The Celebrated Line of

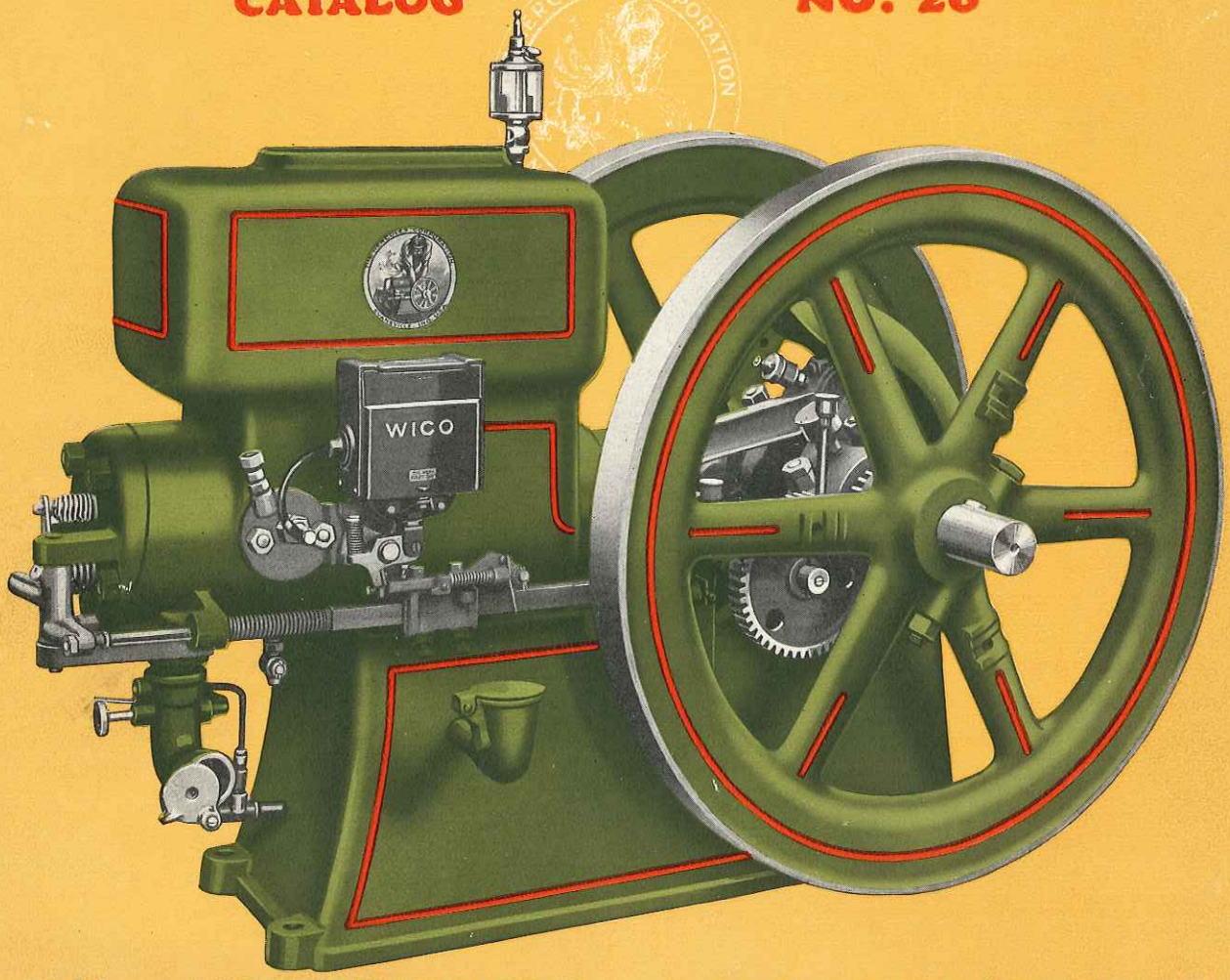
HERCULES

GASOLINE, KEROSENE AND OIL

ENGINES

LOG SAWS~SAW TABLES~PUMP JACKS

CATALOG NO. 26

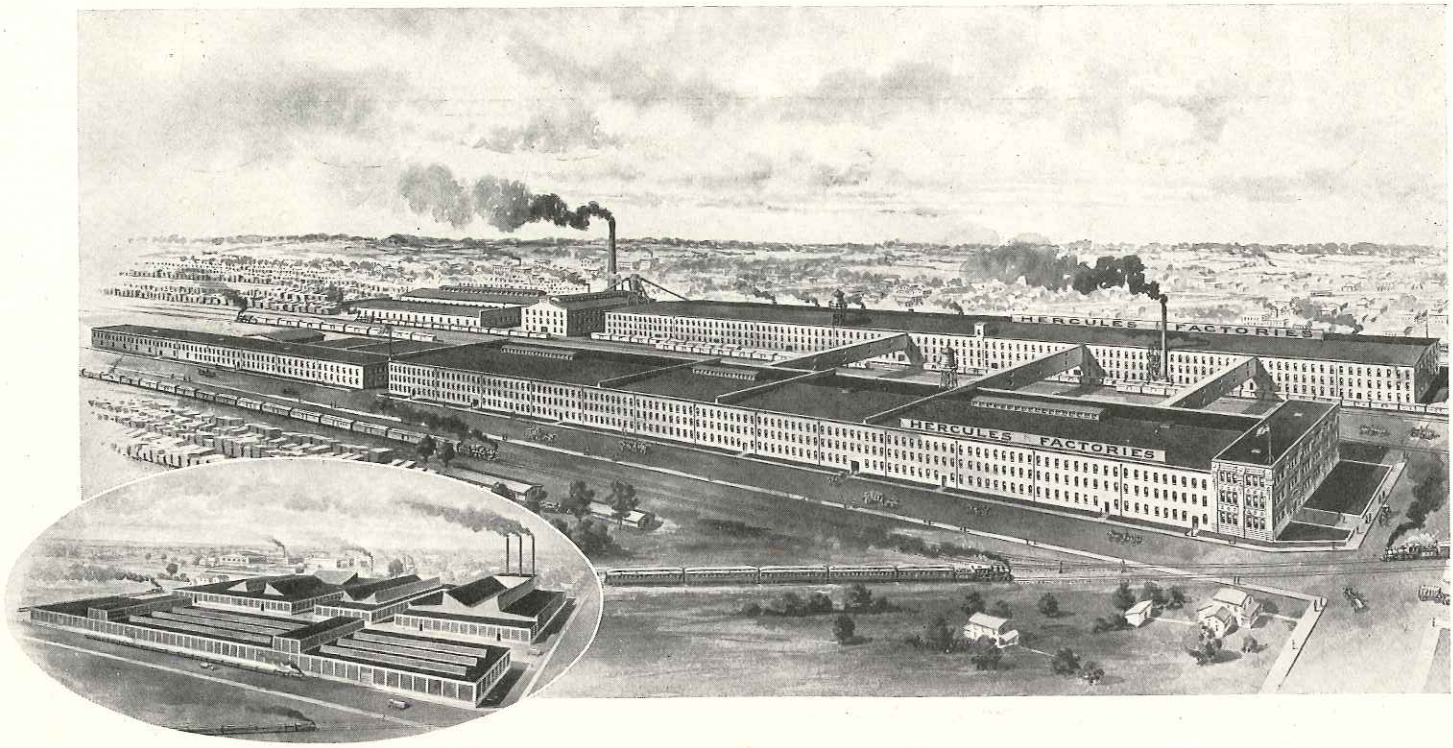


The **HERCULES CORPORATION**

EVANSVILLE, INDIANA

Established 1894

The $8,000,000 Hercules Corporation Stands Back of its Product 100 Per Cent



This illustration shows the plant of The Hercules Corporation at Evansville, Indiana, with the new and modern daylight foundry and machine department shown in inset at left.

IN considering such an important item as a power unit your first and chief concern must necessarily be about the reliability of the company that manufactures and proposes to stand back of it. The Hercules Corporation has been built on carefully fulfilled promises, high quality rigidly maintained, and a fair and square treatment of their customers. When you deal with Hercules you will find that all of your transactions will be conducted under this broad and liberal policy. It is a permanent habit with us to treat our customers right and it is your assurance that the future is taken care of. Hercules is back of their product 100% and will always be here to take care of you. We are solidly established, morally reliable, and financially able to carry out every promise made to you.

Guarantee

WE guarantee every Hercules engine to be free from defects and to develop its full rated horse-power and a liberal surplus besides.

We guarantee each engine to be carefully tested and the results accurately recorded and that they will reach you ready in every respect for immediate service.

The Hercules Corporation
Evansville, Indiana

Nation Wide Sales and Service

ALABAMA
- Dothan
- Montgomery

ARIZONA
- Phoenix
- Tucson

ARKANSAS
- Fort Smith
- Little Rock

CALIFORNIA
- Los Angeles
- San Francisco
- San Diego

CANADA
- Montreal

COLORADO
- Denver

FLORIDA
- Jacksonville
- Miami
- Tampa

GEORGIA
- Atlanta
- Macon

IDAHO
- Idaho Falls
- Twin Falls

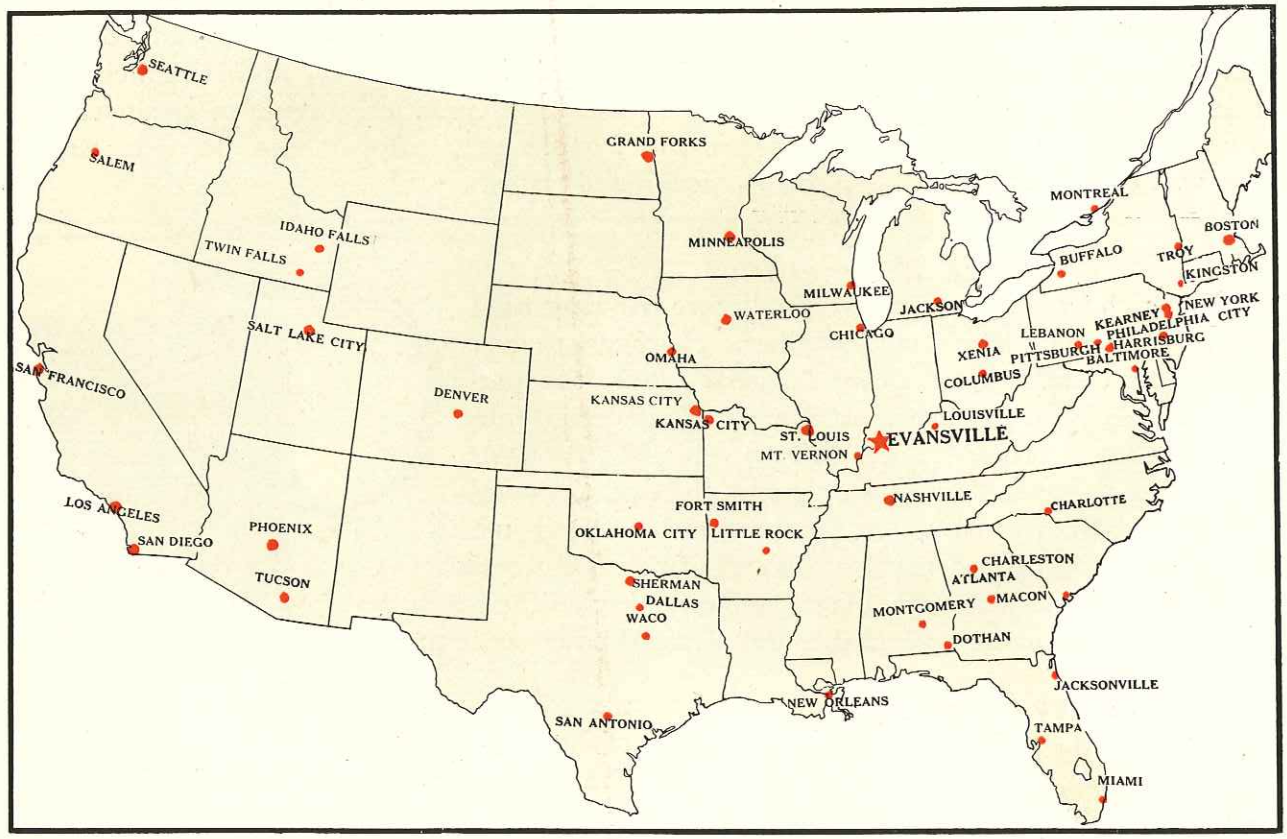
ILLINOIS
- Chicago
- Mt. Vernon

INDIANA
- Evansville

IOWA
- Waterloo

KANSAS
- Kansas City

KENTUCKY
- Louisville



LOUISIANA
- New Orleans

MARYLAND
- Baltimore

MASSACHUSETTS
- Boston

MICHIGAN
- Jackson

MINNESOTA
- Minneapolis

MISSOURI
- Kansas City
- St. Louis

NEBRASKA
- Omaha

NEW JERSEY
- Kearney

NEW YORK
- New York City
- Kingston
- Buffalo
- Troy

NORTH CAROLINA
- Charlotte

NORTH DAKOTA
- Grand Forks

OHIO
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PENNSYLVANIA
- Philadelphia
- Pittsburgh
- Lebanon
- Harrisburg

SOUTH CAROLINA
- Charleston

TENNESSEE
- Nashville

TEXAS
- Dallas
- San Antonio
- Sherman
- Waco

UTAH
- Salt Lake City

WASHINGTON
- Seattle

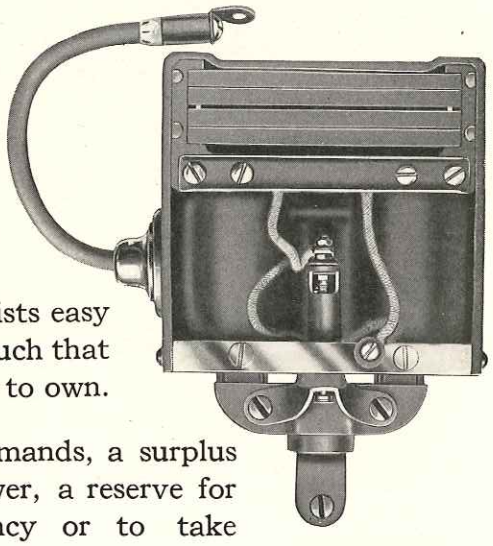
WISCONSIN
- Milwaukee

OVER 400,000 HERCULES ENGINES IN USE

Reliable General Purpose Engines

THE engine shown on the opposite page is the Hercules 1¾ and the 2½ H.P. size, celebrated for its continuous good performance and its economy in the use of fuel. Every Hercules engine from the smallest to the largest size is made complete in our own plant according to design and methods developed as the result of twenty-five years manufacturing experience. On this page and the ones which immediately follow you will find each important operating unit of the engine carefully and accurately described, and in placing our engine before you in this manner we have in mind the fact that the dealer as well as the consumer is interested in knowing why we build this engine in this particular manner. Please keep in mind that we are experienced engine builders, that we have always made good engines and that we are so solidly and firmly established that you are properly protected as to the future regarding service and repairs. Our engine is made of the highest grade of materials throughout and the finest and most modern methods are practiced in workmanship and manufacturing procedure. The engine is simple in design and in operation, uses less fuel than most other engines, and on account of this high quality and simplicity of design gives practically none of the usual engine trouble even after it has been in service a long time.

Wico Magneto



The Wico high tension magneto with only **one moving part** is standard ignition on all Hercules engines. No magneto ever built, no other electric system ever devised, equals the performance of this Wico magneto. It is so simple in design that it cannot get out of order. There are no wires to cut out or bearings to wear down and there is only one place on the magneto to oil. It will furnish a hot, fat spark at low speed just as readily as at high speed and on account of this feature assists easy starting. We consider the Wico magneto the final scientific touch that makes the Hercules engine a profitable and pleasant power unit to own.

Easy Starting

An engine should start easily and quickly in any climate under all average weather conditions, and a well designed and carefully built engine will do this. The hot, fat spark furnished by the Wico magneto operated by the Hercules tripping device is your guarantee that the engine will be easy to start and simple to operate. It can be easily started by man, woman or boy and in selecting an engine for your trade the matter of easy starting should be one of your first considerations.

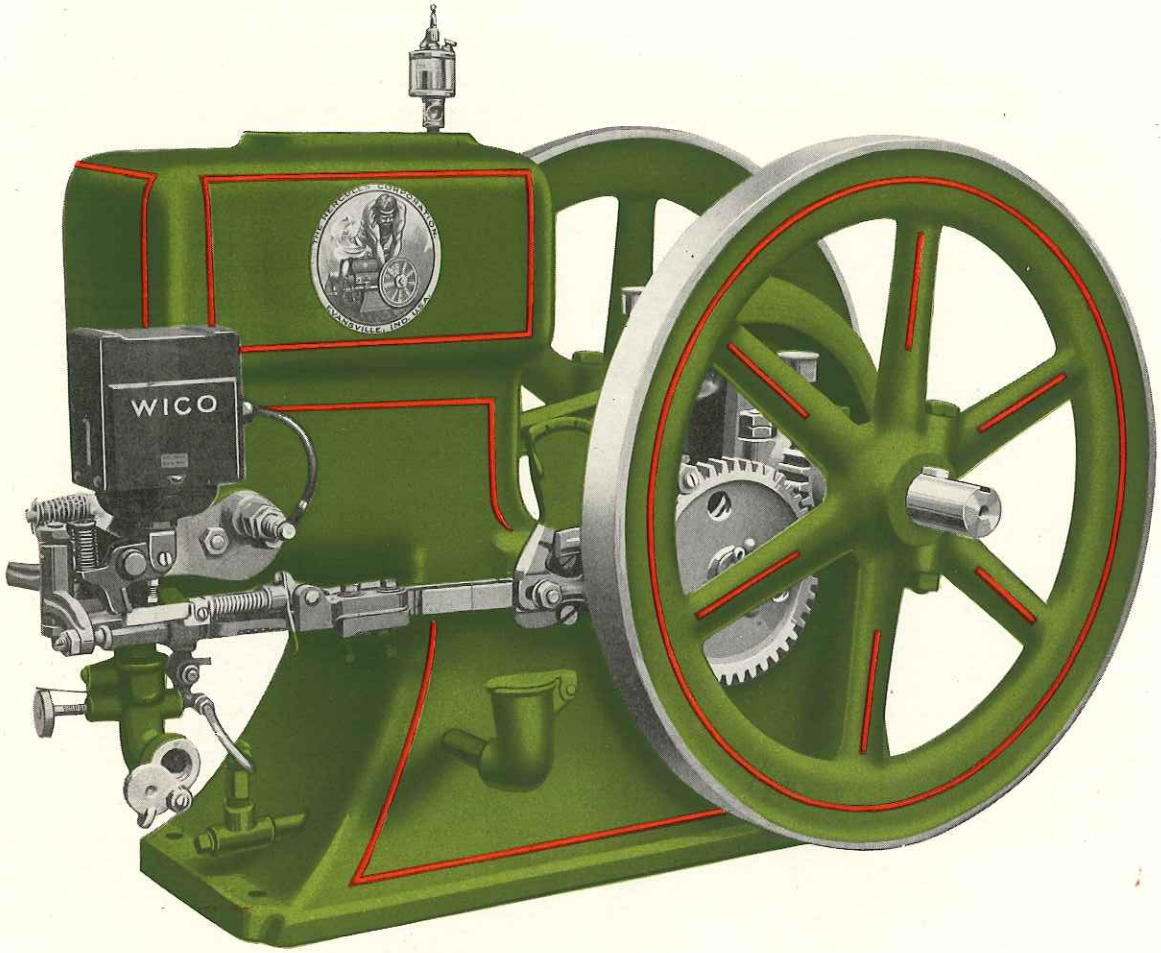
Surplus Power

Every engine should be built to develop, if necessity demands, a surplus of horse-power, a reserve for the emergency or to take care of a momentary load in excess of the rated capacity of the engine. The Hercules develops a large surplus of power in each size and enables you to run it constantly for long periods, taxing it up to its rated horse-power or beyond. No engine built today will stand the continuous hard work that a Hercules will and it is for this reason that you see them used extensively on machinery that is being subjected to hard and rough work, such as concrete mixers, belt conveyors, woodworking machinery, etc.

Hercules Gasoline Engines

Model S
Gasoline Only
Hit and Miss

1¾ and 2½ Horse-Power



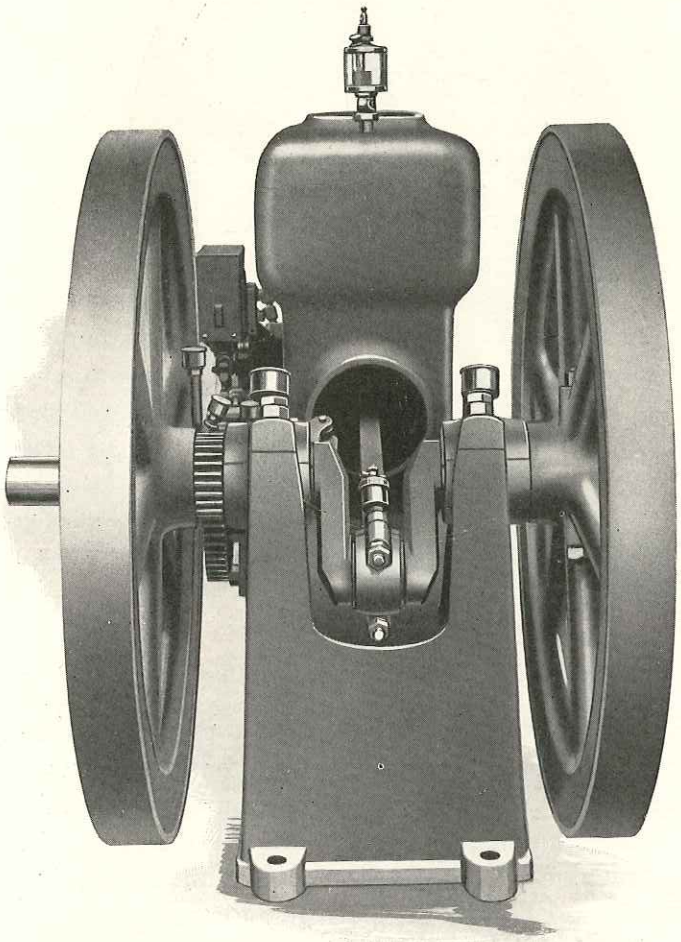
THIS illustration shows the Hercules 1¾ and 2½ H.P. general purpose gasoline engine fully equipped and ready to run. It is of the valve in head type, water cooled and operates on gasoline only. Each engine is equipped with Wico high tension magneto, Hercules speed regulator and hit and miss governor, automatic carburetor and mixer, priming cup, lubricator, spark plug, grease cups, large fuel tank, removable and interchangeable main bearings, connecting rod and oil guard, plain pulley, can of oil, can of grease, muffler, starting crank and complete operating instructions. It is complete in every way and ready for service.

Style No. Gaso.	Bore and Stroke	Horse Power	Speed R.P.M.	Plain Pulley		Flywheel		Floor Space Over-all			Diam. of Crank Shaft	Shipping Weight Crated Pounds	Ship. Wt. Boxed for Export	Code
				Diam.	Face	Diam.	Weight	Width	Length	Height				
1¾	3¼x5	1¾	600	4 in.	4 in.	18 in.	44 lbs.	20 in.	31 in.	25 in.	1¼ in.	280	360	Abase
2½	3⅝x5	2½	600	5 in.	4 in.	19¾ in.	52 lbs.	21 in.	32 in.	27 in.	1⅜ in.	305	405	Abbot

It is Safe to Buy a Hercules

THE engine shown on opposite page is the Hercules general purpose engine operating on gasoline only. Four hundred thousand of these Hercules engines are in service and they have justly earned an unequaled reputation for giving continuous and satisfactory service. Our twenty-five years of manufacturing experience permits us to properly design and build a good and practical engine, simple in construction and therefore easy to operate and keep in condition.

Our product is of the highest quality in both material and workmanship. The machine work on a Hercules engine is renowned for its accuracy and all parts are standardized to simplify the parts problem for the future.



Rear View

Simplicity—No Complicated Parts

Simplicity in design is essential to the proper and continuous performance of an engine. Note the simple construction of the Hercules engine. There is not a part of it that is not absolutely necessary, all the others have been eliminated.

Change Speed While Engine is Running

The Hercules speed changer is conveniently located on the near side of engine so that the speed may be instantly adjusted to suit your operating conditions. This gives you a desirable power range and a flexible power unit that you will appreciate.

Cast Iron Oil Guard

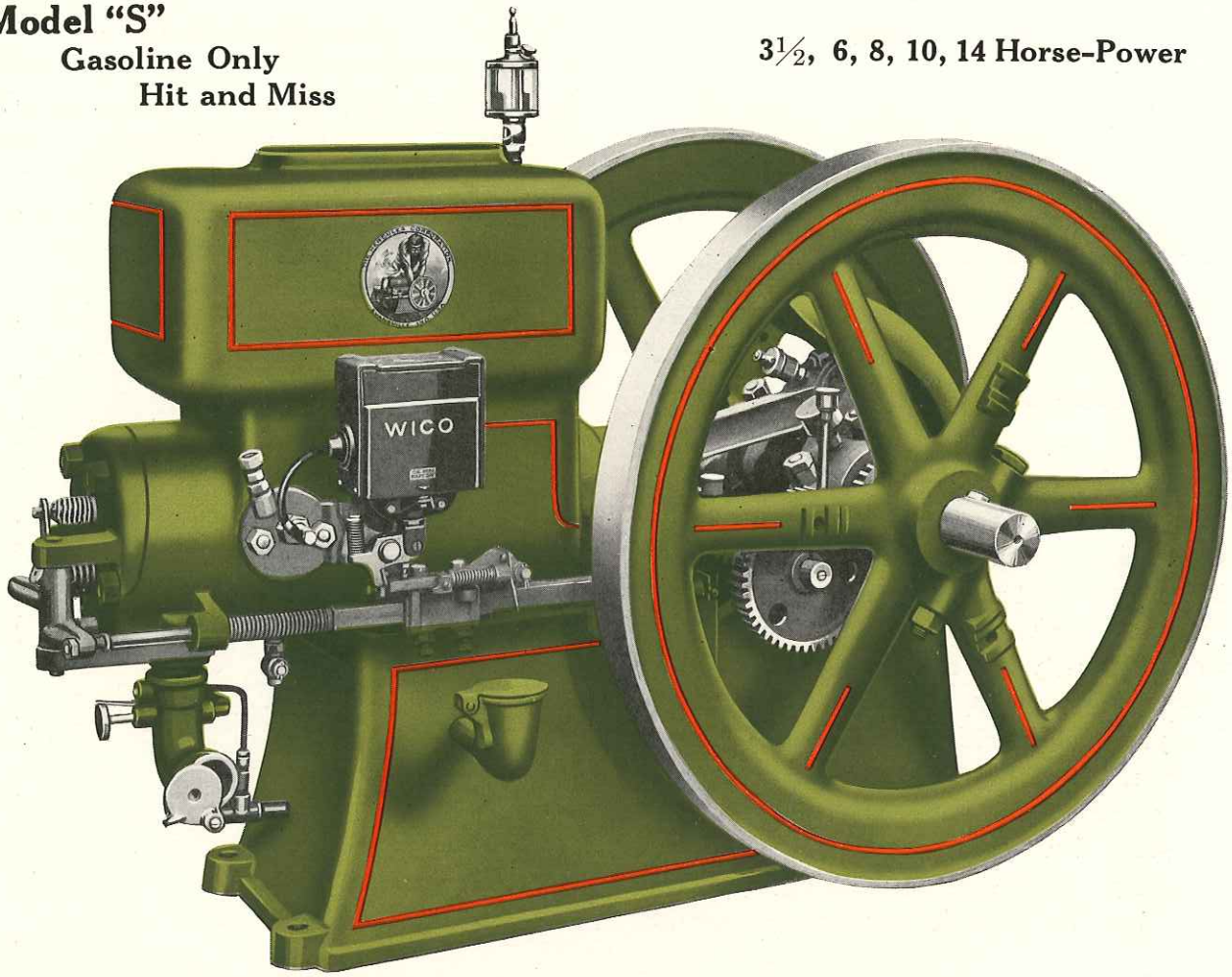
Included as regular equipment on each engine is a cast iron oil guard bolted on to base of engine and extending up over and around the connecting rod. This amply protects the working parts and prevents throwing of oil.

Oil Guard

Hercules Gasoline Engines

Model "S"
Gasoline Only
Hit and Miss

3½, 6, 8, 10, 14 Horse-Power



THIS illustration shows the Hercules general purpose engine in sizes 3½, 6, 8, 10 and 14 H.P., fully equipped and ready to run. It is of the valve in head type, water cooled and operates on gasoline only. Each engine is equipped with Wico high tension magneto, Hercules speed regulator and hit and miss governor, automatic carburetor and mixer, priming cup, lubricator, grease cups, spark plug, large fuel tank, removable and interchangeable main bearings, C.I. guard over connecting rod, plain pulley, can of oil, can of grease, muffler, starting crank and complete operating instructions. It is complete in every way and ready for service. All of the above sizes have base, cylinder and hopper cast in separate parts as illustrated on page 7.

Style No. Gaso.	Bore and Stroke	Horse Power	Speed R.P.M.	Plain Pulley		Flywheel		Floor Space Over-all			Diam. of Crank Shaft	Shipping Weight Crated Pounds	Ship. Wt. Boxed for Export	Code
				Diam.	Face	Diam.	Weight	Width	Length	Height				
3½S	4¼x 6	3½	550	8 in.	4 in.	22 in.	93 lbs.	23½ in.	40 in.	30 in.	1⅝ in.	540	650	Actor
6 S	5 x 7½	6	500	10 in.	6 in.	28 in.	166 lbs.	26 in.	47 in.	36 in.	2 in.	900	1090	Adder
8 S	5¾x 9	8	400	16 in.	6 in.	34 in.	228 lbs.	27¾ in.	56 in.	41 in.	2¼ in.	1240	1530	Adore
10 S	6½x11	10	360	18 in.	8 in.	38 in.	400 lbs.	28¼ in.	65 in.	45 in.	2½ in.	1910	2250	Acorn
14 S	7½x12	14	350	20 in.	8 in.	44 in.	530 lbs.	31 in.	74 in.	50 in.	2¾ in.	2530	3015	Adult

It is Safe to Buy a Hercules

Water Cooled

The cylinders of all sizes, small and large, are water cooled. Ample space has been provided around cylinder to permit a large and free circulation of water. The cylinder head on all sizes with exception of 1¾ H.P. is also water cooled. You will experience no overheating with a Hercules engine.

Removable Bearings

It is hardly necessary to point out to our trade the desirability of removable bearings. This feature is absolutely essential to the continuous and economical operation of an engine and you should be reluctant in recommending to your customers an engine that does not have them. They can instantly be replaced or adjusted and so important are the bearings of a rapidly moving piece of machinery that they should always be made of the highest quality, and removable or adjustable easily and quickly. The highest grade bearing material is used in our engine and you can rest assured that you will have no bearing trouble with the Hercules.

Concealed Fuel Tank

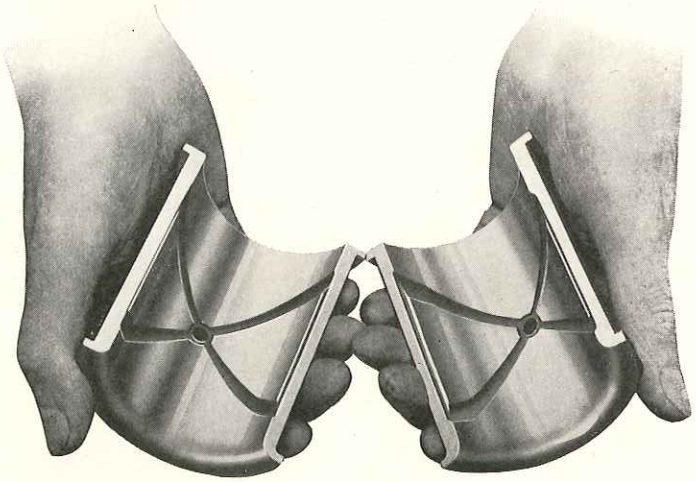
There are many advantages in having the fuel tank protected and concealed in the base of an engine. It eliminates the possibility of puncture and consequent leakage and the possibility of fire or explosion. Note that our fuel tank is carefully concealed in the base from which the fuel pipe is directly connected to the carburetor. This form of construction is of the very latest and approved type.

Finish

All Hercules engines are carefully hand filled and hand painted. Each part is properly protected by high grade paint made especially for the purpose in our own paint factory. The engine you receive will present a nice appearance and be a credit to you and to The Hercules Corporation.

Balanced Flywheels

We take unusual care in the manufacture of flywheels, being very careful to see that they are carefully balanced in every way before they are permitted to leave our plant. An engine with properly balanced flywheels is easier on all moving parts and is free from vibration.

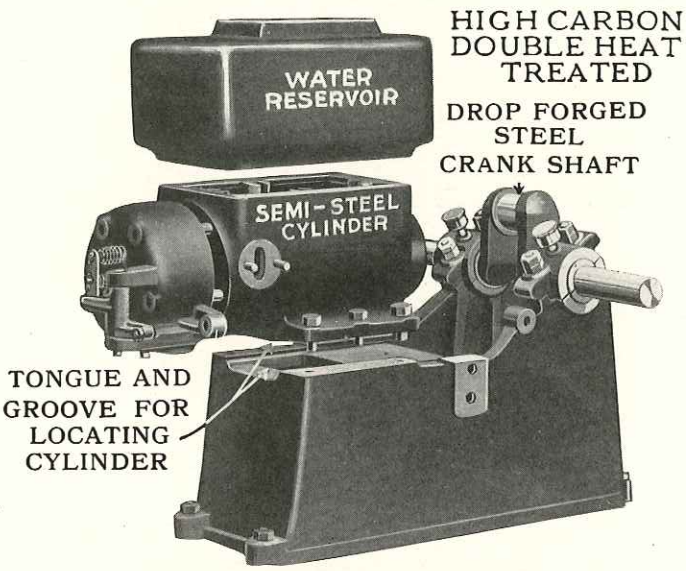


Removable and Interchangeable Bearings

We Tell You Why

Spark Retarder

As regular equipment every engine is provided with a small lever directly under magneto which, when dropped to the retard position, causes the magneto to fire late and consequently eliminates danger of a "kick-back" in starting, as well as assisting you to start the engine easily.



Three-Part Construction

Three-Part Construction

Note the three-part construction of our engine: bed, cylinder and hopper—a splendid feature should you have an accident or in some other way damage your engine.

Cylinder and base are securely locked together by means of the tongue and groove method, as illustrated. This construction squares up the cylinder bore with crank shaft bearings and keeps it so. There is no binding of piston or bearings and no distortion of connecting rod.

We are sure our trade will appreciate the many advantages of this three-part construction and its superiority over the engine that is built all in one piece and is a total loss in case of accident.

Lubrication

As regular equipment a sight feed brass lubricator is included and is attached to the oil feed pipe which runs down through the water in the hopper, thus warming up the oil so that it flows freely over the piston.

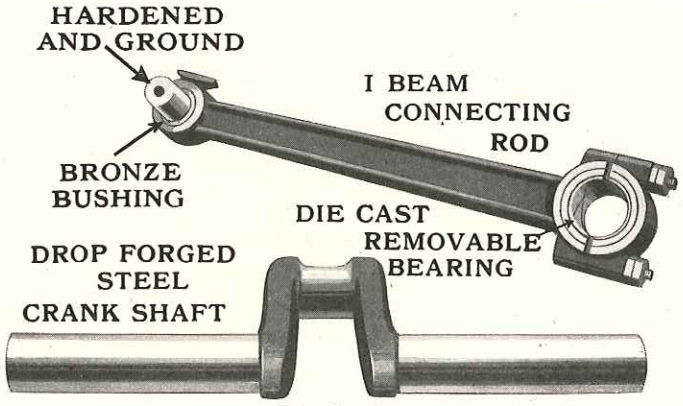
Carefully Tested

Every size Hercules engine, small or large, is carefully and scientifically tested for hours in our Testing Department before it is crated for shipment. An engine, before it leaves our test room, must come up to certain rigid standards and no engine is allowed to go out unless it meets these standards in every respect. They are carefully run in and adjusted so that when you get the engine it is ready for immediate service.

Drop Forged Crank Shaft

Our steel crank shafts are all drop forged and over-size for each size engine. They are carefully ground, polished and tested before use and are made from a special formula of steel especially for us. They have a high carbon content that absolutely assures you against any crank shaft difficulty.

Our connecting rods are the best to be had. They are I beam design with full bronze bushings in both ends of piston. Wrist pin is carefully hardened and made of high grade material.

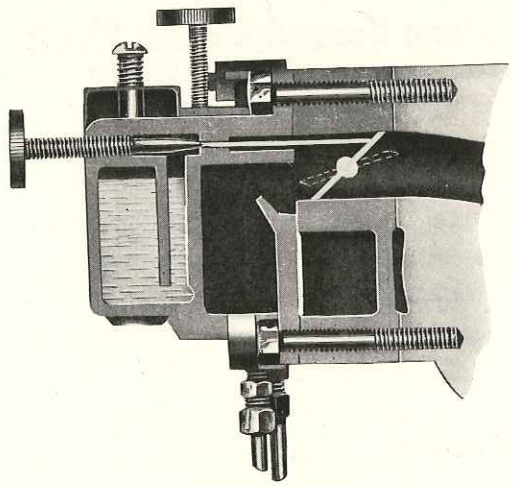


Drop Forgings

Hercules Throttling Governor Engine

THE Hercules Throttling Governor engine operates on either kerosene, gasoline or distillate. The type shown on opposite page is the same in every way as the gasoline type illustrated on the previous pages except that it is equipped with a constant level carburetor and Hercules throttling governor. An engine to properly use kerosene or distillate must be warm, and for this reason we use a throttling governor that causes a charge of fuel to be taken in at regular intervals instead of intermittently as on the Hit and Miss gasoline type. To operate on kerosene or distillate it is essential that a small quantity of water be drawn in with the vapor and for this reason we equip the carburetor with a special valve which permits just the right amount of water to be injected into the mixture from the cylinder head.

Otherwise, the Hercules kerosene, gasoline engine is the same in every respect as the gasoline type and can be used as a strictly gasoline engine just as successfully as the S type gasoline engines shown on the previous pages. We guarantee and recommend the Hercules kerosene, gasoline engines as economical and powerful engines.



Constant Level Carburetor

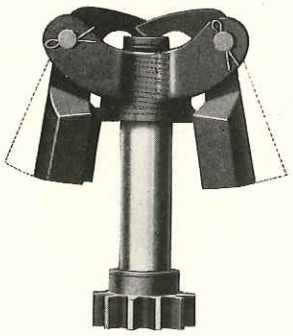
The Hercules constant level carburetor used on this engine has a pump feed which keeps fuel at a constant and uniform level immediately at fuel nozzle and eliminates the necessity of "choking" the engine to obtain a rich mixture when starting. This carburetor with full open air intake allows engine to develop more power than is usual on engines that have a "flutter" valve action in air intake.

Pulley Lugs

Note that the flywheel construction permits you to attach larger pulleys direct to the spokes of the flywheel relieving the crank shaft of strain and permitting you to attach the pulley easily.

Fly-ball Throttling Governor

The throttling governor is of the steam engine fly-ball type and permits a constant and uninterrupted flow of power. As a charge of fuel is taken at regular intervals it makes a smooth running and powerful engine and is preferred by many operators who have occasion to use kerosene or distillate as well as gasoline.

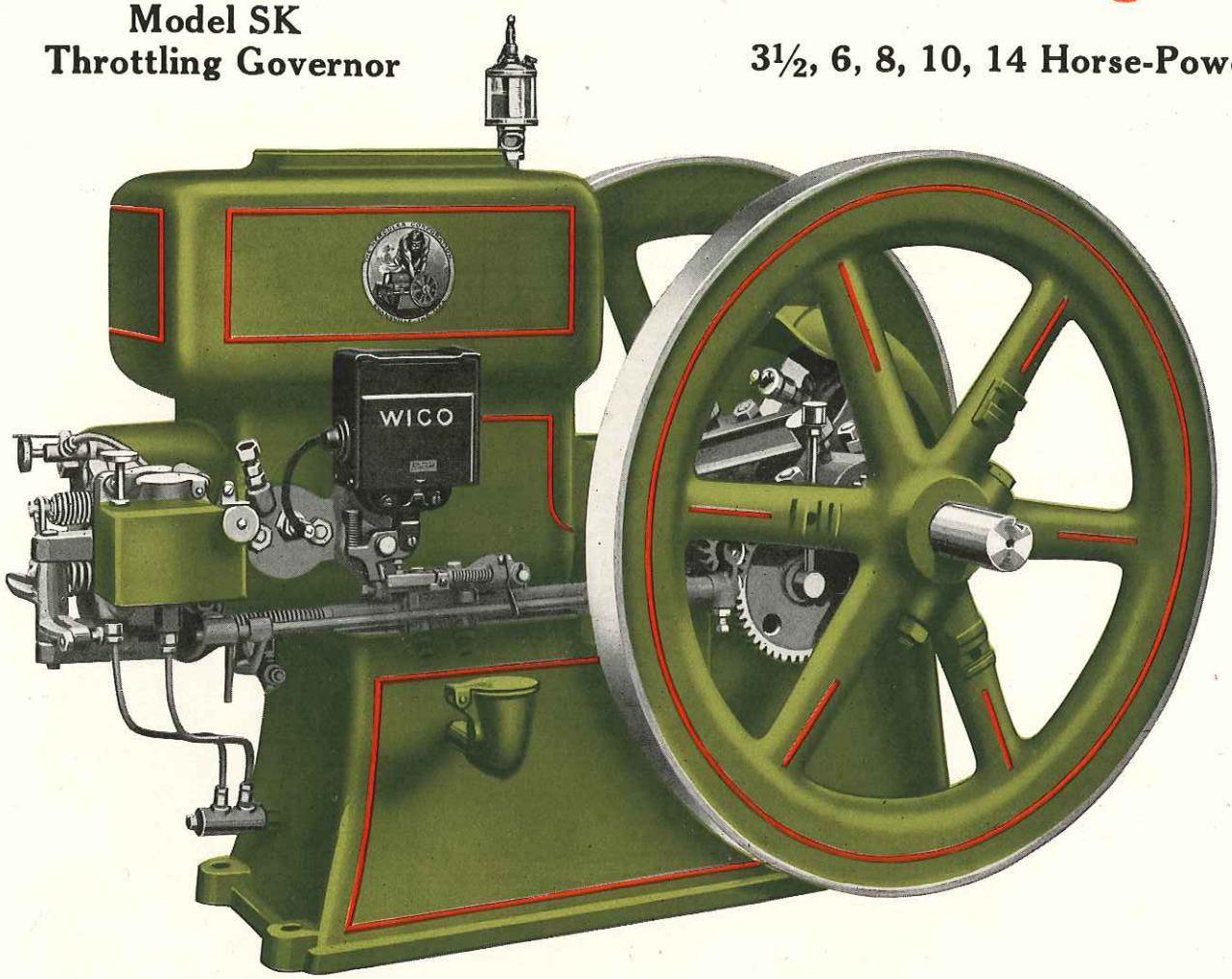


Throttling Governor

Kerosene-Gasoline-Distillate Engines

Model SK
Throttling Governor

3½, 6, 8, 10, 14 Horse-Power



THE engine illustrated above is the Hercules SK kerosene, gasoline type and is fully equipped and ready to run.

Each engine is furnished with Wico high tension magneto, Hercules speed regulator and throttling governor, kerosene, gasoline constant level carburetor, priming cup, sight feed lubricator, large fuel tank, spark plug, grease cups, removable and interchangeable main bearings, C. I. guard over connecting rod, plain pulley, can of oil, can of grease, muffler, starting crank and complete operating instructions. It is complete in every way and ready for service.

Style No. Kerosene	Horse Power	Speed R.P.M.	Plain Pulley		Flywheel		Floor Space Over-all			Dia. of Crank Shaft	Ship. Wt. Crated Pounds	Ship. Wt. Boxed for Export	Code
			Diam.	Face	Diam.	Weight	Width	Length	Height				
K3½S	3½	550	8 in.	4 in.	22 in.	93 lbs.	23½ in.	40 in.	30 in.	1⅝ in.	540	650	Agate
K6 S	6	500	10 in.	6 in.	28 in.	166 lbs.	26 in.	47 in.	36 in.	2 in.	900	1090	Alien
K8 S	8	400	16 in.	6 in.	34 in.	228 lbs.	27¾ in.	56 in.	41 in.	2¼ in.	1240	1530	Alert
K10 S	10	360	18 in.	8 in.	38 in.	400 lbs.	28¼ in.	65 in.	45 in.	2½ in.	1910	2250	Apron
K14 S	14	350	20 in.	8 in.	44 in.	530 lbs.	31 in.	74 in.	50 in.	2¾ in.	2530	3015	Attic

7 and 9 H.P. Hercules Diesel Oil Engine

THE illustration below shows the method of operating a Hercules Diesel oil engine. Note that the entire principle is extremely simple. The engine is easy to start, easy to operate and will not get out of order. It is equipped with a twenty-four hour oiling system which permits the engine to make long runs without attention. The material used in this engine throughout is of the highest grade. Every operating part is of the highest grade. Every part is machined in a most accurate manner and thoroughly tested in use before shipment. We put the Hercules oil engine before you as a high grade engine using the lowest priced fuels and recommended by us in every way as we know from experience that it will be a satisfactory power unit for anyone wishing to use the lower grade fuels. We will furnish you on request a circular which more thoroughly describes this Hercules engine.

How Hercules Diesel Engines Operate

This illustration shows how the Hercules Diesel Oil Engine operates. In order that you may understand the simplicity of this engine, let us explain just what happens when you crank a Hercules Diesel Oil Engine.

First, on the suction stroke—that is when the piston travels toward the outer end of the cylinder—instead of drawing in a mixture of gasoline and air, as is done in a gasoline engine, pure air is drawn through the air inlet valve. There is no mixture of any kind.

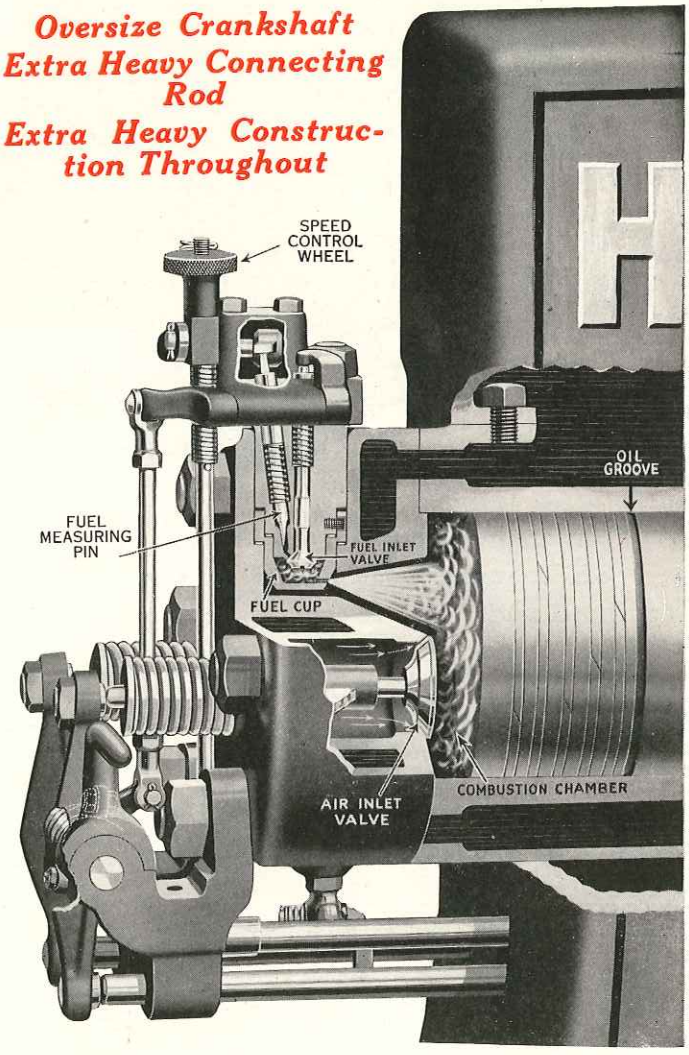
When the piston comes back on what is called the compression stroke, or when it moves in toward the head of the cylinder, it compresses this air to 425 pounds to the square inch, and this raises the temperature of the air to about 1,100 degrees Fahrenheit; or, in other words, the air is red hot.

The fuel was previously admitted by gravity to the fuel cup, which has small holes on the bottom operating toward the piston. When the air is compressed so that it is red hot, this red hot air naturally enters the cup through the small holes and sets fire to the oil, causing a rapid rise in pressure in the cup, or really a small explosion. This explosion in the cup forces the burning oil out of the cup into the red hot air in the combustion chamber where it continues to burn and expand.

The expansion of the gases generated by the burning of the fuel pushes the piston forward on what is called the power stroke. This form of expansion of gases gives a power impulse to the piston similar to that in a steam engine; in other words, a long, steady push rather than a quick hammer blow or sharp impulse, such as occurs in a gasoline engine. For this reason a Hercules Diesel Oil Engine will hold on to a load and pulls steadier and harder than any gasoline engine we have ever seen.

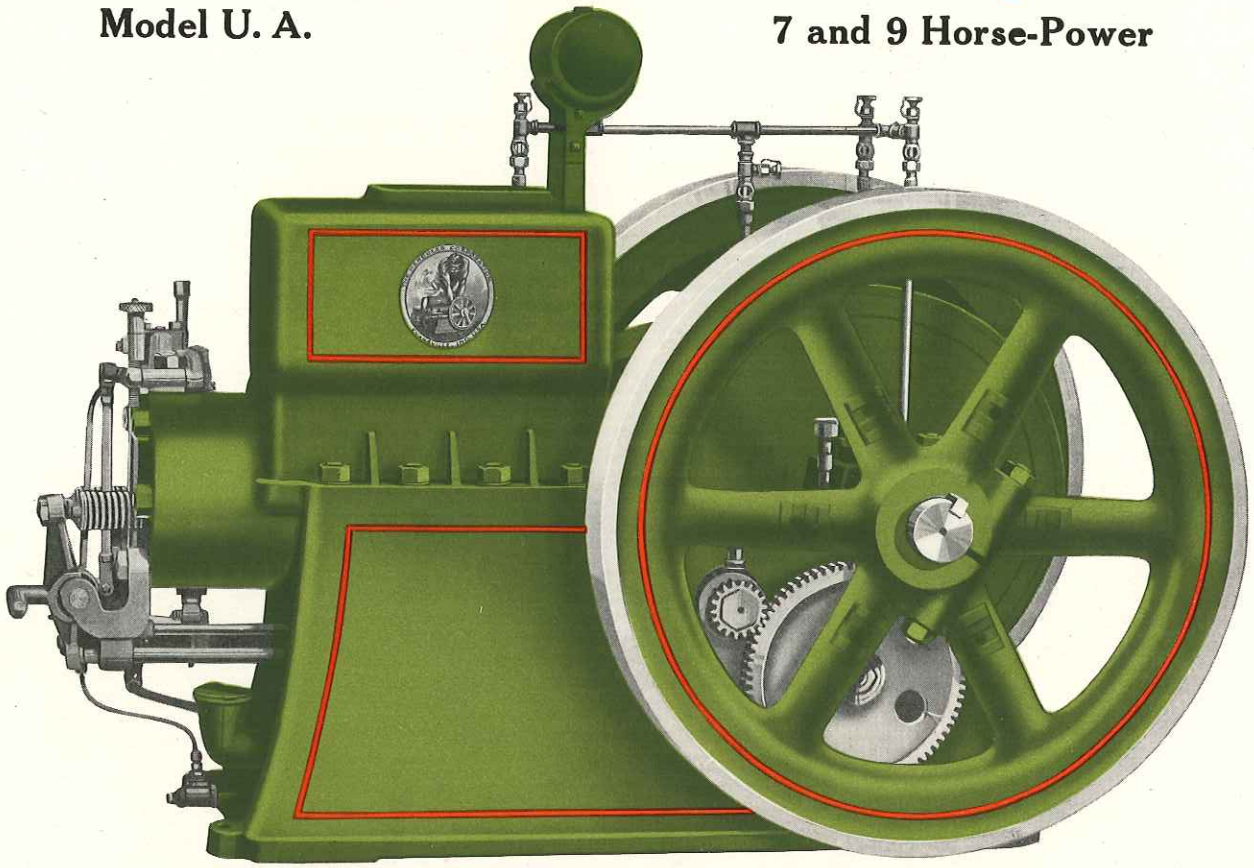
Upon return of the piston from its power stroke the exhaust valve opens and the burned gases are swept out through the exhaust. The piston then starts back again, the air inlet valve opens and admits pure air, and you start again to repeat the operation as described above.

Oversize Crankshaft
Extra Heavy Connecting Rod
Extra Heavy Construction Throughout



Hercules Diesel Oil Engine

Model U. A. **7 and 9 Horse-Power**



Low Cost Heavy Duty Engine

THE Hercules Diesel oil engine has been manufactured by us since 1913 under the Hvid patents and during that time over 25,000 of these engines have been sold and are in service today.

This Hercules Diesel engine is not in any way an experiment but is a thoroughly dependable and durable power unit. There are no electric parts, no carburetor, no magneto, no battery, no coil, no spark plugs, no wires to get out of order, no hot tube. It starts and runs on any fuel from crude oil up to kerosene and uses only two-thirds as many pounds of fuel for each horse-power developed as does the ordinary gasoline or kerosene engine. The fuel is injected regularly and under control into the cylinder head in the exact quantity necessary to furnish full explosive power. It will not run on gasoline.

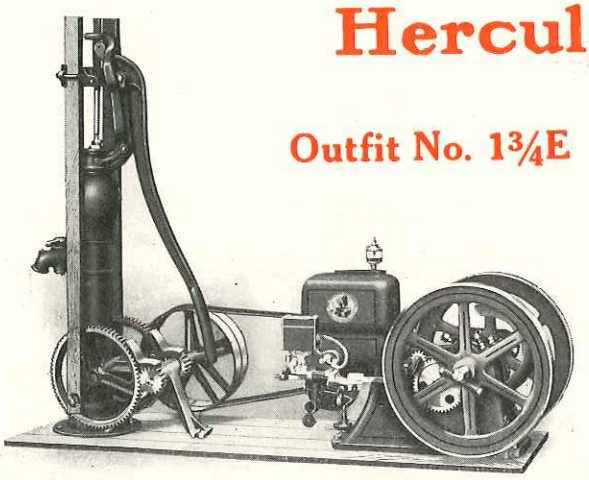
Size	Bore	Stroke	Type	Speed	Diam. of Fly-Wheel	Crank Shaft Diam.	Plain Pulley		Floor Space Over-all			Weight		Shipping Weight Boxed for Export	Code
							Diam.	Face	Width	Length	Height	Net	Shipping Wt. Crated		
7HP 9HP	5 in. 5¾ in.	7½ in. 9 in.	4 Cycle Water Cooled Throttling Governor	500 RPM 450 RPM	28 in. 34 in.	2½ in. 2¾ in.	10 in. 14 in.	6 in. 8 in.	32 in. 36 in.	52 in. 61 in.	36 in. 42 in.	1075 lbs. 1510 lbs.	1160 lbs. 1610 lbs.	1475 2010	Merry Midst

MODEL U. A.

WE USE THE NO-TROUBLE WICO MAGNETO

Hercules Outfits

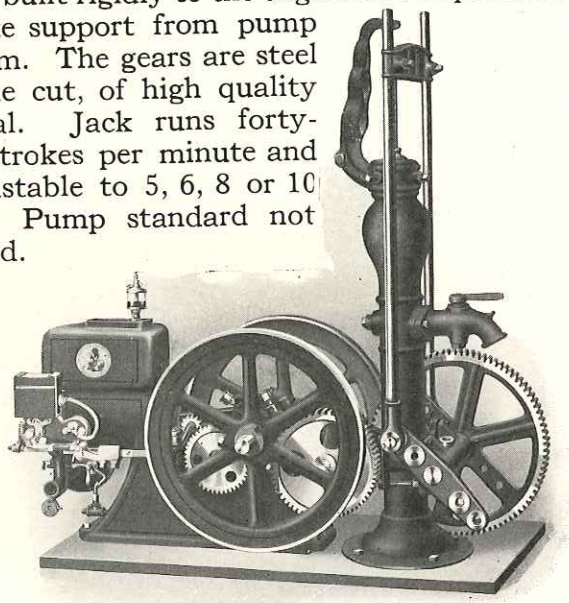
Outfit No. 1¾E



This outfit consists of 1¾ H.P. Hercules gasoline engine and eleven feet of guaranteed belting and a high quality double geared pump jack (made by us) with tight and loose pulleys. Jack can be securely fastened around base of pump and held rigidly in place by means of extra foot which is bolted to the pump platform. Jack runs at forty-five strokes per minute made in two strokes, 4⅜" or 9". Pump standard not supplied.

Outfit No. 1¾F

This outfit consists of 1¾ H.P. engine with direct gear driven jack bolted to engine. Any style of vertical pump can be used with this jack as it is built rigidly to the engine and requires no separate support from pump platform. The gears are steel machine cut, of high quality material. Jack runs forty-eight strokes per minute and is adjustable to 5, 6, 8 or 10 inches. Pump standard not supplied.



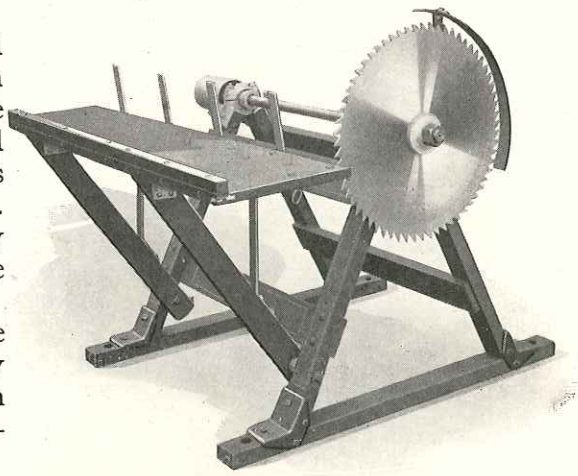
Outfit No. 1¾G

This outfit consists of 1¾ H.P. Hercules engine with direct gear driven jack designed for the operation of a force pump in drawing water from lakes and streams and is extensively used for irrigation purposes and house water supply systems. It will successfully operate the usual low down type force pump, as illustrated. It is provided with four stroke lengths, 5, 6, 8 and 10 inches and operates at forty-eight strokes per minute. Pump standard not furnished.

No. 15 Saw Frame

This Hercules tilting table saw frame is built of selected and well seasoned timber, heavily reenforced with cast iron angle plates. It has a wide tilting table and an adjustable steel guard over saw blade. Shaft is 1⅜-inch cold-rolled steel provided with self-aligning babbitt bearings. It is impossible to cramp the bearings by twisting the frame. Driving pulley 5-inch diameter, 7-inch face, operated by any size stationary or portable engine according to the size of saw blade used.

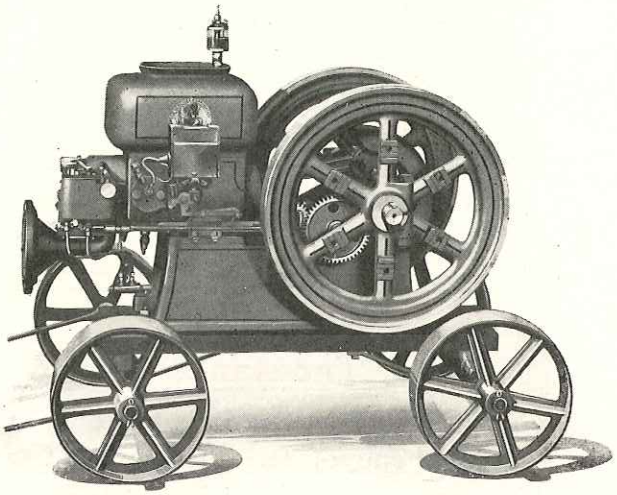
A balance wheel is not provided on this number 15 frame as the two heavy flywheels on any Hercules engine supply sufficient momentum to insure the saw running at an even speed. However, a special saw frame flywheel can be furnished as an extra if so desired.

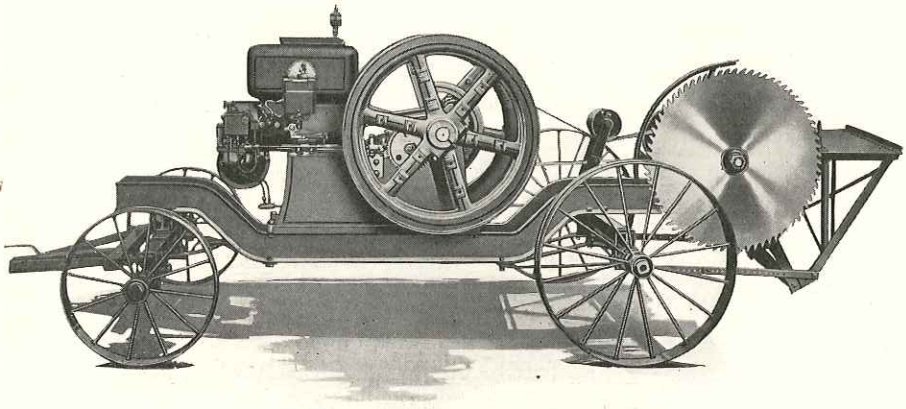


Hercules Portable Outfits

Hand Portable Outfit

This illustration shows the Hercules hand portable outfit which is made by attaching a 1¾, 2½, 3½ or 6 H.P. engine to a truck. Wheels of truck are heavy cast iron. Axle is extra heavy and reenforced and an engine mounted in this manner will always do the same work as a stationary engine and at times is far more convenient.



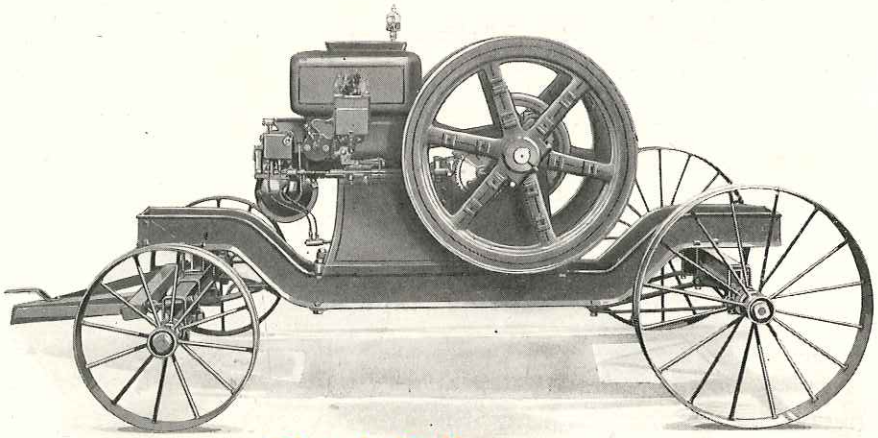


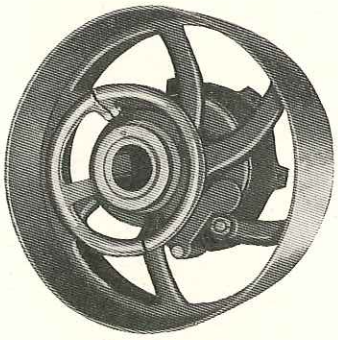
Hercules Portable Saw Outfit

This outfit consists of a Hercules engine mounted on a drop frame steel truck which is made of 5-inch channel steel. Outfit consists of engine, steel tilting table saw frame, necessary belting, pulleys and belt idler. Made in two sizes 6 or 8 H.P. Hit and Miss Gasoline or Throttling Governor Kerosene-Gasoline type engine. Saw blades are not included.

Portable Horse Drawn Outfit

This outfit is exactly the same as the saw outfit illustrated and described above except that it is not furnished with the steel tilting table saw frame and belting and belt idler. Furnished in 6, 8, 10 or 14 H. P. size.





Clutch Pulley

Clutch Pulley

This illustration shows the Hercules clutch pulley made complete in our plant and is the result of years of experience in the manufacture of clutch pulleys. The clutch feature of this pulley is a tampered spring steel band lined with automobile brake lining operating against a heavy cast drum which is also the main frame of the pulley.

The lining of the steel brake band is the only part subject to wear and can be easily replaced at a small cost. It is easily operated by pulling out and pushing in on the hand wheel as shown in illustration.

Hercules Practical Log Saw

THE Hercules Log Saw Outfit was designed by us after careful investigation of the requirements of the professional sawyer, as well as the man who cuts timber only occasionally. We do not call our Log Saw a one man outfit, as the very nature of sawing work requires more than one man. This outfit is, however, built to saw any quantity and when operated by one or more men, is found to be a great money saver. Two men operating this outfit can, in the course of a days work, do approximately what ten men, or five crews, would turn out by hand.

Thousands in Use

This Log Saw Outfit is thoroughly practical, having none of the theoretical devices on it that frequently give trouble. The power unit is a 1¾ H.P. Hercules Engine, securely mounted on rigid wood beams.

The engine drives a large sprocket by means of a link chain directly off of a gear located on the crank shaft.

The quality of material and workmanship throughout the entire outfit is of the highest and is built up to the usual Hercules standard.

Will Saw Large Logs

This outfit will saw logs from eight inches up to three feet, six inches in diameter, either hard or soft wood. It is used extensively by the individual for cutting logs into blocks of stove length, ready for splitting.

Clutch Control

Each outfit is furnished with a friction clutch, which is so operated as to throw the saw blade out of gear, thus making the engine easy to start and permitting you to stop the action of the saw blade without stopping the engine.

Wico Magneto

The celebrated Wico Magneto, which is weather and water proof and will start at 40° below zero, is furnished as standard ignition on this outfit. Snow, sleet and rain will not effect this magneto and it is therefore unusually well adapted to this kind of work.

Saw Blade Guide

Note that each outfit is furnished with patented saw blade guide, which holds the saw blade in true position, preventing side play or chattering, a fault very frequently found in some outfits now on the market.

Log Hook Ratchet

Each outfit is securely held in position and snug up to the log, by means of a ratchet spur hook. The ratchet is operated by a lever which winds up the chain attached to the spur hook, thus pulling the entire outfit up close to the log preventing any unnecessary motion.

Torque Rod

Note that rigidity is secured for the entire outfit by a torque rod, which runs from the axle end of the outfit to the log hook and ratchet. This stabilizes the entire outfit and prevents vibration.

Steel Axle and Wheels

A channel steel axle is furnished with steel wheels, which are easily reversible, as shown in illustration, so that the outfit can be moved from cut to cut while the engine is running, without difficulty.

Hercules Practical Log Saw

No Belts to Slip

The drive on the Hercules Log Saw Outfit is furnished directly from the crank shaft on engine to a large steel sprocket. The chain is unusually heavy and made especially for this kind of work. It furnishes a constant, steady drive and is far superior to a belt drive, as it will not slip or throw itself out of position.

Each outfit is furnished complete with a five foot drag saw blade, made especially for power sawing; six foot blade can be furnished on request, at an extra charge.

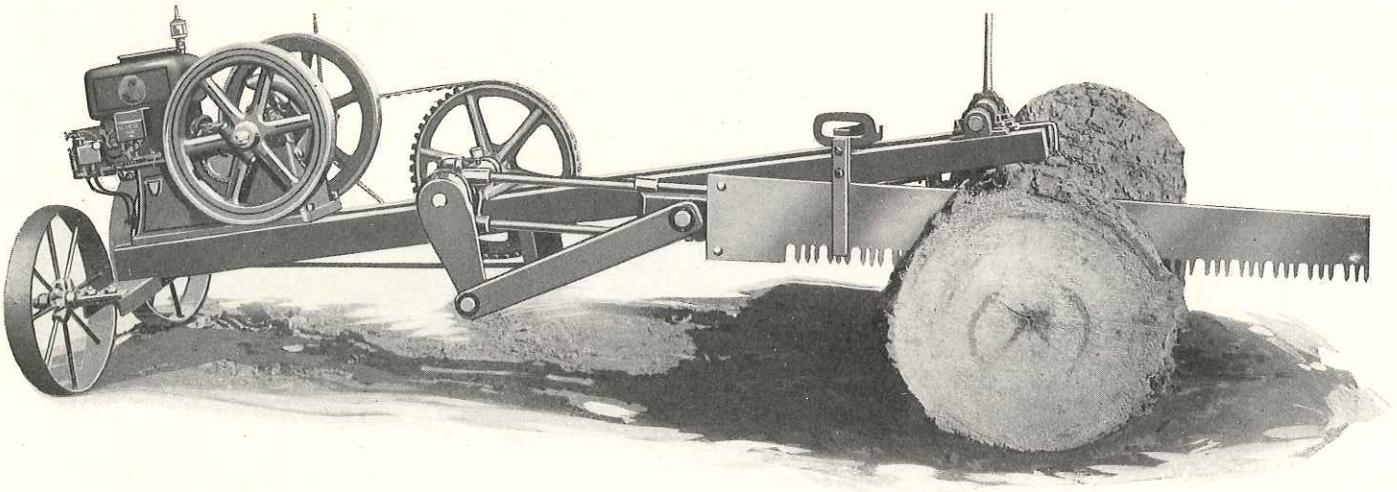
We have made this outfit a great many years and there are thousands of them in successful use. The quality of material and workmanship is of the highest and the entire outfit is guaranteed against defects.

Customers in far away countries can order this outfit by wire, code word EXACT.

Replaces 10 Men with Hand Saws

20,000 in Use

SAWS LOGS—8 in. Diameter up to 3 ft. 6 in.

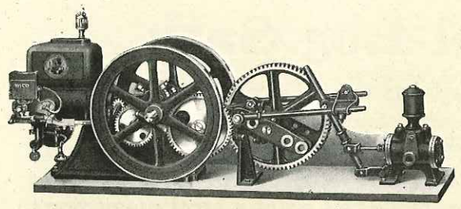


THROTTLING GOVERNOR

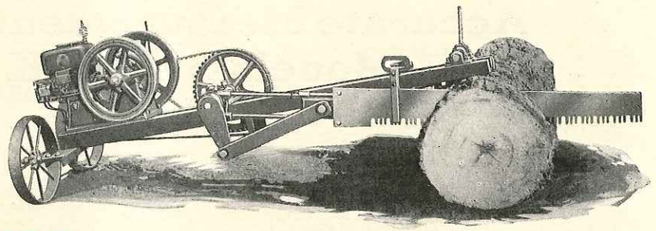
Uses

Kerosene, Gasoline or Distillates

MADE TO LAST

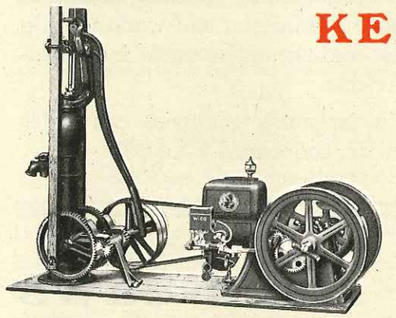


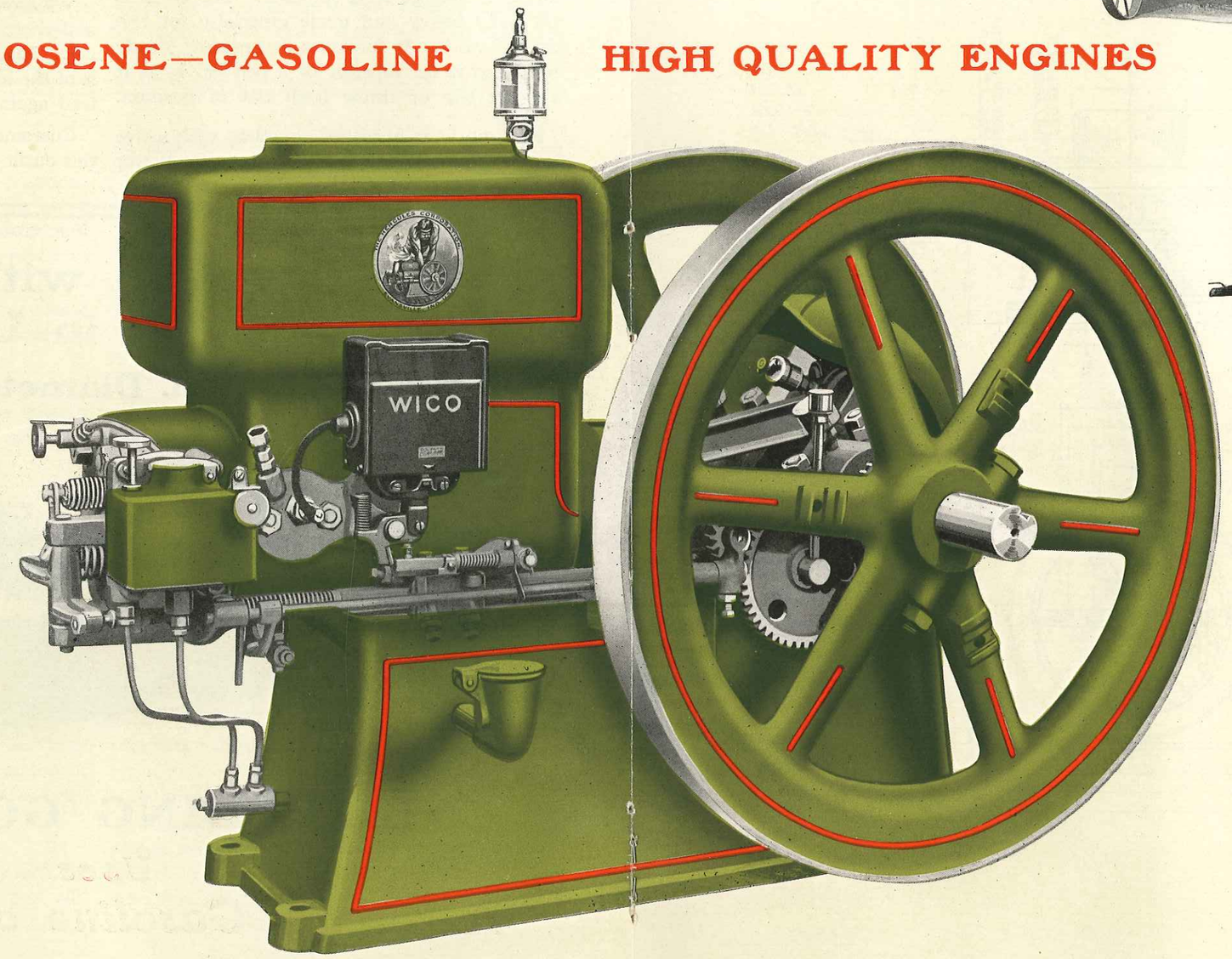
MADE TO LAST

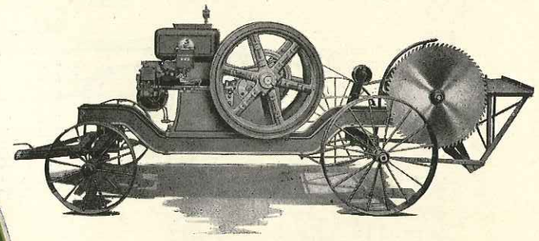


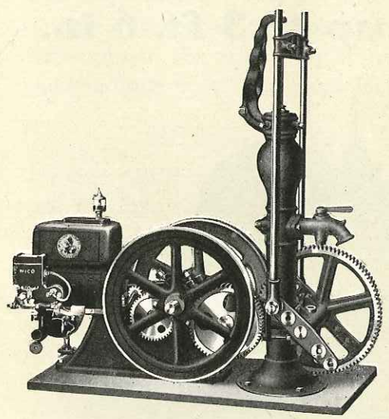
HERCULES

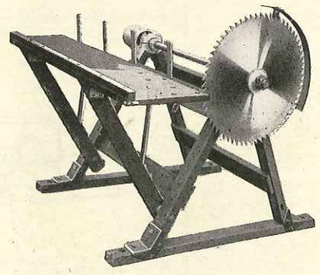
KEROSENE—GASOLINE HIGH QUALITY ENGINES

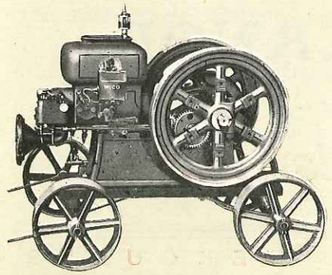


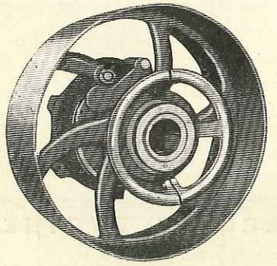






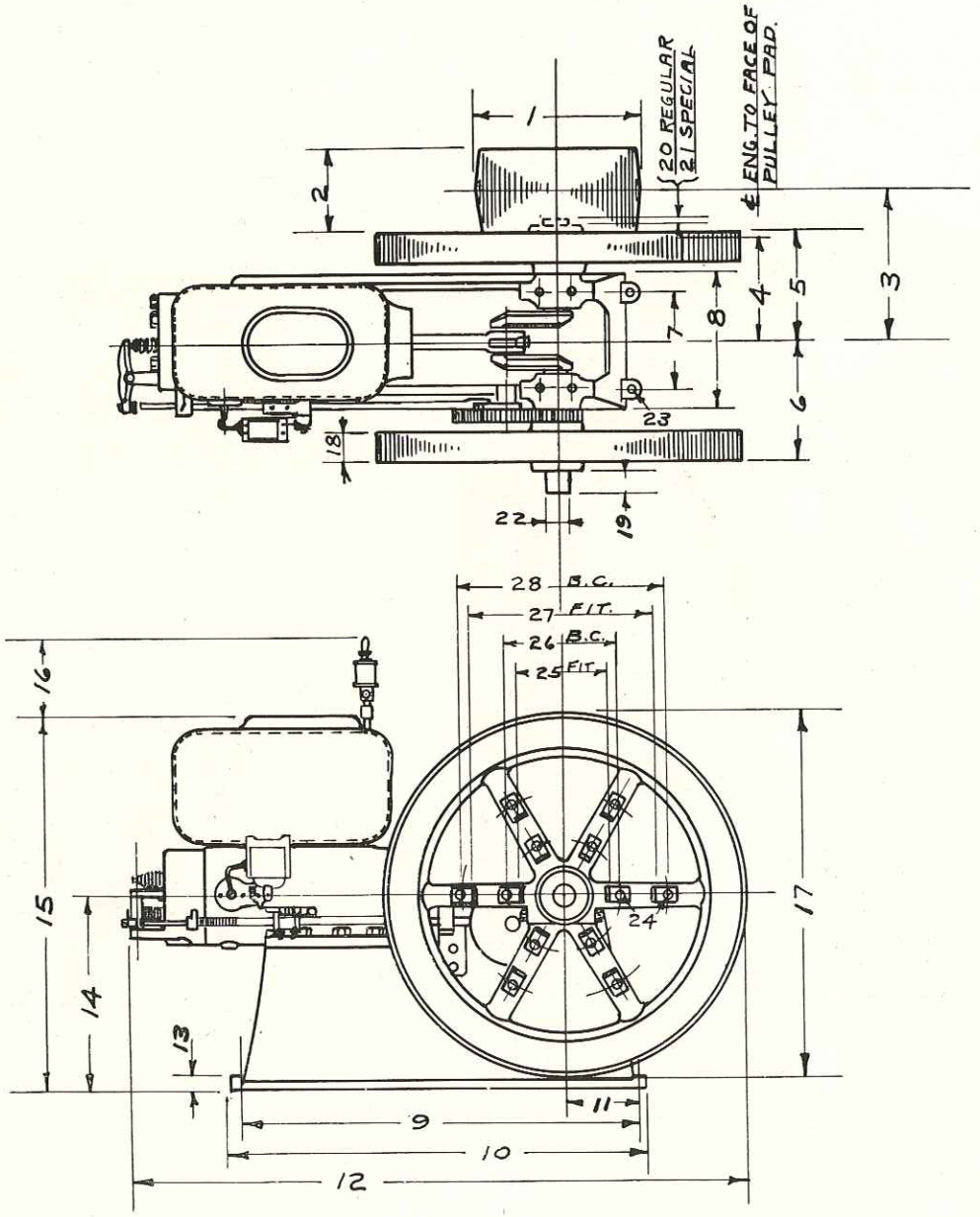






Powerful ~ Economical ~ Reliable

Accurate Measurements on Hercules Models S and SK Engines



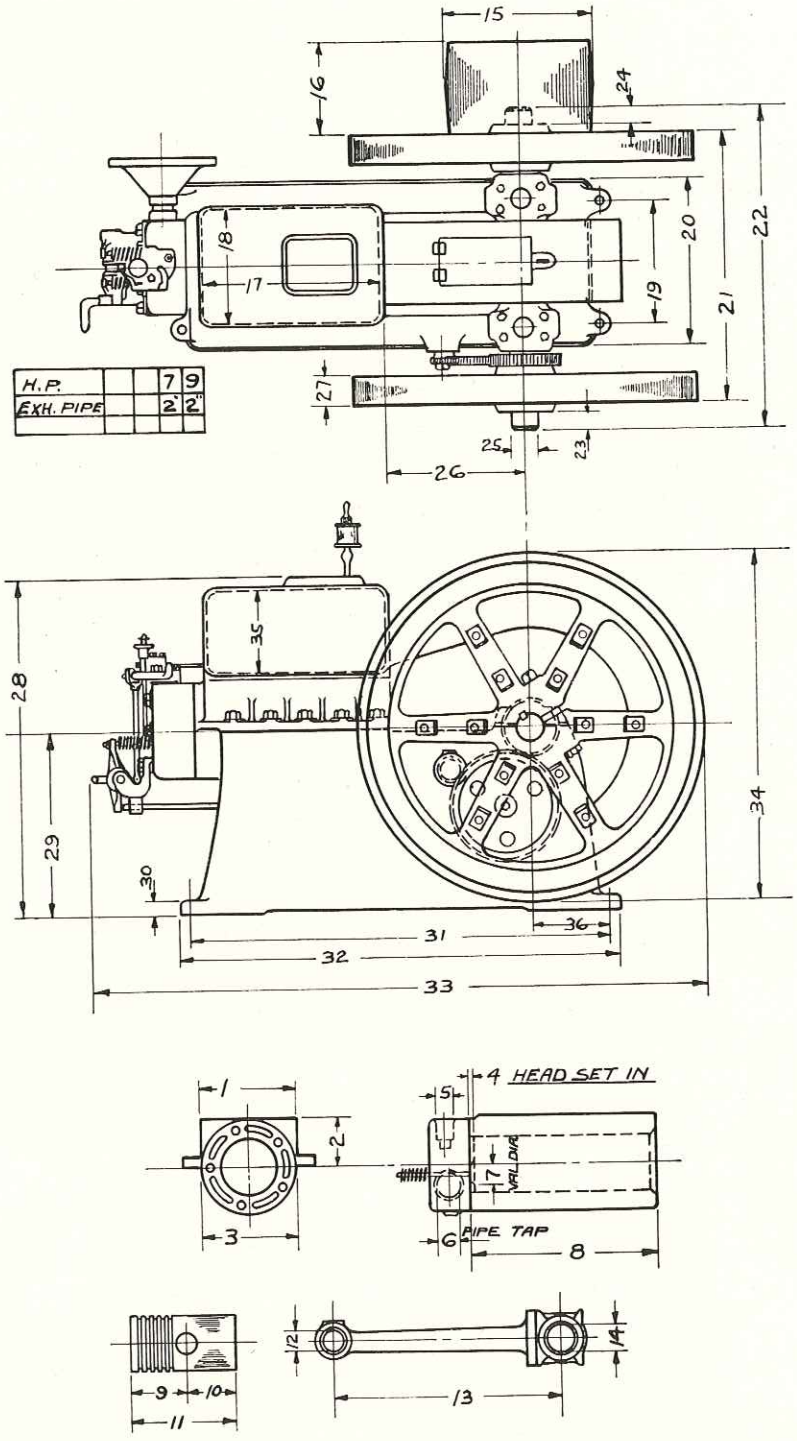
Hercules Model S and SK Engines

No.	1¾ H. P.	2½ H. P.	3½ H. P.	6 H. P.	8 H. P.	10 H. P.	14 H. P.
Bore	3¼	3⅝	4¼	5	5¾	6½	7½
Stroke	5	5	6	7½	9	11	12
R.P.M.	600	600	550	500	400	360	350
Exh. Pipe Size	1″	1″	1¼″	2″	2″	2½″	3″
Fuel Tank Gals.	1.1	1.4	1.6	3.1	5.8	8.	12.6

Specifications below apply to illustrations on page 18

1	4	5	8	10	16	18	20
2	4	4	4	6	6	8	8
3	10½	11¾	11 3/16	12 13/16	13⅜	16 11/16	17
4			7½	8 13/16	9⅜	10 9/16	11⅞
5	6 3/16	6¾	7 13/16	9⅛	9⅞	11¼	12½
6	7 9/16	8⅛	8 15/16	10¼	11 1/16	12 7/16	13 11/16
7	5½	7¾	6½	8	9	10	12
8	8	9	9	11	12½	14	16
9	20	16¼	25 9/16	29¼	36¼	41½	47 1/16
10	21	17¼	27 1/16	31	38	43½	49 1/16
11	4	4¼	5 1/16	5⅝	6¾	7½	8
12	30⅞	32	39⅜	46 9/16	56 3/16	64⅝	73 1/16
13	⅞	¾	1⅜	1½	1½	1½	1½
14	9¾	10¼	12	15	18	20	23
15	18⅝	20⅛	23 9/16	28 13/16	33 13/16	37 5/16	42 9/16
16	6¼	6¼	6½	7	7¼	7¾	7¾
17	18	19¾	22	28	34	38	44
18	1½	1⅝	2	2¼	2½	3¼	3½
19	2⅛	2	3¼	3¼	3¼	1 7/16	1 7/16
20	2¾	3½	2½	1¾	1⅝	1⅜	1⅜
21			6	6	7	8	8
22	1¼	1⅜	1⅝	2	2¼	2½	2¾
23	½	9/16	⅝	¾	¾	⅞	⅞
24			17/32	17/32	17/32	17/32	17/32
25			9½	9½	9½	9½	9½
26			11	11	11	11	11
27					19½	19½	19½
28					21	21	21

Accurate Measurements on Hercules Model UA Oil Engines



Hercules Model UA Oil Engine

No.	7 H. P.	9 H. P.
Bore	5	5 3/4
Stroke	7 1/2	9
R.P.M.	500	450
Exh. Pipe	2″	2″
Fuel Tank Gals.	5	9 1/2

Specifications below apply to illustrations on page 20

1	8 3/8	9 3/8
2	4 1/2	4 7/8
3	8 5/8	9 5/8
4	1/8	3/16
5	2	2
6	2	2
7	1 3/4	2
8	15 5/16	18 7/16
9	4 1/2	5 5/16
10	4 5/16	4 15/16
11	8 13/16	10 1/4
12	1 7/8	2 1/4
13	18 3/4	22 1/2
14	2 5/8	3
15	10	14
16	6	8
17	14 1/8	17 1/4
18	10 1/2	11 1/2
19	11 1/4	12
20	14 1/4	15 3/4
21	24	26 1/2
22	31 1/2	35 3/4
23	1 1/4	1 1/2
24	4 3/4	6
25	2 1/2	2 3/4
26	12 1/16	14 3/8
27	2 1/2	2 3/4
28	28 1/4	32 5/8
29	15	18
30	1 3/8	1 1/2
31	35	41 3/8
32	36 3/4	43 1/8
33	51 5/8	60 5/16
34	28	34
35	7 1/4	8 1/8
36	6 3/4	7 1/2

Engineering Service

HELPFUL HINTS FOR PORTABLE SAW MILL OPERATION

(Courtesy of The American Saw Mill Machinery Co., Hachettstown, N. J.)

Size of Saws: With a variable feed mill any size of saw can be used (according to size of logs, regardless of the amount of power used). With a large saw a large pulley must be used on the mandrel to reduce saw speed to correspond with the size of log and power used. The diameter of saw should be about one and one-half times the diameter of the largest log to be cut. A 36-inch log requires a 54-inch saw, a 40-inch log a 60-inch saw and so on. A small engine can be made to run a large saw successfully by using a saw with few teeth and a low speed.

Speed of Saw: Speeding saw too high is a very common mistake and the cause of most sawing troubles. The saw should be run only at its *proper* speed to give the best results and this speed is determined by the diameter of saw, spacing of teeth and the power available. While speed is power, it is easy to consume all the power in speed without doing any work.

Power Necessary: Saw diameters and tooth spacing should correspond with power available.

For saws larger or smaller than 48″ the speed should be decreased or increased proportionately.

H.P.	Saw Diam.	No. of Teeth	Tooth Spacing	Saw R.P.M.	Rim Speed Ft. per Min.
10	48″	24	6	300	3800
12	48″	24	6	350	4400
15	48″	30	5	400	5000
20	48″	30	5	450	5600
25	48″	34	4½	450	5600
30	48″	38	4	500	6300

Pulley sizes on engine: The pulley size of engine should be figured from the above saw speeds and saw mandrel pulley on saw-rig. Multiply saw speed by pulley diameter and divide by engine rated speed—the result is engine pulley diameter.

Additional information regarding care of saw and operation of rig may be obtained from the Company above noted.

PUMP PROBLEM INFORMATION AND FORMULAE

A gallon of water weighs 8⅓ pounds and contains 231 cu. in. A cubic foot of water, 1728 cu. in., weighs 62½ pounds and equals 7½ gallons. A barrel of water contains 31½ gallons. An ordinary lavatory requires 1½ gallons. An average bathtub requires 30 gallons. An average toilet flush tank requires 7 to 10 gallons.

Domestic animals drink water as follows daily: Horses, 5 to 10; Cattle 7 to 12; Hogs 2 to 2½, and sheep 1 to 2 gallons.

It requires 8 gallons of water to sprinkle 100 square feet of lawn and 15 to 20 will soak it thoroughly. An ordinary ¾″ hose nozzle throws about 6 gallons per minute with solid stream and 4 gallons when spraying, with a water pressure of 40 to 50 pounds.

A cubic foot of water per second is equivalent to 450 gallons per minute. An acre foot equals 325,829 gallons.

A miner's inch is a somewhat indefinite term, varying in different states from 9 to 13 gallons per minute, but the average may be taken at 11½ gallons. A second foot of water varies in different states from 38.4 to 50 miner's inches and unless otherwise stated is taken at 50 miner's inches.

Diameter of circle times 3.1416 = circumference. Circumference times .3183, or divided by 3.1416 = diameter. Square of the diameter times .7854 = area.

To find diameter of pump cylinder for a given amount of water per minute based on piston travel of 100 ft. per minute, divide gallons required by 4, then take the square root of this and the result will be diameter of cylinder required. To find area of pipe required, the volume of water being known, take cubic feet of water times 144 and divide this by the velocity of the piston in feet per minute. The result will be pipe area and diameter can be found by dividing this by .7854 and finding square root which will be the diameter of pipe required.

Velocity in feet per minute to discharge a given volume of water in a known time is found by multiplying cubic feet of water by 144 and divide product by pipe area in inches.

In figuring the theoretical horse-power necessary to drive a pump, the "Friction head" should be added to the "actual head". The friction head is the power required to force the water through the pipes and elbows necessary to carry the water to point of discharge. These figures are given in tables on the following pages.

The actual horse-power required includes the theoretical horse-power plus the horse-power required to overcome the inefficiency of the pump. One horse-power = 33,000 pounds lifted 1 foot high in 1 minute. Pump efficiency varies from 33⅓% on small sizes to 66⅔% and higher on larger sizes.

The horse-power required to drive a pump which was 33⅓% efficient would be three times the theoretical. A 50% efficient pump would require double the theoretical, and a 66⅔% efficient pump would require 1½ times the theoretical horse-power.

POWER TO DRIVE PUMPS

A sample problem illustrates uses of tables shown on following pages:

CONDITIONS:

Water desired to pump: 90 gallons per minute from well 10 feet deep, the pump located 40 ft. from well and tank 460 ft. from pump at 60-ft. elevation. Suction pipe 3″ diameter, is 10 feet in well, 40 feet from pump and has two 3″ elbows. Discharge pipe is 2½″ diameter and in this example is 460 feet from pump to tank and 60 feet up to tank, and has two 2½″ elbows.

The power necessary will be, first to raise the water 10 feet + 60 feet = 70 feet; second, to overcome friction of water in pipes and elbows; third, to overcome friction in pump and the engine connections to the pump.

Reliable Information to Assist You

WHAT H. P. ENGINE IS NECESSARY

Transform losses by friction in pipes, pump and engine friction to "friction heads."

FIRST: 10 feet in well and 60 feet from ground to tank = ... 70.000 ft. actual head

SECOND:
- 3″ pipe 10 + 60 = 70 feet. $\frac{70 \times 3.52}{100}$ per friction table = ... 2.460 ft. actual head
- Two 3″ elbows = by elbow friction table, 2 x .138 = ...276 ft. actual head
- 460 feet + 60 feet of 2½″ pipe = 520 feet. $\frac{520 \times 8.00}{100}$ per friction table = 41.600 ft. actual head
- Two 2½″ elbows, by elbow friction table, 2 x .5704 = ... 1.1408 ft. actual head
- Total head the pump has to overcome = ... 115.4768 ft. actual head

THIRD: Pump efficiency assumed at 66⅔%. Belt loss efficiency = 10%. Then engine must drive pump to lift 90 gallons 115.5 feet high in one minute.

Expressed in H.P. = $\frac{90 \times 8\frac{1}{3} \times 115.5}{33000 \times 66\frac{2}{3}}$ = 3.95 H.P. at pump pulley. 3.95 + .395 = 4.345 H.P. at engine pulley.

FRICTION OF WATER IN ELBOWS

Feet Head to be added for each Elbow.
Table base Weisbach's Formula for very short bends.

Gallons per Min. Delivered	Pipe Sizes—Inside Diameter										
	¾	1	1¼	1½	2	2½	3	3½	4	5	6
5	.161	.0621	.0184	.0115	.0046						
10	.644	.2162	.0713	.0414	.0138	.0069					
15	1.449	.4876	.1587	.092	.0322	.0115					
20	2.576	.8648	.2829	.1587	.0575	.0276	.0115				
25	4.002	1.3455	.4462	.2484	.0874	.046	.0184				
30		1.9435	.6394	.3611	.1265	.0644	.0253				
35		2.645	.8740	.4935	.1748	.0851	.0345	.0207			
40		3.450	1.1385	.6394	.2254	.1127	.046	.0253	.0161		
45		4.370	1.4389	.8096	.2875	.1426	.0598	.0345	.0207		
50			1.771	.989	.3519	.184	.0736	.0391	.023		
60		7.774	2.553	1.426	.506	.2576	.1012	.0598	.0345	.0138	.0069
70		10.580	3.496	1.978	.6992	.3404	.138	.0805	.0483	.0207	.0092
75		12.190	4.002	2.254	.805	.3956	.1656	.092	.0552	.023	.0115
80		13.800	4.554	2.553	.9016	.4508	.184	.1012	.0621	.0276	.0115
90		17.480	5.750	3.243	1.150	.5704	.2392	.138	.0805	.0322	.0161
100			7.084	3.956	1.4076	.736	.2944	.1564	.0989	.0391	.0184
125				6.256	2.231	1.104	.460	.2576	.1541	.0621	.0299
150				9.016	3.197	1.5755	.6578	.368	.2208	.0897	.0437
175				12.236	4.370	2.1505	.8970	.5014	.3036	.1219	.0598
200				15.824	5.612	2.944	1.1776	.6266	.3956	.1564	.0736
250					8.878	4.393	1.840	1.0258	.6164	.2507	.1196
300					12.788	6.302	2.622	1.472	.8832	.3588	.1748

ALTITUDE EFFECT ON H. P. OF GAS ENGINES

The power of a gasoline engine depends on the amount of fuel and air drawn in to form the explosive charge.

As the elevation above the sea level increases the pressure of the atmosphere decreases, and therefore less air is drawn into the combustion chamber. This naturally decreases the intensity of the explosion with proportionately less horse-power.

With sea level figured at 100%, the engine will develop approximately the following horse-power ratios:

1500 feet 95%
3000 feet 90%
4500 feet 85%
6000 feet 80%
7500 feet 75%
9000 feet 70%

To secure the right compression and ignition of the charge at higher altitudes, the engine must be fitted with the proper piston and it is, therefore, necessary to give us the altitude, if over 3000 feet above sea level.

SUCTION LIFT OF PUMPS AT VARIOUS ALTITUDES

With Barometer Pressure and Equivalent Heads of Water

Altitude above Sea Line		Barometer Reading lbs. per sq. in.	Equal Head of Water	Practical Suction Lift of Water by Pump
Feet	Miles			
Sea Level	0	14.70	33.95	22
1320 ft.	¼	14.02	32.38	21
2640 ft.	½	13.33	30.79	20
3960 ft.	¾	12.66	29.24	18
5280 ft.	1	12.02	27.76	17
6600 ft.	1¼	11.42	26.38	16
7920 ft.	1½	10.88	25.13	15
10560 ft.	2	9.98	22.82	14

Engineering Service

SIZE AND SPEED OF PULLEYS OR GEARS

The pulley from which the power is taken is called the DRIVER and the pulley on the shaft or machine to be driven is called the DRIVEN.

In figuring gears the number of teeth, or the pitch diameters should be used in place of pulley diameter.

Given: 1st, the diameter of DRIVER, the diameter and speed of DRIVEN. Required the speed of the DRIVER.

$$\frac{\text{Diam. of DRIVEN} \times \text{Rev. of DRIVEN}}{\text{Rev. of DRIVER}} = \text{Diam. of Driver}$$

Given: 2nd, the revolutions of DRIVEN, and diameter and revolutions of DRIVER being given. Required the diameter of DRIVEN.

$$\frac{\text{Diam. of DRIVER} \times \text{Rev. of DRIVER}}{\text{Rev. of DRIVEN}} = \text{Diam. of DRIVEN.}$$

Given: 3rd, the diameter and revolutions of the DRIVEN, and diameter of DRIVER being given. Required the revolutions of DRIVER.

$$\frac{\text{Diam. of DRIVEN} \times \text{Rev. of DRIVEN}}{\text{Diam. of DRIVER}} = \text{Rev. of DRIVER.}$$

Given: 4th, the diameter and revolutions of the DRIVER, and the diameter of the DRIVEN. Required, the revolutions of the DRIVEN.

$$\frac{\text{Diam. of DRIVER} \times \text{Rev. of DRIVER}}{\text{Diam. of DRIVEN}} = \text{Rev. of DRIVEN.}$$

If your machine is to be driven from a lineshaft, first figure the speed of the line shaft from your machine speed and pulley, and then figure the line shaft or engine pulley from that in a similar manner.

Do not speed your machinery too high—give the engine a little the advantage.

If the engine labors too hard, and does not pull its load right, reduce the size of the engine pulley or increase the size of the driven pulley.

LENGTH OF BELTS OR CHAINS

If both pulleys, or sprockets, are approximately the same diam eter take this diameter times 3.1416 and add twice the distance between centers of shafts, all reduced to feet, and this will give the length in feet of belt and chain required.

HORSE-POWER OF BELTING

A simple rule for ascertaining transmitting power of belting, without first computing speed per minute that it travels, is as follows: Multiply diameter of pulley in inches by its number of revolutions per minute, and this product by width of the belt in inches; divide this product by 3300 for single belting, or by 2100 for double belting, and the quotient will be the amount of horse-power that can be safely transmitted.

TABLE FOR SINGLE LEATHER, FOUR-PLY RUBBER AND FOUR-PLY COTTON BELTING, BELTS NOT OVERLOADED

One inch wide, 800 feet per minute = One Horse-Power

Speed in feet per Minute	Width of Belts in Inches											
	2	3	4	5	6	8	10	12	14	16	18	20
	H. P.	H. P.	H. P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H. P.	H. P.	H. P.
400	1	1 ½	2	2 ½	3	4	5	6	7	8	9	10
600	1 ½	2 ¼	3	3¾	4 ½	6	7 ½	9	10 ½	12	13 ½	15
800	2	3	4	5	6	8	10	12	14	16	18	20
1000	2 ½	3¾	5	6 ¼	7 ½	10	12 ½	15	17 ½	20	22 ½	25
1200	3	4 ½	6	7 ½	9	12	15	18	21	24	27	30
1500	3¾	5¾	7 ½	9 ½	11 ½	15	18¾	22 ½	26 ½	30	33¾	37 ½
1800	4 ½	6¾	9	11 ¼	13 ½	18	22 ½	27	31 ½	36	40 ½	45
2000	5	7 ½	10	12 ½	15	20	25	30	35	40	45	50
2400	6	9	12	15	18	24	30	36	42	48	54	60
2800	7	10 ½	14	17 ½	21	28	35	42	49	56	63	70
3000	7 ½	11 ¼	15	18¾	22 ½	30	37 ½	45	52 ½	60	67 ½	75
3500	8¾	13	17 ½	22	26	35	44	52 ½	61	70	79	88
4000	10	15	20	25	30	40	50	60	70	80	90	100
4500	11 ¼	17	22 ½	28	34	45	57	69	78	90	102	114
5000	12 ½	19	25	31	37 ½	50	62 ½	75	87 ½	100	112	125

HORSE-POWER ON COLD ROLLED OR TURNED SHAFTING

Used under Normal Conditions.

Diam. of Shaft	Number of Revolutions per Minute												
	100	125	150	175	200	225	250	300	350	400	450	500	600
1 ½	4.8	6.0	7.2	8.4	9.6	10.8	12.0	14.4	16.9	19.2	22	24	29
1 $\frac{9}{16}$	5.5	6.8	8.2	9.5	10.9	12.2	13.6	16.4	19.0	22	25	27	33
1 $\frac{5}{8}$	6.1	7.6	9.2	10.7	12.2	13.8	15.3	18.4	21	24	28	31	37
1 $\frac{11}{16}$	6.9	8.6	10.3	12.0	13.7	15.4	17.1	21	24	27	31	34	41
1¾	7.7	9.6	11.5	13.4	15.3	17.2	19.1	23	27	31	34	38	46
1 $\frac{13}{16}$	8.5	10.6	12.7	14.8	16.9	19.0	21	25	30	34	38	42	51
1 $\frac{7}{8}$	9.4	11.7	14.1	16.4	18.8	21	23	28	33	38	42	47	57
1 $\frac{15}{16}$	10.4	13.0	15.6	18.2	21	23	26	31	36	42	47	52	62
2	11.4	14.3	17.2	20	23	26	29	34	40	46	51	57	69
2 $\frac{1}{16}$	12.6	15.7	18.9	22	25	28	31	38	44	50	56	63	76
2 $\frac{1}{8}$	13.7	17.1	21	24	27	31	34	41	48	55	61	68	82
2 $\frac{3}{16}$	15.0	18.7	22	26	30	34	37	45	52	60	67	75	90
2 ¼	16.3	20	24	29	33	37	41	49	57	65	73	81	98
2 $\frac{5}{16}$	17.7	22	27	31	35	40	44	53	62	71	80	88	106
2 $\frac{3}{8}$	19.2	24	29	34	38	43	48	57	67	76	86	96	115
2 $\frac{7}{16}$	20	25	30	36	41	46	51	61	72	81	91	102	122
2 ½	22	28	33	39	45	50	56	67	78	89	100	112	133
2 $\frac{9}{16}$	24	30	36	42	48	54	60	72	84	96	108	120	144
2 $\frac{5}{8}$	26	32	39	45	52	58	64	77	90	104	116	129	155
2 $\frac{11}{16}$	28	35	42	48	55	62	69	83	97	111	124	138	166

ELECTRICAL UNITS

VOLT. The unit of electrical motive force. Force required to send one ampere of current through one ohm of resistance.

The loss in transmission depends on the size and length of the wire.

AMPERE. Unit of current. The current which one volt can send through a resistance of one ohm.

WATT. The unit of electrical energy, and is the product of the ampere and volt. That is, one ampere of current flowing under a pressure of one volt gives one watt of energy.

One electrical horse-power is equal to 746 watts.

One kilowatt is equal to 1,000 watts.

To find the watts consumed in a given electrical circuit, such as a lamp, multiply the volts by the amperes.

To find the volts, divide the watts by the amperes.

To find the amperes, divide the watts by the volts.

To find the electrical horse-power required by a lamp, divide the watts of the lamp by 746.

To find the number of lamps that can be supplied by one electrical horse-power of energy, divide 746 by the watts of the lamp.

To find the electrical horse-power necessary, multiply the watts per lamp by the number of lamps and divide by 746.

To find the mechanical horse-power necessary to generate the required electrical horse-power, divide the latter by the efficiency of the generator.

CONVENIENT EQUIVALENTS

1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,272 gallons per day.

1 second-foot equals 6.23 British Imperial gallons per second.

1 second-foot for one year covers one square mile 1.131 feet deep; 13.57 inches deep.

1 second-foot for one year equals 31,536,000 cubic feet.

1 second-foot equals about one acre-inch per hour.

1 second-foot falling 10 feet equals 1.136 horse-power.

1 acre-foot equals 325,850 gallons.

1 inch deep on 1 square mile equals 2,323,200 cubic feet.

1 acre equals 209 feet square, nearly.

1 cubic foot equals 7.48 gallons; equals 0.804 bushel.

1 cubic foot of water weighs 62.5 pounds.

1 gallon equals 8.36 pounds of water.

1 gallon equals 231 cubic inches (liquid measure).

1 horse-power equals 550 foot-pounds per second.

1⅓ horse-power equals about 1 kilowatt.

To convert inches vacuum into feet, multiply by 1.13.

Reliable Information to Assist You

CONVERTING FEET HEAD OF WATER INTO PRESSURE PER SQUARE INCH

Feet Head	Lbs. per Sq. Inch	Feet Head	Lbs. per Sq. Inch	Feet Head	Lbs. per Sq. Inch
1	.434	55	23.82	190	82.29
2	.868	60	25.99	200	86.62
3	1.30	65	28.15	225	97.45
4	1.73	70	30.32	250	108.27
5	2.17	75	32.48	275	119.10
6	2.60	80	34.65	300	129.93
7	3.03	85	36.81	325	140.75
8	3.40	90	38.98	350	151.58
9	3.90	95	41.14	375	162.41
10	4.33	100	43.31	400	173.24
15	6.50	110	47.64	500	216.55
20	8.66	120	51.97	600	259.85
25	10.83	130	56.30	700	303.16
30	12.99	140	60.63	800	346.47
35	15.16	150	64.96	900	389.78
40	17.32	160	69.29	1000	433.09
45	19.49	170	73.63		
50	21.65	180	77.96		

CONVERTING PRESSURE PER SQUARE INCH INTO FEET HEAD OF WATER

Lbs. per Sq. In.	Feet Head	Lbs. per Sq. Inch	Feet Head	Lbs. per Sq. Inch	Feet Head
1	2.31	55	126.99	180	415.61
2	4.62	60	138.54	190	438.90
3	6.93	65	150.08	200	461.78
4	9.24	70	161.63	225	519.51
5	11.54	75	173.17	250	577.24
6	13.85	80	184.72	275	643.03
7	16.16	85	196.26	300	692.69
8	18.47	90	207.81	325	750.41
9	20.78	95	219.35	350	808.13
10	23.09	100	230.90	375	865.89
15	34.63	110	253.98	400	922.58
20	46.18	120	277.07	500	1154.48
25	57.72	125	288.62		
30	69.27	130	300.16		
35	80.81	140	323.25		
40	92.36	150	346.34		
45	103.90	160	369.43		
50	115.45	170	392.52		

FRICTION OF WATER IN PIPES

Loss in Head by Friction per 100 feet, Smooth, Wrought Iron Pipe

Gal's. Per Min.	½ in. Pipe		¾ in. Pipe		1 in. Pipe		1¼ in. Pipe		1½ in. Pipe		2 in. Pipe		2½ in. Pipe		3 in. Pipe		4 in. Pipe	
	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.
1	1.05	1.50																
2	2.10	5.30	1.20	1.40														
3	3.16	11.30	1.80	2.90	1.12	0.90												
4	4.21	19.20	2.41	5.00	1.40	1.52	0.86	0.40	0.63	0.19								
5	5.26	29.00	3.01	7.50	1.86	2.32	1.07	0.60	0.79	0.28	0.51	0.09	0.33	0.05				
10	10.52	105.00	6.02	27.10	3.72	8.40	2.14	2.18	1.57	1.02	1.02	0.36	0.65	0.12	0.45	0.05		
15			9.02	57.00	6.13	18.90	3.92	4.65	2.72	2.25	1.53	0.81	0.98	0.25	0.68	0.11		
20			12.03	97.00	7.44	30.10	4.29	7.90	3.15	3.70	2.04	1.29	1.31	0.43	0.91	0.18		
25					9.30	45.50	5.36	11.90	4.56	5.60	2.55	1.96	1.63	0.66	1.13	0.27		
30					11.15	64.00	6.43	16.90	4.72	7.80	3.06	2.73	1.96	0.92	1.36	0.38		
35					13.02	85.00	7.51	22.30	5.51	10.30	3.57	3.66	2.29	1.23	1.59	0.51		
40					14.88	109.00	8.58	28.50	6.30	13.30	4.08	4.68	2.62	1.57	1.82	0.65	1.02	0.16
45							9.68	35.20	7.08	16.60	4.60	5.80	2.95	1.97	2.02	0.80	1.17	0.20
50							10.72	43.20	7.87	20.20	5.11	7.10	3.30	2.38	2.27	0.98	1.28	0.24
70							15.01	81.00	11.02	37.60	7.15	13.20	4.60	4.42	3.18	1.83	1.79	0.45
75									11.80	42.70	7.66	14.90	4.93	5.07	3.41	2.11	1.92	0.52
100									15.74	73.00	10.21	25.60	6.54	8.60	4.54	3.52	2.55	0.88
120											12.25	36.00	7.84	12.00	5.45	4.97	3.06	1.22
125											12.75	38.90	8.16	13.01	5.68	5.40	3.19	1.33
150											15.30	54.00	9.80	18.72	6.80	7.72	3.84	1.82
175													11.43	23.70	7.92	9.75	4.45	2.40
200													13.07	30.90	9.08	12.80	5.11	3.12
225															10.42	16.00	6.32	4.72
250															11.28	19.70	6.40	4.80
270															12.45	22.70	6.90	5.50
275															12.70	23.60	7.03	5.71
300															13.62	27.10	7.66	6.70
350																	8.90	8.80
400																	10.20	11.30
450																	11.50	14.10
470																	12.16	16.00
475																	12.30	16.40
																	12.77	17.20

Engineering Service

TABLE OF CAPACITY OF PUMPS

The figures at the extreme right and left of the table are piston, or plunger, diameters; the line of figures across the top are piston, or plunger strokes; the figures in the body of the table are the capacity, or displacement, in gallons, corresponding to a single stroke.

Diam. of Cyl. In.	Area Circle Square In.	Length of Stroke in Inches, and Capacity of Stroke in Gallons of Pump Cylinder with Given Diameter												Diam of Cyl. In.
		4	5	6	8	10	12	14	15	16	18	20	24	
1¼	1.23	.0212	.0266	.0319	.0425	.0531	.0637	.0743	.0797	.0848	.0955	.1062	.1274	1¼
1⅜	1.48	.0256	.0321	.0385	.0513	.0642	.077	.089	.0963	.1027	.1156	.1280	.1541	1⅜
1½	1.77	.0306	.0382	.0459	.0612	.0765	.0918	.1071	.1147	.1224	.1377	.1530	.1836	1½
1¾	2.41	.0416	.0521	.0625	.0833	.1041	.1249	.1457	.1562	.1666	.1874	.2082	.2499	1¾
2	3.14	.0544	.068	.0816	.1088	.136	.1632	.1904	.204	.2176	.2448	.2720	.3264	2
2¼	3.98	.0688	.086	.1033	.1377	.1721	.2063	.241	.258	.2754	.3096	.3442	.4128	2¼
2½	4.91	.085	.1062	.1275	.17	.2125	.255	.2975	.3187	.34	.3825	.425	.51	2½
2¾	5.94	.1028	.1285	.1543	.2057	.2571	.3085	.3598	.3855	.4114	.4626	.5142	.617	2¾
3	7.07	.1224	.1530	.1836	.2448	.306	.3672	.4284	.459	.4896	.5508	.612	.7344	3
3¼	8.30	.1436	.1795	.2154	.2872	.358	.4312	.503	.5385	.5748	.6466	.7182	.8624	3¼
3½	9.62	.1666	.2082	.2499	.3332	.4165	.4998	.5831	.6247	.6664	.7497	.833	.9996	3½
3¾	11.05	.1912	.239	.2868	.3824	.478	.5736	.6692	.687	.7648	.8605	.9561	1.147	3¾
4	12.57	.2176	.272	.3264	.4352	.544	.6528	.7616	.816	.8704	.9792	1.088	1.3056	4
4¼	14.19	.2456	.307	.3684	.4912	.6141	.7368	.8596	.921	.9824	1.105	1.228	1.473	4¼
4½	15.90	.2754	.3442	.4131	.5508	.6885	.8262	.9639	1.0327	1.1016	1.2393	1.377	1.6524	4½
4¾	17.73	.3068	.3835	.4602	.6136	.7671	.9204	1.073	1.15	1.2227	1.380	1.534	1.84	4¾
5	19.64	.34	.425	.51	.68	.85	1.02	1.19	1.275	1.36	1.53	1.7	2.04	5
5¼	21.65	.3748	.4685	.5622	.7496	.9371	1.124	1.311	1.405	1.499	1.686	1.874	2.228	5¼
5½	23.76	.4114	.5142	.6171	.8228	1.0285	1.2342	1.439	1.5427	1.6456	1.8513	2.057	2.4684	5½
5¾	25.97	.4496	.562	.6744	.8992	1.124	1.348	1.573	1.686	1.789	2.022	2.248	2.696	5¾
6	28.27	.4896	.612	.7344	.9792	1.2240	1.4688	1.7136	1.8362	1.9584	2.2032	2.448	2.9376	6
6¼	30.68	.5312	.6640	.7968	1.062	1.328	1.593	1.859	1.992	2.124	2.39	2.656	3.186	6¼
6½	33.18	.5744	.7182	.8610	1.1488	1.4364	1.7955	2.0109	2.1546	2.2982	2.5885	2.8728	3.4473	6½
6¾	35.79	.9196	.7745	.9294	1.239	1.549	1.858	2.168	2.323	2.47	2.788	3.098	3.716	6¾
7	38.49	.6664	.833	.9996	1.3328	1.666	1.9992	2.3324	2.499	2.6656	2.9988	3.332	3.9984	7
7¼	47.17	.8168	1.021	1.225	1.633	2.042	2.45	2.858	3.063	3.266	3.674	4.084	4.9	7¼

TABLE OF THEORETICAL HORSE-POWER REQUIRED TO RAISE WATER TO DIFFERENT HEIGHTS

These tables show only the horse-power required to overcome the static or actual head. The total horse-power required to drive the pump will always be greater than these figures show, depending upon the amount of piping, the efficiency of the pump, and the efficiency of the belt or driving means. A rough approximation may be made by adding 50% to 75% to these figures, but a correct calculation can be made only by the method given.

Gal. per Min.	FEET HEAD																					
	5	10	15	20	25	30	35	40	45	50	60	75	90	100	125	150	175	200	250	300	350	400
5	.006	.012	.019	.025	.031	.037	.044	.05	.06	.06	.07	.09	.11	.12	.16	.19	.22	.25	.31	.37	.44	.50
10	.012	.025	.037	.050	.062	.075	.087	.10	.11	.12	.15	.19	.22	.25	.31	.37	.44	.50	.62	.75	.87	1.00
15	.019	.037	.056	.075	.094	.112	.131	.15	.17	.19	.22	.28	.34	.37	.47	.56	.66	.75	.94	1.12	1.31	1.50
20	.025	.050	.075	.100	.125	.150	.175	.20	.22	.25	.30	.37	.45	.50	.62	.75	.87	1.00	1.25	1.50	1.75	2.00
25	.031	.062	.093	.125	.156	.187	.219	.25	.28	.31	.37	.47	.56	.62	.78	.94	1.09	1.25	1.56	1.87	2.19	2.50
30	.037	.075	.112	.150	.187	.225	.262	.30	.34	.37	.45	.56	.67	.75	.94	1.12	1.31	1.50	1.87	2.25	2.62	3.00
35	.043	.087	.131	.175	.219	.262	.306	.35	.39	.44	.52	.66	.79	.87	1.08	1.31	1.53	1.75	2.19	2.62	3.06	3.50
40	.050	.100	.150	.200	.250	.300	.350	.40	.50	.50	.60	.75	.90	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00
45	.056	.112	.168	.225	.281	.337	.394	.45	.51	.56	.67	.84	1.01	1.12	1.41	1.69	1.97	2.20	2.81	3.37	3.94	4.50
50	.062	.125	.187	.250	.312	.375	.437	.50	.56	.62	.75	.94	1.12	1.25	1.56	1.87	2.19	2.50	3.12	3.75	4.37	5.00
60	.075	.150	.225	.300	.375	.450	.525	.60	.67	.75	.90	1.12	1.35	1.50	1.87	2.25	2.62	3.00	3.75	4.50	5.25	6.00
75	.093	.187	.281	.375	.469	.562	.656	.75	.84	.94	1.12	1.40	1.69	1.87	2.34	2.81	3.28	3.75	4.69	5.62	6.56	7.50
90	.112	.225	.337	.450	.562	.675	.787	.90	1.01	1.12	1.35	1.68	2.02	2.25	2.81	3.37	3.94	4.50	5.62	6.75	7.87	9.00
100	.125	.250	.375	.500	.625	.750	.875	1.00	1.12	1.25	1.50	1.87	2.25	2.50	3.12	3.75	4.37	5.00	6.25	7.50	8.75	10.00
125	.156	.312	.469	.625	.781	.937	1.094	1.25	1.41	1.56	1.87	2.34	2.81	3.12	3.91	4.69	5.47	6.25	7.81	9.37	10.94	12.50
150	.187	.375	.562	.750	.937	1.125	1.312	1.50	1.69	1.87	2.25	2.81	3.37	3.75	4.69	5.62	6.56	7.50	9.37	11.25	13.12	15.00
175	.219	.437	.656	.875	1.093	1.312	1.531	1.75	1.97	2.19	2.62	3.28	3.94	4.37	5.47	6.65	7.66	8.75	10.94	13.12	15.31	17.50
200	.250	.500	.750	1.000	1.250	1.500	1.750	2.00	2.25	2.50	3.00	3.75	4.50	5.00	6.25	7.50	8.75	10.00	12.50	15.00	17.50	20.00
250	.312	.625	.937	1.250	1.562	1.875	2.187	2.50	2.81	3.12	3.75	4.69	5.62	6.25	7.81	9.37	10.94	12.50	15.72	18.75	21.87	25.00
300	.375	.750	1.125	1.500	1.875	2.250	2.625	3.00	3.37	3.75	4.50	5.62	6.75	7.50	9.37	11.25	13.12	15.00	18.75	22.50	26.25	30.00
350	.437	.875	1.312	1.750	2.187	2.625	3.062	3.50	3.94	4.37	5.26	6.56	7.87	8.75	10.94	13.12	15.31	17.50	21.87	26.25	30.62	35.00
400	.500	1.000	1.502	2.000	2.500	3.000	3.500	4.00	4.50	5.00	6.00	7.50	9.00	10.00	12.50	15.00	17.50	20.00	25.00	30.00	35.00	40.00
500	.625	1.250	1.875	2.500	3.125	3.750	4.375	5.00	5.62	6.25	7.50	9.37	11.25	12.50	15.62	18.75	21.87	25.00	31.25	37.50	43.75	50.00

Reliable Information to Assist You

ACRES IRRIGATED BY VARYING QUANTITIES OF WATER

Making due allowance for evaporation, it requires 28,320 gallons of water to irrigate one acre one inch deep.
The following table taken from Government tests shows the number of acres irrigated in 1, 10 and 24 hours, pumping various quantities, and irrigating various depths; local conditions, of course, vary, and this table has been compiled from a comparison of various sections.

Gallons Pumped per Min.	Acres Irrigated in 1 Hour						Acres Irrigated in 10 Hours						Acres Irrigated in 24 Hours					
	1 In. Deep	2 In. Deep	3 In. Deep	4 In. Deep	5 In. Deep	6 In. Deep	1 In. Deep	2 In. Deep	3 In. Deep	4 In. Deep	5 In. Deep	6 In. Deep	1 In. Deep	2 In. Deep	3 In. Deep	4 In. Deep	5 In. Deep	6 In. Deep
600	1.3	.6	.4	.3	.2	.2	13.2	6.6	4.4	3.3	2.6	2.2	31.8	15.9	10.6	7.9	6.3	5.3
824	1.8	.9	.6	.4	.3	.3	18.2	9.1	6.0	4.5	3.6	3.0	43.7	21.8	14.5	10.9	8.7	7.3
944	2.1	1.0	.7	.5	.4	.3	20.8	10.4	6.9	5.2	4.1	3.4	50.0	25.0	16.7	12.5	10.0	8.3
988	2.2	1.1	.7	.5	.4	.3	21.8	10.9	7.2	5.4	4.3	3.6	52.4	26.2	17.4	13.1	10.4	8.7
1000	2.2	1.1	.7	.5	.4	.3	22.1	11.0	7.3	5.5	4.4	3.7	53.0	26.5	17.6	13.2	10.6	8.8
1200	2.6	1.3	.9	.6	.5	.4	26.5	13.2	8.8	6.6	5.3	4.4	63.6	31.8	21.2	15.9	12.7	10.6
1500	3.3	1.6	1.1	.8	.6	.5	33.1	16.5	11.0	8.2	6.6	5.5	79.5	39.7	26.5	19.9	15.9	13.2
2000	4.4	2.2	1.4	1.1	.9	.7	44.2	22.1	14.7	11.0	8.8	7.3	106.0	53.0	35.3	26.5	21.2	17.6

Rule for Figuring the Size of Pulleys

Be sure you are using the right pulleys on engine and machines it is driving

The machines you run with an engine, to give you satisfactory service, must be equipped with the proper size of pulley to correspond with the pulley on the engine.

To be sure that the pulleys you are using are of the right size to give the best results, take the speed of the engine multiplied by the size of the pulley on the engine and divide the result by the speed of the machine that you want to run. The result will give you the size of pulley you should have on the machine.

For example—We will say the speed of the engine is 500 revolutions per minute, the diameter of the pulley on the engine is 10 inches and you want to run a feed grinder 500 revolutions per minute.

$500 \times 10 = 5000 \div 500 = 10$ inches.

The result, 10 inches, is the size of the pulley you should have on the grinder to run it 500 revolutions per minute.

If there is a pulley on the machine you want to run, to find out what size of pulley to use on the engine, take the speed of the machine multiplied by the diameter of the pulley on the machine and divide by the speed of the engine you are going to use, which will give the size of pulley you should have on the engine to give the best results.

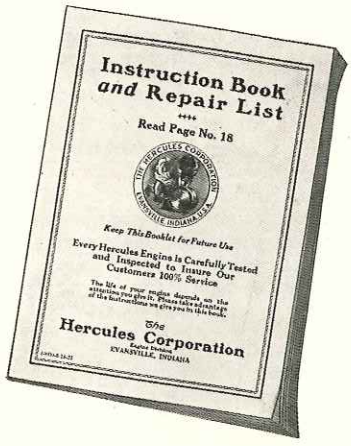
For example—Suppose you had a feed grinder that you wanted to run at 500 revolutions per minute. The diameter of the pulley is 10 inches and your engine runs 500 revolutions per minute.

$500 \times 10 = 5000 \div 500 = 10$ inches.

The result, 10 inches, is the size of the pulley you should have on the engine to run the grinder at 500 revolutions per minute.

Of course, you understand the pulley sizes and the speed of the machine will vary a little one way or the other. When figuring the size of pulley to use, if the result shows an odd size take the nearest even size, which will be all right. For example, if the above result should have been 11½ inches, you would use a 12-inch pulley, but if the result had been 10½ inches, then a 10-inch pulley should be used. In case the result should be just half way between the regular sizes, we advise using the next larger even size.

If you are not sure as to just what size pulley to get, write and tell us what you want to do and we will tell you what you need.



Instruction Book

WE insert a very complete instruction book in the hopper of every Hercules engine and we urge our customers to carefully familiarize themselves with the engine by closely observing the instructions contained therein. It is fully illustrated and easy to understand and when followed closely will result in your getting full and satisfactory results. A list of parts with prices is printed in the book and should you lose your copy, we will be glad to furnish you another one postage paid, on request.

Many Proud Owners Tell Without a

Six Years and First Repairs

The Hercules Corporation,
Evansville, Indiana.

I have used this 1½ H.P. engine for six years to wash, pump water, grind feed for chickens and sharpen all my tools on emery and I don't think it is one-half worn out yet. This is the first repairs.

MR. E. SETTLE,
Camden Point, Mo.

"Can Boast of Having a Hercules"

Fultonville, N. Y.
Jan. 28, 1924

The Hercules Corporation,
Evansville, Indiana.

I am taking the liberty to write you concerning the three-horse engine we purchased of your Albany branch. I believe that there is no easier engine to operate than the Hercules.

We bought ours to run a Universal Natural Milker, so did not use it winters and the engine stood still from Oct. 1st until April 1st. We had been pumping water by hand until one day I took the engine down to the pump house and rigged up a pump jack of old parts that I could find around. Today the mercury was twenty below zero, and I went out to start the engine, and I turned on the gas (which is all we use) and turned the engine over five times, and it started as good as it does in the summer. Understand, there was no warm water or any other means employed.

Our neighbor has a three-horse engine, and talk about swear, you ought to hear him when he starts it in the summer, say nothing about now. He has to use hot water, and nearly every other means to start it and it is in the cow barn at that.

The above that I say about our *Hercules* isn't the way it started this morning alone but i s *always* the way it starts.

As for trouble, all we have ever had is the carbon removed once a year, and the little wire that goes from the magneto to the plug broke once, and we broke one exhaust valve spring the first six months we used it and we sent to you for a new one and you sent us a new kind of spring that's perfect.

I have seen quite a few different makes and so can boast of having a Hercules.

You can show any part or print any part of the above anywhere and put my name and address below.

Of course, the engine has care as all machinery has to work proper.

I could write all night on the good points of the Hercules, "Cause there ain't any other."

Yours truly,

SPENCER J. BAIRD,
Box 111, Fultonville, N.Y.

65 Cents in Eight Years

The Hercules Corporation,
Evansville, Indiana.

I am very much in love with the Hercules make of engine. I could not help being—used eight years and spent 65 cents on it. I have used several makes of engines and this one is the most economical I ever had. I use my engine for sawing wood and grinding feed and it is in use from eighteen to twenty-five hours a week.

E. R. NEWBY, Bridgeport, Ind.

Not a Nickel for Repairs in Seven Years

The Hercules Corporation,
Evansville, Indiana.

We have three of your engines in use, two 1½ H.P. and one 12 H.P. Your engines are sure hard to beat, simple and lasty. The 1 ½ H.P. engines have been used about seven years and have not cost us a nickel for repairs yet. The 12 H.P. is used to run planer, rip saw, large hydraulic cider mills, silo cutter and shredder, lime stone crusher and wood saw. These engines are in use nearly every day and are surely well recommended.

H. E. BLATTLER,
Clarington, Ohio

Engines are Always Ready to do Their Work

A. H. Denny, of Fortville, Ind., has two Hercules engines, a 7 H.P. grinds 40 bushels of feed per hour and he fills the gasoline tank once a week. The 1½ H.P. pumps 1400 gallons of water per hour and uses a gallon of gas a week.

Mr. Denny says: "I have used Hercules engines with great success. My engines are always ready to do their work." Mrs. Denny is even more enthusiastic. She says: "It has made all the home and barn water a thing to forget about. If you take away the Hercules engine I will leave too."

Not One Dollars Worth of Repairs on This Engine

Mr. Clarence T. Morningstar, R.R. No. 8, Hamilton, Ohio, says: "Am writing you in regard to your engine which I bought of you four years ago. It certainly is some engine as I don't know what trouble is with it. I have not put one dollars worth of repairs on this engine in that length of time. Would be glad to give anybody some real facts about your engines."

Us They Would Not Be Hercules

Has Never Taken a Lay-off

The Hercules Corporation,
Evansville, Indiana.

Our business is building good roads and we think our 1½ H.P. Hercules engine is the best man we have on the job. It is pumping the water for the men to drink, for the mess house and for sixteen head of horses—and it has never taken a lay-off yet.

We have fifteen men at work and any one of them can start this Hercules, and say, all of the boys are strong for that engine, because they know what she will do. We think the Hercules a wonderfully good engine and one that is sold at the right price.

CLEO F. BROWN,
BROWN BROTHERS,
Cloverdale, Mich.

15 Cents for Repairs in Two Years

The Hercules Corporation,
Evansville, Indiana.

I think that my Hercules engine is as good as any that is made, and it sure has them all beat on being easy to care for. I have three boys, age nine, ten, and fourteen years respectively, and any one of them can care for the engine. Anyone reading the Hercules instruction book can readily see why.

My Hercules is a 1½ H.P. and is used on a milking machine. It would be impossible for us to milk our 24 cows by hand. During the two years we have had this Hercules it has cost us fifteen cents for a detent blade.

FLOYD H. SMITH, Addison, Mich.

Ten Hours a Day for Five Years

The Hercules Corporation,
Evansville, Indiana.

We would like to say that we have been using one of our engines—a 1½ H.P.—practically every day for five years, on an average of eight to ten hours a day, pulling a linotype machine. It still runs like a new one and only uses a gallon of gasoline every ten hours. At fast speed it develops enough power to run a printing press, for which a three-horse engine is recommended.

THE McCORMICK MESSENGER,
McCormick, S. Car.

They Do What No Other Engine Would

The Hercules Corporation,
Evansville, Indiana.

If I had to buy 100 engines they would all be Hercules. My experience with my two fine horse-power kerosene engines has convinced me that they do what no other engine would. One of these engines runs ten hours a day, every day except Sunday, the other eight hours a day. One of them has been going for two years, the other three—total expense for repairs, $1.80.

These two engines are our power plant in our house dairy, one of them operating the refrigerating plant and the other running line shaft for large butter churn, for washing bottles and for pasteurizing.

F. A. MARTIN, Devereaux, Mich.

Always Boosting the Hercules

The Hercules Corporation,
Evansville, Indiana.

The Hercules engine has three real boosters on this farm. My nine-year-old girl, Alberta, says: "It's easy to start, I can start it any old time." As for my wife, she told your man when he came by the other day, "I never have any trouble running my engine. I think it can't be beat."

We have been pumping water with this 1½ H.P. Hercules for over three years now and haven't had to buy any repairs yet. I never hesitate about boosting for the Hercules.

FRANK GRANT,
R. R. No. 4, Eaton Rapids, Mich.

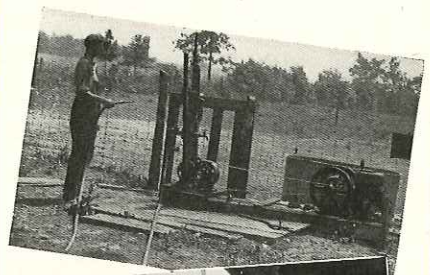
Does the Work of 6 Men

The Hercules Corporation,
Evansville, Indiana.

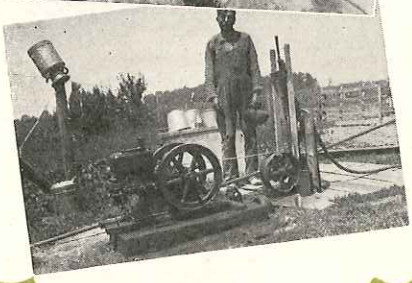
I am sure that my 7 H.P. kerosene engine does as much work for me as I could get out of a half dozen men. We use it for buzzing wood, grinding feed and filling silo. During the four years we have used this Hercules engine it has cost us just $1.16 for repairs. The Hercules is by far the best engine I have ever used.

I feel it would be—and I know it would be—impossible to get along without a gasoline engine on the farm, and as long as my engine is a Hercules, I am more than satisfied it will always do its share of the farm work.

A. D. LOWELL,
R. R. No. 4
Hastings, Mich.





Export Department

IN order to render our many customers, throughout the world, the very highest type of service, our Export Department is located in our main plant at Evansville, Indiana, where it can supervise, in every way, the preparation of shipments for export.

This department is under the direct supervision of a trained Export Manager, conversant with world affairs and customs and thoroughly able to give your account personal attention.

We have made a careful study of the engine requirements in every country in the world, and the line, as we offer it to you, is recommended by us as covering all average power requirements.

It is our desire to conduct our Export activity in a manner entirely suitable to your own individual needs and with this in mind, we have arranged our financing plans, our terms, etc., to suit you, not us.

Any item you purchase from us, for shipment abroad, is fully guaranteed by us and our Eight Million Dollar Company stands back of it one hundred per cent.

Mechanical Service

We have, as a Department of our organization, an Engineering Advisory Service, which we place at your command.

It will please us to have you take advantage of this service and if we can help you with any problems of your power installation, don't fail to write us.

Correspondence

Our Export Department can carry on correspondence with you in your own language.

We prefer to write in the five recognized Commercial languages, which are English, Spanish, French, German and Portugese. We have facilities, however, to correspond in many other languages.

Quotations

We can quote prices F.O.B. or F.A.S. American ports, C.I.F. and C.I.F. & E. Foreign ports.

Order Instruction

We are often called upon to follow out special instructions relative to handling of Export orders, and we make it a rule to follow them explicitly.

Kindly give us complete and clear instructions to help us get your order through promptly.

Orders

You may send your order direct to The Hercules Corporation, Evansville, Indiana, or confirm through your United States Agent.

We request that all orders be complete as to shipping instructions, so that we can promptly make delivery.

All outfits shipped to you will be fresh, clean and thoroughly tested, taken right from our production line and not from stock of warehouse engines that have become dusty and shop worn.

Routings

In the absence of special instruction from our customers, we route our export shipments by the best and quickest available steamship lines. We always endeavor to obtain the lowest possible steamship rates for you. Our well organized forwarding program permits us to expedite delivery of all orders.

Export Department

Remittances

Remittances may be made to us by letter of credit, postal, or express money orders, or bank drafts.

Forwarding Service

Some of our customers do not have Buying or Forwarding Agents in the United States.

In this case, we will be pleased to assume complete charge of your shipments, from the American Port, to its final destination. We will see to it that your shipment goes forward promptly and we shall follow your shipment through to its destination.

Rules and Regulations

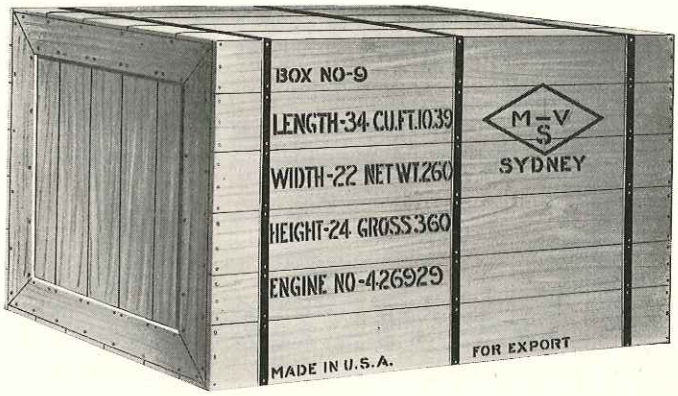
Our sound knowledge of rules, laws, and regulations, governing imports into each and every country of the world, permits us to make shipments everywhere without causing any trouble, excess duties, fines and inconvenience to our customers.

Export Information

WEIGHT AND MEASUREMENT APPROX.

HIT AND MISS GASOLINE ENGINES

H.P.	Net Wt.	Gross Wt. Crated	Gross Wt. Boxed	Cubic Feet	Code Word
1¾	260	280	360	12.39	Abase
2½	275	305	405	14.59	Abbot
3½	510	540	650	16.15	Actor
6	830	900	1090	26.30	Adder
8	1140	1240	1530	37.00	Adore
10	1750	1910	2250	60.00	Acorn
14	2380	2530	3015	80.00	Adult
THROTTLING GOVERNOR KEROSENE ENGINES					
3½	510	540	650	16.15	Agate
6	830	900	1090	26.30	Alien
8	1140	1240	1530	37.00	Alert
10	1750	1910	2250	60.00	Apron
14	2380	2530	3015	80.00	Attic
HERCULES DIESEL OIL ENGINES					
7	1075	1160	1475	35.81	Merry
9	1510	1610	2010	58.71	Midst
LOG SAWS					
1¾	475	580	800	25.80	Exact



Export Box

Hercules Engines are boxed in the above manner for over seas shipments.

We have used this style of boxing for many years and have found that it is adequate in every way for ocean and overland transportation.

Export Crating

Hercules Engines are crated in the above manner for all rail hauls, or to countries where it is permissible to use a crate.

The crate is of the skeleton type, well braced, and is lined with water-proof paper to protect the engine during transportation.

The Strength of

HERCULES

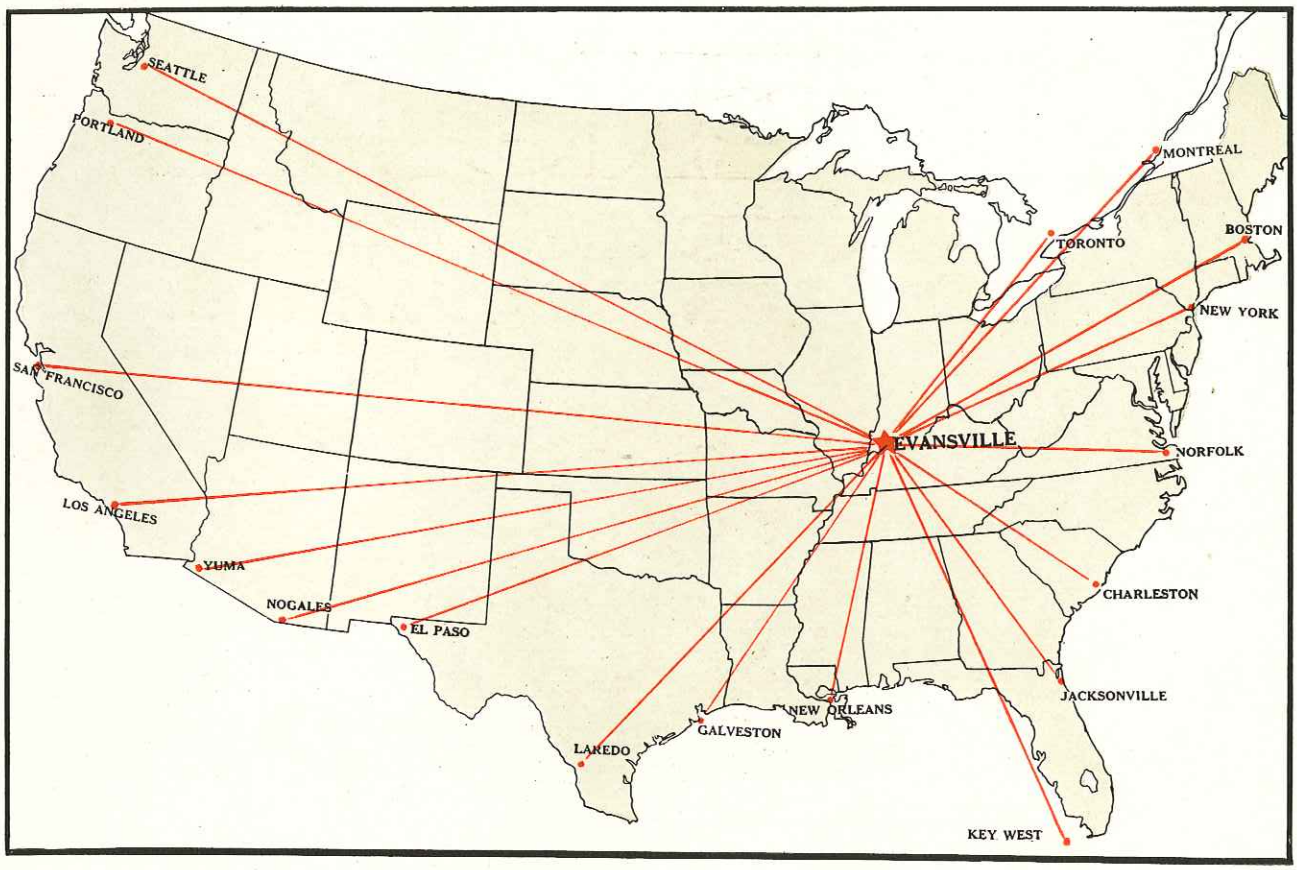
is Built into Every Engine

Powerful

Economical

Reliable

We Render Prompt and Satisfactory Service to Seaboard and Border Points



Hercules Engines are Used all Over the World

The Hercules Corporation

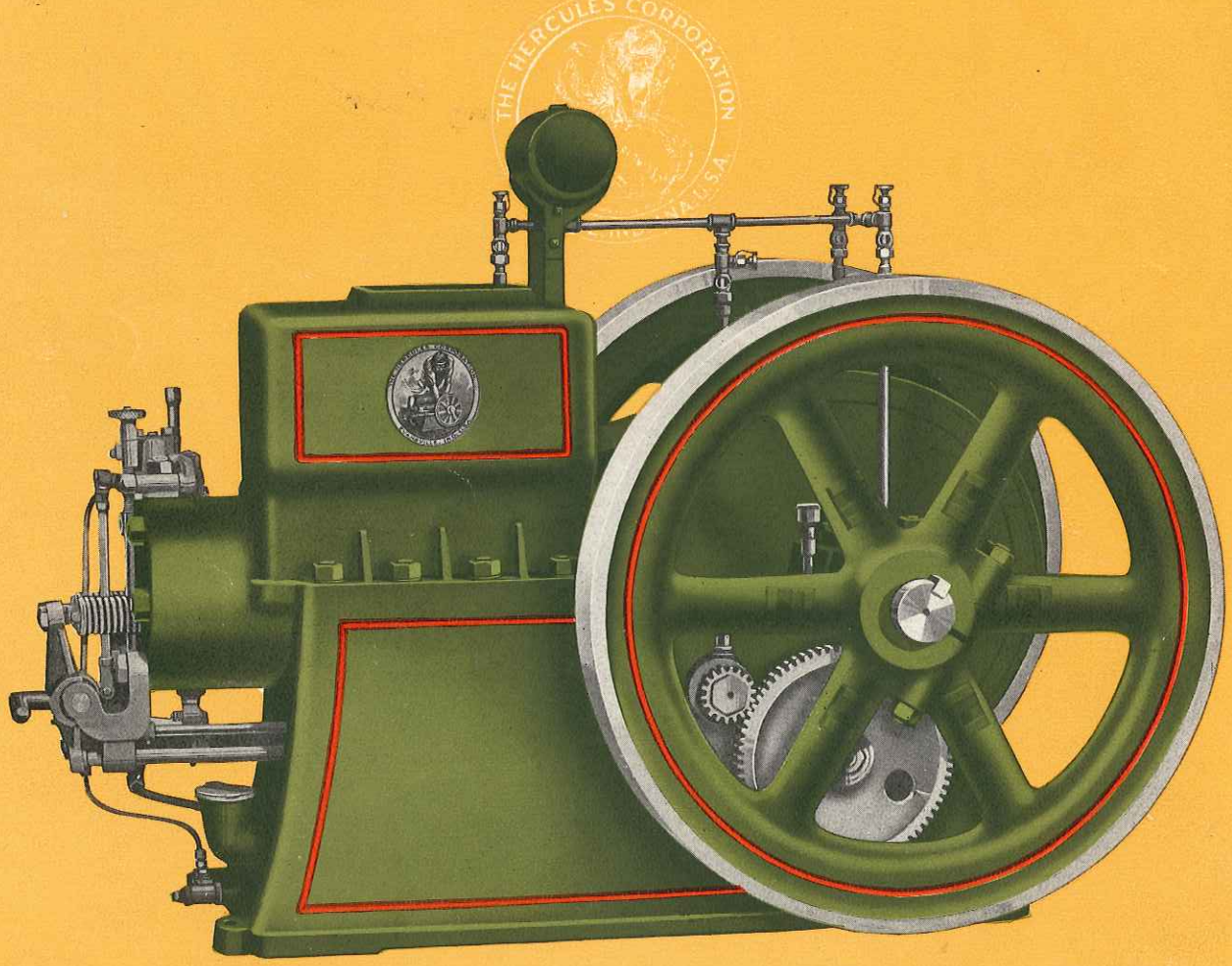
EVANSVILLE, INDIANA, U. S. A.

Cable Address: HERCULES EVANSVILLE

HERCULES

OIL ENGINE

LOW OPERATING COST
USES THE LOWEST GRADE FUELS



The **HERCULES CORPORATION**
EVANSVILLE, INDIANA
Established 1894