

# S. W. WOOD ENGINE CO.

INCORPORATED

Established  
1866

CLYDE, NEW YORK

H. I. WOOD  
*Pres. and Mgr.*

R. G. WOOD  
*Vice-Pres.*

J. E. McGINNIS  
*Sec. and Treas.*

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WORKS ESTABLISHED 1866  
INCORPORATED 1914

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# S. W. WOOD ENGINE CO.

INCORPORATED

SUCCESSORS TO

S. W. WOOD & SON

MANUFACTURERS OF

Traction, Portable and Skid Engines  
Iron and Brass Castings

FORGING AND GENERAL MACHINISTS

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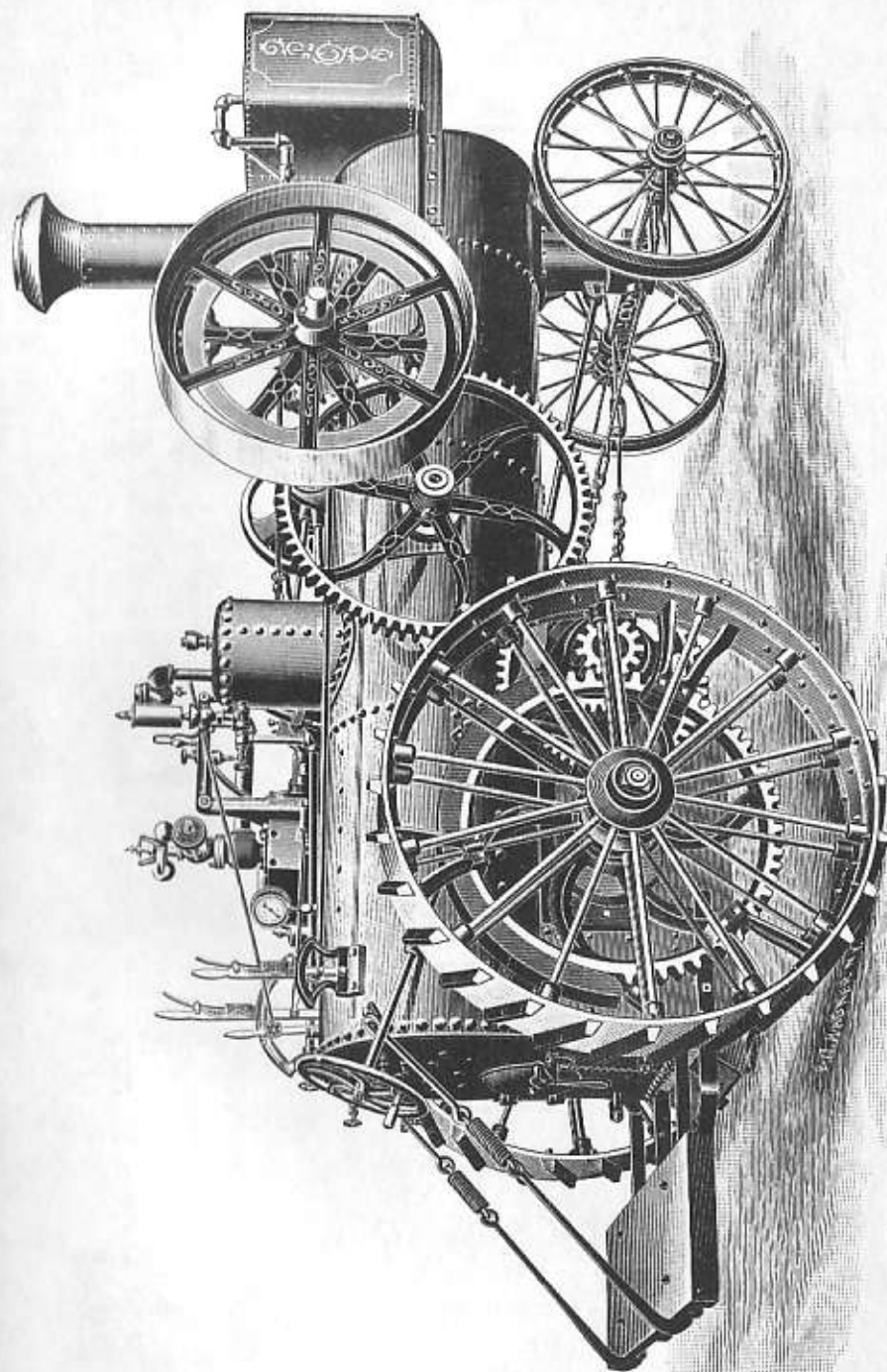
DEALERS IN

OIL PUMPS, BRASS GOODS, PIPE AND FITTINGS

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*Address all Correspondence to the Main Office*

CLYDE, NEW YORK



No. 3 1/2 - Twelve Horse-Power Traction

## INTRODUCTION

HAVING taken the business of S. W. Wood & Son, we shall endeavor to maintain the reputation of the late firm and by careful supervision of the work continue to merit your confidence.

The management of the business and the supervision of the work are under the immediate control of H. I. Wood, who has occupied that position for the past number of years with the old firm.

We have always endeavored to use as good material in our boilers as could be bought, buying direct from responsible manufacturers and guaranteed by them as to quality and tensile strength. The boilers are made by experienced workmen, and with the many boilers we have put out during the more than forty years we have been in the business, we have yet to learn of an accident caused by one of our boilers.

We invite you to a comparison of our engines and boilers as to economy, durability, quality of material, workmanship, ease of access to all parts, either of engine or boiler, and convenience in handling.

Each engine is provided with Steam Gauge, Glass Water Gauge, Gauge Cocks, Air Cocks, Whistle, Safety Valve, Governor Belt, Sight Feed Oiler, Oil Cups, Oil Can, Suction Hose and Strainer, Flue Cleaner, Poker and Wrenches.

We shall at all times endeavor to keep an assortment of traction, and portable engines on hand, and can furnish any of our regular sizes on short notice. All orders for repairs or parts of our engines will receive prompt attention.

Repairs to be shipped by express will be sent C. O. D.; if to be shipped by freight, cash must accompany the order. To avoid unnecessary delay, all orders should be sent direct to our office at Clyde, N. Y., giving the size of the engine bore and stroke of the cylinder, postoffice address and name of express or freight office. When ordering gear, give the number of cogs.

We have facilities for furnishing all kinds of iron and brass castings, forgings, pulleys, hangers, shafting, etc.; also boiler, tank and sheet iron work and can duplicate many parts of the various makes of engines and automobiles. If you have a piece of machinery you want repaired bring it to us.

Specifications solicited and quotations given on application.

# T H E E N G I N E

Our regular engine is the side crank style. The bed is cast hollow and makes a solid foundation, to which the cylinder and pillow blocks are securely bolted. The four cast guides extending from the front cylinder head to a bracket securely bolted to the engine bed forms the ways for the cross head, and can easily be adjusted.

**Our balanced crank** gives a steady motion to the engine. The crank pin is steel and of ample size to furnish a good bearing for the connection rod box. The pin is pressed into and riveted to the crank, and the crank is pressed on to and keyed to the main shaft, which makes them absolutely solid. No danger of loose pin or crank.

**The piston** is cast hollow, which removes the weight from the cylinder and brings the friction to the minimum.

**The piston rings** are the eccentric spring style but so designed that when in place they are as tight as a solid ring, thus preventing any steam from passing.

**The piston rod** of steel, finely finished, passes through the piston to the cross head and is securely riveted to the back end of the piston.

**The cross head**, of cast iron, works between the four cast guides. They all being of the same material, it is found the best adapted for this purpose.

**The slide valve**, of cast iron, is designed to avoid as much friction as possible and conform to the openings in the steam chest, and, being well chambered out, gives ample opening for the exhaust steam.

**The pillow blocks** are of ample width, filled with best babbitt metal, and furnish a sufficient bearing for the main shaft. The cap is so attached as to bring the strain of the main shaft directly upon the box, and not wholly upon the cap.

**The connection rod boxes** are of bronze metal and so designed as to be easily adjusted.

**The connecting rod** is of wrought iron, with strap and wedge at each end for taking up the wear.

**Our regular throttle** on the portable engines is the screw valve, made from our special pattern, but we furnish the lever throttle on all the traction engines.

We furnish a pump and injector with our traction engines, to enable the engineer to supply the boiler with water when the engine is not at work.

**The water pipe** passes from the pump through the engine bed to the boiler; also the exhaust steam from the cylinder to the smoke-pipe, thus heating the water to nearly the boiling point as it enters the boiler, which effects a great saving of fuel.

# T R A C T I O N E N G I N E

**The traction engine** is so arranged that the power is conveyed from the main shaft to the drive wheels without bringing any unnecessary strain upon the boiler.

**Our reverse** is the link motion, which we have greatly improved. It is so arranged that the wear on the guide can be taken up in each direction, which makes it more durable.

**The friction clutch** attached to the gear on the main shaft is applied to the inside rim of the band wheel, and the shoe being thrown directly against the wheel, avoids any end strain on the shaft. It is thrown in or out of gear by a connecting rod and lever operated from the platform (this is a great convenience when setting the engine). By means of the friction clutch we can immediately start or stop the traction movement while the engine is running at its highest speed. The wooden shoes are easily adjusted with set screws, and while the wear on them is very little, yet should occasion require it, they can be replaced by any one with a saw and bit.

**The traction attachment** can also be connected to the engine by pins passing between the arms of the band wheel into the pinion on the main shaft, if required at any time.

**Our steering gear** is upon the right hand side, thus bringing the flywheel directly under the view of the operator, to assist him in placing the engine in position for work.

**The Roller Shaft** turns in babbitt boxes, which are so constructed that it can be removed without disturbing the brackets.

## REAR AXLE.

On each side of the boiler is a large cast plate, securely bolted to the boiler, the forward ends extending beyond the fire box and forming the boxes for the countershaft. By this arrangement the strain of the pinion on the countershaft, working into the large gear on the road wheels, is on the casting, and not on the side of the boiler. The center of the plate is bored to fit the casting on the end of the steel axle, being reinforced to give it the necessary bearing and strength, for the five large bolts that hold the axle in place, making it as firm as one casting and allowing the axle to be removed without disturbing the plates. The axles, being interchangeable, can be turned so that the wear will be on all sides, instead of only on the bottom.

**The road wheels** have wrought iron spokes with cast iron hubs and rims. We have several patterns of these wheels, differing in widths of rim and style of lugs. We furnish them with lugs cast on the rims or malleable lugs riveted to the rims.



# TRACTION ENGINE

The platform is so adjusted that it can be easily removed when it is not needed, which makes the boiler as convenient for firing as a plain portable engine.

Canopy tops will be furnished for our traction engines at an extra charge.

We also make an eight and ten horse-power traction, the design of which is the same as our larger engines, with the exception of the road wheels. These have flat wrought iron spokes, steel rims and malleable lugs.

## THE BOILER

Has a large, square firebox with open grate surface, which gives easy access to the flues or any part of the firebox, should occasion require.

In the front of our large size boilers there is a hand-hole and plate, by which means the sediment settling on top of the firebox may be cleaned off; also in the lower corners of the boiler are hand holes and plates so arranged that all deposits can be easily removed. In the small boilers large brass plugs are used in the place of the hand hole plates.

Our fire door hole is formed by a wrought iron forged ring, the front and fire box sheets being riveted to it, which not only makes a strong and substantial casing, but allows a uniform water space, thus avoiding any V-shaped joints for the sediment to gather in, as is the case with the flanged door hole. After many years' experience, and having tried a number of methods, we have concluded this style to be the most durable and the least liable to leakage. The firebox is thoroughly stayed on the top and sides to the outer shell of the boiler; also long stays extend from the front to the back head in the smokebox. The extension of the shell forms the smokebox. A cast iron rim with door forms the smokebox head. A large door opening sideways gives easy access to all flues.

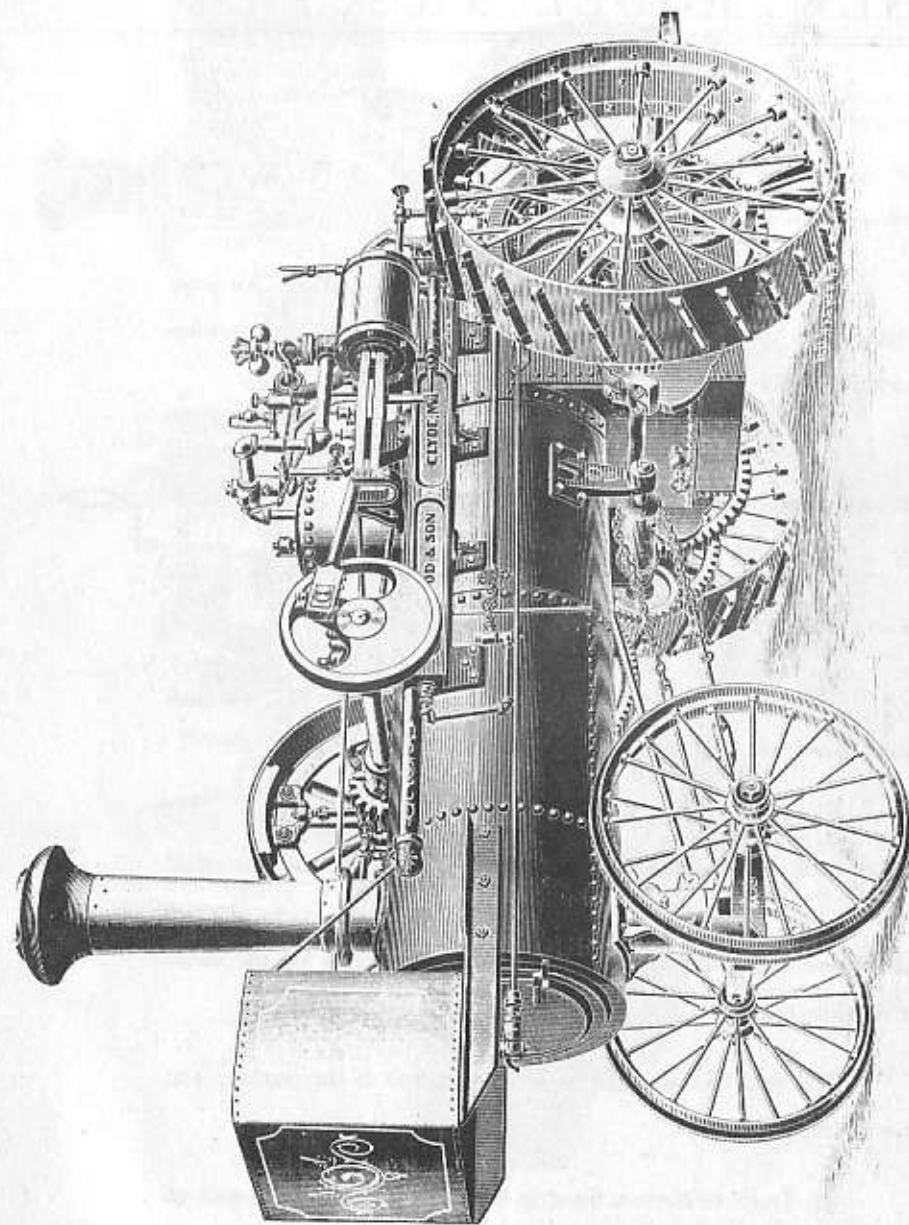
Our flue holes are not punched out, but cut out by tools especially designed for that purpose.

Any person who has had the care of a boiler knows that the flues require care and attention, but with our method of cutting the flue holes and putting in the flues, we are confident that the flues in our boilers will remain tight as long as the best, and much longer than many boilers on the market today.

We can cite many cases where our boiler has done the usual amount of work during the fall for ten, twelve and in some cases eighteen years without replacing a flue.

A large dome placed in the middle of the boiler, where the variations of the water are the least, going up or down grade, furnishes abundant space for dry steam for the engine, as we take steam from the top of the dome.

The 10, 12 and 16 horsepower have the shake grates, but we can furnish flat grates if desired.



No. 31 1/2--Twelve Horse-Power Traction

# NEW MODEL TRACTION

## SIXTEEN - HORSE - POWER

We wish especially to call your attention to our new model sixteen-horse-power traction.

The general design of the engine remains the same. We have changed the proportion of the gearing which increases the drawing capacity.

The boiler is 5-16 steel, double riveted, 20 inches diameter, 36 inch firebox with 41 2 inch x 7 ft. tubes.

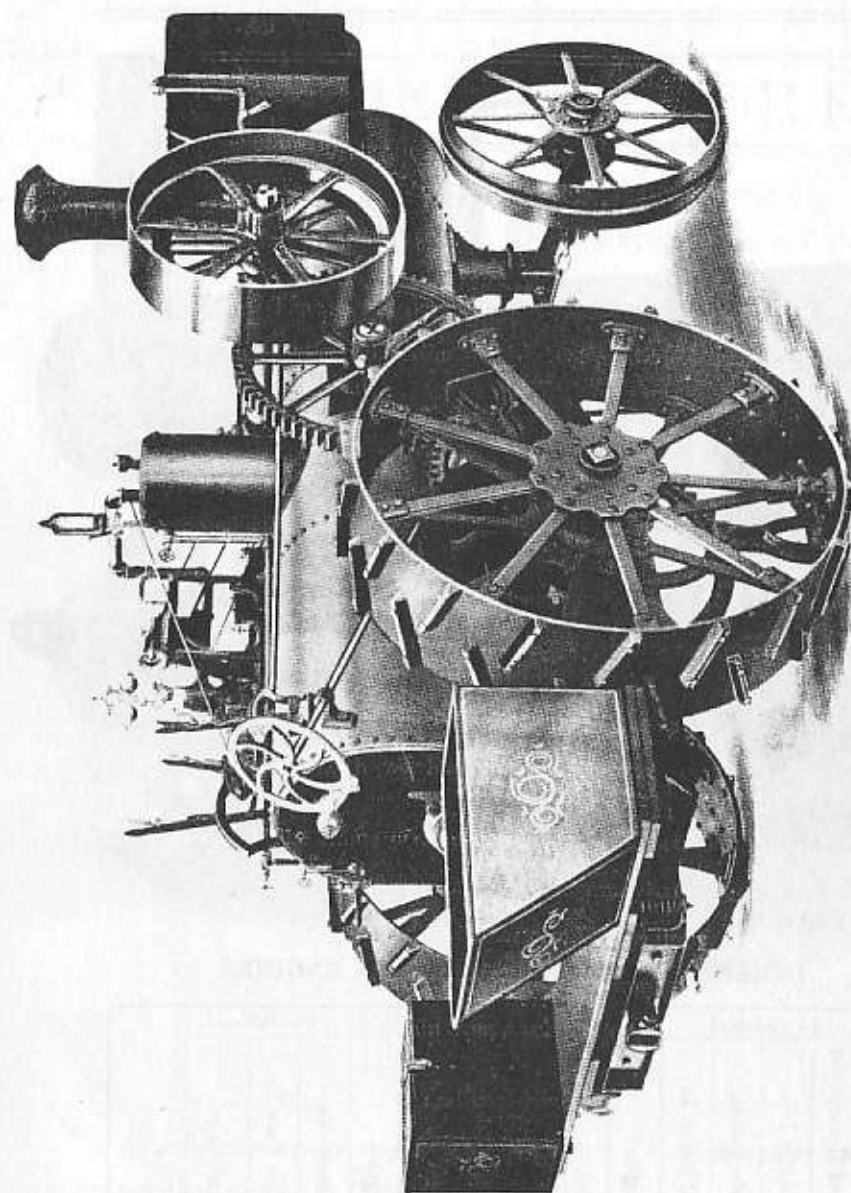
The rear wheels are 58 inches diameter, 16 inch face, 9-16 inch steel plates with cast hubs, malleable spokes and cleets.

The front wheels are 42 inches diameter, 8 inch face, 1-2 inch steel plates with cast hubs and steel spokes.

The frame of the platform is of Channel steel, secured to the boiler with cast brackets; to the channel bars are fastened the spiral springs that support the platform. The draw head passes through the frame and is provided with a compression spring on the inside which lessens the strain from a sudden jerking.

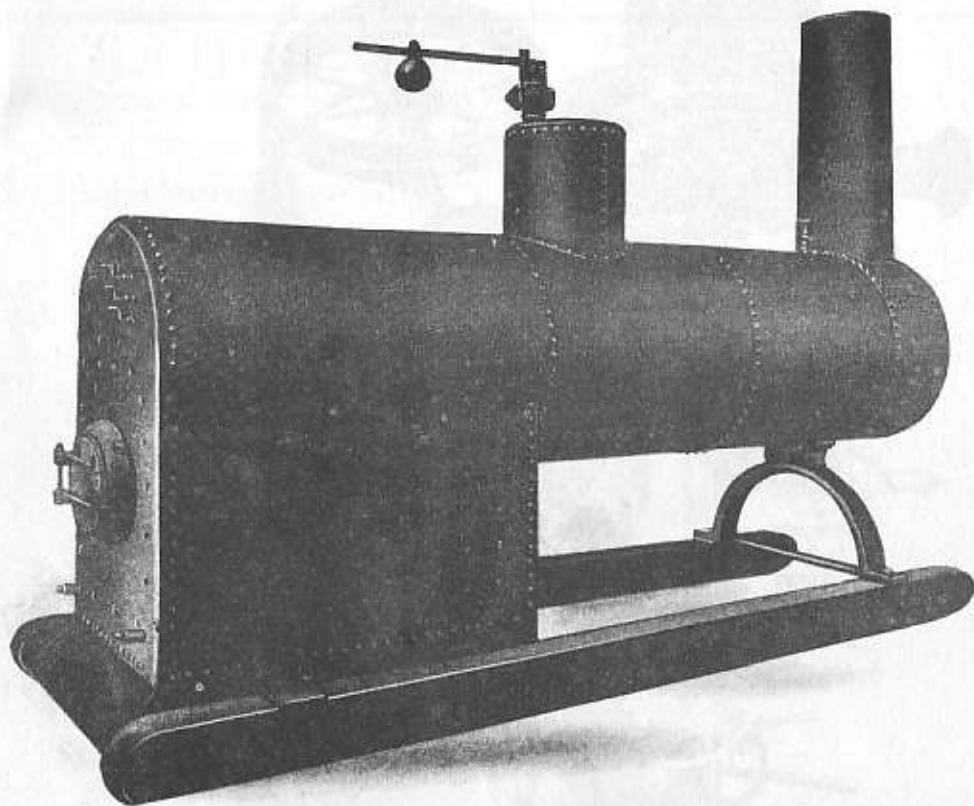
The steel tool and coal boxes are fastened to the platform and are of ample capacity.

All Traction Engines listed in this book are furnished with oil pumps.



No. 5—New Model Sixteen Horse-Power Traction

# SKID BOILER

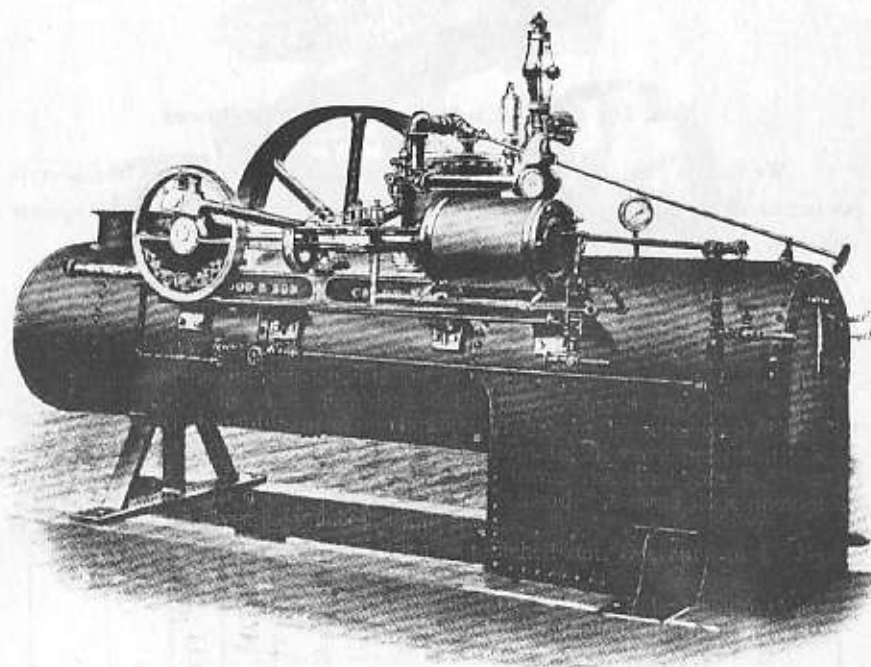


We make this style boiler from 6 to 30 Horsepower.

## DIMENSIONS OF OUR TRACTION ENGINES

Size No.	Rated Horsepower	Cylinder			Boiler						Fly Wheel		
		Diameter In.	Stroke Inches	Shell Diam. In.	Fire Box			Tubes			Diameter In.	Width Face In.	Revolutions
					Length	Width	Height	No.	Diameter	Length			
1	8	6	8	24	27	20	28	38	1 1/2	60	34	7	250
2	10	6 1/2	10	25	31	20	28	28	2	60	38	7 1/2	240
3	12	7	10	27	31	23	28	36	2	66	40	9	235
4	16	8 1/2	10	29	36	23	28	41	2	84	40	10	235

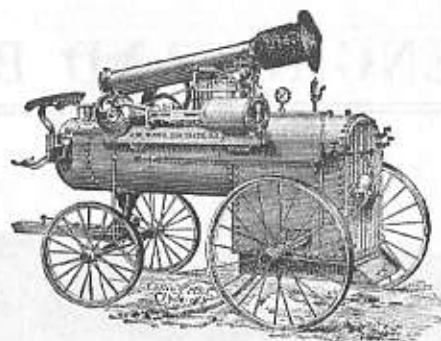
# SKID ENGINE AND BOILER



We make this style of engine and boiler mounted on wheels up to twenty horse-power and on skids to thirty horse-power.



# PORTABLE ENGINES



Nos. 1½ to 7—Six to Twenty Horse-Power

We furnish only one boiler feeder with our portable engines. On this style we furnish either injector or pump, as ordered, but must charge extra if both injector and pump are furnished.

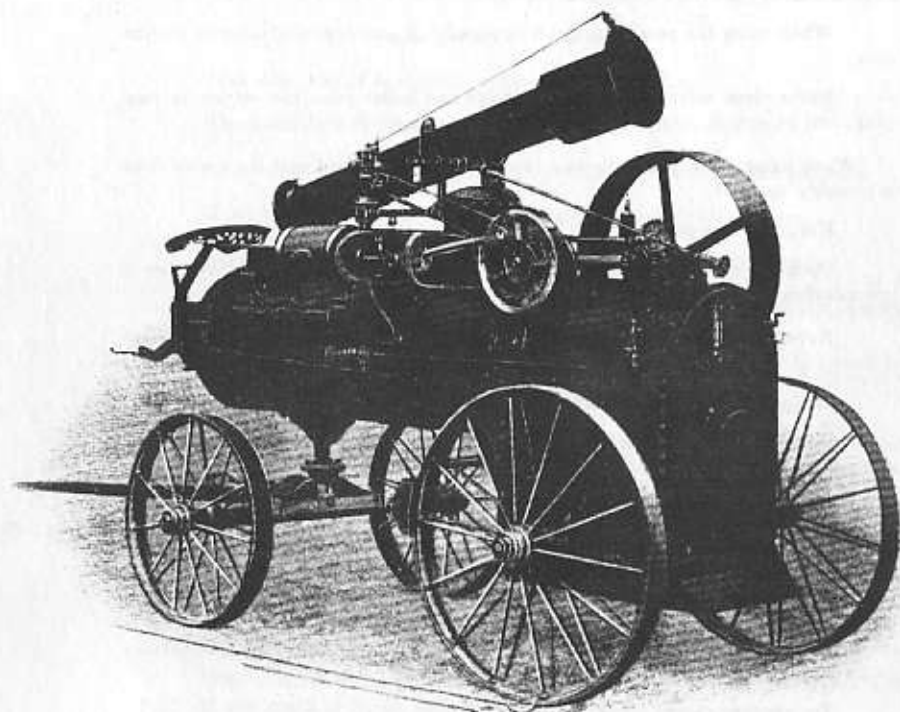
We reserve the right to ship engine with either style unless it is specifically mentioned in the order.

This cut shows the stub rear axle on our portable engines, which is bolted to the side of the boiler. We also furnish a continuous axle running under the boiler.

Dimension Traction and Portable Skid Engine

Size No.	Rated Horsepower	Cylinder		Boiler						Fly Wheel			
		Diameter In.	Stroke Inches	Shell Diam. In.	Fire Box			Tubes			Diameter	Width Face In.	Revolutions
					Length	Width	Height	No.	Diameter	Length			
1½	6	5	8	22	27	18	26	28	1½	51	30	6	300
1¾	8	6	8	24	27	20	28	38	1½	60	34	7	250
2	10	6½	10	25	31	20	28	28	2	60	40	7	240
3	12	7	10	27	31	22	28	36	2	66	40	9	235
3½	16	8	10	29	36	24	28	41	2	84	40	10	235
5	20	9	12	32	42	27	35	52	2	84	48	10	180
7	30	10	12	35	54	31	41	39	2½	96	60	10	180
8	6	5	8	22	27	18	26	28	1½	51	30	6	300
B	8	6	8	24	27	20	28	38	1½	60	34	7	250
C													

# PORTABLE ENGINES



This style engine is made in two sizes, classed as B and C, and are put upon same size boiler as our Nos. 1½ and 1¾, respectively, being same as those sizes as to bore and stroke, but we omit the heater, and reverse the engine. The cross head has a wedge or shoe that is easily adjusted to take up the wear. We use only an injector for a boiler feeder with this style of engine.



## D I R E C T I O N S

Fill the boiler with water to about one-third the depth of the glass in the water gauge, and keep as near that amount as convenient.

Keep the ashes out of the tubes by frequent cleaning.

In getting up steam, when the gauge indicates ten pounds, turn the blower on and you will soon have a working pressure.

When using the pump, regulate the supply of water by the valve in suction pipe.

Never close valve between check valve and boiler when the engine is running, and be sure it is open before starting the pump.

When using the injector, be sure that the suction is tight and the valve stem is properly packed.

Keep the drip pipe from the heater open.

Open the cylinder cocks when the engine is not running, and leave open a few minutes after starting.

Never allow the water to get out of sight in the gauge glass; if by any means it should, do not turn on the pump, but haul out the fire and let the boiler cool.

Clean out the boiler frequently by opening the hand holes.

Never blow off with a heavy pressure of steam. Pull the fire and let the steam run down.

Do not open the door to firebox oftener than necessary, and never leave it open to check the draft, but regulate the fire by means of the damper.

As the safety valve is one of the most important attachments to the boiler, be sure that it is in order. The valves are set at one hundred pound pressure when they leave the shop, and if there is any variation between the safety valve and steam gauge, do not change the valve unless you know it is wrong. The steam gauge is most liable to get wrong.

Try another gauge.

In cold weather be careful not to let the pipes freeze, but open the air cocks and let out the water when the work is finished.

Regulate your machinery so that the engine may run as the governor dictates with throttle valve wide open.

Keep the ashes well cleaned out underneath the grates.

All new machinery requires frequent oiling. Be particular before starting that you have it well oiled, and thus avoid the annoyance of a heated box, or the unnecessary cutting of the wearing parts.

When starting the engine, let on steam gradually until you get it working up to full speed.

## USEFUL INFORMATION

The U. S. Standard gallon of water weighs  $8\frac{1}{2}$  pounds and contains 231 cubic inches.

The U. S. Standard bushel measures 2150.42 cubic inches or nearly  $1\frac{1}{4}$  feet.

Water expands one-ninth of its bulk in freezing.

A cubic foot of water contains  $7\frac{1}{2}$  gallons and weighs  $62\frac{1}{2}$  pounds.

Ice weighs  $56\frac{1}{2}$  pounds per cubic foot.

One cubic foot of anthracite weighs about 58 pounds.

One cubic foot of bituminous coal weighs from 47 to 50 pounds.

One ton of coal is equivalent to two cords of wood for steam purposes.

Doubling the diameter of a pipe increases its capacity four times.

Hay dry and settled down in the mow 512 cubic feet weighs one ton.

A barrel is 28 inches long, 17 inches diameter at the heads, 19 inches diameter at the bung and contains 7689 cubic inches or  $31\frac{1}{2}$  gallons.

To remove an obdurate screw, apply a red hot iron to the head for a short time, apply the screw driver while the screw is hot.

To take lime out of the injector tube mix one part of muriatic acid ten parts of soft water. Let the tube remain in the mixture over night.

### TO FIND—

The circumference of a circle, multiply the diameter by 3.1416.

The diameter of a circle, multiply the circumference by .31831.

The area of a circle, multiply the square of the diameter by .7854.

The capacity of tanks in U. S. Gallons, square the diameter in inches, multiply by the length in inches and by .0034.

The number of bushels of apples, potatoes, etc., in a bin, multiply the length, breadth and depth together and this product by 8 and point off one figure in the product for decimals.

The speed of a circular saw. The rule is that the rim of a saw shall run 9000 feet per minute, divide 9000 feet by the circumference of the saw, reduced to feet, and the result is the revolutions the saw should run per minute.

A well made, Powerful and Economical Traction or Portable Steam Engine. Drop a card or call on

S. W. WOOD ENGINE COMPANY, Inc., CLYDE, N. Y.