

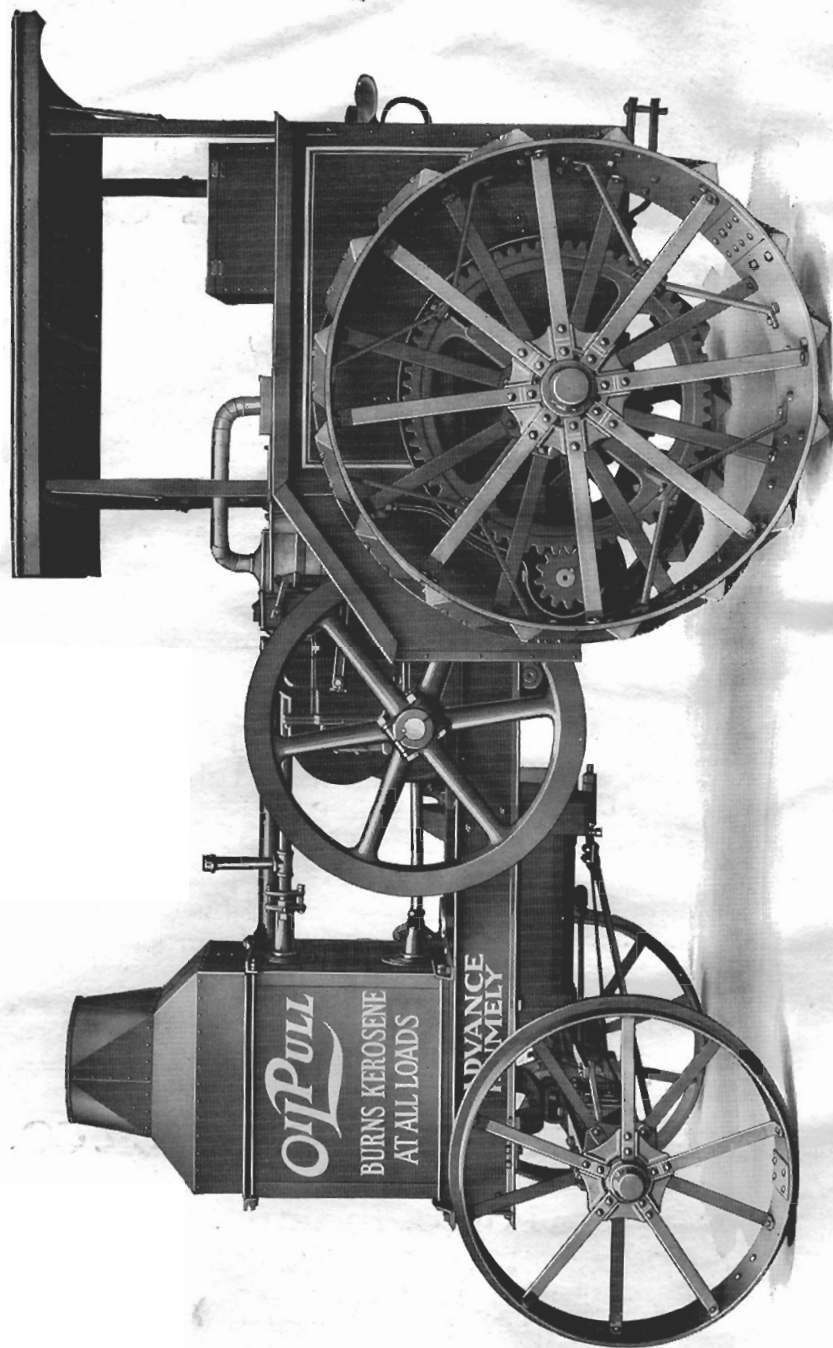
RUMELY
OIL PULL
TRACTOR
LA PORTE IND.

BACKED BY WRITTEN
GUARANTEE

Rumely OilPull Tractor



ADVANCE-RUMELY THRESHER CO.
INCORPORATED
La Porte, Indiana
U. S. A.



Left Hand Side of 14-28 OilPull



SIXTY-THREE years' experience in the manufacture of farm machinery are built into the Rumely OilPull Tractor. When the OilPull was put on the market its design and construction represented more than engineering ability—it proved a wide knowledge of farm conditions and requirements. The OilPull was built to fit a definite need and was a success from the start. No tractor on the market has such a universal reputation for success and absolute dependability. And the OilPull is there on the “pinches” just as on the easiest job—Advance-Rumely is noted for the conservative ratings of its engines.

Probably the feature of the OilPull that stands out most prominently is its ability to operate successfully on low grade fuel oils—kerosene, coal oil, distillates and other cheap fuels. The success of the OilPull as a cheap fuel burner, and the means by which it accomplishes this economical efficiency, are covered in detail in this catalog. The OilPull pioneered the tractor field as a low grade fuel burner, and today stands above competition as the most efficient cheap fuel operated tractor on the market.

The basic patents, by the way, covering the Secor Oil Fuel System were applied for and granted before any other manufacturer had even conceived the idea that low grade fuel oils could be used in a tractor.

Low Grade Oils for Fuel

In discussing the use of low grade fuel oils in the OilPull Tractor, let us first briefly consider the various factors that enter into the successful use of such fuels in a tractor.

What Constitutes an Oil Tractor? “It burns kerosene” is not the whole story by any means. Any internal combustion engine will burn kerosene *under some conditions*—even your automobile—provided there is the proper internal temperature and ideal conditions as to load.

That means nothing to you, the man interested in the tractor's usefulness and efficiency. You know that there can be no such limitations as proper temperature and certain fixed conditions as to load in a farm tractor. It is not ideal conditions that the outfit must meet—it is the everyday, year in and year out, changing conditions that the tractor must satisfactorily handle.

Burning kerosene is one thing—burning it *successfully and economically, at all loads, under all conditions*—is another.

Remember that oil is superior to gasoline for fuel *only* when fuel mixture proportions and combustion chamber temperatures are *instantaneously and automatically* readjusted to harmonize with every change in working conditions.

The Matter of Load. Take the matter of load. You know how the load varies in the operation of a tractor in the various drawbar and belt jobs it is capable of handling. It varies from no load, when the tractor is running idle, to extreme full load, when the machine is delivering the limit of its power.

The test of a tractor's ability operating on kerosene or other low grade fuels is what it will do on these fuels *under half load*. Almost *any* tractor will operate

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on oil fairly successfully above half load, because under those circumstances you have the ideal conditions of proper temperature and load, mentioned above.

But what happens when you get *under* half load, and when you have the



tractor running idle for an indefinite period? Simply this—the *so-called* cheap fuel tractor will die down, *unless* you switch it onto gasoline and *keep* it on gasoline until the load goes over half, and the engine becomes sufficiently warmed up to again take on the kerosene.

The Result. Also, probably you'll find that even though that *so-called* oil tractor burns kerosene under ideal conditions, it consumes a lot more gallons in proportion to

the gasoline it was designed to operate on. Imperfect combustion—carbon—loss of power. A look into the crank case of that *so-called* kerosene tractor would show that wasted and unconsumed kerosene was passing the piston into the crank case. With but one result—your lubricating oil cut of its lubricating qualities and needing replenishing at the end of each day. No economy there, surely.

We could go on indefinitely and discuss what you *don't* get in the *so-called* cheap fuel burners, but you know as well as we do that there is no half way in this question of burning cheap fuels. Either a tractor burns it *successfully, economically* and *under all conditions* that a tractor must run up against, or it *doesn't*.

Now let us briefly see wherein the OilPull excels as a cheap fuel burner.

Designed and Built to Burn Oil

Remember, first of all, that the Rumely OilPull was a cheap fuel burner from the start. It was designed and built to operate on kerosene and other cheap fuels—not a gasoline tractor made over with a double carburetor and sold as a cheap fuel burning outfit. The OilPull motor, carburetor, cooling system—in fact, every part, is designed and built especially for the burning of kerosene and other low grade fuel oils.

The first OilPull carried the Secor Oil Fuel System, just as do the over seven thousand which are in operation today, a system patented and owned by the Advance-Rumely Company, by means of which the OilPull operates on kerosene, coal oil, distillates, “stove tops” and other low grade fuel oils, *at all loads, under all conditions, all the time.*

It makes no difference if the OilPull is running at full load or no load, in wet weather or dry, coldest winter or hottest summer, any time, any place—cheap fuel is its meat and drink. *No racing at light load—no annoying carbonization—no laying down when the load changes.*

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To repeat, by *successfully* using oil fuel we mean getting 100 per cent results out of the motor—no waste of fuel—the ability to work under all conditions, at all loads, in all climates, at all altitudes—any place, any time.

The foregoing illustrates what we mean when we say that just “It burns kerosene” means nothing to the man who is looking for a *real, efficient, economical oil burning tractor*.

Burns the Fuel Cheapest to Buy

Kerosene is not the only cheap fuel you can use in the OilPull. It does equally well on lower grade fuels—it just depends upon whether you can get them in your locality. Down in Texas you'll find OilPull owners using a low grade distillate that costs only one-half the price of even kerosene, and one-quarter the cost of gasoline. Out on the coast “stove tops” is commonly used, a fuel oil obtainable there that tests about 30° Baumé (kerosene tests around 43°). In Wyoming and in some other states, owners lucky enough to have oil on their farms use the crude oil right from the ground. All of this, remember, is not a stunt—in each of these sections where owners are able to get lower grade fuels than kerosene the OilPull gives the same economical, satisfactory results.

Also, remember that this same economical efficiency can be obtained from these cheap fuels in the OilPull on the equator or in the coldest north of Canada.

How the OilPull Does it

The success of the OilPull as the only tractor that will successfully operate on kerosene and cheaper oil fuels is centered in the Secor Oil Fuel System, an exclusive OilPull feature and controlled by Advance-Rumely patents.

The only known method by which oil fuel can be used successfully in a tractor which is exposed to extreme fluctuations in load, as in operating threshing machines, is the Secor System of triple automatic control, in which the quantity of fuel, the relative proportions of fuel and air, and the internal temperature, by means of water, are controlled in co-ordination by a common, speed controlling governor. The temperature is positively regulated by two independent means of automatic control which maintain correct temperatures under the most extreme fluctuations of load.

It will be seen that this system eliminates all modes of vaporization which reduce the power of the engine 15 per cent to 20 per cent. Also substitutes a mixture of varying proportions for the constant mixture heretofore supposed to be necessary. And finally, it recognizes the supreme importance of correct temperature conditions during combustion, which has heretofore been ignored in all unsuccessful oil burning engines.



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LA PORTE, IND.** *written guarantee*

Furthermore, We Guarantee It

Not content with what we *know* the OilPull will do on cheap fuels, not satisfied with making mere claims, we put it in writing—a guarantee that for fairness and the customer's protection cannot be bettered. Read carefully the repro-



duction of this guarantee on page 20. Don't you see how eminently fair it is, a straightforward, broad warranty that gives complete protection to the owner? And remember that this guarantee is *not* just for a day, a week, or a year—it holds good and protects you for the life of the tractor. Just what is the life of an OilPull tractor, is something we don't know, for the simple reason that the *first* OilPulls are still working, and they were put out over seven

years ago. There's a big difference, you know, between "putting it over" and "delivering the goods." On the one hand, you get word of mouth promises and claims, or guarantees that "talk but say nothing;" on the other, you have a clean, fair, safe guarantee like ours.

Don't pass lightly upon this matter of guarantee. You are entitled to a written guarantee such as goes with every OilPull—*see that you get it.*

In Addition, You Get Dependability

To the fuel advantage, add the mechanical excellence of design and construction of the OilPull. Besides the efficiency and economy of it as a cheap fuel burner, you will find that men who own them strongly emphasize its staying qualities, its ability to not only do the work—but to *stand up* to it.

And it is a most important thing to consider in a tractor—"Is it built to stand the grief?" You don't buy a tractor just for what it will do in a short season's run. You invest in one to not only handle all your various power jobs, but to do so year in and year out.

When you read over the following pages, on the construction of the OilPull, you will realize what we mean when we talk of its standing up to the work. Our specially designed heavy steel frame construction provides a solid foundation for the working parts, and to successfully withstand the heavy strains and hard usage that a tractor is continually subjected to. Then there is the strong gearing, made of the toughest and best materials and of liberal proportions. You will see how we have protected all working parts of the OilPull motor from dirt and the weather, and the positive, efficient oiling system—all things that count and count *big* in a tractor outfit.

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Low Speed Heavy Duty Motors

All OilPull tractors have low speed heavy duty engines, designed and built by us in our own shops. Due to the type of motor used in automobiles, much has been claimed for high speed, multi-cylinder engines for tractor work. *But, what is good for automobiles is not good for a tractor.* Just consider the difference in the kind of work done. The automobile works under the *best of conditions* and under light loads 90 per cent of the time and is designed with that in view. The tractor, on the other hand, works *under heavy load and adverse conditions* 90 per cent of the time—a continuous grind and strain, every part of the machine being subjected to the hardest kind of usage and service.

We satisfied ourselves years ago that for durability one and two cylinder engines are the best. Besides the matter of wear and tear on the motor parts, when the number of cylinders is increased it means a multiplicity of parts, entailing all kinds of trouble to keep it in adjustment and running order. In an automobile this type of engine is feasible, just as light bearings are practical, but when you come to the tractor it is a different proposition.

On the matter of speed the effect of a high speed motor on a tractor should really answer itself. Just remember the adverse conditions that the tractor is working under, practically all the time. Here is an illustration. Supposing you put your automobile in low gear and ran it continuously through heavy sand or uphill. It would not be many hours before the motor was burned out, would it? Just bear this in mind when the argument for multi-cylinder, high speed engines comes up in connection with tractor construction. *It can't be done.*

We Use Oil for Cooling

Oil cooling is further evidence of building the OilPull to fit a need. We know that oil is the best cooling medium for an oil burning engine. It helps maintain the proper temperature in the cylinders, so necessary to the successful burning of low grade fuel oils.

A most important feature of our oil cooling system is that the temperature of our cooling oil *automatically raises* as the load *decreases* and *automatically drops* as the load *increases*. This is exactly opposite to what occurs in other tractors and is one of the factors that make the OilPull such a successful oil burning engine.



But beyond that there are many other advantages in an oil cooled engine. It can be operated in the coldest weather without freezing, or ever draining the radiator. Oil does not evaporate or deposit scale in the cooling jacket. It will not

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boil at the highest temperature, nor is it necessary to continually haul water to replenish the radiator. Oil cooling does away with the cooling fan, which consumes power and is a source of trouble and annoyance.



Automatic Speed Control

Close regulation is one of the most important advantages the OilPull offers. Belt work is the *real* test of an internal combustion engine's performance—when the load varies so from minute to minute—when the human hand is not quick enough nor deft enough to regulate the fuel supply. Regulation *must* be effected *positively* and *automatically*.

The Rumely OilPull is governor controlled, the speed of the engine *automatically* and *instantaneously* regulated to meet every condition in the load. As a threshing engine the OilPull is without an equal.

Convenience and Accessibility

There is nothing complicated about the OilPull. It is designed and built to be operated by the average man, not the mechanical expert. The operator's convenience has been taken care of in making all operating levers within easy reach—all necessary adjustments can be easily and quickly made—all working parts are of easy access.

Equipped With Starter

An air starter, which is part of the regular equipment on all sizes of OilPulls, simplifies starting, does away with the danger, delay and drudgery of cranking.

No Limit to Its Uses

Profits from your tractor investment largely depend upon keeping your tractor busy. Steady work cuts down costs and overhead expenses and the prospective tractor owner can well consider carefully the all-around work he must demand of the tractor he buys. We briefly mention a few of the ways in which you can profitably use an OilPull, to show its adaptability as an all-around power plant for both tractive and belt work.

You can count on the OilPull to do your plowing, discing, harrowing, seeding and harvesting efficiently and economically. You can belt it to your thresher, huller, husker, sheller or feed grinder and be assured of steady, reliable power. It will handle your baler, saw outfit and pump. It will haul your crops to market and pull your belt machines over fields and roads. It will pull road-making machines and road-building equipment.

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The fact is, the all-around usefulness of the OilPull is seemingly unlimited, and you can find some profitable use for it the year around. One thing is certain—the more work you give it, the better it likes it, and the bigger will be your savings and profits.

Proved Superior by Test

The enviable records made by the OilPull in competition is of interest. Take the 1912 Winnipeg tractor contest—the OilPull established records that have never been beaten, before or since. The OilPull was awarded the gold medal for superiority over *all* competing gas tractors, in *all* tests. It was given the “sweepstakes” over twenty-three gasoline tractors, showing an *advantage*, over gasoline burning machines of its size, of 19 per cent in horse power hours obtained from a gallon of fuel.

Its Winnipeg record shows:

- First in durability.
- First in overload capacity.
- First in horse power developed for its rated power.
- First in highest drawbar pull in its class.
- First in automatic speed control.

In foreign countries the OilPull has established similar records. The Russian government, for example, made a careful investigation and study of all tractors and in an official bulletin published for the guidance of the Russian farmer gave preference to the OilPull.

Best of all, these tests are but public exhibitions of everyday performance. Every OilPull is able to do the same, and the satisfactory service that the OilPull is giving to over seven thousand satisfied owners is the record that it prefers to stand upon.

A Size for Your Farm

Three sizes of the OilPull Tractor give you your choice of a small, a medium and a large size—14-28 H. P., 18-35 H. P., 30-60 H. P. Each size gives the long lasting, economical service for which the OilPull is famous.

A Warning—for Your Benefit

Imitation of the OilPull is a compliment to us but unfair to our customers. The reputation of the Rumely OilPull and its successful performances have been so far-reaching that the name “OilPull” has been extensively applied to other internal combustion tractors. Naturally its misuse has in many instances led to misunderstandings and disappointment. Just remember that the name “OilPull” is our trademark—registered in the United States Patent Office and in all foreign countries.



The Gasoline Tank Tells the Story

Exact relative size of gasoline and oil fuel tanks on the 14-28 OilPull Tractor

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THE RUMELY OILPULL 14-28 H. P.



THE addition of the 14-28 to the OilPull line of tractors answers the plea of farmers in all parts of the United States and Canada—"Give us the same OilPull in a smaller size." And here it is—100 per cent OilPull throughout—a smaller edition of the tractor that has become famous for its dependability, efficiency and low cost of operation.

Just as the larger sizes have made a reputation for absolute dependability, strength, long life, ability to efficiently and economically burn low grade fuel oils, automatic speed control, oil cooling and ease of handling—just so does the 14-28 fulfill all expectations for real OilPull Service.

Big Power With Light Weight

"Right weight" best expresses the lightness of the 14-28. It weighs but 8700 pounds with all equipment and full tanks, light enough to meet every requirement, yet in no way has strength or power been sacrificed. It is a *big power* outfit. Lighter than six good horses, the 14-28 OilPull has the pulling power of twelve, plus the ability to work without resting.

Easy to Operate

In designing the 14-28 close attention has been given to ease of operation and convenience in handling. To make starting the easiest possible, the 14-28 is regularly equipped with an air starter. An automobile type steering device makes guiding easy, to which the large front wheels contribute. The 14-28 is short turning—it will turn in a 17-foot radius. The platform is but a step from the ground—a convenience that needs no explanation. All operating levers are within easy reach and all working parts, while carefully protected, are easily accessible for inspection. A comfortable seat means something in a day's ten-hour run—the fact that it can be swung out of the way when not in use is an extra advantage.

100 Per Cent on Drawbar or Belt

One of the big problems in tractor construction has been to make a tractor that would be equally efficient on drawbar or belt. When tractors were first introduced the main consideration was to make an outfit that would deliver full results on the drawbar. Plowing was the big item in those days. Belt work had not the consideration then that it has today with the wide spread use of tractors.

A faint attempt at belt equipment was made in some of these first tractors but it was pure make-shift. Belt pulleys were small and hard to get at. The tractors were equipped with governors that would not govern—they were drawbar machines pure and simple.

But as the tractor has gained more universal recognition and the farmer has become educated to the practicability of internal combustion engines, a more flexible power unit has been demanded. Today the tractor purchaser must have

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a machine capable of efficiently and economically handling belt machines as well as drawbar work.

As a result many are the make-shifts in design and construction, in an endeavor to reach this perfection. We will not go into detail here as to what these make-shifts are, but refer you to page 29.

The Advance-Rumely way is to give 100% efficiency on the drawbar—pull evenly, steer easy, at the same time give 100% results on the belt and be handy for any kind of belt work. We mean a tractor that you can line up with your machinery, back into the belt and start and stop the pulley from the driver's seat.

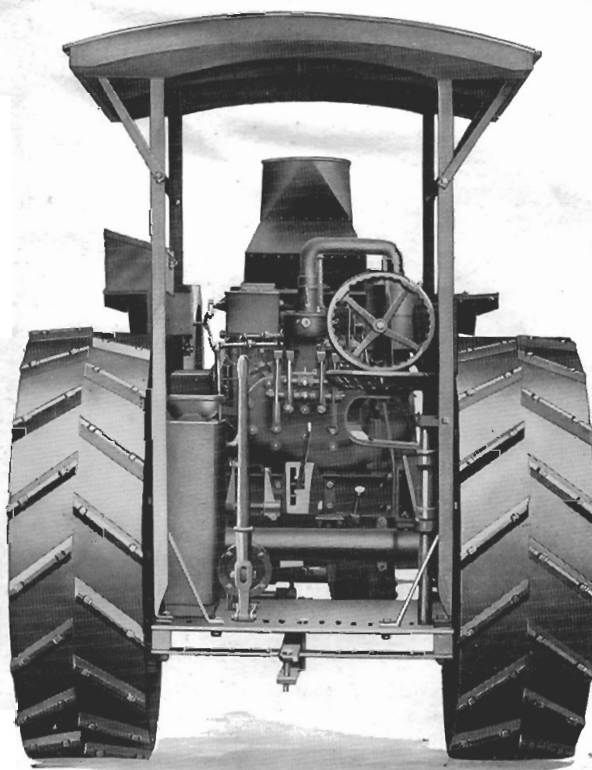
Pages 28 and 29 of this catalog fully explain the way our engineers have constructed the 14-28 so that it gives equal efficiency in belt work as well as on the drawbar and with no sacrifice whatever in its design or construction. This one feature alone shows the thought that has been put into the smaller size of the OilPull tractor.

Has Big Capacity

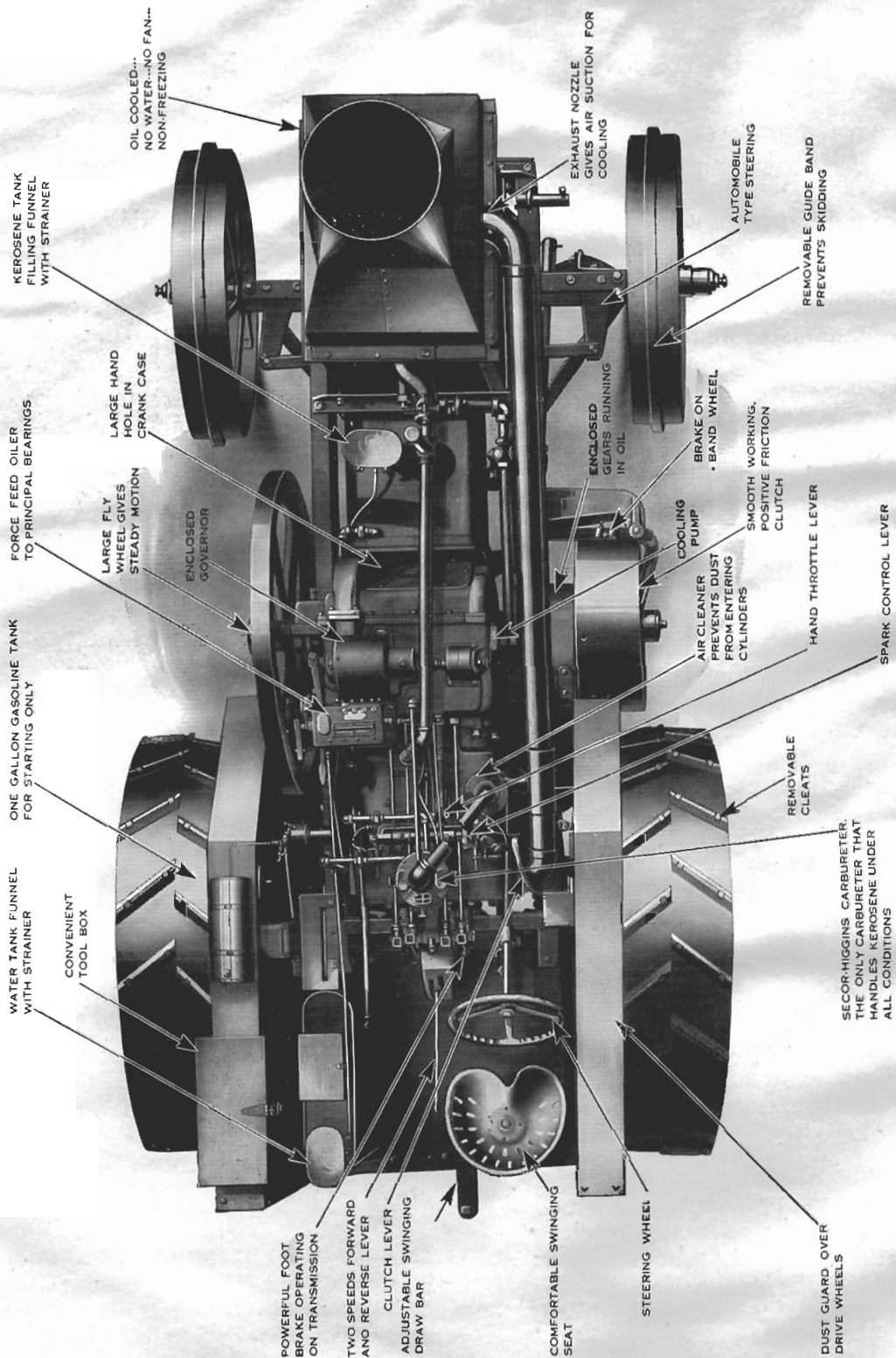
We put no limit to the usefulness of the 14-28. It will handle your plows, discs, drags and seeders, hay loaders, manure spreaders, mowers, binders, road machinery, etc. On the belt it will run any machine within its rating, such as threshers, silo fillers, huskers, hullers, shellers, saw rigs, pumps, rock crushers, etc. The fact is, you can put the 14-28 OilPull up to any traction or belt job and it will handle it efficiently and at low cost.

The 14-28 OilPull will handle any type of gang plow, moldboard or disc. It is guaranteed to pull up to and including five 14-inch moldboard plows (and a proportionate number of disc plows) and to plow up to 14 acres in a ten-hour day—the number of bottoms and acres plowed depending upon soil conditions. On the belt it will handle a 24 to 28-inch cylinder separator fully equipped.

Advance-Rumely has long been noted for conservative rating of its engines. Unlike so many tractors now on the market, whose ratings are out of all proportion to the amount of work that can be handled, we believe in allowing some reserve power to fall back upon. We don't make any rash statements as to what can be done with the 14-28, but we do know that it is the *biggest power* light weight outfit yet put on the market.



Rear View of 14-28 OilPull



Top View of 14-28 OilPull

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Fuel System and Carburetor

The fuel system used in the 14-28 has been fully explained in the preceding pages. The Secor Oil Fuel System is common to all sizes of the OilPull tractor—the *only* system by which kerosene or lower grade oil fuels can be used *successfully* in a tractor. This system, as you know, provides means for enabling the governor to exert a simultaneous and continuous triple control of (1) the quantity of fuel charge, (2) proportion of the fuel mixture, and (3) the internal temperature.

We emphasize again that oil is superior to gasoline for fuel *only* when fuel mixture proportions and combustion chamber temperatures are *instantaneously* and *automatically* readjusted to harmonize with every change in working conditions.

In the 14-28, as in the larger sizes, the fuel that is cheapest for you to buy is the fuel your 14-28 will handle, and handle *successfully* and *economically*—*at all loads, under all conditions, all the time, any place*. Remember that an iron-clad *written guarantee* goes with every OilPull tractor—absolute protection for the owner, with no time limit.

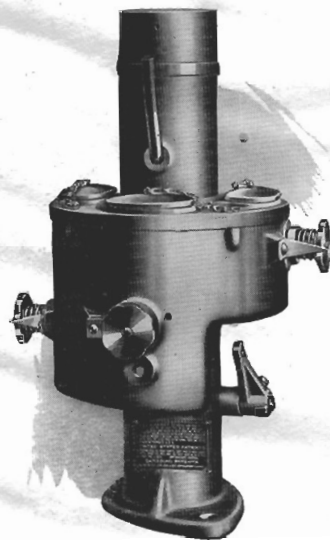
The 14-28 carburetor is a remarkably simple apparatus, entirely free from floats, springs, balls, internal automatic mechanism or complicated parts, requiring frequent adjustment, or changing to suit damp or dry weather. It consists simply of a vertical tube of peculiar internal shape, surrounded by three divided chambers for kerosene, water and gasoline, each having a needle valve. Below the fuel chambers the throttle valve is placed, which is coupled direct to the governor and accurately measures and proportions each charge of mixed fuel, air and water that goes into the cylinders.

The gasoline chamber is used only in starting, and as it has no other use, there are no automatic means for getting gasoline into it. A bronze plunger pump working off the cam shaft lifts kerosene and water to the carburetor, the surplus draining back through overflow pipes.

A jacket on the exhaust pipe heats the intake air with means for regulating the amount of heat. This is necessary in cold weather only.

The air first goes through a cleaner where the dust and grit are removed, and then enters the top of the carburetor, passes through the venturi and mixes with the kerosene and water, the relative quantity of each being regulated by the governor controlled throttle valve located in the lower part of the carburetor. From here the mixture goes direct to the combustion chamber of the motor to be consumed.

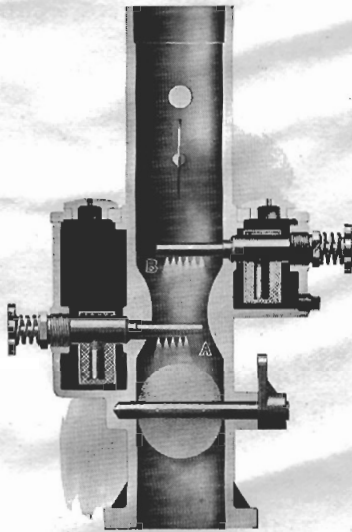
Figure 1 is an external view of the 14-28 carburetor, in appearance merely a cylindrical tube surrounded by the fuel chambers. In outward appearance it follows general lines of carburetor construction, as practiced by builders of internal combustion engines. The internal construction however, of the 14-28 carburetor, is radically different from that of carburetors of other builders, as Fig. 2 on page 14 fully explains. This carburetor is very similar in design to that of our earliest carburetor patent.



The 14-28 Carburetor. Fig. 1.

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Figure 2 shows a cross section of the 14-28 carburetor. It will be noted that the central cylindrical passage has a restricted portion forming a venturi tube. The oil fuel nozzle is located in the under portion of the venturi, while the water nozzle is located above.



Sectional View of 14-28 Carburetor. Fig. 2

Due to the peculiar shape of this passage and the relation of the nozzles to it, the proper quantity and proportions of fuel and water are *automatically* fed to the engine at all times, regardless of load.

The action of the engine piston produces a partial vacuum in the carburetor passage, and this relative vacuum in the zone marked A varies with the load, so that the *correct proportion of fuel is always exactly suited to the existing load.*

In the zone above the venturi marked B, a relatively strong vacuum prevails during the heavy loads, but decreases very rapidly as the load is reduced. At the low loads the vacuum is reduced to such an extent in this zone that no water is fed.

Thus we have a means whereby the fuel mixture is *automatically fed under governor control in correct proportions at all loads*—the water being automatically supplied in correct proportions for the higher loads only and none at all being admitted for the light loads.

The effect of water fed at low loads is injurious, for if fed in quantity it will interfere with the operation of the engine, and in any case will cause fuel waste.

The Motor

The 14-28 power plant is a two-cylinder, horizontal, valve-in-head motor, designed and built by us for this particular tractor, and to successfully use the cheap oil fuels for which this tractor is recommended. Low speed, accessibility and oversize working parts are noticeable in the 14-28 motor.

It has an easily removable cylinder head, make and break ignition of our own make, with a wide range of spark adjustments, force feed and splash lubrication, and all important bearings split and made adjustable for wear.

By removing the cover plate on the crank case all interior parts can be inspected and minor adjustments made, or the connecting rod caps can be disconnected, and then, removing the cylinder head allows the piston and connecting rod to be pulled out from the rear.

Two spur gears operate the entire mechanism of the motor, with two additional spur gears to drive the circulating pump. The clutch is of the expanding shoe type, proved by many years of use to be best suited for traction work. Adjustment of one shoe automatically adjusts the other.

The 14-28 motor is governor controlled, the speed of the engine being *automatically and instantaneously* adjusted to the load. The extreme close regulation of the Rumely OilPull tractor is universally acknowledged, and the 14-28 is no exception.

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The Crank Case

Made of tough semi-steel in one compact casting and heavily ribbed, this important piece is as rigid and simple as a square block. In fact, all the finished surfaces are machined at right angles to each other and all on the outside, no interior operations, with their consequent inaccuracies, being performed. All the different parts of the motor are assembled in complete units and bolted to these outside surfaces, and protected by dust and oil tight covers. An easily removed hand hole is fitted to the main cover, giving easy access for inspection or adjustment of parts inside.

The Crankshaft

In keeping with the rest of the motor, our crankshaft is of the simplest and most rugged type. Drop forged from high grade open hearth steel, complying with U. S. naval specifications, it has a tensile strength of 80,000 pounds to the square inch and is ground to within 2/1000 of an inch at the bearings. Believing the crankshaft to be one of the most vital parts of a tractor we have purposely made it oversize to secure strength, and insure them against breakage.

Both bearings are very liberal in size, the one next the band wheel being extra long to take care of the pull of the belt pulley. High grade die cast babbitt bearing shells are used, lubricated by a force feed oiler. Oil from the lubricator is led direct to the two crank pins through oil rings, in such a way as to insure constant lubrication for these parts at all times.

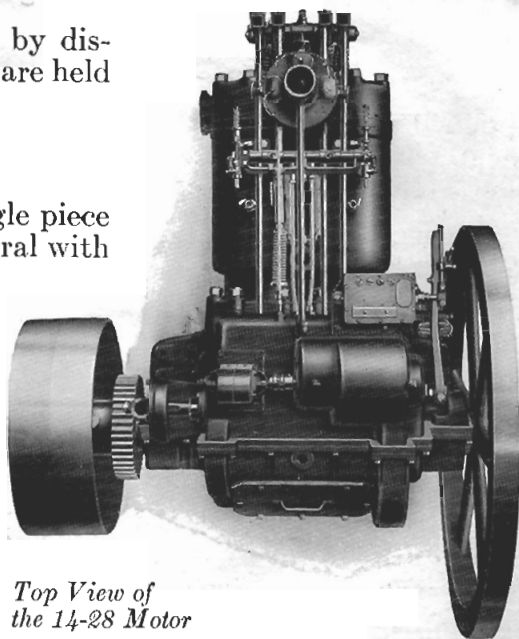
Having opposite cranks reduces motor vibration to a minimum as the pistons travel in opposite directions, and these balance each other, while the counter weights prevent all side sway.

The entire crankshaft may be removed by disconnecting the two main bearing caps, which are held by eight 1-inch bolts.

The Cam Shaft

The cam shaft is drop forged from a single piece of medium carbon steel, the cams being integral with the shaft and so preventing loose cams. The two bearings are split, with shims for adjustment, and lubricated by splash which collects in the large oil pockets above the bearings.

The complete shaft is first turned, then case hardened, after which it is ground on a special cam shaft grinder to within 1/1000 of an inch. The entire unit of shaft and gears may be removed by disconnecting the two bearing caps. No better cam shaft can be made, and few tractors have cam shafts of equal quality. The construction of the 14-28 cam shaft is just another example of Advance-Rumely thoroughness in design, workmanship and materials.



*Top View of
the 14-28 Motor*

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The Governor

Governors which are operated by belts, springs or any friction driving devices are uncertain, do not respond quickly to load conditions and are never dependable, so we, therefore, drive our governor by spur gear direct from the cam shaft. It is of the fly ball throttling type and acts on a butterfly valve in the carburetor.

The speed regulation in the OilPull is very close, the governor *instantly* adjusting the butterfly valve to the proper position on sudden change of load.

Being mounted on top of the crank case the governor receives a heavy oil splash from within the latter and therefore requires only occasional inspection. The cover, which is oil and dust tight, may be removed by unscrewing two nuts. The entire governor unit may be removed by unscrewing four cap screws which secure the two bearings.

A continuation of the governor shaft drives the magneto through a flexible connection.

The Cylinders

The cylinders in the 14-28 are cast together from a special grade of semi-steel and firmly bolted to the crank case, making a rigid construction and preventing misalignment and vibration.

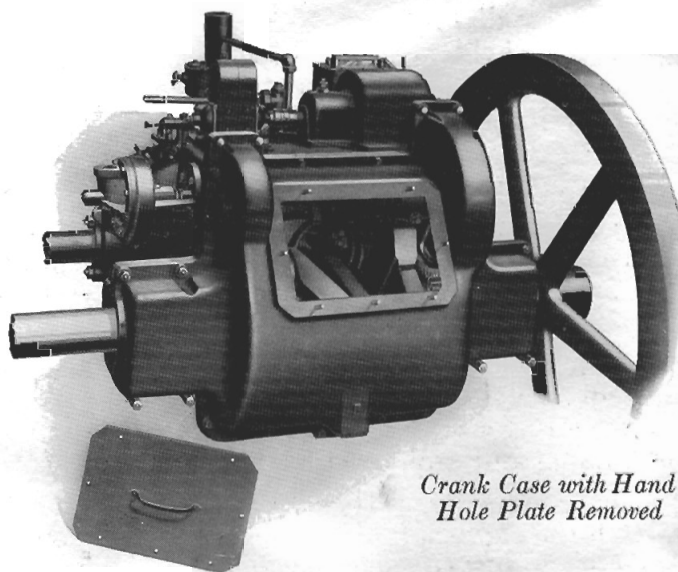
After rough boring, the cylinders are tested under high water pressure for possible leaks and set aside to age, after which they are ground on the inside to a mirror smoothness, with a special grinding machine, to within 2/1000 of an inch.

The center line of the cylinders is offset from the center line of the crankshaft so that on the explosion stroke, the high pressure of the piston on the lower half of the cylinder, due to the angularity of the connecting rod, is very much reduced. On the return stroke the tendency to force the piston against the top wall is increased, but as the pressure of the piston is in the opposite direction, the result is that the wear is evenly distributed over the entire inner surface of the cylinder. Most tractor motors have four-fifths of the pressure on the lower side of the cylinder, resulting in scored cylinders, rapid wear and loss of compression.

Fresh oil is fed in at the top of the cylinder from a force feed oiler in just the right quantity to give proper lubrication, and as all air taken in first passes through a cleaner, removing all dust and grit, the wear is reduced to a minimum.

The OilPull is a notable exception in having all these features combined.

A glance at the illustration shows the extra large cooling jacket entirely surrounding the cylinders. The cooling oil from the radiator enters the lower



*Crank Case with Hand
Hole Plate Removed*

It's backed by a written guarantee

side next the head and immediately flows into the latter where it at once comes in contact with the exhaust valve seats, effectively cooling them. The oil then flows through the upper portion of the head and into the cylinder with the outlet on top near the crank case.

Having all parts of the compression space entirely surrounded by a large amount of rapidly moving cooling oil prevents local hot spots and maintains a uniform temperature over the entire surface, thus preventing the pistons from seizing and also unequal expansion with its consequent loss of compression and power.

Cylinder Head

The double cylinder head is a semi-steel casting finished on both sides and fastened to cylinders by twelve studs with a copper asbestos gasket at the joint.

This high grade gasket, rigid head and the short distance between studs, effectively prevent leaks at this point, no matter how many times the head is removed.

The four valves are located in the head, with cooling oil entirely surrounding the valve seats.

The two inlet passages have one common opening from the carburetor which is bolted on top of the head. The exhaust passages also have one common outlet into the exhaust pipe.

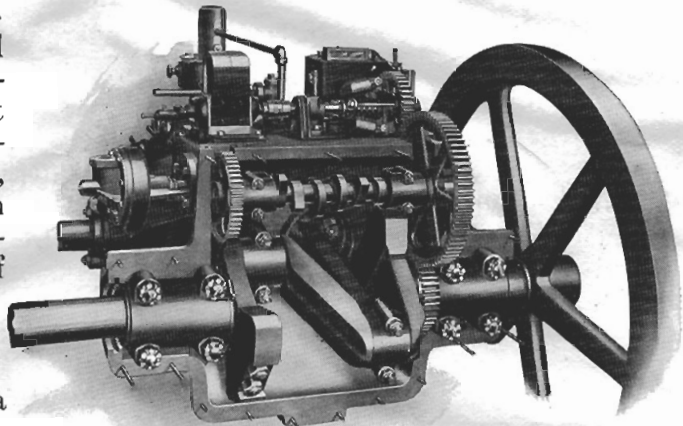
Removing two bolts from carburetor, two from exhaust pipe and unscrewing the twelve nuts which hold the head to the cylinders, is all that is necessary to disconnect in order to remove the head for inspection or cleaning.

Valve Mechanism

The 14-28 valves have $3\frac{1}{2}$ per cent nickel steel stems *electrically welded* to heads of special reverberatory air furnace grey iron, with seats and stems ground to size. The ends of the stem are case hardened to insure against wear from tappet action.

Oil tempered springs are fitted to the stem with a simple, hardened steel, locking device which is readily detached. By having a removable, extra long lubricated guide, highest grade valve of large diameter, with the head seating directly on cooled surface, all warping, pitting and rapid wear are eliminated.

All valves are mechanically lifted by rocker arms, the latter in turn being actuated by push rods directly in line with the cam shaft. The action of the cams is transmitted to the rods through a roller and shaft securely held in a forked holder. These last three are hardened and ground steel with liberal bearing surfaces and thoroughly lubricated. Simplicity of design, ease of adjustment and provision against wear render the valve mechanism on the OilPull the most durable that can be made.

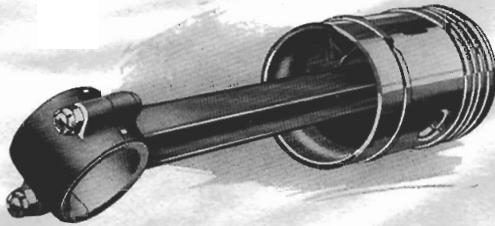


Crank Case with Cover Removed

It's backed by a **RUMELY OILPULL TRACTOR** *written guarantee*

The Pistons

The pistons are made from the same high grade quality of material as the cylinders, and are longer than usually employed in order to give more bearing surface. They are first turned and then accurately ground to an exact size to



Piston and Connecting Rod

insure a perfect fit in the cylinders. Four diagonally split expansion rings are used at the closed end, and one oil wiper ring at the open end to insure uniform lubrication. This will give much better results than where only three rings are employed. Each ring is ground on both face and sides, fitted in the grooves with the utmost care and then the motor run under separate power to insure coming to a perfect bearing before

the final test. These methods all make for perfect compression and its resulting high power and economy.

The piston pin is hollow steel tubing, hardened and ground with special means for positively locking it in the piston boxes. We have made lubrication doubly sure by providing a large opening in the connecting rod for catching splash oil, and also having a tube leading from a groove on the outside of the piston (where it receives fresh oil from the lubricator) to the piston pin. This is only one of the many refinements found on the 14-28 which make it such a durable and efficient tractor.

Connecting Rods

Connecting rods are drop forgings of I beam section and heat treated to increase strength. The small end of the rod is bronze bushed, while the crank pin end is babbitt lined and split, with shims for adjustment. The cap is held by oversize bolts of chrome vanadium heat-treated steel with nuts securely

Fresh oil from the force feed oiler is continually supplied to the crank bearing through rings secured to the crankshaft.

Ignition System

Make and break ignition is used in the 14-28 as in all OilPull tractors—proved beyond a doubt to be the best system of ignition for use on oil burning engines. It operates on low tension current, and for that reason is not liable to short circuit. The use of movable electrodes tends to keep the ignition points clean and free from carbon, which forms more freely when using low grade fuels.

A high grade, low tension Bosch magneto is used, being gear driven through a flexible connection. The entire ignition mechanism is simple, and so constructed as to be subject to very little wear.

The spark plug can be easily removed in about a minute's time by unscrewing two nuts. The ignition point is made of special composition, and gives a fast hot spark, the timing of which can be advanced or retarded while the engine is running, by shifting a small lever within easy reach of the operator. Our ignition system is unequalled for reliability.



Right Hand Side of 14-28 OilPull



The Oil Pull guarantee

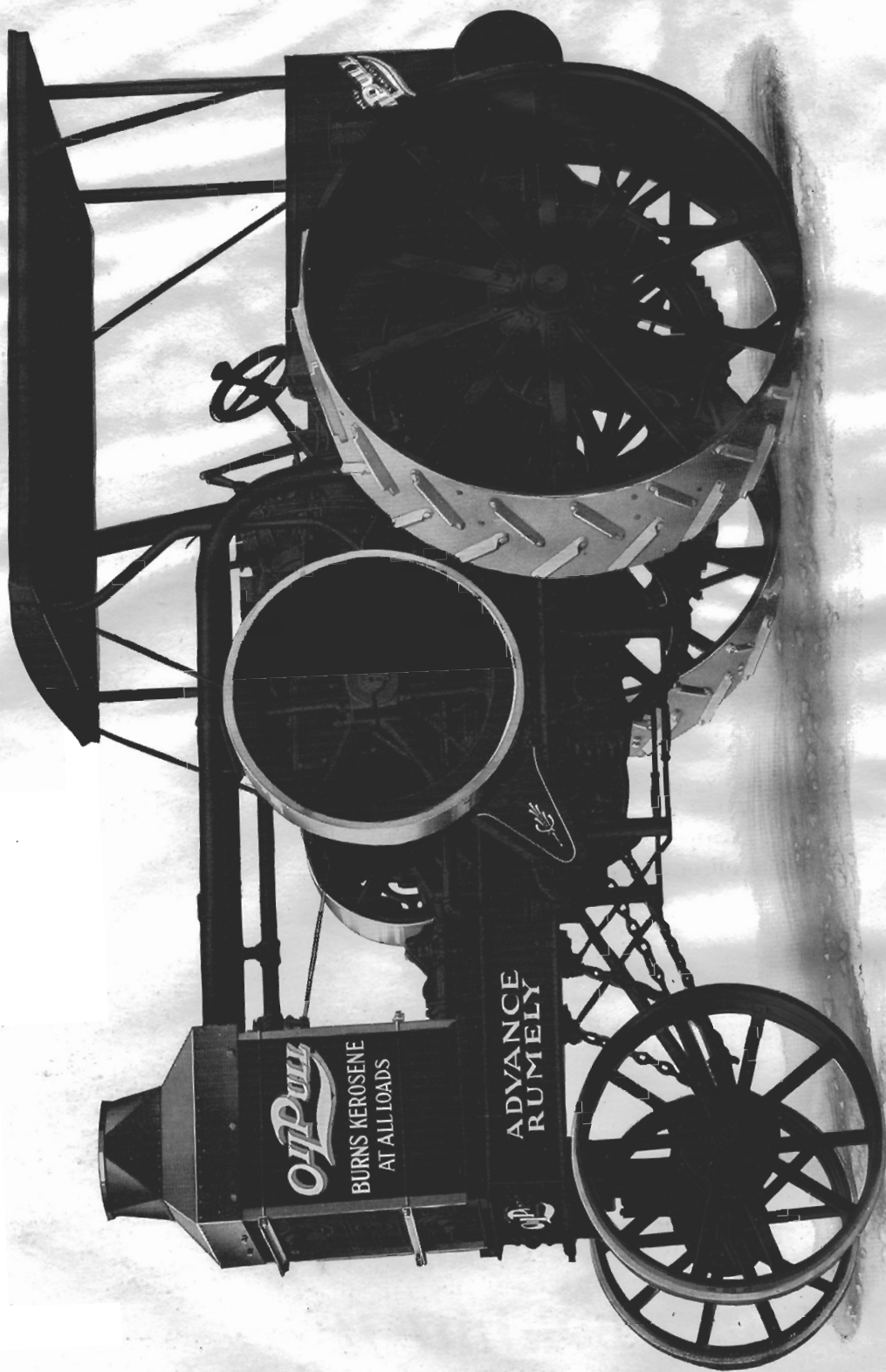
*What others claim
Advance-Rumely
guarantees*

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and the factory behind it



Left Hand Side of 30-60 OilPull

It's backed by a **RUMELY OILPULL** written guarantee

Automatic Lubrication

The piston, crankshaft, and connecting rods are lubricated by an automatic force feed oiler, which can pump oil at any temperature and against a pressure of 2,000 pounds to the inch, and combined with the large bearing surface absolutely protects the user against bearing trouble, which is common to motors using splash alone. All minor bearings and parts are subject to a heavy splash from the crank case, the oil being kept up to the proper level by a constant supply from the lubricator. This system of oiling absolutely insures a positive, constant lubrication of all working parts.

Cooling System

As all OilPull tractors, the 14-28 uses oil instead of water for cooling. A centrifugal pump attached to the motor, circulates oil through the cooling system. As mentioned in the fore part of the catalog, the advantages are many of using oil for cooling instead of water—oil does not evaporate, deposit scale in the cooling jacket, will not boil at the higher temperatures necessary to the use of kerosene, and will not freeze. The 14-28 can be operated in the coldest weather without ever draining the radiator—it can be run on the hottest day with no danger of boiling. Also, oil cooling does away with a cooling fan, which consumes power and is a source of trouble and annoyance.

As cooling oil does not evaporate as does water, once filled the OilPull radiator will go indefinitely without replenishing.

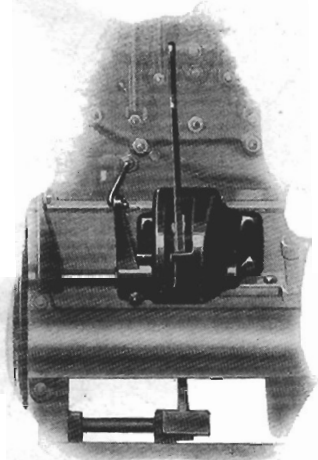
The Radiator

It is only fair to credit part of our OilPull success to our special design of radiator (patent applied for). Every owner and user of an OilPull will be witness to the fact that the ordinary radiator troubles, common to most tractors, have been entirely eliminated from the OilPull. The design of the OilPull radiator provides maximum efficiency for the given cooling surface employed, so that our radiators are much less bulky than the less efficient radiators.

The steel radiator is composed of hollow, flat sections made from heavy galvanized sheet steel, and is built in one separate unit and then bolted to the frame. Our design also provides for disassembling the radiator with ease, affording easy access to every part.

Band Wheel and Clutch

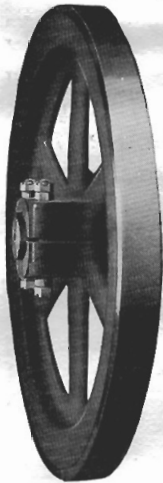
The expanding shoe type of clutch has long been acknowledged the most satisfactory, and today is the most widely used on heavy duty farm tractors. The one defect of this type of clutch has been the difficulty of so adjusting the toggles that the pressure on all shoes is equalized. But in the 14-28, by the simple method of connecting opposite toggles independently of the hub, we have entirely overcome this defect. Adjusting one toggle is sufficient, as the pressure is always exactly equal on both shoes. Adjusting one *automatically* adjusts the other.



Gear Shifting Lever

It's backed by a  *written guarantee*

Raybestos-faced shoes, dust-proof collar, and correct proportions and balance make this a distinct advancement over any tractor clutch in use, and one instantly appreciated by the experienced operator



*Fly Wheel
of 14-28*

The clutch is operated by a hand lever located on the platform, with a brake gripping the band wheel face, by the same motion of the lever that disengages the clutch.

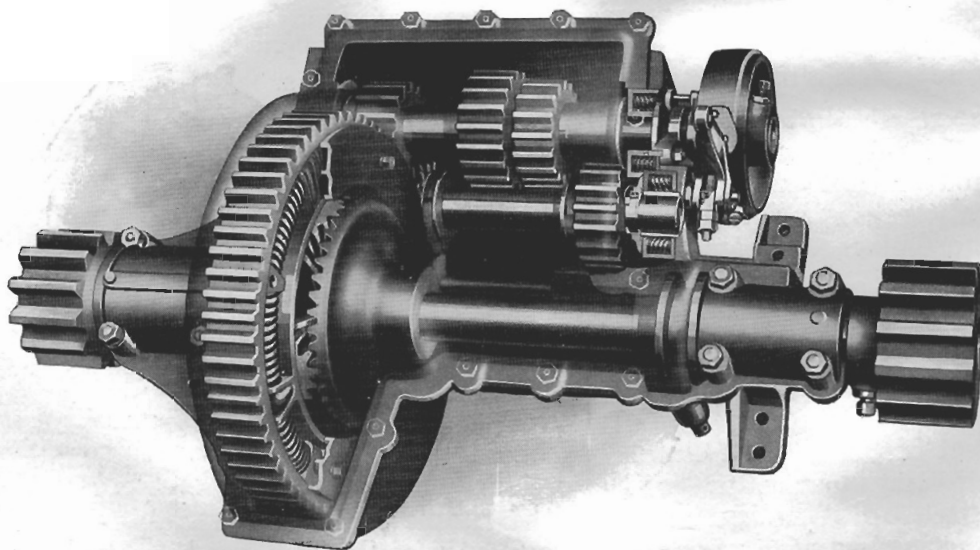
The 14-28 can be lined up with a thresher or other machinery, backed into the belt, and the belt started and stopped by the operator, without leaving the cab.

The Fly Wheel

The fly wheel is carefully balanced and free from vibrations, being machined on both sides and keyed to crankshaft. A split hub bolted together allows easy removal. It is noticeable that all the cheaper grade tractors have the hub split on one side only.

The fly wheels of the entire line of OilPulls have the hub split and bolted on both sides, doing away with the weaknesses, common to hubs split and bolted on one side only, of making it more difficult to keep in alignment and far more subject to breakage from internal strains caused by unequal shrinkage when cast.

The deep rim provides absolute safety, while the large diameter gives a smooth, even torque, and will prevent stalling if a large, momentary overload is applied. Tractors equipped with small fly wheels invariably stall or slow down when called upon to take sudden, heavy loads due to thresher cylinders slugging or some other cause.



The 14-28 Transmission

It's backed by a  *written guarantee*

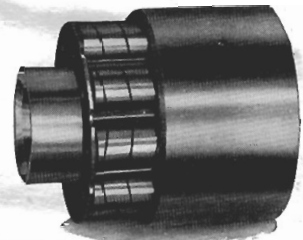
The Transmission

When designing the transmission for the 14-28, we did not simply try to devise a method of driving the rear wheels by the power from the motor, but also to use that power with the least possible loss, lost power being caused by friction, with its consequent wear and frequent repairs.

The exceptionally high drawbar pull and low fuel consumption prove the 14-28 transmission to be as efficient and free from friction as any power transmitting mechanism yet devised.

All transmission gears are of special hardened steel, with machine cut teeth of the proper pitch.

The pinion on the band wheel hub drives the gear on the reversing shaft which extends through the case, both being machine cut and running in an oil tight and dust proof case on the outside of the frame.



Hyatt Bearing Used in Transmission

The reversing and countershaft are high carbon steel, accurately ground and running in Hyatt heavy duty roller bearings. The four splines on the reversing shaft are milled from the solid shaft, instead of inserted keys.

All gears on both shafts are accurately cut and hardened, thereby imparting maximum resistance to wear.

The differential shaft is high carbon steel, ground and carried by two babbitted bearings, which are split and adjustable for wear by means of shims. With the cover off, the entire differential unit may be lifted out by removing the two bearing caps.

The steel differential spur gear is machine cut and so constructed that the eight springs (shown in illustration) absorb all jerks and shocks and help materially in prolonging the life of the transmission.

The master pinions are steel castings, case hardened, with four and one-quarter inch face, and both keyed so as to be easily changed.

The entire transmission is enclosed in a two-piece, dust proof, oil tight case. The transmission case is a semi-steel casting, securely bolted to the under side of the frame. The lower half is removable for inspection or adjustment.

The complete transmission runs in an oil bath, all parts being constantly and thoroughly lubricated by splash.

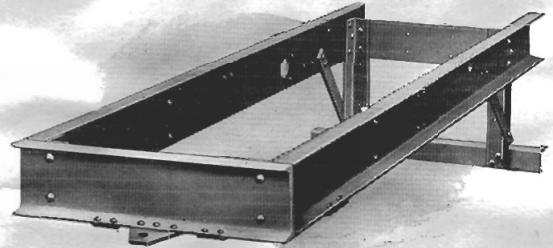
The Frame

The frame, the foundation of a tractor, when not properly made, is the cause of more tractor failures than any other one cause. The 14-28 frame is of hot riveted steel construction, consisting of two straight, continuous side members, running from front to rear, and so braced and connected as to resist all twisting strains and shocks.

The channels, both side and front, are eight inches deep and extra heavy, so as to give *real* instead of *apparent* strength, as lighter sections of the same width often do.

It's backed by a **RUMELY
OILPULL
TRACTOR
14 HORSE HP** *written guarantee*

We call special attention to the absence of all bends, splices, and center members to get out of alignment. Any bend in a structural beam weakens the beam. The same applies to side frames in which the members are not continuous, but are spliced together. Two perfectly straight main members are recognized by competent engineers as the ideal arrangement to resist the diverse strains and twists to which the tractor is subjected. This is universally recognized in freight car construction, which is subject to heavy railroad service and abuse.



Frame of the 14-28

The use of center members in a frame eventually cause the motor, transmission, and various working parts to get out of alignment. This has been demonstrated on many tractors now in the field.

The Brake

A powerful contracting, fabric lined band brake, located on the outside of the transmission case, and operated by a foot lever on the platform, will stop the tractor in half its own length when going full speed ahead or reverse, and hold it on the steepest hill, regardless of what position the gears may be in.

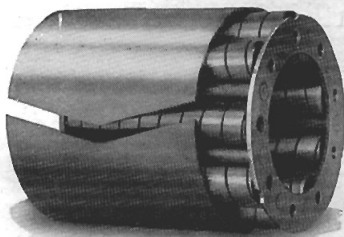
Hyatt Roller Bearings

To make the 14-28 as efficient as possible, to reduce friction and save power, to add to the tractor's ease of operation—Hyatt bearings are used.

In the transmission every shaft is carried on Hyatt high duty roller bearings. On the rear axle, near the drive wheel hub, Hyatt roller bearings of the standard type are used. Nothing has been spared to give the purchaser the best equipment possible.

With Hyatt roller bearings at all points of severest strain, the tractor owner need never fear the thoughts of a burnt out bearing right in the middle of a big day's work. Neither will he have to make stops several times daily for oiling.

Hyatt roller bearings never need any tinkering. The only attention required is a little lubricant occasionally to keep them in satisfactory operation for the life of the tractor.



*Hyatt Bearing Used in
Rear Axle*

Rear Wheels and Axle

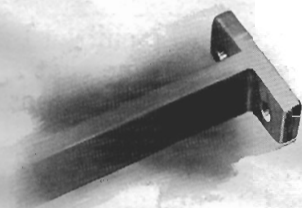
Over half a century building tractor wheels has taught us the necessity and the way to construct a drive wheel sufficiently strong to stand the loads which these important parts receive.

The heavy rolled steel tire is supported by stiff T head spokes, sixteen to a wheel, and hot riveted to tire and hub.

One set of removable malleable iron cleats are furnished, and one set of angle steel extension cleats extending beyond the edge of the tire. Removable semi-steel spuds and extension rims can be provided at extra cost.

*It's backed by a **RUMELY OILPULL TRACTOR** written guarantee*

The semi-steel master gear has a four-inch face, with heavy strong teeth, and is centered and bolted to wheel hub, while heavy braces from master gear to tire carry all the power and relieve the spokes of all twisting strains.



T Head Spoke

Particular attention is directed to our rear axle construction, which, for rigidity and low loss from friction, cannot be excelled. The bearing housing is a one-piece hollow casting of the cannon type, and absolutely prevents the bearings from getting out of alignment. Securely bolting the housing to the frame materially stiffens the latter, while the hollow construction allows the storing of a generous amount of lubricant, which constantly floods the Hyatt standard roller bearings

located at each end. The axle is a high carbon steel shaft, carefully ground, and with means provided to return all lubricant to the reservoir which is provided.

Front Wheels and Axle

The front wheel construction is similar to the rear, having a heavy, rolled steel plate tire, with T head spokes, hot riveted to tire and hub. The hubs are made large—they are semi-steel castings with ample bearing surface to insure long life. The guide bands, to prevent skidding, are removable, when the tractor is used on paved roads or streets.

Our front axle construction, the strongest for its weight yet devised, and proved on four-fifths of the freight cars of America to be the best suited for hard service, is a distinctive feature, and so far used only by us. Note the automobile type steering mechanism, with the knuckles of sturdy, wear resisting design, also the pivot at the center, to allow tilting on side hills. These, in combination with large diameter front wheels, irreversible worm and gear with the steering spindle running direct from hand wheel to worm, give an exceptionally easy steering tractor. All jars and shocks are taken by the worm, never reaching the hand wheel, and a few turns of the latter will turn the front wheels from one extreme position to the other, either extreme position allowing the tractor to turn in a 17-foot radius.

An ingenious adjustment between worm and wheel can be quickly made, thus being able to keep the steering gears in perfect mesh, and though only a detail advantage and hidden from view, it is the multiplication of these refinements throughout which helps to take the 14-28 OilPull out of the "good as the best" class and place it in a class by itself.

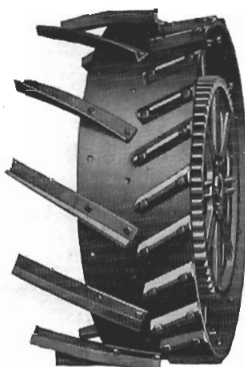


Fig. 3



Fig. 2

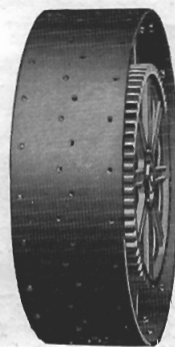


Fig. 1

Drive Wheel of 14-28

The above illustration shows the 14-28 drive wheel—without cleats for road work (Fig. 1)—with standard cleats (Fig. 2)—and with extension angle steel cleats (Fig. 3).

It's backed by a  *written guarantee*

Our Patented Shifting Device

When the 14-28 is used for belt work, plenty of belt clearance is provided by a simple and easily operated shifting device. This device consists of a rack and pinion built into the front axle, by means of which the frame can be shifted by a half turn of the pinion, with the wrench provided. It is so easily done that any boy can do it without effort, whether in the field or in the shed. The opposite page shows how it works.

This operation shifts the frame either way from the center position in relation to the front wheels of the tractor, and when shifted, means are provided to hold the frame securely in the new position. The device itself is simple in design, strongly constructed and has no wearing parts to cause trouble.

The whole operation takes but half a minute, and in no way affects the balance or steerage of the tractor.

This shifting device (patent applied for) is used only on Advance-Rumely tractors, and is *one of the greatest basic improvements that have been made in tractor construction*. It is the *only* arrangement that permits the use of high front wheels, properly placed, in connection with a belt pulley driven direct from the crankshaft.

You will notice that the wheels on the 14-28 are large—40 inches in diameter, to be exact—the kind of front wheel equipment that means easy running and steering, over any kind of ground—loose, rough or muddy. The wheels are just the right distance apart, tracking with the inside edge of the drive wheels. There is absolutely no chance of slipping into the furrow, as the front wheel is fourteen inches from the furrow bank.

Yet with this perfect front wheel construction, the wheels do not interfere in any way with the drive belt—no broken seams or frayed edges from scraping on top or against the side of the wheel. Plenty of room is provided for the belt to run freely between the right front wheel and the frame, by means of the patented shifting device.

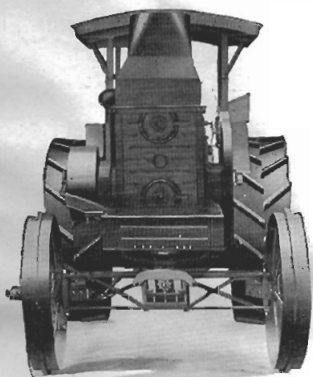
Have you ever noticed how in some tractors the front wheels are very small to give belt clearance—too small for easy handling and hard to steer through mud or loose ground? How in some the front wheels are close together—too close for easy steering and hard to turn? And in others the front wheels are so far apart to leave belt room, that one wheel is running in the furrow or continually dropping into it when plowing?

Naturally, every one of these arrangements means a sacrifice to one or the other—either drawbar or belt work. The opposite page clearly shows the sacrifices in design and construction made in other types of tractors in order to obtain belt clearance.

This patented Advance-Rumely shifting device makes the 14-28 equally efficient in drawbar or belt work, with absolutely no sacrifice in construction, design or ease of operation—the handiest and most efficient plowing, hauling and belt work tractor to be had. And remember that when the frame is shifted for belt work, that it need not be shifted back to the center to move from one job to another. It handles and steers just as easy.

Not only does this device make the 14-28 one hundred percent on drawbar and belt—in addition, it can be used to advantage on side hill work, where there is a tendency for the tractor to creep towards the plowing or whatever drawbar work is being done.

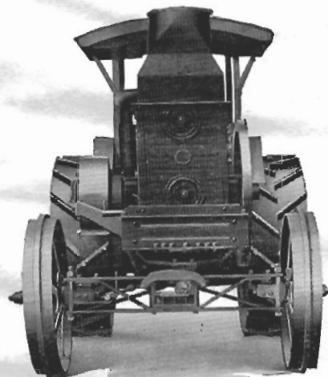
It's backed by a **RUMELY OILPULL** written guarantee



This view shows the 14-28 OilPull with the frame in the center as used for drawbar work. Front wheel runs 14 inches from furrow bank—wheel can't slip into furrow—tractor steers easy.

THE RUMELY WAY

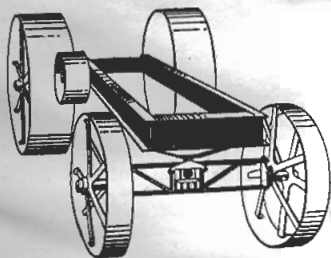
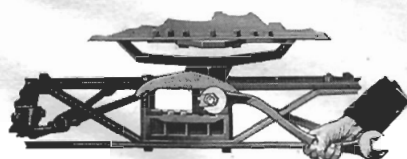
Full and equal results on drawbar or belt with absolutely no sacrifice in design—durability—dependability—ease of operation or efficiency.



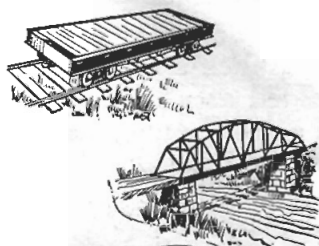
The 14-28 with frame shifted to the left for threshing position, giving wide clearance for drive belt. Tractor remains in perfect balance—no need to shift back for moving in field or on road.



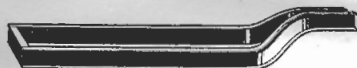
One half turn of pinion, one half minute's work—does the trick.



The 14-28 frame, the strongest known frame construction—continuous steel members—no bends or splices—none of frame cut away for assembling motor parts. The same type of frame used in bridge and freight car construction. Wheels right size and distance apart for best results in drawbar or belt work.



THE OTHER WAY



The "gooseneck" frame—used to allow belt clearance of front wheels—a sacrifice in strength.



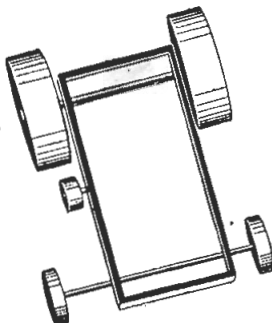
The "bulldozed" type of frame—another makeshift design to allow front wheel clearance of belt. Bends in frame cut down strength and efficiency—reduce life of tractor.



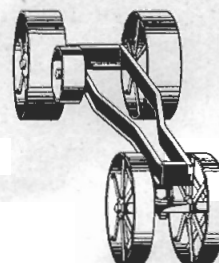
This shows frame and front wheels in "gooseneck" construction to allow for belt clearance.



Extreme low front wheels to allow for belt clearance and turning—interferes with steering.



Extra wide front axle to allow belt clearance—wheel either runs on furrow bank or in furrow. Decreases life of machine as tractor in a twist—interferes with steering.



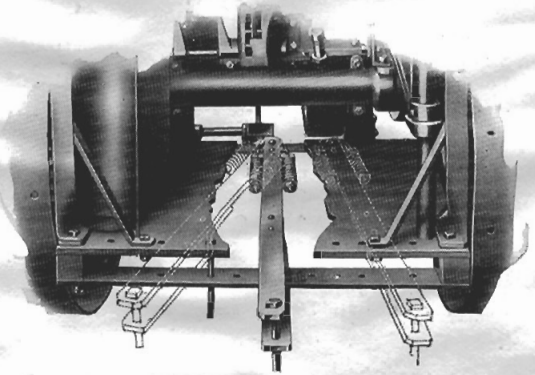
Narrow front wheels with "bulldozed" type of frame to give clearance to belt—makes steering difficult.

It's backed by a **RUMELY
OIL PULL
TRACTOR
LA PORTE, IND.** *written guarantee*

Platform and Drawbar

The operator's platform is low, but a step from the ground, the cab having plenty of head room clearance, and so placed as to resist vibration. The cab is so constructed that the operator has a clear view in every direction, with an arm rest at a convenient height. All mechanism is within easy reach—gear shifting lever, clutch lever, foot brake, steering wheel, carburetor, speed changing lever, spark adjustment, and all operating parts requiring attention.

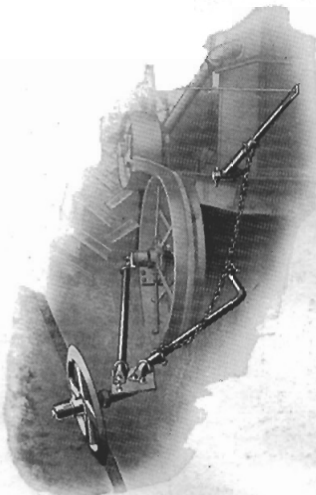
The drawbar we call a swinging spring cushion drawbar—a special 14-28 feature. It is located directly below the platform, and so constructed that the hitch can be made at from 14 inches to 19 inches above the ground, with ample adjustments sidewise. The front end has a spring, which cushions the heavy jerks.



Adjustable Spring Drawbar

Fuel Supply

Large fuel tanks carry a day's supply of fuel and are easily accessible for filling. The kerosene tank is located between the frame channel just back of radiator, while the water tank is on the left side of platform. Both have a large filling hole, with strainer, and also convenient drains. They are of heavy sheet steel welded at all joints, and are of sufficient capacity to carry a day's fuel supply. The small one-gallon gasoline tank, used only for starting, is located on the left side of the cab. This small gasoline tank tells a story in itself—its small size shows that the gasoline it can hold is used for starting only.



Self Guide for 14-28

Equipment

The 14-28 is completely equipped with canopy top, as shown on pages 2 and 19, is attractively painted and well finished. Regular equipment includes one set of removable malleable iron cleats, and one set of angle steel extension cleats. With each tractor is packed a complete set of tools, with an extra set of spark plugs included. When specified, and at an extra cost, we supply extra rims, removable spuds, and a self-steering device.

Automatic Plowing Guide

We have devised and patented a simple but effective self guide that can be attached to the front axle, with the guide wheel running in the furrow. This guide automatically steers the tractor when plowing, so that the operator need not touch the steering wheel from one headland to the other, and can give his entire attention to the plows. The guide is easily raised and lowered by a hand crank attached to the side of the cab. The automatic guide is not a part of the standard equipment, but is furnished at an extra cost.

It's backed by a **RUMELY OILPULL** *written guarantee*

THE RUMELY OILPULL 18-35 and 30-60 H. P.

These are the medium and large sizes of the Rumely OilPull which have been on the market for years and which have a universal reputation for long lasting dependability and economy.

They handle all tractive and belt jobs, the 18-35 pulling up to and including 6 bottoms in plowing; the 30-60 pulling up to and including 10 bottoms, depending upon the nature and condition of the soil. The 18-35 will handle any separator up to a 30-inch cylinder, with all attachments; the 30-60 will run the largest separator made.

There is little difference in the general design and construction of the 18-35 and 30-60. The latter, of course, is more powerfully made, to do bigger work, but the main difference is that the 18-35 is a single cylinder machine, the 30-60 being double cylinder.

In the following pages we are but briefly covering the 18-35 and 30-60 for the simple reason that all three sizes operate on the same principle. The fuel system is identical; the same strength and long lasting construction is used; close automatic speed regulation, oil cooling, etc., all fully covered in the fore part of this catalog.

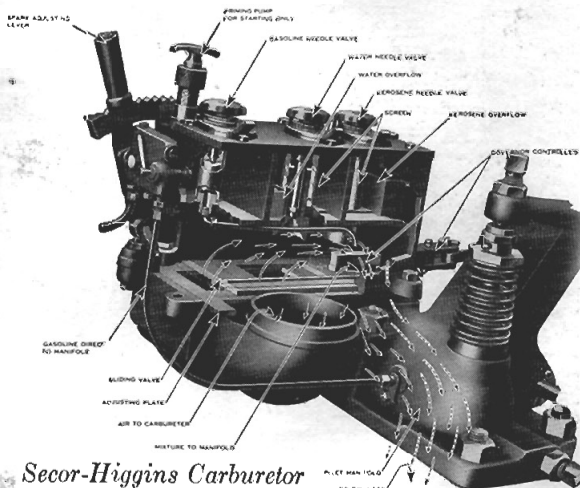
The Carburetor

The patented system by which the OilPull so successfully handles oil fuel is fully covered on page 5. Exactly the same system is common to all sizes of the OilPull. So we will confine ourselves here to the description of the Secor-Higgins carburetor used on the 18-35 and 30-60 OilPull sizes.

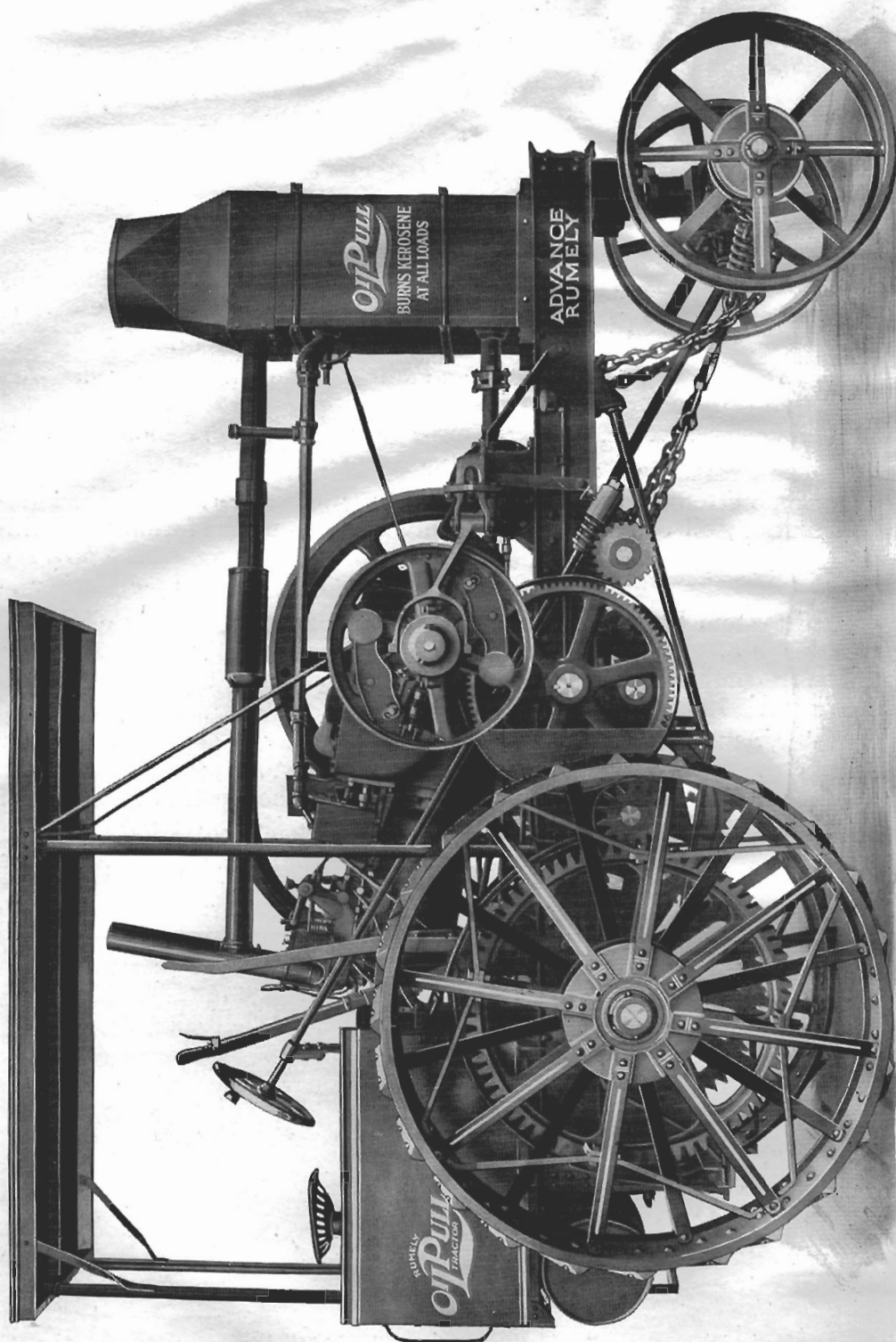
The carburetor, as may be seen in the illustration below, is divided into upper and lower sections, the upper section being again divided into three compartments. The compartment farthest to the right is for the kerosene, the middle one for water and the one farthest to the left for gasoline. All open into the lower section.

The lower section is the mixing chamber. In the bottom of this are three rectangular openings. The two openings on the left hand side admit air to the mixing chamber; the one on the right is the opening to the manifold through which the mixture of kerosene, water and air passes directly into the cylinder. A plate which is controlled by the governor slides back and forth over these openings. The openings in this plate are arranged so that when it is pulled to the right the outlet to the cylinder is made smaller, while the air inlet is also reduced to a lesser extent through the uncovering of the opening at the left hand of plate.

Needle valves in the kerosene and water chambers control the maximum amount of fuel and water to be fed. These need be set only once at full load and the carburetor under governor control then takes care of the adjustment for all other loads.



Secor-Higgins Carburetor



Right Hand Side of 18-35 OilPull

It's backed by a written guarantee

For example, at light loads the sliding plate is in the position shown. Then the outlet to the cylinder is small and the air opening at the left is comparatively large, so that the suction in the mixing chamber is not very great. With an increase in the load, the governor moves the plate over to the left till at full load it is as shown in dotted lines.

In this position the entrance to the cylinder is made larger, while the air inlet area is also increased but to a lesser extent. Thus, the suction is increased, thereby inhaling an increased quantity of fuel into the cylinder, but the proportion of air increases at a greater ratio than the fuel. This makes a leaner mixture at heavy loads and a richer one at light loads, so that the fuel mixture varies automatically as compression changes and proper proportions are provided for complete combustion at all loads.

Gasoline is used only for starting, just enough to warm up the cylinder, this much being injected into the gasoline compartment by a force pump and just enough gasoline is furnished to the carburetor for starting. As soon as engine picks up speed, the oil is turned on and gasoline turned off.

Notice the simplicity of every part of the Secor-Higgins carburetor. Nothing to require expert handling—nothing to get out of order. No springs, floats or check valves to wear out. Everything automatic, so that perfect control is assured. When the load is light, suction is not great enough to draw the water into the mixture, supplying the fuel in just the right condition for such loads. At about half load and above, suction draws in water in increasing proportion to the kerosene and air.

Water, fed in correct proportion, decreases fuel consumption and increases the power of the engine. It also makes the mixture burn more slowly, keeps it cool, and scours the cylinder, cleaning out the carbon particles, which would otherwise cause pre-ignition and hammering. It gives the piston a steady push rather than a sharp blow, and greatly adds to the power developed.

That is the secret of the Secor-Higgins carburetor. By it, all difficulties of using cold kerosene in internal combustion engines are overcome, and with it the OilPull occupies the unique position of being the *only* tractor that will *successfully* burn low grade fuel oils *at all loads, under all conditions*.

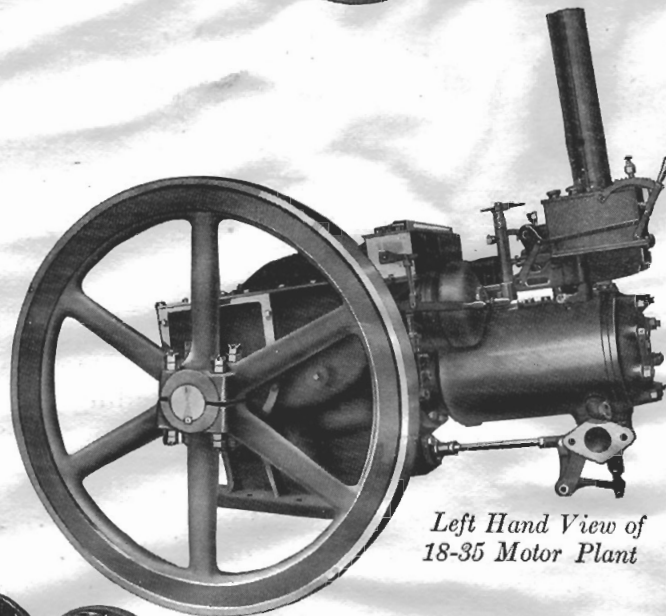
The 18-35 and 30-60 motors are especially designed, heavy duty, four cycle engines, the former one cylinder, the latter two cylinders. Otherwise the design and construction of both sizes are practically identical.

The crank case in these two sizes is cast in one piece, of tough semi-steel. This, with the crank case top, makes an absolutely oil tight, dust proof housing. The hand hole in the cover makes inspection and adjustment easy.

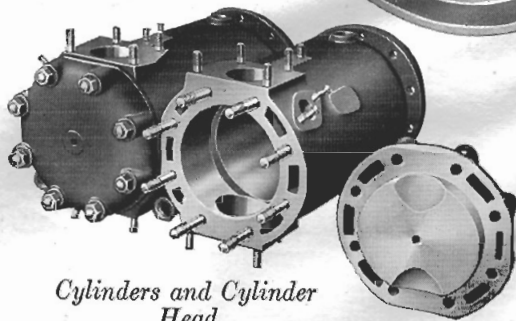
The crankshafts on the 18-35 and 30-60 are substantially similar. On page 36 we illustrate that used on the latter. The cylinders are illustrated on the same page. It is sufficient to say that the cylinders are made of tough semi-steel mixture, cast, machined and ground singly.

The pistons are fitted with four compression rings and one oil ring of the self-expanding type, with wrist pin drilled through the center to provide lubrication for the wrist pin bearing.

It's backed by a **RUMELY OILPULL TRACTOR** *written guarantee*
LA PORTE, IND.



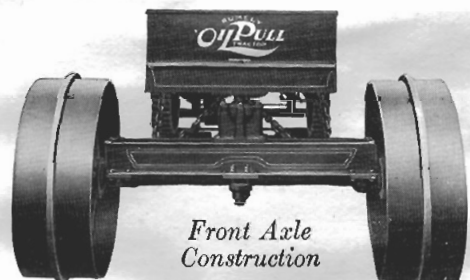
*Left Hand View of
18-35 Motor Plant*



*Cylinders and Cylinder
Head*



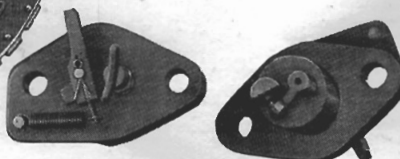
*Ignition
Mechanism*



*Front Axle
Construction*



*Drive Wheel with Municipal
Cleats*



Spark Plug



*Standard Drive Wheel Showing
Master Gear Attached*

Some details of construction of 18-35 and 30-60 OilPull

It's backed by a written guarantee

The connecting rods are special, heavy-duty design, rigid, of steel drop forging. The crank pin bearings are made in halves to permit adjustment and are liberally lubricated.

A combination of force feed and splash lubrication is employed, as on all OilPulls, a high grade mechanical lubricator forcing fresh oil to cylinder, crank pin and all important bearings—minor parts being lubricated by splash. OilPull lubrication is positive and absolutely dependable.

Make and break ignition, common to all OilPulls, is the most satisfactory for oil burning engines. It is commonly said that 60 per cent of engine trouble is ignition. We can say for the OilPull system that ignition trouble is practically unknown. We make our ignition system complete, including spark plugs, with the exception of the Bosch Magneto, which is universally recognized as having no equal.

The governor is gear-actuated, and operates on the throttling principle—simple, and at the same time extremely sensitive. As previously explained, the governor not only performs its common function of speed regulation but is an integral and essential part of our fuel system, a means of automatic control. The satisfactory operation of the governor is of such importance that we enclose it in a dust and water proof case. It runs in a bath of oil. The close speed regulation of the OilPull is unequalled by any tractor.

We use a friction clutch on the 18-35 and 30-60 that is absolutely positive in its action and easily adjustable for wear. The clutch is operated by a hand lever on the operator's platform, which also controls the band wheel brake in the same motion.

All shafts are of special mixture, hard steel, accurately turned and fitted to oversize bearings. The bearings are all fitted to a jig when assembling, making it impossible for any shaft to be out of alignment.

The frame used on the 18-35 and 30-60 is rectangular in shape, which is absolutely the strongest frame that can be made. No splices or bends to weaken it; riveted, not bolted. The Advance-Rumely Company, by the way, was the first to make a riveted frame.

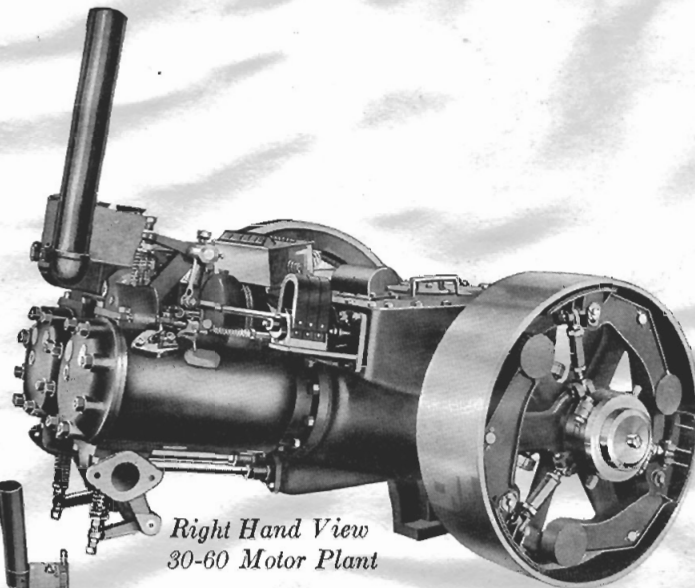
The wheels of all OilPulls are of standard OilPull type, heavy rolled steel tire, supported with T head spokes riveted to the tire and hub. The cleats are of wrought iron. Both the standard drive wheel and that with municipal cleats are shown on page 34. Extension rims, of course, can be furnished, and the tires are punched for mud lugs and ice spuds.

The front wheels are also built up from special rolled steel rims, with flat spokes and integral anti-skid bands.

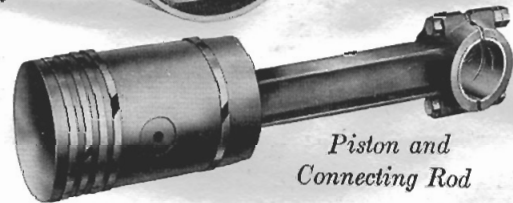
A day's fuel supply can be carried in the tanks on the 18-35 and 30-60. The gasoline tank is a small one—only three gallons—as gasoline is used for starting only.

The 18-35 and 30-60 OilPulls are equipped with canopy tops as shown on pages 22 and 32, attractively painted and well finished. With each tractor is packed a complete set of tools and, when specified, at an extra cost, we can supply ground calks, extension rims, municipal drive wheels and also the Rumely engine guide.

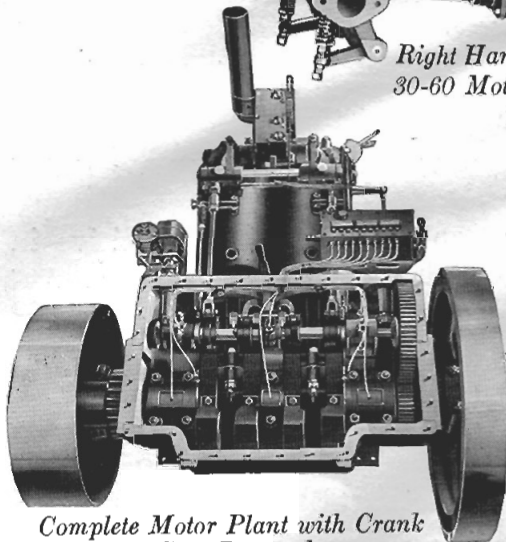
It's backed by a **RUMELY OILPULL TRACTOR** *written guarantee*



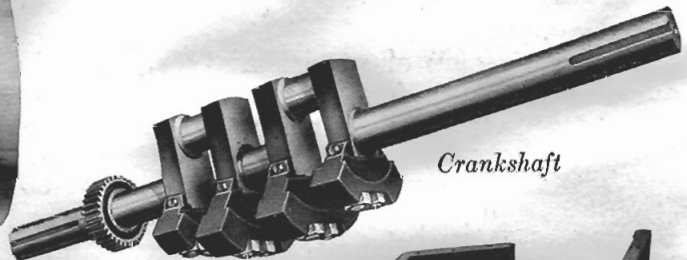
*Right Hand View
30-60 Motor Plant*



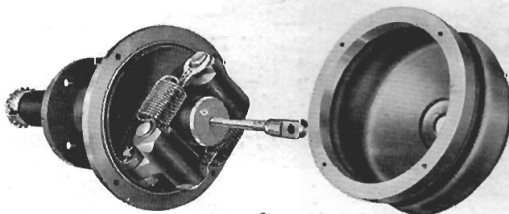
*Piston and
Connecting Rod*



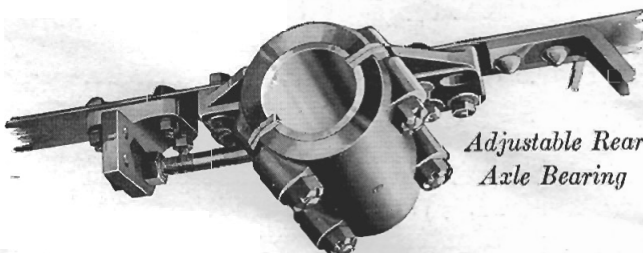
*Complete Motor Plant with Crank
Case Removed*



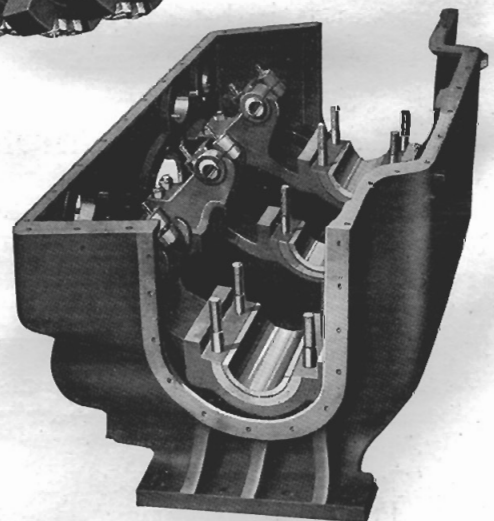
Crankshaft



The Governor



*Adjustable Rear
Axle Bearing*



Crank Case Construction

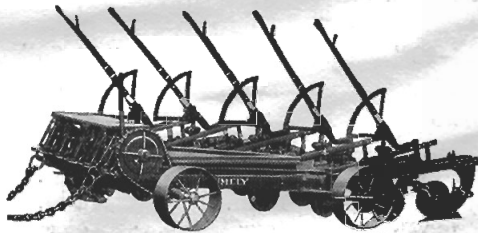
Some details of construction of 18-35 and 30-60 OilPull

It's backed by a  written guarantee

SPECIFICATIONS

	"14-28"	"18-35"	"30-60"
Draw Bar Horsepower.....	14	18	30
Brake Horsepower.....	28	35	60
Cylinders, Number of.....	2	1	2
Diameter of bore.....	7 in.	10 in.	10 in.
Stroke of piston.....	8½ in.	12 in.	12 in.
Belt Pulley—Speed R. P. M.....	530	375	375
Diameter.....	23 in.	30 in.	36 in.
Face.....	8½ in.	9½ in.	11 in.
Master Gear—Width of face.....	4 in.	4 in.	6 in.
Material.....	Semi Steel	Semi Steel	Semi Steel
Master Pinion—Width of face.....	4¼ in.	4½ in.	6¾ in.
Material.....	Steel Casting	Steel Casting	Steel Casting
Differential Gear—Width of face.....	2¾ in.	3½ in. and 4 in.	5½ in.
Material.....	Steel Casting	Steel Casting	Semi Steel
Intermediate Gear—Width of face.....	2¾ in.	3½ in.	4 in.
Material.....	Semi Steel	Semi Steel	Semi Steel
Reverse Pinion—Width of face.....	2¾ in.	4 in.	6 in.
Material.....	Steel Forging	Steel Casting	Steel Casting
Small Idler Gear—Width of face.....	2¾ in.	3 in.	5½ in.
Material.....	Steel Forging	Steel Casting	Steel Casting
Large Idler Gear—Width of face.....	2¾ in.	3 in.	5 in.
Material.....	Steel Forging	Steel Casting	Steel Casting
High Speed Gear—Width of face.....	2¼ in.	3 in.
Material.....	Steel Forging	Steel Casting
Clutch Pinion—Width of face.....	2¼ in.	3½ in.	4 in.
Material.....	Steel Forging	Steel Forging	Steel Forging
Crank Shaft, Diameter.....	3¼ in.	4⅞ in.	4⅞ in.
Idler Shaft, Diameter.....	2⅝ in.	2⅞ in.	3⅝ in.
Reversing Shaft, Diameter.....	2¼ in.	3½ in.	4⅞ in.
Differential Shaft, Diameter.....	2½ in.	3⅞ in.	4⅞ in.
Rear Axle, Diameter.....	3¼ in.	4⅞ in.	5⅞ in.
Crank Shaft Bearings, width.....	7 in. and 8 in.	9 in.	9 in.
Connecting Rod Bearings, width (Crank Shaft)...	3¼ in.	4⅞ in.	4⅞ in.
Width (Piston).....	3⅝ in.	5¼ in.	5¼ in.
Front Wheels—Diameter.....	40 in.	38 in.	44 in.
Face.....	7 in.	12 in.	16 in.
Rear Wheels—Diameter.....	56 in.	70 in.	80 in.
Face.....	18 in.	24 in.	30 in.
Speed—Miles per hour.....	2.1 and 3	2 and 2¾	1.9
Fuel Tank capacity—Kerosene.....	31 gal.	35 gal.	70 gal.
Gasoline.....	1 gal.	3 gal.	3 gal.
Water.....	15 gal.	35 gal.	85 gal.
Capacity of Radiator and cooling system in gallons.....	18 gal.	50 gal.	70 gal.
Width over all (without extensions).....	6 ft. 8 in.	7 ft. 10 in.	9 ft. 8 in.
Height over all.....	8 ft. 3 in.	10 ft. 3 in.	11 ft.
Length over all.....	13 ft. 2 in.	16 ft.	19 ft.

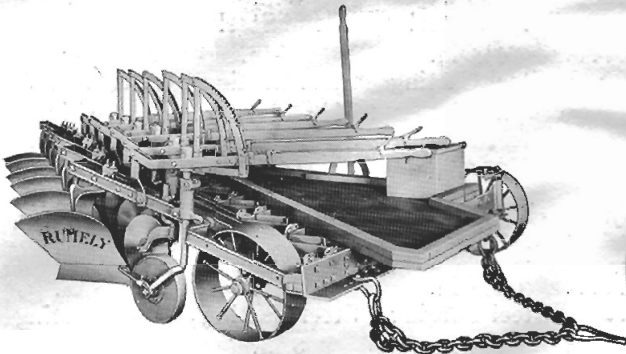
It's backed by a **RUMELY
OIL PULL
TRACTOR** *written guarantee*



Rumely Power Lift Plow



Grand Detour Automatic Plow



Rumely Hand Lift Plow



Rumely-Sanders Disc Plow

RUMELY TRACTOR PLOWS

No tractor can do good work with poorly designed plows. Many years of experiment and tests preceded the introduction of Rumely tractor plows and we can safely say that there are no better tractor plows made. Further, we have the right model and size to fit any size tractor or any size farm.

Advance-Rumely tractor plows are light of draft, requiring the least amount of drawbar pull, yet turn a perfect furrow. They are easy of operation and are made strong to stand heavy tractor strains.

For any size of Rumely moldboard plow we can supply five styles of bottoms: general purpose, stubble, breaker, slat or rod breaker.

Power Lift—Rumely Power Lift, in 4, 5, 6 and 8 bottoms.

Grand Detour Power Lift—3 and 4 bottoms, light weight, rigid beam.

—3 and 4 bottoms, medium weight, independent beam.

Hand Lift—Rumely Hand Lift, in 4, 5, 6, 8 and 10 bottoms.

Disc Plows—Rumely-Sanders Engine Disc, in 4, 5, 6 and 8 discs, with 24 or 28-inch discs.

A special catatog on Advance-Rumely plows sent on request.

It's backed by a **RUMELY** *oil pull* *written guarantee*
TRACTOR
LA PORTE, IND.

FUEL AND WATER TANKS

Advance-Rumely steel fuel and water tanks are made throughout in our own shops and represent the best obtainable in design and construction. Two sizes are made—12-barrel (378 gallons) in oval tank, and 15-barrel (472½ gallons) in round tank.

These tanks are made of 12-gauge steel and all joints are welded, making each size equally good for the carrying of water or fuel oils. Either tank can be obtained unmounted or mounted on trucks. Truck wheels are 5 inches in width—the front wheels 30 inches in diameter, the rear wheels 38 inches. All trucks are provided with extension tongues for use with horses or tractor, and a steel reach loop in the rear provides a means for attaching other machines or vehicles. A spring wagon seat is included in the regular equipment of both mounted and unmounted trucks.



Steel Fuel and Water Tank—Oval



Steel Fuel and Water Tank—Round

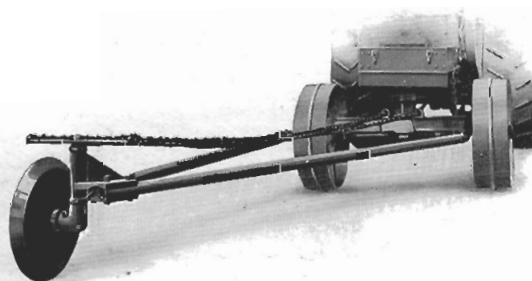
Auxiliary Tank

As shown, the 12-barrel size is equipped with a steel box on top for carrying coal, wood or extra supplies. At an extra cost we can provide a Meyers pump and hose. The illustration of the 15-barrel tank shows the auxiliary tank that can be attached to the top. It also can be equipped with a Trahern Rotary Pump.

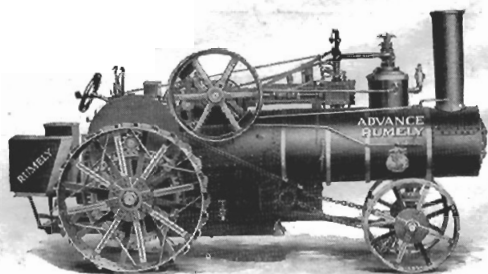
Advance-Rumely fuel tanks are made to fit our standard 38-inch all-steel wagon box truck—on special order they can be furnished for a 42-inch truck.

THE RUMELY GUIDE

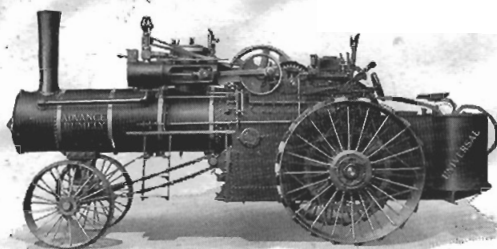
The Advance-Rumely guide turns a tractor and gang plow into a one-man outfit. It automatically controls the direction of the tractor in plowing and allows the operator to give his entire attention to the engine and plows. The guide keeps the tractor in a straight course, traveling directly alongside the furrow last turned. The Advance-Rumely guide consists of a frame attached to the front wheels of the tractor, bearing at its outer end a wheel which runs in the furrow and hugs the landside.



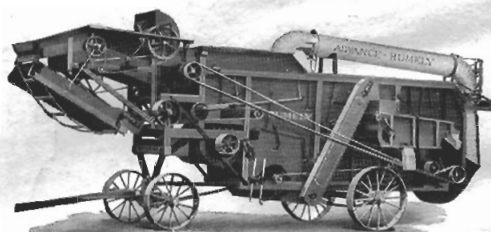
Rumely Guide



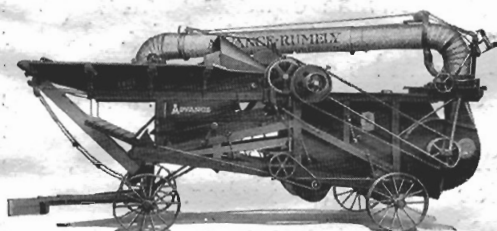
Advance-Rumely Steam Engine
16 and 20 h. p. Single and Double



Advance-Rumely Steam Engine
20 h. p. Single



Rumely Clover and Alfalfa Huller
Two Sizes



Advance Husker-Shredder
6 and 8 Roll Sizes

Kerosene Tractors
Steam Tractors
Grain Separators
Clover Hullers
Engine Gang Plows

ADVANCE-RUMELY LINES

Stationary and Portable
Steam Engines
Stationary and Portable
Kerosene Engines
Fuel and Water Tanks

Husker-Shredders
Rice Separators
Alfalfa Hullers
Traction Disc Plows

We have a Special Catalog on each machine.

ADVANCE-RUMELY BRANCHES

UNITED STATES

Aberdeen, S. D.
Battle Creek, Mich.
Billings, Mont.
Columbus, Ohio
Crowley, La.
Dallas, Texas

Des Moines, Iowa
 Fargo, N. D.
 Indianapolis, Ind.
 Kansas City, Mo.
 Lincoln, Neb.
 Madison, Wis.

Minneapolis, Minn.
 Peoria, Ill.
 Portland, Ore.
 San Francisco, Cal.
 Spokane, Wash.
 Wichita, Kans.

CANADA

Calgary, Alta. Saskatoon, Sask.
 Regina, Sask. Winnipeg, Man.

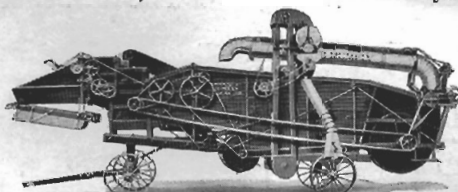
FOREIGN

Buenos Aires, South America
 Odessa, Russia

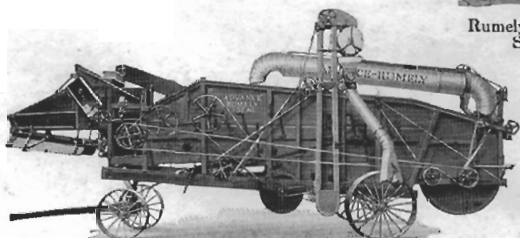
ADVANCE-RUMELY DISTRIBUTORS

John M. Brant Co.
 Bushnell, Ill.
 John M. Brant, Pres.

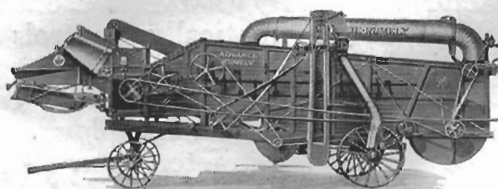
Southwestern Supply Co.
 Little Rock, Ark.
 Jos. Lyons, Pres.



Rumely Ideal Junior Separator
Sizes 20x30, 24x44



Rumely Ideal Standard Separator
Sizes 28x48, 32x52, 36x60, 40x64



Rumely Ideal Rice Separator in Standard Sizes.
28x48 and 32x52 Special for Louisiana and Texas

**WHAT OTHERS CLAIM
ADVANCE-RUMELY
GUARANTEES**