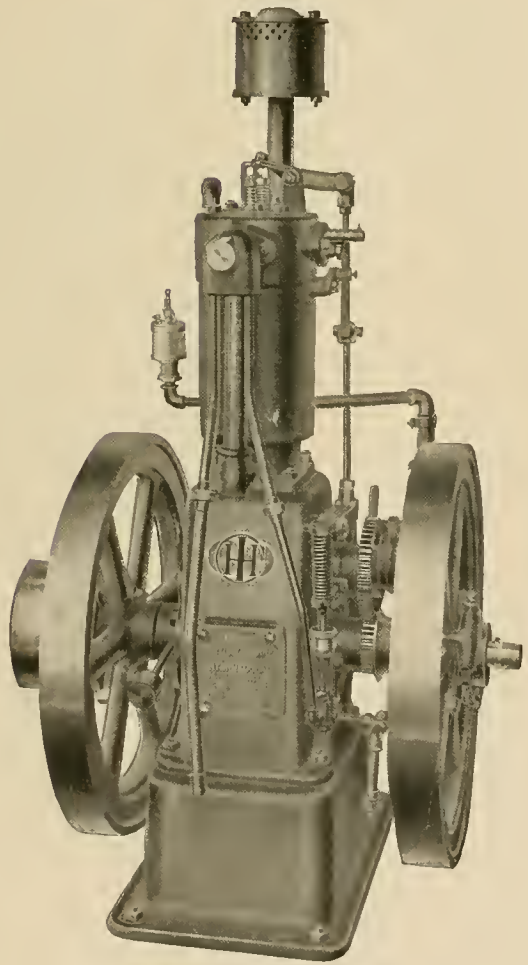
EQUIPMENT—The regular equipment of all I H C Victor horizontal stationary engines includes the following accessories:

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, one electric battery and spark coil, one pulley, oil can, necessary tools and cylinder lubricator.

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

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

The I H C Victor horizontal engine is constructed so as to secure the measure of safety prescribed by the rules of the National Board of Fire Underwriters.



I H C Victor 2-Horse Power Vertical Gasoline Engine

I H C VICTOR VERTICAL GASOLINE ENGINES

2 AND 3-HORSE POWER

The same high-grade construction embodied in larger I H C engines is found in I H C Victor, vertical, one-cylinder gasoline engines. Built in 2 and 3-horse power sizes, these engines meet many farm and shop requirements for which an engine of small horse power is desirable.

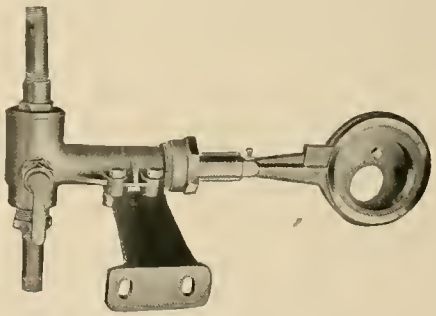
These engines are regularly equipped for using gasoline, but with slight alterations alcohol, natural or artificial gas may be used.

All engines are thoroughly tested before shipping, and every engine is guaranteed to deliver its rated horse power.

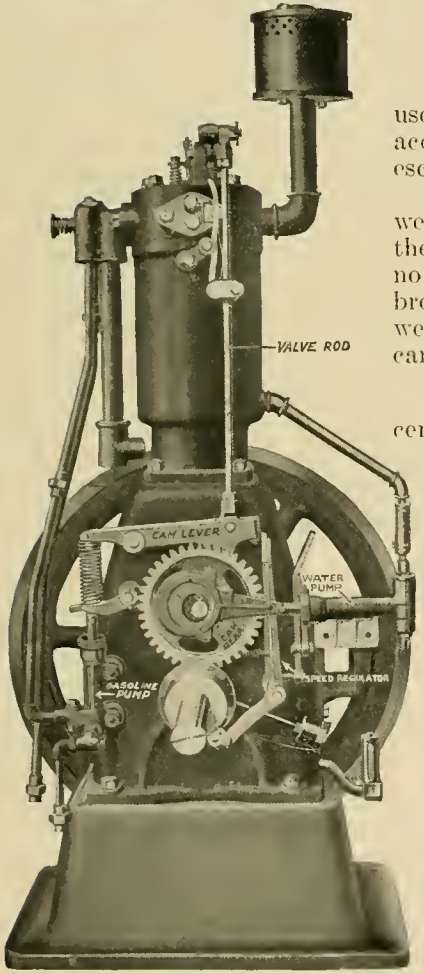
COOLING ARRANGEMENT—The cooling arrangement on Victor vertical gasoline engines consists of a galvanized steel tank, cooling screen, and plunger type circulating pump.

CYLINDER AND HEAD—The cylinder and jacket walls are combined in one casting, and ample space is allowed for a free circulation of the cooling water.

The cylinder head is bolted to the cylinder and can be easily removed for cleaning or whenever it is necessary to have access to all parts of cylinder and water jacket.



Plunger Type Circulating Pump



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

VALVES—The valves are of the poppet type, ground in their seats, and held by springs.

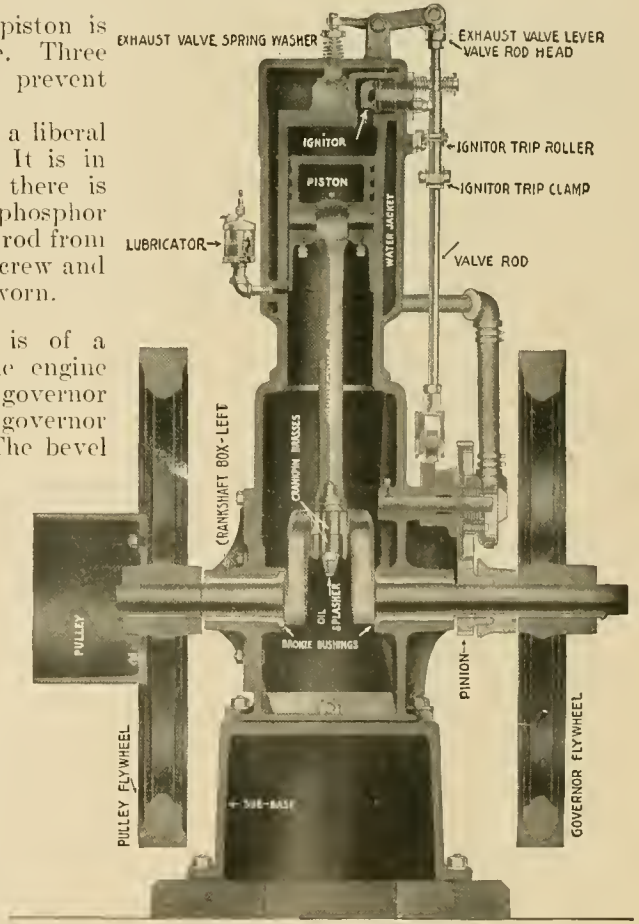
PISTON—A long trunk type piston is used, which affords ample wearing surface. Three accurately fitted, lap joint piston rings prevent escape of compression past the piston.

The wrist pin is large, providing a liberal wearing surface on the connecting rod. It is in the center of the piston, consequently there is no tendency to wear to a taper. A phosphor bronze bushing protects the connecting rod from wear. This bushing is secured by a set-screw and can easily be replaced in case it becomes worn.

GOVERNOR—The governor is of a centrifugal hit-and-miss type. When the engine reaches a speed above normal, the governor balls swing outward, causing the governor sleeve to slide towards the fly wheel. The bevel portion of this sleeve moves the detent lever, which, in turn, engages the cam lever, holding the exhaust valve open until speed drops to normal.

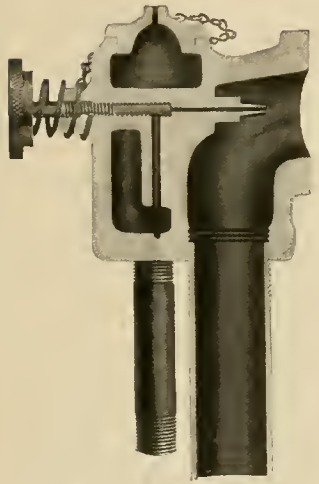
VALVE GEAR—The valve gear is a very simple and effective arrangement. It operates in a straight line and without requiring any fine adjustments. The valve rod, because of the construction of the cam upon which the cam roller turns, serves the double purpose of snapping the ignitor and opening the exhaust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

VALVES—Intake and exhaust valves are both large enough to allow a ready ingress and egress of the gases.



Sectional View of a Victor Vertical Engine, Showing Working Parts

Gasoline Engines



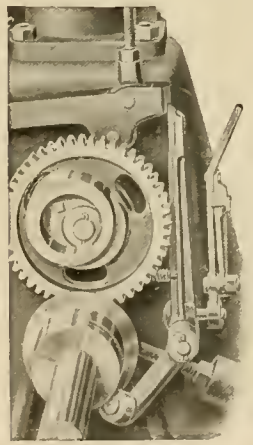
Sectional View of Mixer

MIXER—A very simple and effective mixer, a sectional view of which is shown on this page, is used on all vertical engines. The flow of gasoline is induced from the nozzle by a rush of air through the pipe, the quantity being regulated by the needle valve. Coming in contact with the air, the gasoline is thoroughly vaporized and enters the cylinder in a properly proportioned mixture. 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.

GASOLINE PUMP—The plunger type gasoline pump is continuous in its action.

LUBRICATION—A splash oiling system keeps all main working parts on the I H C engine well oiled.

A sight feed oiler on the side of the cylinder supplies oil to the piston as it passes the opening. The oil in the chamber below the crank shaft is held so that at each revolution of the crank the oil is splashed throughout the interior by the oil splasher which dips into the oil. In this manner the piston, wrist pin, crank pin, and main bearings are kept properly lubricated.



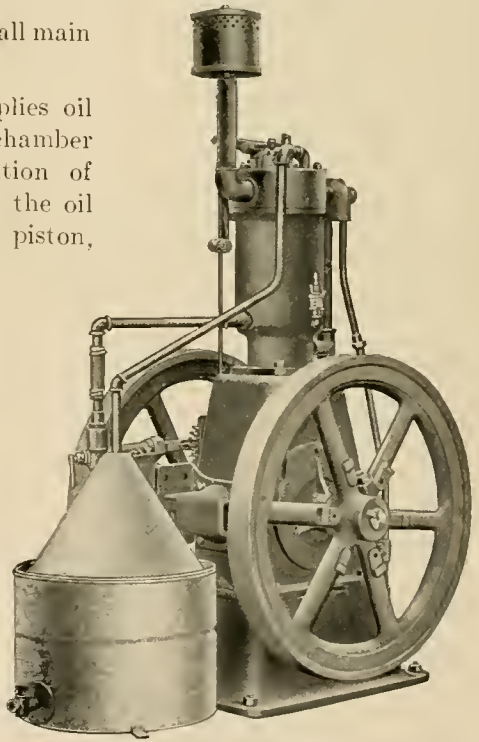
Speed-Changing Device

Excess oil in the bottom of this chamber may be drawn off when necessary through the oil gauge at the bottom.

This splash lubrication proves very desirable, especially should the operator neglect to turn on the sight feed oiler when starting the engine. In this case there is oil enough in the chamber to insure thorough oiling of all parts.

FLY WHEELS—The fly wheels have split hubs and are keyed to the crank shaft.

SPEED-CHANGING DEVICE—The speed-changing device shown in the accompanying illustration allows a variation of from 310 R. P. M. to 480 R. P. M.



Victor Engine with Cooling Tank

Gasoline Engines

SIZES AND SPECIFICATIONS OF I H C VICTOR VERTICAL ENGINES—TANK-COOLED

H. P.	Fuel	Mounting	Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. With Speed-Ch'g Device	Full Tank			Approximate Shipping Weight	Floor Space Inches	Height Inches	Equipment
			Diameter Inches	Face Inches	Diameter Inches	Face Inches			Capacity Gallons	Length Inches	Diameter Inches				
2	Gasoline		8	5	24	2½	400	480	9	20	12	875 lbs.	30 11/16 x24	45	No. 1
2	Gas		8	5	24	2½	400	480	...	...	...	840 lbs.	30 11/16 x24	45	No. 2
2	Gas and Gasoline	Cast-Iron	8	5	24	2½	400	480	9	20	12	883 lbs.	30 11/16 x24	45	No. 3
3	Gasoline	Base	9	5½	26½	2½	360	480	9	20	12	1,019 lbs.	31¾x26½	48	No. 1
3	Gas		9	5½	26½	2½	360	480	...	...	...	950 lbs.	31¾x26½	48	No. 2
3	Gas and Gasoline		9	5½	26½	2½	360	480	9	20	12	1,027 lbs.	31¾x26½	48	No. 3

EQUIPMENT—The regular equipment of all I H C Victor vertical engines 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 and spark coil, 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.

The I H C Victor vertical engine is constructed so as to secure the measure of safety prescribed by the rules of the National Board of Fire Underwriters.

SPECIAL SIZES OF PULLEYS FOR I H C VERTICAL ENGINES WHICH WILL BE SUPPLIED UPON ORDER

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 and 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 and 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			

FRICTION PULLEYS—Friction clutch pulleys 10 to 22 inches in diameter, inclusive, with a 4½-inch face can be furnished for 2 and 3-horse power Victor vertical engines.

I H C VICTOR TWO-CYLINDER VERTICAL GASOLINE ENGINE

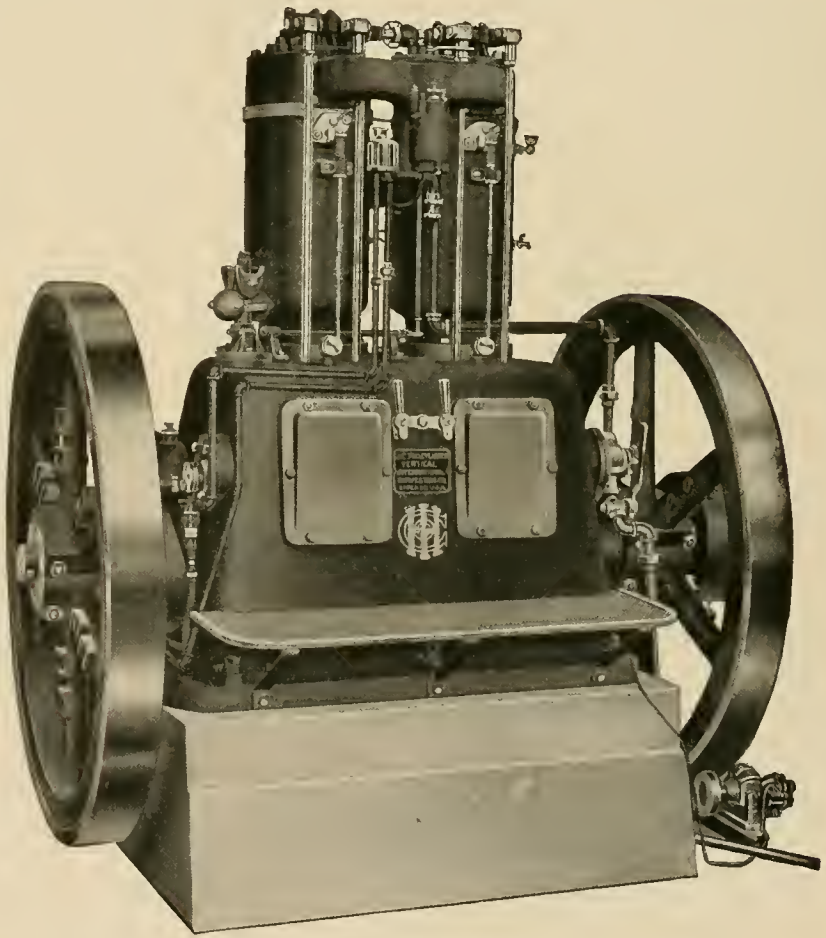
25 AND 35-HORSE POWER

This engine is well adapted for supplying power for municipal and private electric-lighting plants and waterworks, for factories and cotton gins—in fact, for all purposes where close regulation of speed is essential. The variation in speed from no load to full load is less than 2 per cent, so that the engine can be connected direct to generators. This regulation is as close as that of a high-class steam engine.

The engine can be equipped for the use of either city, natural, or producer gas, or gasoline as fuel. It is necessary only to change the pistons and the mixing valves. When operated on gasoline or city gas, it will produce considerable power in excess of its rating.

The design conforms in many instances to standard construction for vertical, single-acting, four-stroke-cycle engines, having an enclosed crank case, splash lubrication, and valves in the cylinder heads operated by push rods and rockers. A fly-ball governor controls the quantity and quality of mixture admitted for varying loads. In working out the details, absolute interchangeability of parts has been the guiding principle, and there are no "rights and lefts" in its construction. In this respect the I H C two-cylinder engine differs from nearly all other similar engines. On the I H C any piece used for any given purpose on one cylinder may be used equally well on the other, and the positions of the cylinders themselves may be transposed at will.

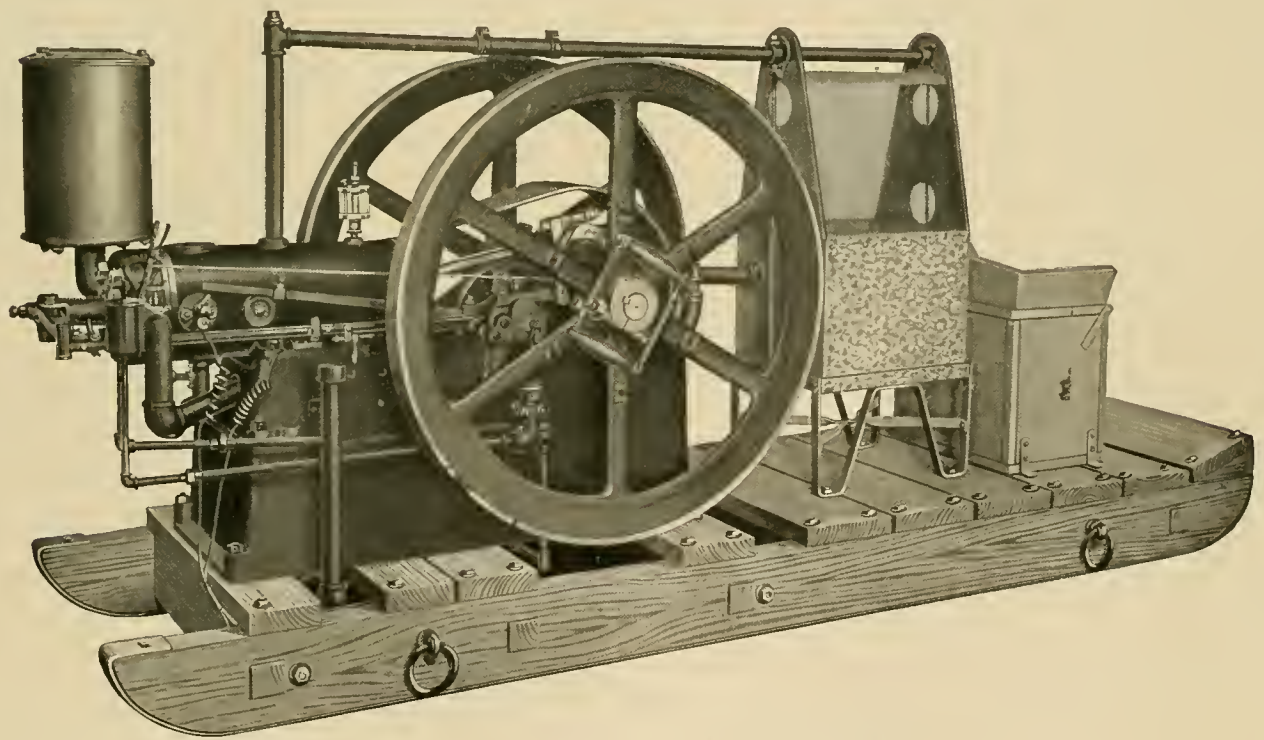
A complete description of this engine, together with many illustrations, will be found in a special two-cylinder engine catalogue, a copy of which will be sent upon request.



Front view I H C Victor Two-Cylinder Engine equipped with gasoline mixer

I H C FAMOUS HORIZONTAL GASOLINE ENGINES ON SKIDS

4, 6, AND 8-HORSE POWER



Famous 6-Horse Power Horizontal Engine on Skids
Complete specifications will be found on page 18

I H C FAMOUS HORIZONTAL GASOLINE ENGINE ON SKIDS

4, 6, AND 8-HORSE POWER

On the opposite page is shown the Famous horizontal engine mounted on skids. When mounted in this manner, a semi-portable outfit is formed.

MOUNTING—This engine is mounted on substantial wooden skids which also carry cooling tank, gasoline tank, and battery box.

ENGINE—The engine proper is essentially the same as the regular I H C Victor gasoline engine, except that the gasoline tank is placed in the base of the engine. Electric ignition is used, the current for which is supplied by batteries regularly furnished. A speed-changing device is part of the regular equipment.

SPECIAL ACCESSORIES—At a slight additional cost a magneto can be supplied to take the place of the batteries. On special order engines with a hot tube to take the place of the electric ignition can be supplied. This includes a small gasoline tank and burner. This attachment must be put on at the works, inasmuch as it is necessary to bore the cylinder in order to attach the tube.

These skidded outfits are furnished in 4, 6, and 8-horse power sizes.

SPECIFICATIONS OF FAMOUS ENGINES ON SKIDS

HORIZONTAL AND VERTICAL—TANK-COOLED

H. P.	Type	Pulley		Fly Wheel		Speed R. P. M.	Speed R.P.M. with Speed-Changing Device	Fuel Tank	Approximate Shipping Weight Lbs.	Base Measures Inches		Height Inches	Equipment
		Diameter Inches	Face Inches	Diameter Inches	Face Inches			Capacity Gallons		Length of Skids	Width of Skids	(Over All)	
2	Ver.	8	5	24	2½	400	480	3½	857	62	18¼	48	Regular
3	Ver.	9	5½	26½	2½	360	480	3½	979	63	20¾	51	Regular
4	Hor.	12	8⅜	33	2½	400	480	7	1575	108	28	50	Regular
6	Hor.	16	12¼	40½	2½	325	390	15	2028	120	32	53	Regular
8	Hor.	18	10¼	45	3	310	370	20	2677	132	32	60½	Regular

EQUIPMENT—The regular equipment of Famous engines on skids includes the following: One galvanized steel gasoline tank in the base of the engine, galvanized steel cooling tank, all mounted on a substantial wooden base, one regular size pulley, muffler, tool and battery box with tools and batteries, cylinder lubricator, and oil can.

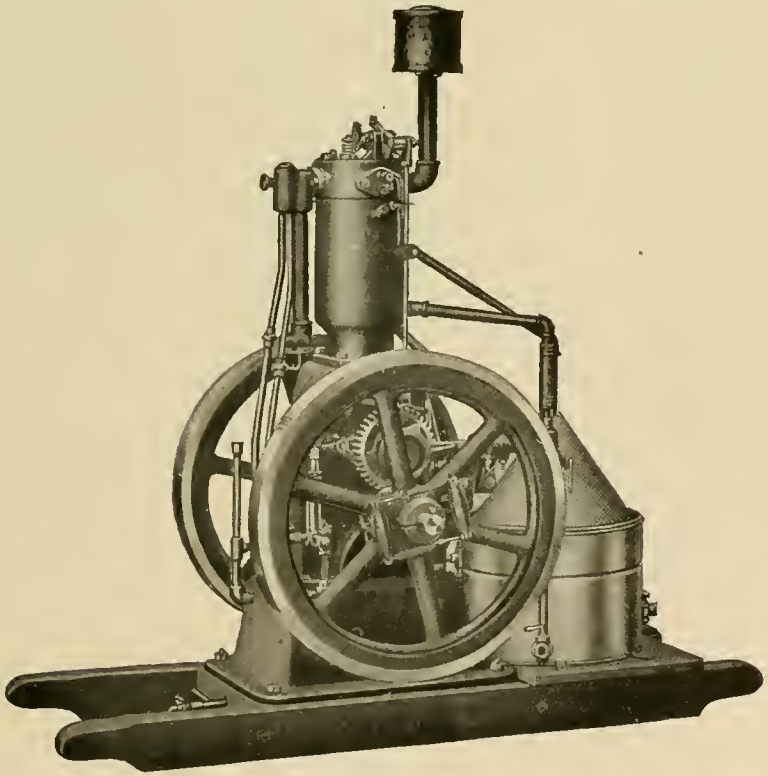
Magneto, auto sparker, and friction clutch pulley can be furnished on special order for Famous engines.

Horizontal engines are regularly furnished with a speed-changing device.

FAMOUS VERTICAL GASOLINE ENGINES ON SKIDS

2 AND 3-HORSE POWER

These outfits are like those described on the preceding page except that the engine is either a 2 or 3-horse power vertical, similar to the regular I H C Victor vertical engine.

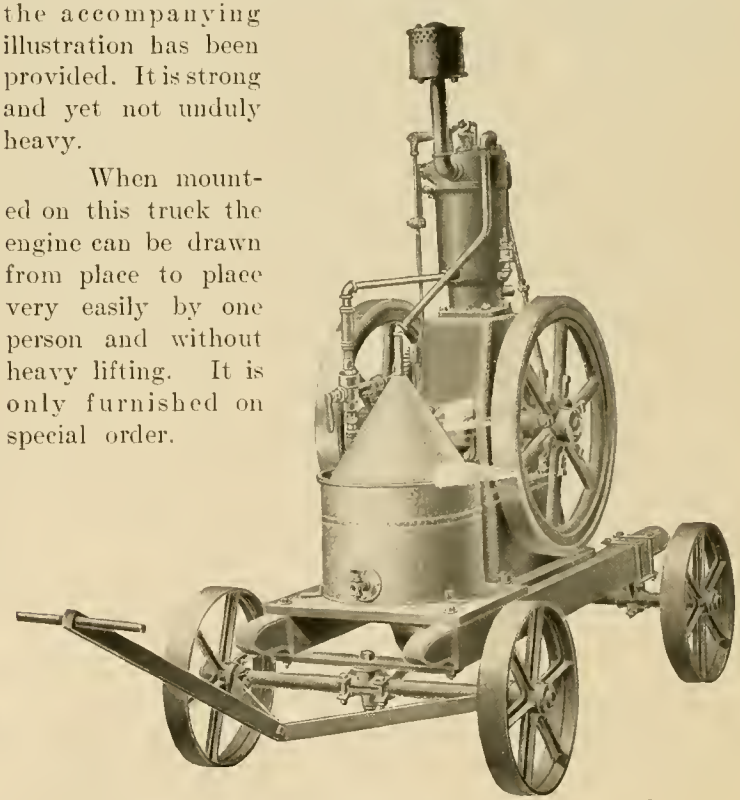


Famous 3-Horse Power Engine

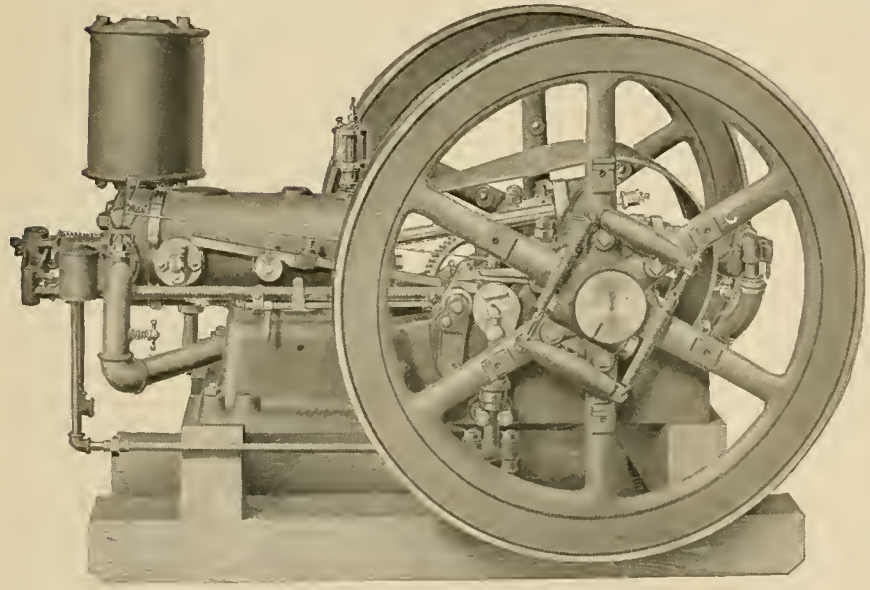
HAND TRUCK FOR FAMOUS VERTICAL ENGINES

It very frequently happens that a purchaser of a small Famous vertical engine can make this engine serve his purpose to a better advantage by having it in a convenient, portable shape. For this reason the hand truck shown in the accompanying illustration has been provided. It is strong and yet not unduly heavy.

When mounted on this truck the engine can be drawn from place to place very easily by one person and without heavy lifting. It is only furnished on special order.



Famous 3-Horse Power Engine Mounted on a Hand Truck



Famous 6-Horse Power Mounting Engine on Shipping Skids

FAMOUS MOUNTING ENGINES

HORIZONTAL TYPE—TANK-COOLED

4, 6, 8, 10, 12, 15, AND 20-HORSE POWER

The Famous, water-cooled, mounting engine shown in the accompanying illustration is mounted on temporary shipping skids.

This mounting engine fills the requirements of those who desire an engine which can be readily converted into a portable outfit, by mounting on farm truck, portable saw rig, or bobsled.

This engine has the gasoline engine located in its base and is shipped without cast-iron sub-base but mounted on temporary shipping skids. In other respects it is similar to the regular I H C Victor horizontal engine.

SPECIFICATIONS OF FAMOUS TANK-COOLED MOUNTING ENGINE

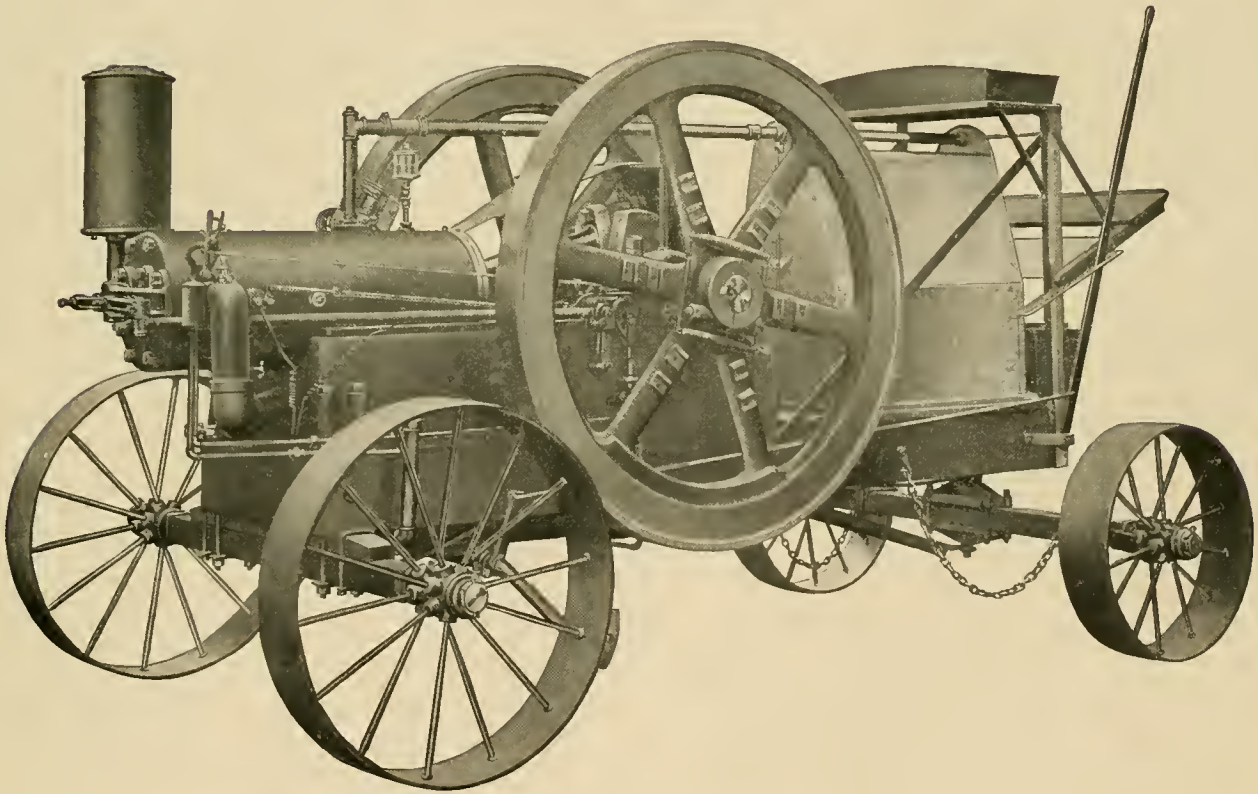
H. P.	Type	Pulley		Fly Wheel		Speed R. P. M.	R. P. M. with Chg. Device	Cap'y Gasoline Tank Gallons	Weight	Base Meas., Inches		Height Inches	Equipm'nt
		Diameter Inches	Face Inches	Diameter Inches	Face Inches					Width of Frame	Length of Frame		
4	Hor.	12	8 3/8	33	2 1/2	400	480	12	Owing to the variation 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.	15 1/4	33 5/8	33 1/2	Regular
6	Hor.	16	12 1/4	40 1/2	2 1/2	325	390	12		17	40 1/4	40 3/4	Regular
8	Hor.	18	10 1/4	45	3	310	370	15		20	43 3/4	45 1/4	Regular
10	Hor.	20	10 1/4	49 1/2	3	300	360	15		20	46 1/4	49 3/4	Regular
12	Hor.	24	14 1/4	54	3	300	360	15		21 3/4	51 3/4	54 1/4	Regular
15	Hor.	26	12 1/4	63	3	250	275	40		23 1/4	61 7/8	63	Regular
20	Hor.	28	16 1/4	60	3 3/4	240	270	42		25 1/2	64 1/2	64	Regular

REGULAR EQUIPMENT—The regular equipment of Famous water-cooled engines for mounting on skids or truck by purchasers includes: Square galvanized steel gasoline tank, square galvanized steel cooling tank, one regular size pulley, one exhaust muffler with connection, speed-changing device, tool and battery box with tools and batteries, cylinder lubricator, and oil can.

Auto sparker, friction-clutch pulley, magneto and hot tube can be furnished on special order for Famous mounting engines.

I H C PORTABLE GASOLINE ENGINES

4, 6, 8, 10, 12, 15, 20, AND 25-HORSE POWER

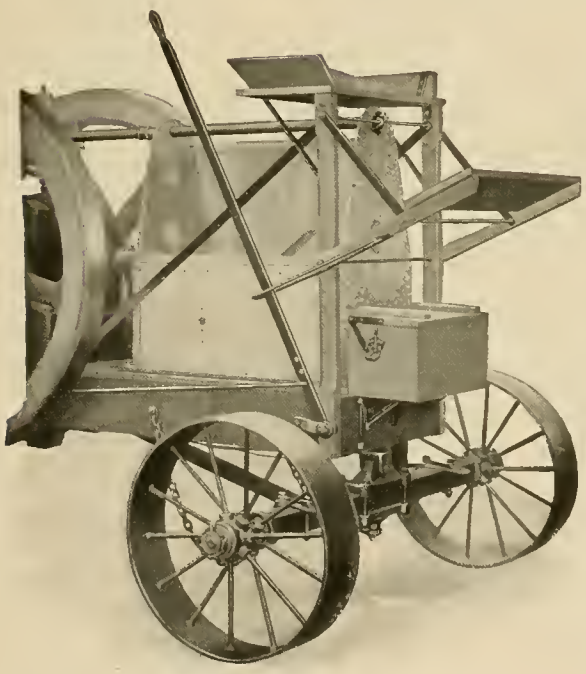


Working Side of 1 H C Portable Engine

Specifications of this engine will be found on page 23

I H C PORTABLE GASOLINE ENGINE

4, 6, 8, 10, 12, 15, 20, AND 25-HORSE POWER



Detail of Portable Engine Showing Water Tank and Front Trucks

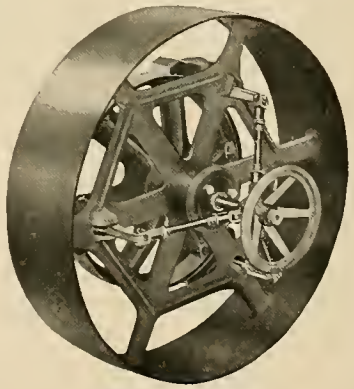
These portable engines have a wide range of adaptability. They meet the demand of farmers and contractors who desire reliable power which can be easily transferred from place to place. They furnish the most efficient and economical power for operating threshers, huskers and shredders, shellers, silage cutters, pumps, saws, and other farm machines. 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.

TRUCKS—These engines are mounted on substantial 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 rough roads. The frame upon which the engine rests will support it under all conditions. 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.

ENGINE—The engine proper is essentially the same as the Victor horizontal engine, except that it is mounted without sub-base on trucks which make it very convenient for transporting.

COOLING—Cooling arrangement consists of cooling tower and circulating pump mounted on the truck with engine.

IGNITION—Electric ignition is used. Batteries and auto sparker are regularly furnished.



Friction Clutch Pulley

FRICTON CLUTCH PULLEY—A friction clutch pulley bolted to the spokes of the fly wheel is used on this engine. The construction of this pulley makes it possible to start gradually without jerking or jarring the machine which is being driven.

SPECIAL ACCESSORIES—Magneto and engines with hot tube may be had on special order at a small additional cost.

SIZES AND SPECIFICATIONS OF I H C PORTABLE ENGINES—TANK-COOLED

H. P.	Tread	Size of Truck Wheels Inches	Friction Clutch Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. with Speed-Ch'g Device	Capacity Gasoline Tank Gallons	Height Inches	Approximate Shipping Weight Pounds	Equipment
			Diameter Inches	Face Inches	Diameter Inches	Face Inches						
4	44	24 and 28 x 3½	20	6½	33	2½	400	480	7	64½	1,938	Regular
6	46	26 and 34 x 3½	24	6½	40½	2½	325	390	15	67½	2,483	Regular
8	49⅝	30 and 38 x 4	26	6½	45	3	310	370	20	76½	3,492	Regular
10	49⅝	30 and 38 x 4	28	7½	49½	3	300	360	20	76½	3,762	Regular
12	57⅝	30 and 38 x 6	30	9½	54	3	300	360	30	77½	4,557	Regular
15	57⅝	30 and 38 x 6	36	9½	63	3	250	275	40	77½	5,721	Regular
20	68	30 and 38 x 6	40	10½	60	3¾	240	270	42	77½	6,760	Regular
25	68¼	30 and 38 x 8	40	10½	60	4½	240	270	42	78	8,945	Regular

EQUIPMENT—The regular equipment of all portable engines includes the following accessories:

Cooling tank and gasoline tank, both of which are connected to the engine, exhaust muffler, friction clutch pulley, wheel braces, singletrees, doubletrees, and neckyoke, auto sparker, tool and battery box with necessary tools and batteries, and cylinder lubricator. A brake is supplied regularly with 20 and 25-horse power portable engines, and furnished as an extra on special order for all other sizes of portable engine truck.

Wheels with 8-inch face can be furnished on special order for the 20-horse power portable engine truck.

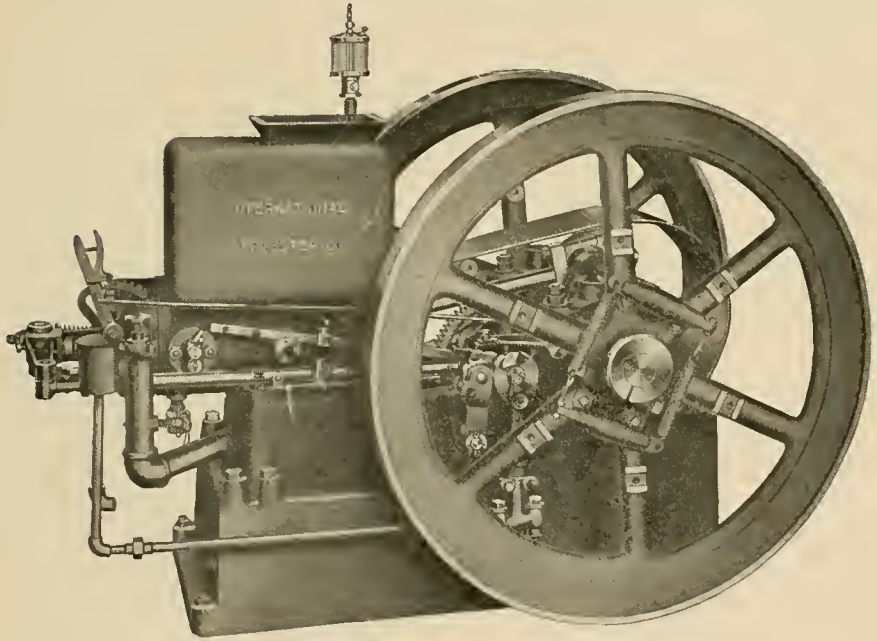
These wheels cannot, however, be furnished for engines in the field.

I H C SPECIAL PULLEYS FOR PORTABLE ENGINES

FRICTION PULLEY — Width of Face, Inches								PLAIN PULLEY — Width of Face, Inches							
Diam.	4-H. P.	6-H. P.	8-H. P.	10-H. P.	12-H. P.	15-H. P.	20-H. P.	Diam.	4-H. P.	6-H. P.	8-H. P.	10-H. P.	12-H. P.	15-H. P.	20-H. P.
..	...	...	...	...	...	...	....	8	12	12	....	....	....	....	....
..	...	...	...	...	...	...	....	10	12¼	12¼	6	....	....	....	....
..	...	...	...	...	...	...	....	12	12¼	12¼	....	....	....	10	10
14	6½	6½	6½	6½	...	...	....	14	8⅜	12¼	12¼	12¼	....	....	....
16	6½	6½	6½	6½	8½	8½	....	16	12¼	12¼	12¼	12¼	14¼	12½	....
18	6½	6½	6½	6½	8½	8½	10½	18	10¼	10¼	10¼	10¼	14¼	....	....
20	6½	6½	6½	6½	8½	8½	10½	20	10¼	10¼	10¼	10¼	12¼	16¼	....
22	6½	6½	6½	6½	9½	9½	10½	22	10¼	10¼	10¼	10¼	16¼	14¼	....
24	6½	6½	6½	6½	9½	9½	10½	24	9½	9½	10¼	10¼	14¼	14¼	16¼
26	6½	6½	6½	6½	9½	9½	10½	26	9½	9½	10¼	10¼	12¼	12¼	14¼
28	6½	6½	7½	7½	9½	9½	10½	28	9½	9½	10¼	10¼	12¼	16¼	16¼
30	6½	6½	7½	7½	9½	9½	10½	30	9½	9½	10¼	10¼	12¼	16¼	16¼
32	...	6½	7½	7½	9½	9½	10½	32	....	9½	10¼	10¼	10¼	14¼	14¼
34	...	6½	7½	7½	9½	9½	10½	34	....	9½	10¼	10¼	10¼	14¼	14¼
36	...	6½	7½	7½	9½	9½	10½	36	....	9½	10¼	10¼	10¼	14¼	14¼
38	...	...	...	...	9½	9½	10½	38	....	....	....	....	10¼	12¼	12¼
40	...	...	...	...	9½	9½	10½	40	....	....	....	....	9¼	12¼	12¼
42	...	...	...	...	9½	9½	10½	42	....	....	....	....	....	....	10¼

I H C VICTOR HOPPER-COOLED ENGINES

HORIZONTAL STATIONARY—4, 6, AND 8-HORSE POWER



I H C Victor, Stationary, Hopper-Cooled, Gasoline Engine

I H C Victor hopper-cooled engines are in many essentials similar to the I H C Victor horizontal tank-cooled engines. However, a change in the cooling arrangement greatly simplifies them.

COOLING—Instead of being equipped with a cooling tower, circulating pump, and pipe, the water jacket of the cylinder is extended upwards to form an open jacket or hopper. This hopper holds enough water to keep the engine thoroughly cooled for several hours. As the water evaporates very slowly, it is an easy matter to keep the hopper filled. This cooling arrangement does away with the danger of the cylinder being cracked by freezing, as the hopper opening allows the water to expand. However, if the engine is left exposed to freezing weather for a considerable length of time, it is advisable to drain the hopper.

SPECIAL ACCESSORIES—At a small additional cost, a magneto, auto sparker, and friction clutch pulley can be supplied.

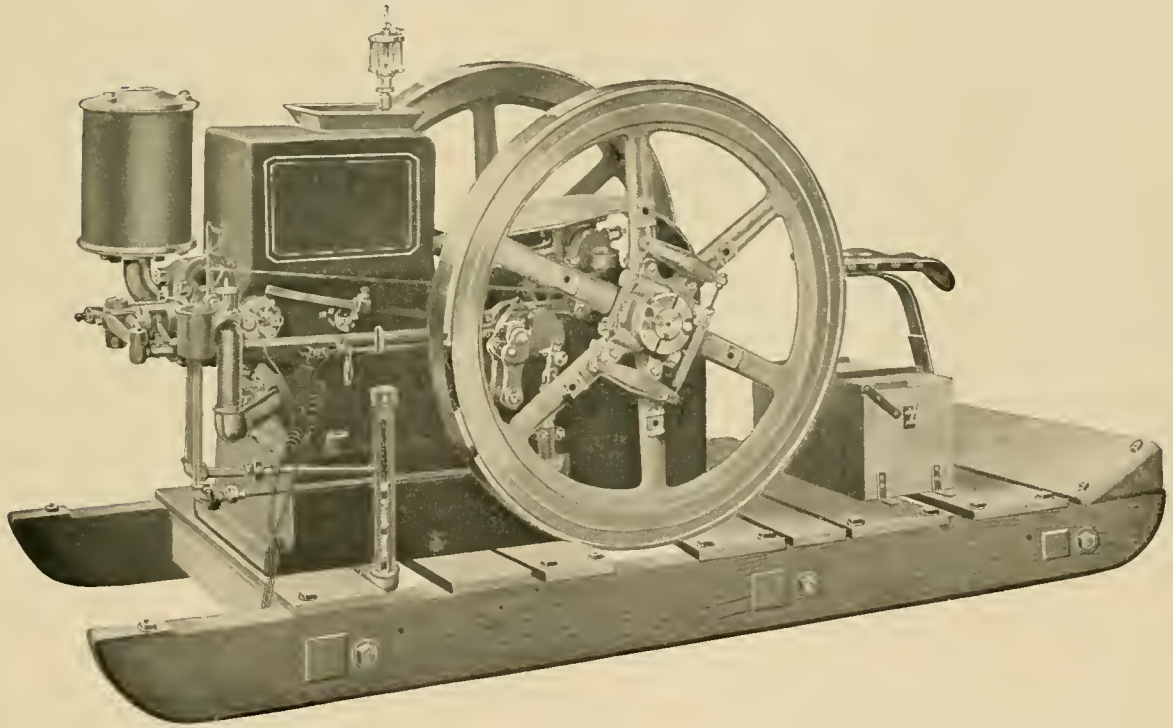
SPECIFICATIONS OF STATIONARY HOPPER-COOLED ENGINES

H. P.	Type	Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. with Speed-Changing Device	Capacity of Hopper Gallons	Capacity of Gasoline Tank Gallons	Base Measures Inches		Approximate Shipping Weight
		Diameter Inches	Face Inches	Diameter Inches	Face Inches					Width	Length	
4	Hor.	12	8⅜	33	2½	400	480	6	7	35½	54⅝	1400
6	Hor.	16	12¼	40½	2½	325	390	12	15	40 3/16	65 1/16	2000
8	Hor.	18	10¼	45	3	310	370	16	20	42⅞	71⅜	....

EQUIPMENT—The regular equipment of stationary hopper-cooled engines includes the following: One galvanized steel gasoline tank, one regular size pulley, muffler, tool and battery box with tools and batteries, cylinder lubricator, and oil can.

I H C FAMOUS HORIZONTAL HOPPER-COOLED ENGINES

2½, 4, 6, AND 8-HORSE POWER—MOUNTED ON SKIDS

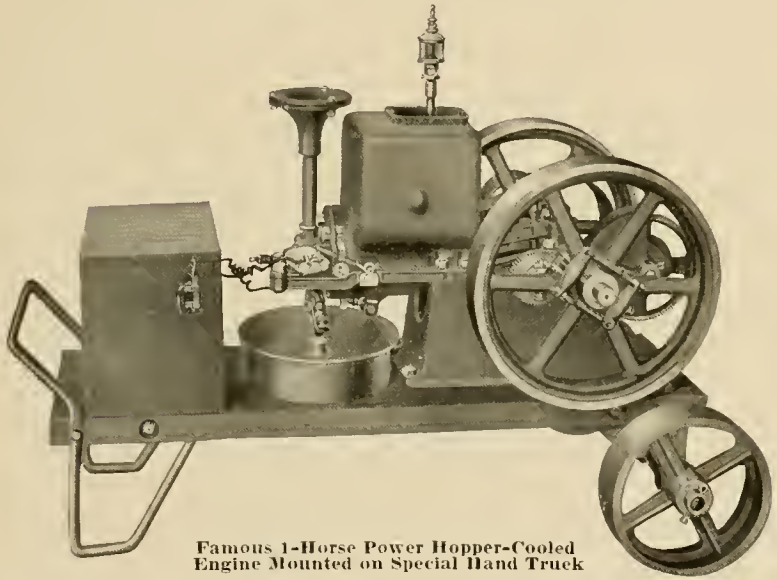


Famous 6-Horse Power Hopper-Cooled Engine on Skids. Specifications of these engines are given on page 26

The engine illustrated above is similar to the I H C horizontal hopper-cooled engine described on the opposite page, except that the engine, gasoline tank, and battery box are mounted on substantial wooden skids.

Mounted in this way, a semi-portable outfit is formed, which may be used as a stationary engine or loaded on a farm truck or bobsled and moved from place to place whenever desired.

FAMOUS ONE-HORSE POWER HOPPER-COOLED ENGINE



Famous 1-Horse Power Hopper-Cooled Engine Mounted on Special Hand Truck

ENGINE—This engine has 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 engine. However, it has make-and-break ignition, 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 new hopper-jacketed cylinder with water-cooled head. If the engine is running under full load, the hopper full of water will evaporate in about one hour.

MOUNTING—The engine is regularly mounted on a platform, but it can be mounted on special order on a semi-portable truck, which includes the wheels and a handle for drawing the outfit.

SPECIFICATIONS OF FAMOUS HOPPER-COOLED ENGINES ON SKIDS

VERTICAL AND HORIZONTAL

H. P.	Type	Mounting	Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. with Speed-Changing Device	Capacity of Hopper Gallons	Capacity of Gasoline Tank Gallons	Base Measures Inches		Height of Outfit	Approximate Shipping Weight
			Diameter Inches	Face Inches	Diameter Inches	Face Inches					Width of Skids	Length of Skids		
1	Hor.	On Substantial Wooden Skids	6	2½	15½	2¼	600	. . . . .	½	¾	12	42	21	238
2	Ver.		5	5	17½	2⅛	650	No Speed-Change Device for these	2¼	1¾	18¼	38	37¾	420
3	Ver.		5	5½	22	2¼	500		4½	2¾	18¼	49½	46⅜	615
2½	Hor.		5	5½	22	2¼	500	550	3½	3½	18¼	54	26¾	610
4	Hor.		12	8⅜	33	2½	400	480	6	7	28	84	40 9/16	1375
6	Hor.		16	12¼	40½	2½	325	390	12	15	32	93	47¾	2000
8	Hor.		18	10¼	45	3	310	370	16	20	32	97⅜	52¼	2575

EQUIPMENT—The regular equipment of Famous hopper-cooled engines on skids includes the following: One galvanized steel gasoline tank in the base of the engine, substantial wooden base, one regular size pulley, muffler, tool and battery box with tools and batteries, cylinder lubricator, and oil can.

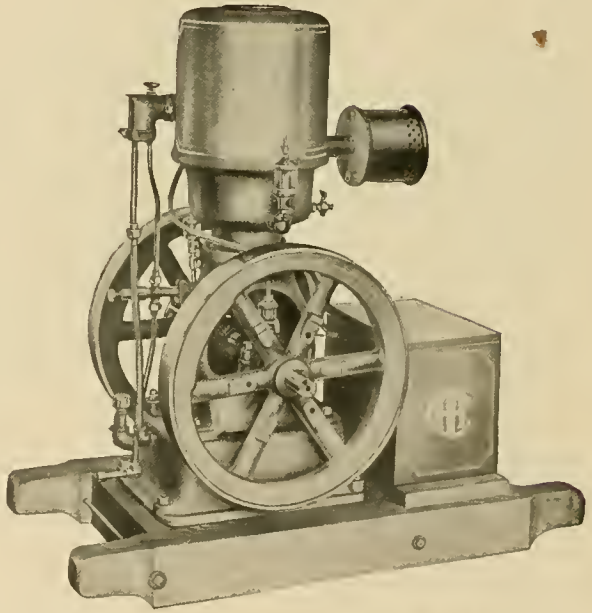
FAMOUS VERTICAL HOPPER-COOLED ENGINES

2 AND 3-HORSE POWER

These small vertical hopper-cooled engines are made only in 2 and 3-horse power sizes. The cylinder is so cast that it extends upward to form a hopper which holds the cooling water necessary to keep the cylinder and parts at the proper working temperature.

ENGINE—The engines are essentially the same as the Famous 2 and 3-horse power air-cooled engines, having fly wheel type of governor, splash oiling system, semi-enclosed crank case, and jump spark ignition.

MOUNTING—The engines are mounted the same as air-cooled engines on very substantial skids which also carry the gasoline tank and battery box.



Famous 2-Horse Power Vertical Hopper-Cooled Engine

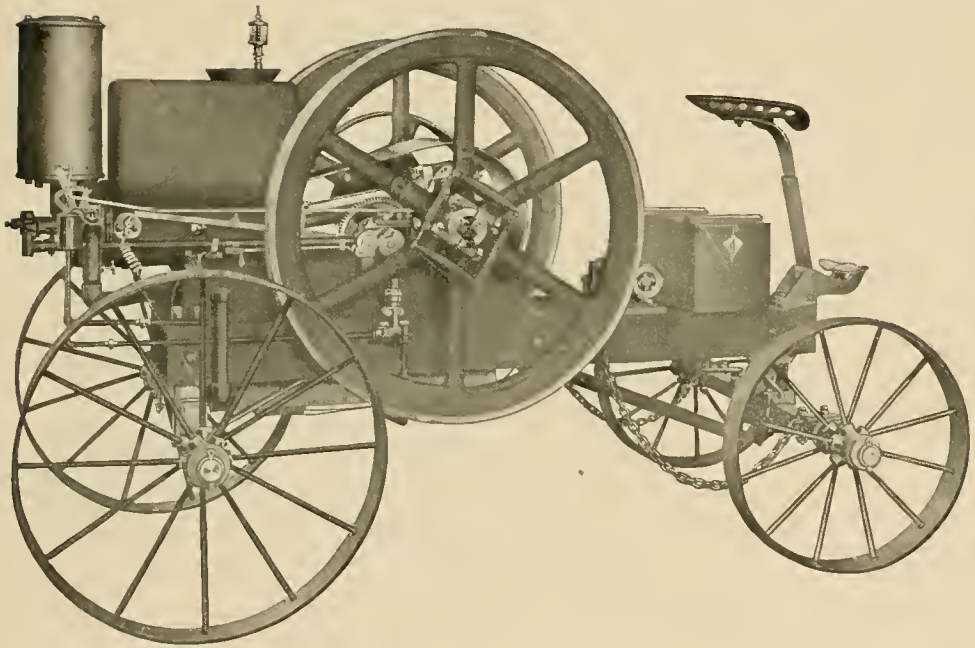
FAMOUS HOPPER-COOLED MOUNTING ENGINES

These engines are in all respects similar to the regular hopper-cooled engines, except in the following features: The engine is shipped without the sub-base, so that it may be mounted on skids or trucks by the purchaser.

SPECIFICATIONS OF FAMOUS HOPPER-COOLED MOUNTING ENGINES

H. P.	Type	Mounting	Pulley		Fly Wheel		Speed	Speed R. P. M. with Speed-Changing Device	Capacity of Hopper Gallons	Capacity of Gasoline Tank Gallons	Base Measures Inches		Approximate Shipping Rate
			Diameter Inches	Face Inches	Diameter Inches	Face Inches	R. P. M.				Width of Frame	Length of Frame	
2½	Hor.	On Temporary Wooden Skids	5	5½	22	2¼	500	550	3½	3½	11	27¾	610
4	Hor.		12	8⅜	33	2½	400	480	6	7	15¼	33⅝	1235
6	Hor.		16	12¼	40½	2½	325	390	12	15	17	40¼	1670
8	Hor.		18	10¼	45	3	310	370	16	20	20	43¾	2265

EQUIPMENT—The regular equipment of Famous hopper-cooled mounting engines includes the following: One galvanized steel gasoline tank in the base of the engine, one regular size pulley, muffler, tool and battery box with tools and batteries, cylinder lubricator, and oil can.



I H C Hopper-Cooled Portable Engine

I H C PORTABLE HOPPER-COOLED ENGINES

4, 6, AND 8-HORSE POWER

These outfits are particularly desirable as portable outfits, for the reason that the absence of the tank-cooled feature makes it possible to have a very compact mounted outfit. The engine is similar in all respects to the hopper-cooled engines described elsewhere. The trucks have the same channel frames, axles, and wheels as are used on the regular I H C tank-cooled portable engines.

Brakes with these outfits are furnished on special order only.

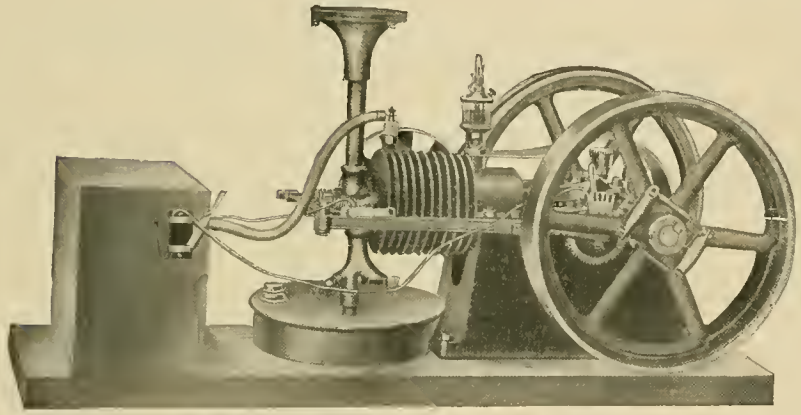
SIZES AND SPECIFICATIONS OF I H C PORTABLE ENGINES—HOPPER-COOLED

H. P.	Tread	Size of Truck Wheels, Inches	Friction Clutch Pulley		Fly Wheel		Speed R. P. M.	Speed R. P. M. with Speed-Ch'g Device	Capacity Gasoline Tank Gallons	Hopper Capacity Gallons	Approximate Shipping Weight Pounds	Equipment
			Diameter Inches	Face Inches	Diameter Inches	Face Inches						
4	44	24 and 28 x 3½	20	6½	33	2½	400	480	12	6	1994	Regular
6	46	26 and 34 x 3½	24	6½	40½	2½	325	390	15	12	2608	Regular
8	49⅝	30 and 38 x 4	26	6½	45	3	310	370	20	16	3418	Regular

EQUIPMENT—The regular equipment of all hopper-cooled portable engines includes the following accessories: Exhaust muffler, friction clutch pulley, wheel braces, singletrees, doubletrees and neckyoke, auto sparker, tool and battery box with necessary tools and batteries, and cylinder lubricator. A brake is supplied as an extra on special order, for all sizes of portable engine trucks.

TOM THUMB FAMOUS AIR-COOLED GASOLINE ENGINE

1-HORSE POWER



Tom Thumb Famous 1-Horse Power Engine

This air-cooled engine is an excellent power for operating any farm or shop machines to which a 1-horse power engine is adaptable.

MOUNTING—The engine, gasoline tank, and battery box are mounted on a solid wooden sub-base, which makes it very convenient for moving from place to place. On special order, at a slight additional cost, it can be mounted on a small truck which includes wheels and a handle for drawing the outfit.

ENGINE—This engine is provided with a hit-and-miss type of governor, very sensitive in its action. No gasoline pump is used on this engine; 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. This gasoline, the quantity of which is regulated by the needle valve, reaches the cylinder in a properly proportioned mixture. The valve mechanism is very simple. Both valves may be removed by unscrewing one bolt in the cylinder head.

IGNITION—Jump spark ignition is used, for which five dry cell batteries and a spark plug are regularly furnished. The spark is very convenient and accessible, being placed on the top of the cylinder.

PULLEYS—A plain pulley, 6 inches in diameter, with a 2½-inch face, is regularly furnished. A complete pulley arrangement for driving the cream separator, consisting of a reducing gear and a 4-inch pulley capable of transmitting ½-horse power, is regularly furnished.

SPECIAL ACCESSORIES—A special 6-inch pulley with a 5-inch face can be used for operating the standing and walking beam pumping jacks, and can be supplied on special order. A 4-inch pulley may also be had on special order.

SIZES AND SPECIFICATIONS OF FAMOUS AIR-COOLED ENGINES

H. P.	Type	Pulley		Fly Wheel		Speed	Approximate Shipping Weight Lbs.	Capacity of Full Tank Gallons	Base Measures Inches	Height Inches
		Diameter Inches	Face Inches	Diameter Inches	Face Inches					
1	Hor.	*6	2½	15½	2¼	600	259	¾	12 x42	21
2	Ver.	5	5	17½	2⅛	650	375	1¾	18¼x38	37
3	Ver.	5	5½	22	2¼	500	566	2¾	18¼x49½	54

*Note—2 pulleys furnished regularly with 1-H. P. Famous Air-Cooled Engine, one—6″ x 2½″ and one—4″ x 2 3/16″

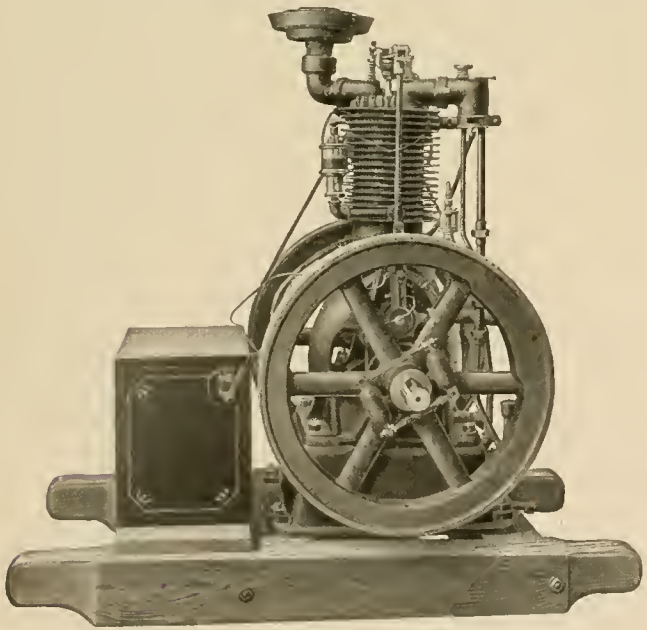
FAMOUS VERTICAL AIR-COOLED GASOLINE ENGINES

2 AND 3-HORSE POWER

These vertical, air-cooled engines are very satisfactory for many small jobs about the farm and shop. Their light weight makes it an easy matter to move them from place to place.

MOUNTING—The engine, with gasoline tank and battery box, is mounted on substantial wooden skids.

ENGINE—Equipped with fly wheel type of governor. Sight feed oilers are used on main bearings and piston. A splash system lubricates the crank pin bearings. The crank case, while not entirely closed, is so constructed that no oil can be thrown out. 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, current for which is supplied by five dry cells and a spark coil.



Famous 2-Horse Power Air-Cooled Engine
Specifications of air-cooled engines are given on page 29

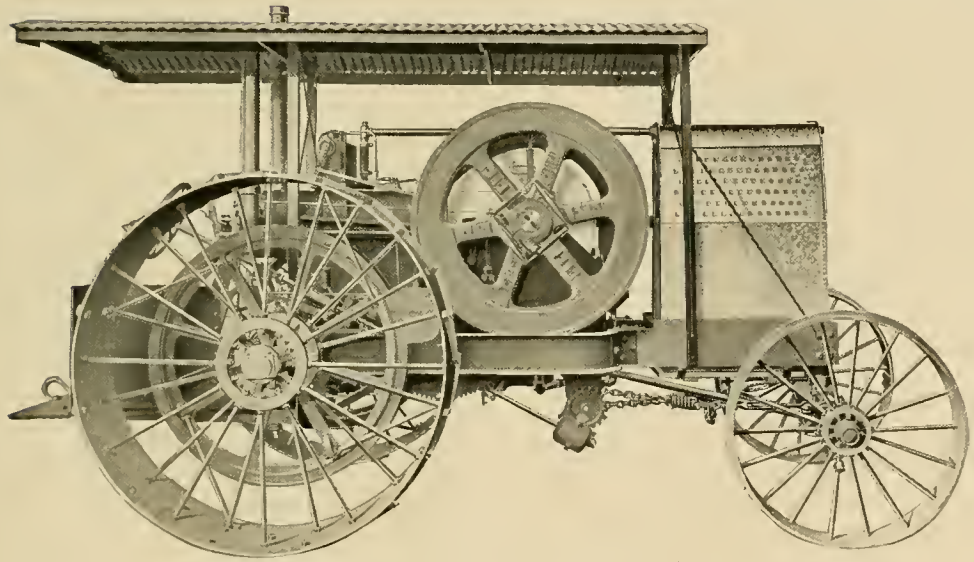
COOLING—A small fan attached on the pulley side and operated by a round belt from the fly wheel keeps the cylinder cool and at the proper temperature. This arrangement does away with the heavy cooling tank, pump, and piping. There is no danger of the cylinder becoming overheated, as this cooling arrangement is so effective that the engine can develop its full rated horse power all day.

PULLEYS—A 5 x 5-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 engines.

SPECIAL ACCESSORIES—On special order, any of the pulleys listed on page 15, for 2 and 3-horse power Victor engines, except 18, 20, and 22-inch pulleys, can be furnished.

I H C GASOLINE TRACTORS

12, 15, 20, 25, AND 45-HORSE POWER



I H C 20-Horse Power Gasoline Tractor

I H C gasoline tractors, which are made in several styles and sizes, 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, the ox, and the plow, has each seen its day, and the man behind the plow is entering a new era of progress.

I H C gasoline tractors have proved to be the most economical and satisfactory for plowing, hauling loads, and also for delivering power from the belt to operate threshers, shellers, shredders, and many other large machines. The reasons for this superiority are not hard to find. The engine—the power plant—is the well known I H C engine of which thousands are in use throughout the country. The truck is very substantial, and the power transmission, though simpler, is similar to the method used on successful steam tractors.

This correct design will explain why in every contest I H C tractors come out winners. At the Winnipeg farm motor contest in July, 1910, I H C tractors delivered approximately 75 per cent of the engine's rated horse power at the draw bar—at the point where it takes the place of horses. This per cent of the engine's power delivered at the draw bar was larger than that delivered by any other gasoline tractor. Again in the plowing contest, I H C tractors plowed an acre of ground on less fuel than was required by any other gasoline tractor entered. These two points, maximum power at the draw bar, and minimum fuel consumption, are the two vitally important facts which determine the efficiency and desirability of the tractor.

I H C tractors are made in 12, 15, 20, 25, and 45-horse power sizes, and in several styles.

Catalogues describing the different styles can be had upon application to the local agent, general agent, or the general offices in Chicago.

FAMOUS PUMPING ENGINE

2-HORSE POWER

This is a desirable pumping outfit because, besides pumping, it may be used for other purposes to which an engine of this horse power is adapted.

By detaching the walking beam from the pump, and belting from the pulley on the fly wheel to the machine, the engine is ready to operate many of the small machines on the farm.

It may be easily transported from place to place inasmuch as the entire outfit is mounted on skids.

This outfit is a direct connected or walking beam outfit, designed especially for wells or reservoirs.

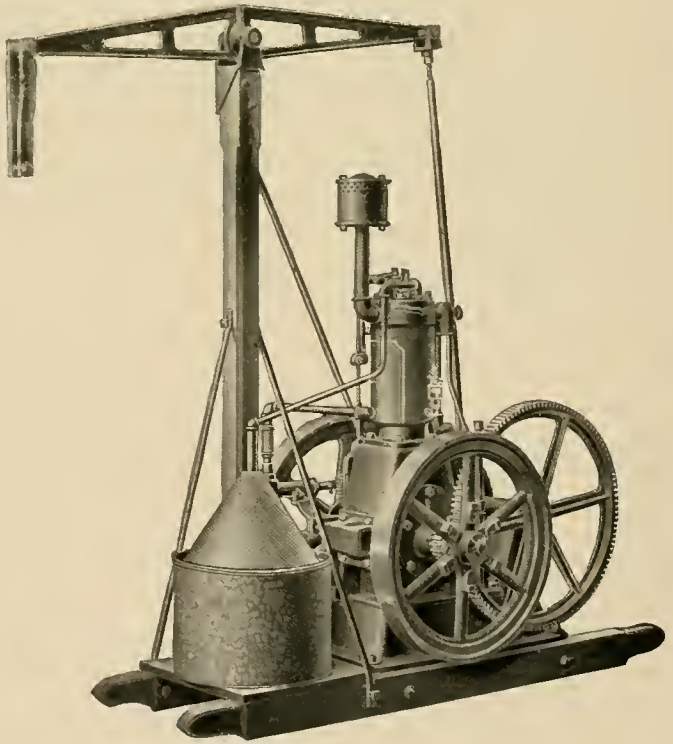
ENGINE—The engine is like the I H C Victor vertical engine with the exception of a sub-base which, in this case, extends out and forms a support for the gears and face plate, as well as a receptacle for the gasoline tank.

GEARS—The gears are well constructed and are securely held in position, so that there is no possibility of changing their position and thus throwing the gear teeth out of mesh.

MOUNTING—The outfit is very substantially mounted on wooden skids, which carry the engine, cooling tank, gears, and walking beam standard. Three braces hold the walking beam standard securely in position, so that the entire outfit operates at all times with minimum friction.

SPECIFICATIONS

R. P. M. of Engine	400
No. of Strokes of Pump per Minute	48½
Length of Stroke	5, 7, and 10 in.
Gear—No. of Teeth	124
Gear—Diam. Pitch	5
Gear—Face	1⅝ in.
Pinion—No. of Teeth	15
Height of Walking Beam—Floor to Top	71⅜ in.
Length of Walking Beam	56 in.
Length of Skid	68 in.
Width of Skid	18¼ in.
Capacity of Gasoline Tank	3½ gal.
Width of Outfit—End to End of Crank Shaft	28½ in.



Famous 2-Horse Power Pumping Outfit

BELTED PUMPING JACKS

Belted Pumping Jacks are made in three sizes: regular, heavy, and deep well jacks.

REGULAR BELTED JACK—This jack is recommended for pumping against a 200-foot head with a 4½-inch cylinder or its equivalent—a 500-foot head with a 2½-inch cylinder.

With a smaller head the cylinder can be correspondingly increased. In pumping against a greater head than 200 feet the number of strokes per minute should be reduced from 40 to about 20.

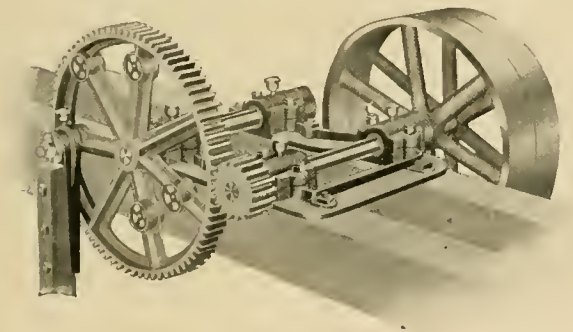
The diameter of the pulley is 14 inches; face, 3 inches; speed 185 revolutions per minute. The ratio of gears is 1 to 4.66.

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. Stockmen and farmers who have deep wells find this heavy jack very desirable. It can also be used for lifting water for small irrigation systems, gardens, etc.

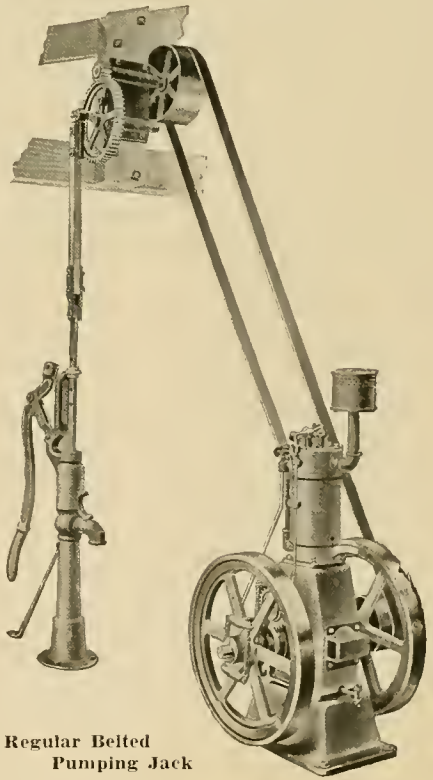
The strokes of this jack are 12, 14, 15, 18, and 20 inches, and the ratio of the gears is 5 to 1. The pulley is 24 inches in diameter with a 4½-inch face; speed, 160 revolutions for 32 strokes of the pump per minute. This will vary, of course, to suit different conditions. The jack is intended to be used with engines of from 2 to 6-horse power, inclusive.

DEEP WELL BELTED JACK—The deep well pumping jack is similar to the heavy belted jack described above, except that it is a much stronger jack and is intended to be used with engines up to and including 12-horse power. The strokes of this jack are 12, 18, 24, and 28 inches, and the ratio of the gears is 6 to 1. The pulley is 24 inches in diameter with a 6-inch face, and the speed should be 180 revolutions for 30 strokes of the pump per minute.

This jack is recommended for use in lifting water in wells as deep as 1,000 feet, using a 4-inch cylinder.



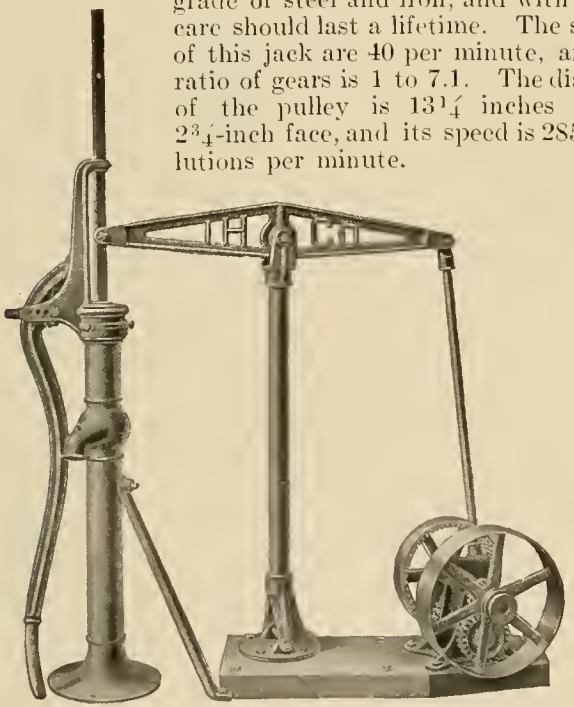
Heavy Belted Pumping Jack



Regular Belted Pumping Jack

WALKING BEAM PUMPING JACKS

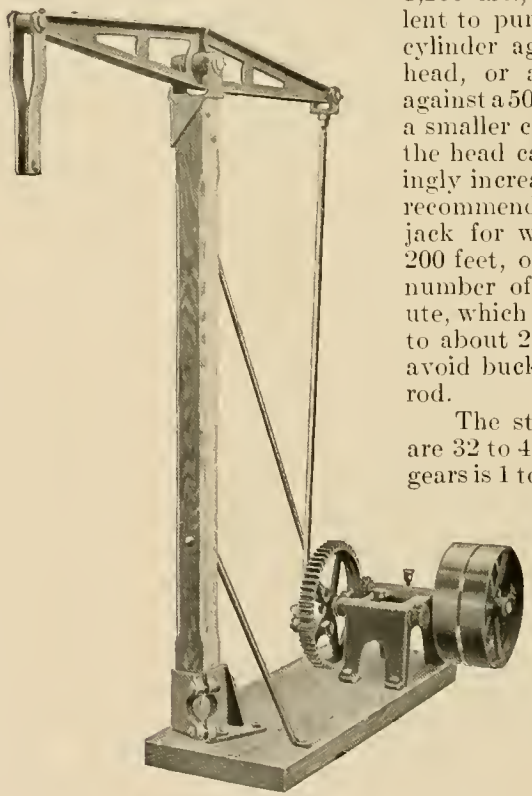
WALKING BEAM JACK NO. 1—This jack should not be used for pumping against a greater head than 50 feet with a 3½-inch cylinder, or its equivalent—a 100-foot head with a 2¼-inch cylinder. The engine by which it is driven may be used for purposes other than pumping. The jack is well constructed from the best grade of steel and iron, and with proper care should last a lifetime. The strokes of this jack are 40 per minute, and the ratio of gears is 1 to 7.1. The diameter of the pulley is 13¼ inches with a 2¾-inch face, and its speed is 285 revolutions per minute.



Walking Beam Pumping Jack No. 1

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. The safe working load on the end of the walking beam is 1,200 lbs., which is equivalent to pumping a 4½-inch cylinder against a 200-foot head, or a 3-inch cylinder against a 500-foot head. With a smaller cylinder, however, the head can be correspondingly increased, but it is not recommended to use this jack for wells deeper than 200 feet, on account of the number of strokes per minute, which should be reduced to about 20 for deep wells to avoid buckling of the sucker rod.

The strokes per minute are 32 to 40, and the ratio of gears is 1 to 4.66. The diameter of the pulley is 14 inches with a 3-inch face, and its speed is 185 revolutions per minute. The lengths of stroke are 5, 7, and 10 inches.



Walking Beam Pumping Jack No. 2

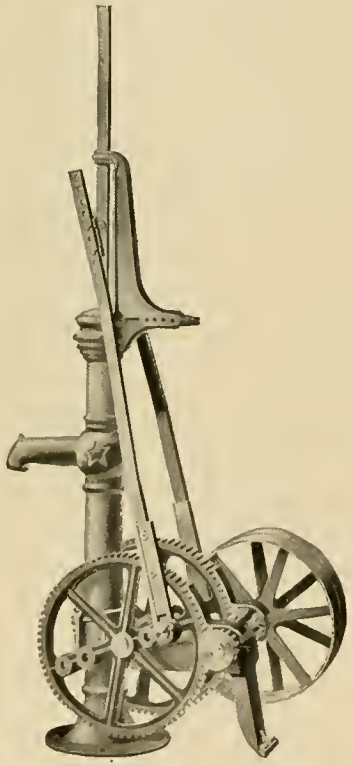
STANDARD PUMPING JACKS

These jacks are made in two sizes and are intended to attach directly to the standard of the pump. Power connection is made by belt from the engine.

STANDARD JACK NO. 1—The speed of the pulley of the Standard Jack is 250 revolutions per minute, the diameter 14¼ inches, and face 2½ inches. The ratio of the gears is 1 to 5.7, making 40 strokes per minute.

It is not intended that this jack shall pump against a greater head than 50 feet with a 3½-inch cylinder, or the equivalent—a 100-foot head with a 2¼-inch cylinder.

STANDARD JACK NO. 2—The Standard Jack No. 2, which is the heavier of the two, is suitable for wells 150 to 200 feet deep. Forty strokes per minute at the normal speed of the pulley—220 R. P. M.—is the correct speed of the jack. The ratio of gears is 1 to 5.7, and the diameter of the pulley is 14¼ inches, with a 2½-inch face. This jack will transmit 2-horse power.



Standard Pumping Jack

POWER REQUIRED TO RAISE WATER

Based on a pump efficiency of 50 per cent

To find the horse power necessary to elevate water to a given height, see the table below, or multiply the number of gallons per minute by total number of feet water is raised (that is, from surface of the water to the highest point to which the water is raised), and divide by 4,000 and you have the horse power. This rule, however, will not apply to all pumps, from the fact that some pumps have more friction than others. A well 300 feet deep, as a rule, wastes about 50 per cent in friction in the pump. Wells deeper than 300 feet waste from 60 to 75 per cent in friction. Of course, this depends a great deal on the size of pump, cylinders, etc., used. The table below is figured on a basis of 50 per cent waste in friction.

Lift in Feet	Gallons per Minute							
	½-H. P.	1-H. P.	3-H. P.	5-H. P.	7-H. P.	10-H. P.	15-H. P.	20-H. P.
10	100	200	600	1000	1400	2000	3000	4000
20	50	100	300	500	700	1000	1500	2000
30	33	66	200	333	466	666	1000	1333
40	25	50	150	250	350	500	750	1000
50	20	40	120	200	280	400	600	800
60	16	33	100	166	233	333	500	666
70	14	28	85	140	200	286	420	572
80	12	25	75	125	175	250	375	500
90	...	22	66	111	155	222	333	444
100	...	20	60	100	150	200	300	400
125	...	...	48	80	112	160	240	320
150	...	...	40	66	93	133	200	266
175	...	...	33	57	80	114	171	228
200	...	...	30	50	70	100	150	200
250	...	...	...	40	56	80	120	160
300	...	...	...	33	46	66	100	133
350	...	...	...	28	40	57	85	114
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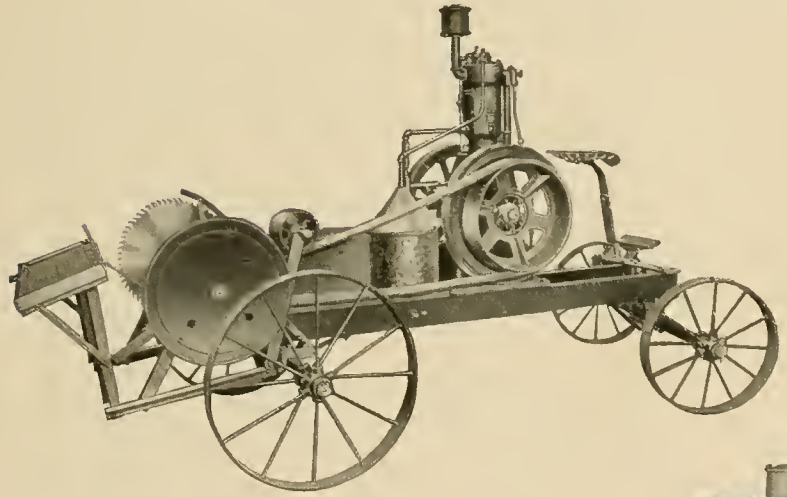
FAMOUS TILTING TABLE SAWING OUTFITS

MOUNTED ON STEEL TRUCKS



Famous 3-Horse Power Tilting Table Sawing Outfit
Specifications of this outfit are given on page 37

EQUIPMENT—These outfits are shipped complete with fuel tank, pipe and fittings, water tank and plunger type circulating pump, muffler, batteries, cylinder lubricator, oil can and tools, plain pulley, belt, battery box, seat and seat spring, doubletrees, and neckyoke. Speed-changing device is regular on all engines. Wheel braces and brake can be furnished on special order.

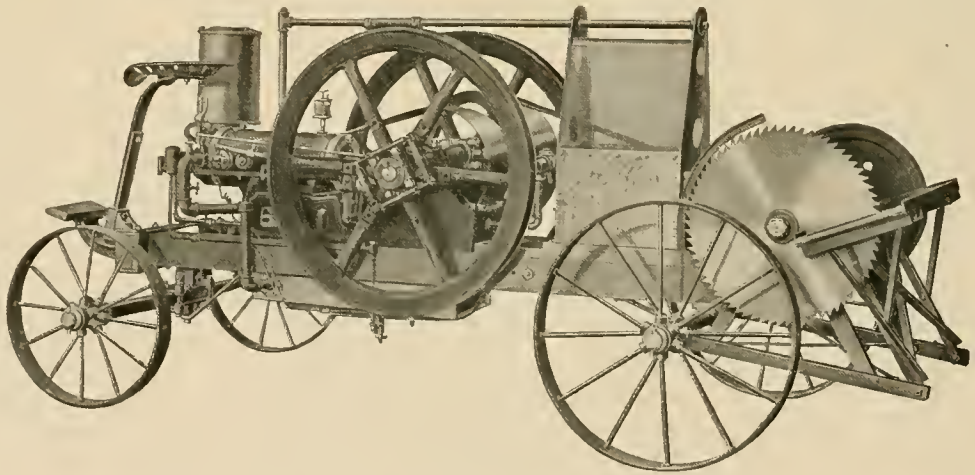
SAW BLADES—Saw blades are not furnished unless ordered. They may be had in the following sizes: 20, 22, 24, 26 and 28-inch diameter.

These steel truck sawing outfits are made in the following sizes: 3, 4, and 6-horse power.

The 3-horse power outfit includes an I H C Famous vertical engine, while the 4 and 6-horse power outfits include a horizontal engine, mounted in the same manner as the I H C portable engine.

TRUCK—The trucks for all three sizes of tilting table outfits, 3, 4, and 6-horse power, are identical. The saw is rigidly mounted and well braced so that it is practically as steady as if anchored to the ground. A steel guard over the saw protects the operator. Wheels, axles, and sills are of steel.

These outfits are especially adapted for sawing cordwood. They may be easily transported from place to place.

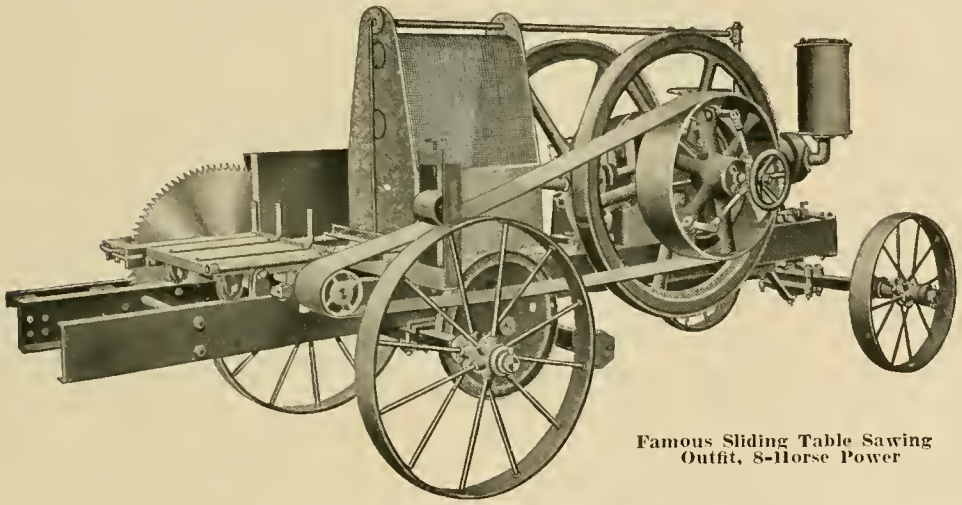


Famous 6-Horse Power Tilting Table Sawing Outfit
Specifications of this outfit are given on page 37

FAMOUS SLIDING TABLE SAWING OUTFITS

8 AND 10-HORSE POWER

TRUCKS—The mounting of this outfit differs from those described on the preceding page. This is a sliding table outfit instead of a tilting table, and the fly wheel is located below the table. This permits the outfit to be used for sawing poles of any length as there is no fly wheel to interfere. It can also be used for cordwood sawing. The mounting for both the 8 and 10-horse power outfits is the same in all particulars.



Famous Sliding Table Sawing Outfit, 8-Horse Power

ENGINE—This is a regular 8 or 10-horse power I H C engine mounted in the same manner as the portable engine, using the wide portable gasoline tank.

EQUIPMENT—Sliding table sawing outfits are shipped complete with fuel tank, pipe and fittings, water tank and plunger type circulating pump, muffler, batteries, cylinder lubricator, oil can and tools, friction pulley, belt, battery box, seat and seat spring, doubletrees and neckyoke.

SAW BLADES—These are not furnished unless ordered. They may be had in 20, 22, 24, 26, 28, and 30-inch diameters.

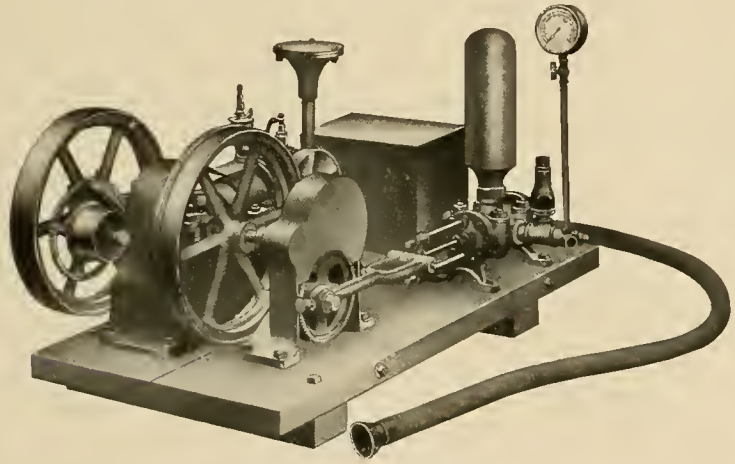
SPECIFICATIONS OF FAMOUS STEEL TRUCK SAWING OUTFITS

TILTING TABLE AND SLIDING TABLE

Outfit	R. P. M. of Engine	R. P. M. of Saw	Size of Engine Pulley: Diameter Inches	Size of Engine Pulley: Face Inches	Diameter of Saw Pulley Inches	Truck Measurements Inches: Tread	Truck Measurements Inches: Reach	Truck Measurements Inches: Diameter Front Wheel	Truck Measurements Inches: Diameter Rear Wheel	Truck Measurements Inches: Width of Tires	Capacity of Water Tank Gallons	Capacity of Gasoline Tank Gallons	Shipping Weight Complete	Saw Diameter Recommended Inches
3-H. P. Ver. Tilting Table	360	1370	20	5½	5¼	56½	86½	26	34	3½	7½	3½	2075	24
4-H. P. Hor. Tilting Table	400	1370	18	10¼	5¼	56½	86½	26	34	3½	9	7	2402	26
6-H. P. Hor. Tilting Table	325	1360	22	10¼	5¼	56½	86½	26	34	3½	12	15	2803	28
8-H. P. Hor. Sliding Table	310	1415	28	7½	6	51	162	30	38	4	21	20	4007	28
10-H. P. Hor. Sliding Table	300	1400	28	7½	6	51	162	30	38	4	28	20	4290	28

FAMOUS SPRAYING OUTFIT

1-HORSE POWER, MOUNTED ON PLATFORM



Famous 1-Horse Power Spraying Outfit
Specifications of this outfit are given on page 40

This outfit consists of a Tom Thumb 1-horse power air-cooled engine, mounted on a substantial platform 45 inches long and directly connected to a Myers Junior gear drive, pitman power, spray pump with a 2-inch cylinder and a 5-inch stroke.

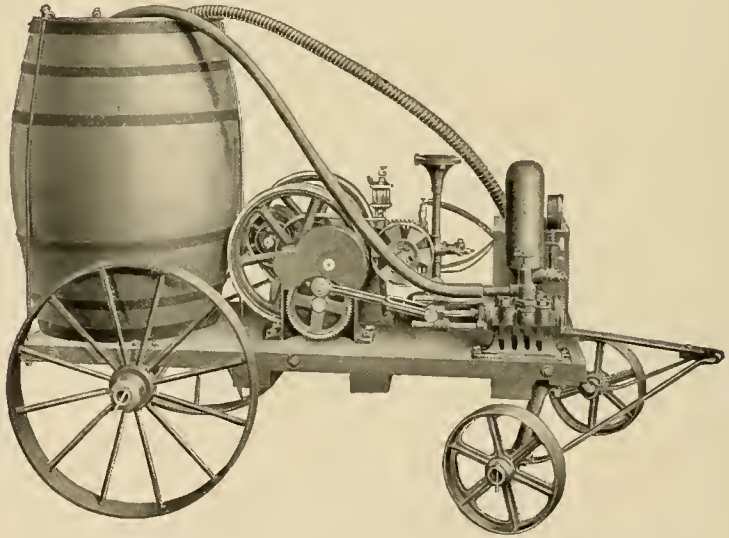
This outfit is furnished with strainer, pressure gauge, eight feet of return hose, 25 feet of ½-inch discharge hose, and two Vermorel nozzles.

One advantage of this outfit is the fact that when not used for spraying it may be carried about from place to place to operate other small machines.

To disconnect the spraying pump from the engine it is only necessary to remove the nut and bolt that hold the connecting rod to the gear at the side of the engine.

FAMOUS SPRAYING OUTFIT

1-HORSE POWER, MOUNTED ON TRUCK



Famous 1-Horse Power Spraying Outfit, Mounted on Truck
Specifications of this outfit are given on page 40

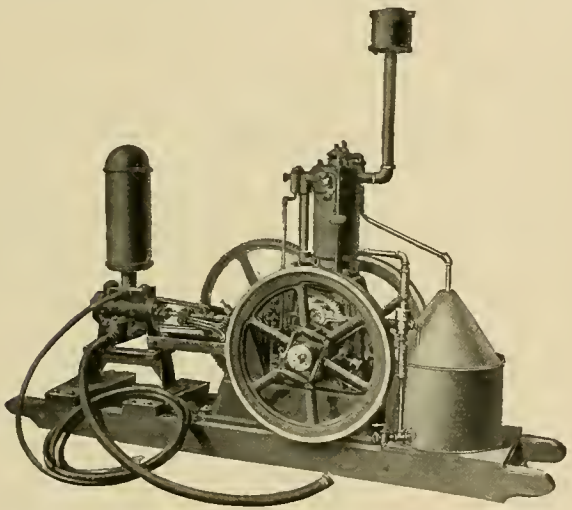
This outfit is in all respects similar to the Famous 1-horse power spraying outfit mounted on platform, except that it is mounted on a 4-wheel truck.

The outfit can be hauled by hand or drawn by horses. It is a very satisfactory spraying outfit for use in orchards, vineyards, fields, and for practically all average spraying purposes.

When used for spraying root crops, the row is straddled if two horses are used. When one is used the horse walks between the rows.

FAMOUS SPRAYING OUTFIT

VERTICAL WATER-COOLED 2-HORSE POWER



Famous 2-Horse Power, Water-Cooled, Spraying Outfit
Specifications of this outfit will be found on page 40

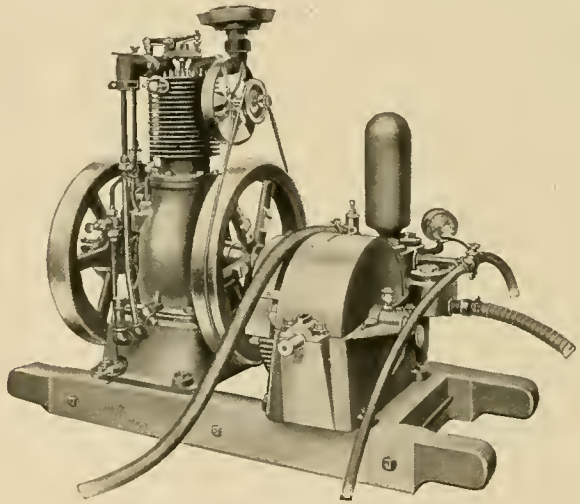
The Famous 2-horse power, vertical, water-cooled engine is mounted on a wooden base so that either a Gould double-acting Fig. 1479 spraying pump or a Myers Century spraying pump No. 439-A may be mounted with it.

One of the great advantages of this outfit is that the engine is large enough to be used for general farm purposes.

The outfit as furnished includes the engine, galvanized steel tank in the sub-base of the engine, galvanized screen cooling tank and circulating pump, regular pulley, muffler, and eccentric connecting rod for driving the spray pump. A tool and a battery box with the necessary tools, batteries, and wrenches, besides cylinder lubricator, are also furnished.

FAMOUS SPRAYING OUTFIT

VERTICAL AIR-COOLED 2-HORSE POWER



Famous 2-Horse Power, Air-Cooled, Spraying Outfit
Specifications of this outfit will be found on page 40

This outfit consists of the regular 2-horse power, vertical, air-cooled or hopper-cooled Famous engine mounted on skids with the Lucas spray pump. This pump has a 2½-inch cylinder and a 5-inch stroke. The sills of this engine are well stiffened by cross sills and tie bolts, so that the mounting is rigid. This makes a very compact and desirable outfit for use in orchards, vineyards, etc. It can be placed in a wagon or drawn on a farm truck.

The spraying engine is furnished complete with 8 feet of wire-bound suction hose with strainer, pressure gauge, relief valve, 8 feet of overflow hose, 25 feet of discharge hose, with two Vermorel nozzles, also one three-way cock, and the necessary fittings to make connections to the pump.

Spray Wagon

SPRAY WAGON

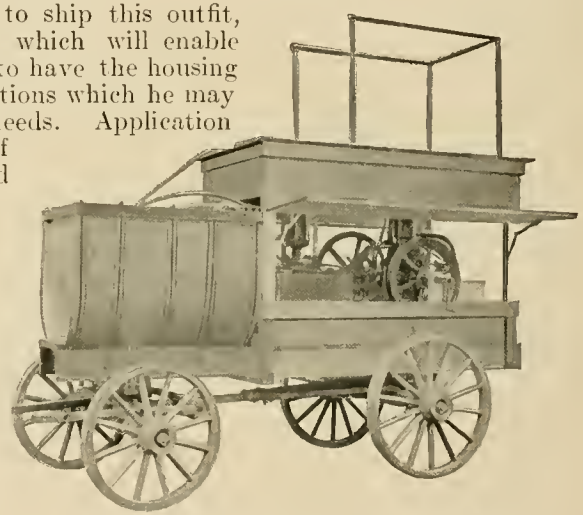
This spray wagon consists of a housing for the engine and spray pump, which also provides a platform for the operators, and a tank for the spray mixture.

As designed, it is to be used for the 2-horse power vertical, water-cooled, spraying outfit, equipped with either Myers or Gould pump.

Owing to the size it is impractical to ship this outfit, so we furnish specifications and blue-prints which will enable the purchaser or owner of a spraying outfit to have the housing built wherever desired and with any modifications which he may wish to make to adapt it to his particular needs. Application should be made to the I H C dealer for copy of these specifications and blue-prints.

SPRAYING ENGINE CATALOGUE

More complete data and information concerning spraying and I H C spraying outfits than we are able to give in this catalogue will be found in a special spraying engine catalogue. If interested in spraying outfits, write for this catalogue.



Spray Wagon—Sides raised to show outfit

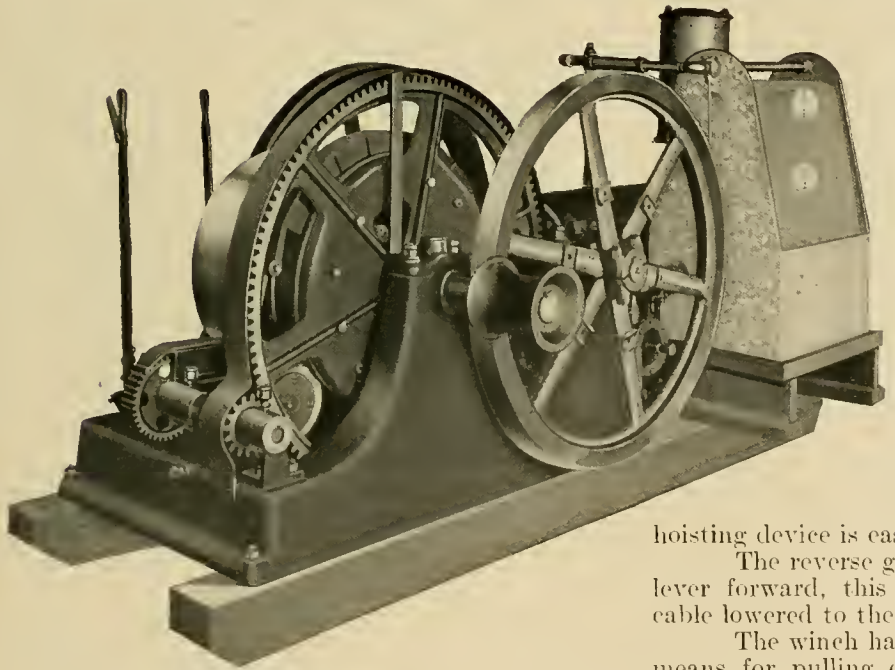
SPECIFICATIONS OF FAMOUS SPRAYING OUTFITS

Outfit	ENGINE: Type	Speed Revolutions Per Minute	Size of Pulley Inches: Face	Size of Pulley Inches: Diam.	Diameter of Fly Wheels Inches	Capacity of Gasoline Tank Gallons	SPRAY PUMP: Name	Speed Revolutions Per Minute	Diameter of Cylinder Inches	Stroke Inches	Capacity of Pump, Gals.	MOUNTING: Length of Skids Inches	Width of Outfits Inches	Length of Truck Inches	Tread of Truck Inches	Height Over All, Inches	Shipping Weight Complete, with Batteries, Pounds
1-Horse Power Famous, on Truck....	Hor.	600	..	..	15	1½ 0.65	Myers & Bros. 313A ...	49	2	5	6.6	....	38⅜	60	31⅞	‡40¾	710
1-Horse Power Famous, on Platform.	Hor.	600	..	..	15	1½ 0.65	Myers & Bros. 313A ...	49	2	5	6.6	45¼	28½	....	....	30½	485
2-Horse Power Famous, Air-Cooled ..	Ver.	650	..	..	17½	1¾	Lucas, The Alert No. 2..	40½	2½	5	8.5	43⅜	39	....	....	37	635
2-Horse Power Famous, Water-Cooled	Ver.	400	8	5	24	3½	Gould Fig. No. 1479G and Myers&Bros.439A	48½	2½	5	10	87⅜	28½	....	....	48	*1080 †1277

Note.—Spray pumps for 2-horse power water-cooled engines are furnished only on special order. ‡Without Barrel. †With Pump. *Without Pump.

BUILDERS' HOIST AND LOG-HOISTING ENGINE

8 HORSE POWER



Hoisting Engine—8-Horse Power

This hoisting outfit is very desirable for building and construction work, for excavating, operating derricks, trestle and bridge construction work, loading and unloading at docks and warehouses, handling lumber, laying cable, handling ice and for telephone construction work.

The outfit consists of a regular 8-horse power Famous horizontal engine, with a special crank shaft, mounted on a special sub-base, which also carries a drum and reverse gear, friction clutch, speed-changing device, and controlling levers. The drum shaft carries a winch. The maximum speed of the engine, with speed-controlling device in, is 310 revolutions per minute; the minimum speed, with the device released, is 200 revolutions per minute. The rated load of 1,300 pounds, with single cable, can be lifted 175 feet per minute. With single cable a maximum load of 1,584 pounds can be lifted. The friction clutch and brake have ample holding power, handling the maximum load without slipping. The hoisting device is easily handled, both in lifting and lowering.

The reverse gear is used in lowering the cable. By throwing the lever forward, this gear is put into action, the drum reversed, and the cable lowered to the ground for hoisting again.

The winch has been put on the end of the drum shaft to provide a means for pulling cars. A twist or two of the rope around this winch will enable the cars to be drawn easily and quickly. This does away with the necessity of having a team standing around to pull cars from place to place.

SPECIFICATIONS

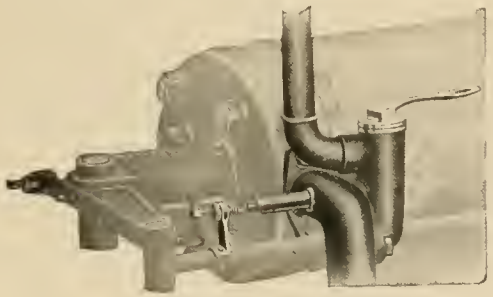
Minimum revolutions per minute of drum	24	Gear, diameter pitch	3
Maximum revolutions per minute of drum	37	Gear, face	3¼ in.
Diameter of drum	18 in.	Pinion, number of teeth	15
Face of drum	14 in.	Floor Space, length	98 in.
Diameter of drum shaft	2¾ in.	Floor Space, width	60 in.
Gear, number of teeth	126	Shipping Weight	4,500 lbs.

GAS ATTACHMENT

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. The illustrations herewith show the gas attachment on both the vertical and horizontal engines.

When artificial gas is to be used in a Victor engine, it is necessary to change the entire cylinder and piston, for the reason that 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 adapted for this fuel can be shipped.

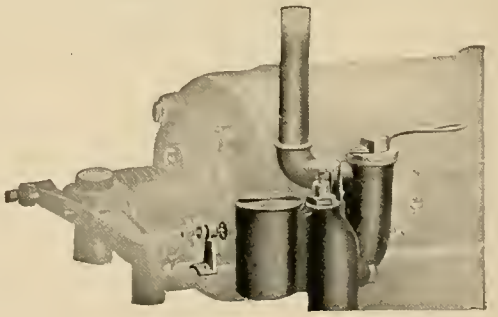


Gas Attachment on I H C Victor Horizontal Engine

COMBINATION GAS AND GASOLINE ATTACHMENT

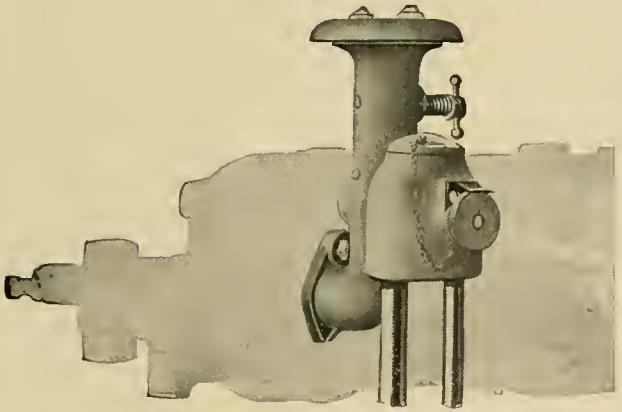
A combination gas and gasoline attachment is also furnished on special order for I H C Victor and Famous engines. This attachment has been designed especially for use in localities where natural gas is available part of the time. It is so designed that natural gas alone may be used as a fuel until pressure 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 can be made with this attachment, and 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 the other may be made instantly and without stopping the engine.

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



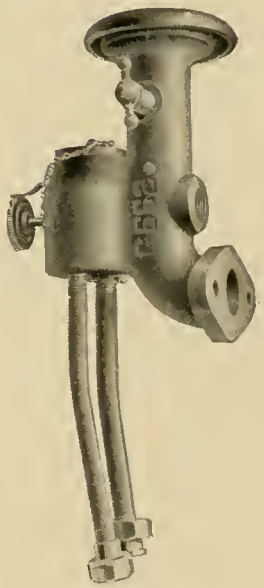
Combination Gas and Gasoline Attachment on I H C Victor Horizontal Engine

ALCOHOL ATTACHMENTS FOR I H C ENGINES



Alcohol Mixer Attached to the Cylinder of the Horizontal Engine

Alcohol attachments may be furnished for both vertical and horizontal I H C engines. This attachment consists of a new cylinder head complete, an alcohol mixer, and a strainer. This new cylinder head must be furnished complete in order to provide greater compression in the cylinder, for it is possible to obtain the rated horse power of the engine economically when using alcohol, only by increasing the compression. This alcohol attachment is furnished as an extra only on special order.



Alcohol Mixer for Vertical Engines

EXTENDED CRANK SHAFTS

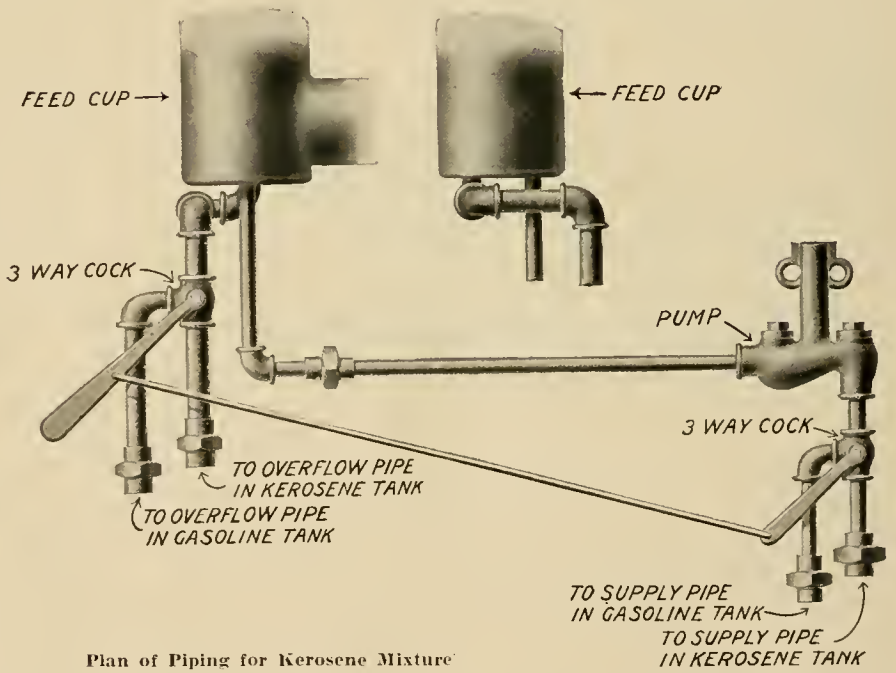
In making direct connections with dynamos and various machines, extended crank shafts are sometimes necessary. Below will be found a list of the extended crank shafts which can be furnished for I H C engines. These crank shafts are listed as special features and should be ordered separately. They can be put on the engines before leaving the works, or they may be added to the engines in the field. In the table below the length of extension listed can be furnished on the pulley side of the shaft, on the governor side of the shaft, or on both sides of the shaft. When ordering it should be specified on which side the extension is desired.

Engine	Extension	Diameter	Key Way in Shaft	Engine	Extension	Diameter	Key Way in Shaft
1-H. P. Hor. Air-Cooled	4″	1 5/8″	5/16″ wide x 1/8″ deep	6-H. P. Hor. Tank-Cooled	4 3/4″	2 1/8″	3/16″ wide x 7/32″ deep
2-H. P. Ver. Air-Cooled	4 3/4″	1 5/8″	3/8″ wide x 1/8″ deep	6-H. P. Hor. Hopper-Cooled	4 3/4″	2 1/8″	3/16″ wide x 7/32″ deep
2-H. P. Ver. Hopper-Cooled	4 3/4″	1 5/8″	3/8″ wide x 1/8″ deep	8-H. P. Hor. Tank-Cooled	5 1/2″	2 3/8″	5/8″ wide x 1/4″ deep
2-H. P. Ver. Tank-Cooled	4 3/4″	1 7/16″	7/16″ wide x 5/32″ deep	8-H. P. Hor. Hopper-Cooled	5 1/2″	2 3/8″	5/8″ wide x 1/4″ deep
Famous Junior	4 3/4″	1 1/2″	7/16″ wide x 5/32″ deep	10-H. P. Hor. Tank-Cooled	6″	2 5/8″	1/16″ wide x 9/32″ deep
2 1/2-H.P.Hor.Hopper-Cooled	4 3/4″	1 1/2″	7/16″ wide x 5/32″ deep	12-H. P. Hor. Tank-Cooled	6″	2 5/8″	3/16″ wide x 1/4″ deep
3-H. P. Ver. Air-Cooled	4 3/4″	1 5/8″	7/16″ wide x 5/32″ deep	15-H. P. Hor. Tank-Cooled	6 1/2″	2 7/8″	1/16″ wide x 11/32″ deep
3 H. P. Ver. Hopper-Cooled	4 3/4″	1 5/8″	7/16″ wide x 5/32″ deep	20-H. P. Hor. Tank-Cooled	8″	3 3/8″	7/8″ wide x 3/8″ deep
3-H. P. Ver. Tank-Cooled	4 3/4″	1 9/16″	7/16″ wide x 5/32″ deep	25-H. P. Hor. Tank-Cooled	8″	4 7/16″	1 1/8″ wide x 1/32″ deep
4-H. P. Hor. Tank-Cooled	4 3/4″	2 1/16″	9/16″ wide x 7/32″ deep	25-H. P. Ver. Tank-Cooled	6″	3 7/8″	1 ″ wide x 3/8″ deep
4-H. P. Hor.Hopper-Cooled	4 3/4″	2 1/16″	9/16″ wide x 7/32″ deep	35-H. P. Ver. Tank-Cooled	6″	3 7/8″	1 ″ wide x 3/8″ deep

OPERATING I H C GASOLINE ENGINES WITH KEROSENE

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 33⅓ 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.



Plan of Piping for Kerosene Mixture

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.

KEROSENE ATTACHMENT FOR I H C HORIZONTAL ENGINES

This kerosene attachment is designed for use on the 6-horse power I H C Victor or Famous horizontal engine. The illustration shows the engine equipped for using kerosene instead of gasoline as fuel.

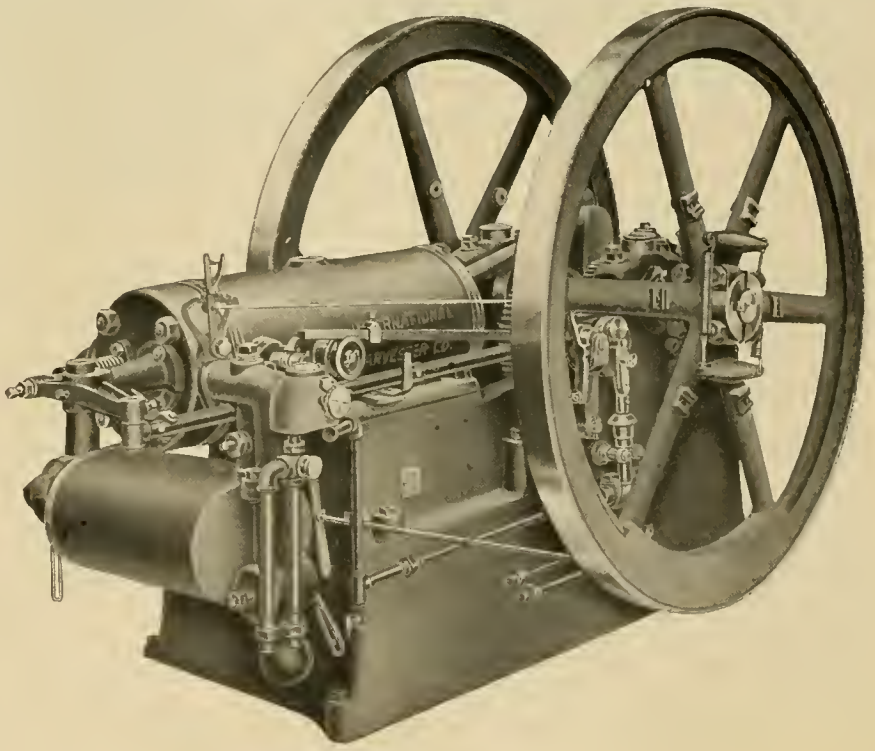
The engine is like the regular Victor, 6-horse power, gasoline engine, except that it has, instead of the regular gasoline mixer, an attachment for using kerosene as fuel.

The attachment consists of a mixer, and a heater which lies under the cylinder head, into which, by means of a valve, any proportion of the hot exhaust gases may be turned. By means of a similar valve on the mixer side, any amount of fresh air may be drawn through the heater, thus regulating the temperature of the incoming charge. A small amount of exhaust gas is admitted to the mixer adjacent to the needle valve and becomes a part of the explosive mixture. The purpose of readmitting this exhaust is to overcome premature explosions. It is also an aid in running the engine under no load, as it assists in vaporizing the kerosene. Two fuel tanks and the necessary piping are used.

The engine is started in the usual manner, using gasoline as a fuel, and as soon as the engine has warmed up sufficiently the fuel is changed from gasoline to kerosene by throwing the lever of a three-way cock. The length of time that the engine should run on gasoline depends on the temperature of the surrounding air. In an ordinary room from 3 to 5 minutes are required. It is unnecessary to use the heater unless the temperature is freezing or when working under light loads.

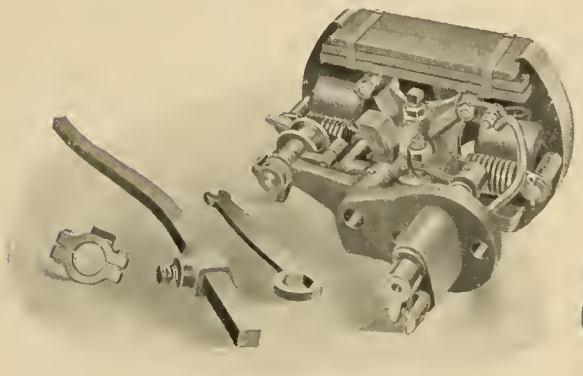
The fuel consumption is the same as gasoline consumption, and depends upon the setting of the fuel valve. The engine will run under no load, using kerosene, but if it is required to run this way for more than an hour or so at a time it would be cheaper to use gasoline, which can be done by a simple turn of the three-way cock.

This kerosene attachment may be attached to the regular I H C Victor or Famous, 6-horse power, horizontal engine.



Victor Horizontal Engine with Kerosene Equipment

WEBSTER MAGNETO

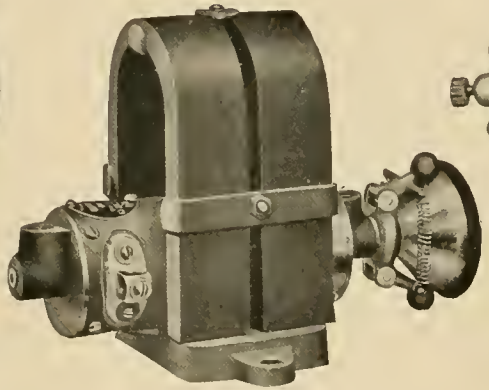


Webster Magneto with all Parts

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 a 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.

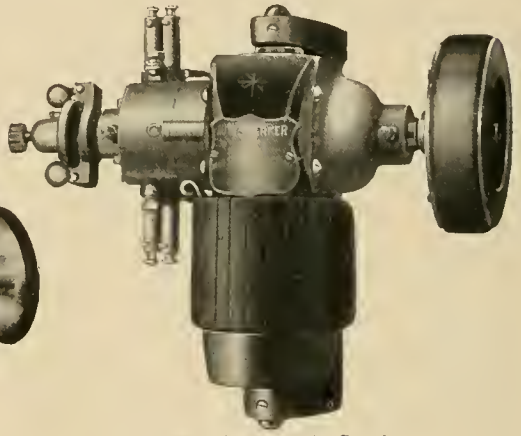
WIZARD MAGNETO



Wizard Magneto

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 possible to start the engine without the aid of batteries inasmuch as the current is furnished by means of permanent magnets.

AUTO SPARKER



The Motsinger Auto Sparker

The Motsinger 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 constantly magnetized 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 Motsinger Company.

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.

SECURITY LONG DISTANCE GASOLINE SUPPLY

This gasoline supply system provides a very satisfactory arrangement for storing and pumping gasoline.

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, regardless of the distance between the pump and the tank.

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.

The pump is furnished with a ¾-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, 1¼-inch, and ½-inch pipe. The 3-inch opening is for the fill-and-vent; the 1¼-inch opening is for the suction pipe, and is fitted with a 1¼x1-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) extending to the bottom of the tank. The ½-inch opening is not used with the long distance storage system.

WEIGHTS

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

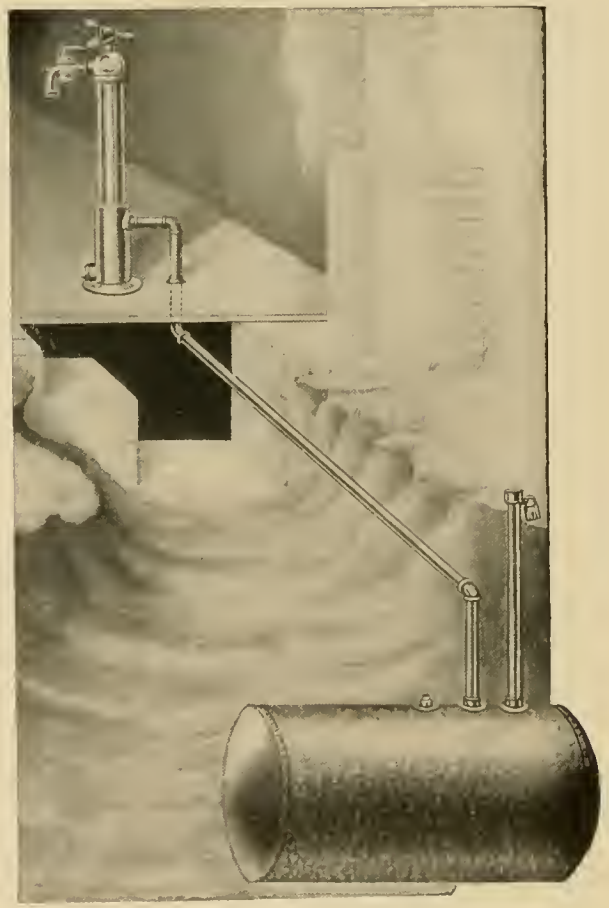


Illustration shows method of installing Security Long Distance Gasoline Supply

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 8 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:

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

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