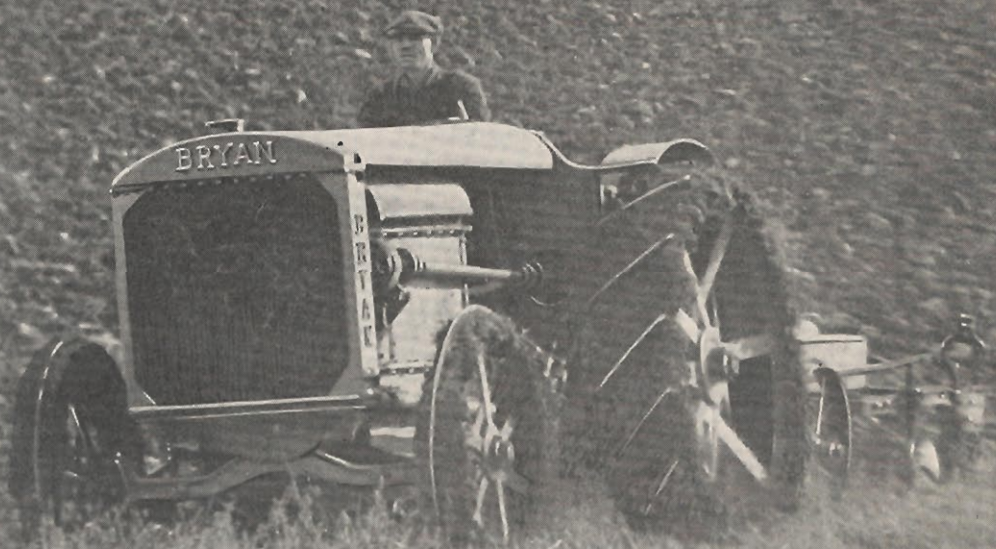


The World's First Light Steam Tractor

E. L. BAUER
REPRESENTATIVE

Condensing Type



The BRYAN is the World's First Light Steam Tractor

Here at Last!

Years ago, when huge steam traction engines pulled the first plows through virgin sod of the Great Northwest, men contended that some day a light steam tractor would be built. This light steam tractor would have all the advantages of steam in dependable and flexible power with none of its draw-backs in weight and size.

With the advent of other types of tractors in later years, some of the Pioneers felt that the steam engine was rivaled and that a new power would take its place. Experience, however, has changed this viewpoint and today these men realize that, after all, steam is supreme. They realize that the most satisfactory farm power machine must be driven by steam power, the power that has proven best in the long run. And, for years, thousands of men have waited, none too patient, for the introduction of a successful light steam tractor.

That tractor is here! Here, and, unlike many new developments of the kind, the World's First Light Steam Tractor is a practical machine—thoroughly tried and tested. It is a perfected product and one that has decided advantages over any other tractor. It is a simple machine, having but a minimum number of slow-moving, wearing parts. It is a dependable tractor, as all steam propelled machines have been, and it is, finally, an economical tractor—one that will work for a longer time at less cost.

The World's First Light Steam Tractor represents the maturity of an idea born in the mind of a locomotive engineer who operated mountain locomotives on a Western Railroad for many years. The ability of steam as a power in locomotives, its simplicity and dependability, brought about in the mind of this engineer a desire to produce a better tractor for the farmer

—a tractor that would mean as much to the farmer as the steam locomotive means to the railroads today.

That engineer was George A. Bryan and the Bryan Light Steam Tractor represents years of intensive effort that his original idea might be a reality. It is a reality today and admitted so by all who have had an opportunity of operating a Bryan Light Steam Tractor. It is a practical machine built by practical men, the simplicity and durability of the machine being substantial evidence of that.

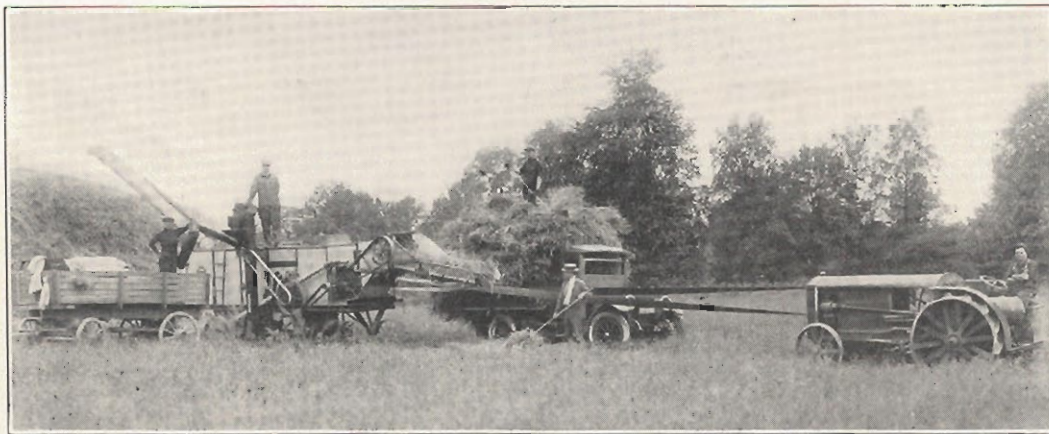
While the Bryan Light Steam Tractor is a new machine, the first of its kind in the world, it differs from the average new thing in that it is really only an improvement of the oldest power known to mankind. Established principles in steam power practice have not been reversed in the Bryan Light Steam Tractor. Instead of attempting that, a tractor has been built that conforms to the best known practice and that is really a refinement of existing types employing steam at higher pressures and temperatures. This tractor has been built by practical men.

Behind this new tractor is a large and substantial organization that has been built for permanency. This, like the product, was not an "over-night" development. A chain is no stronger than its weakest link and, realizing that the Bryan Light Steam Tractor presented unusually attractive possibilities for the future, the founders of this Company determined to build on a firm foundation for the future.

The light steam tractor has arrived. A new era in power farming is marked and once again it is to be noted that Progress is Inevitable. It is believed that this tractor will interest you, not simply as a new thing but, as a practical improvement of the greatest power known to mankind—steam power, best by the test of time.



The BRYAN is the World's First Light Steam Tractor



Bryan Light Steam Tractor and Truck Operating a Threshing Outfit.

No Coal or Water to Haul!

This picture will go on record as marking the beginning of a new era in power farming. Here, for the first time in history, a light steam tractor was used to operate a threshing outfit and a steam truck was used to haul the shocked grain.

No coal or water to haul—no deafening noise, no vibration. Dependable, steady power and economy. An ideal threshing combination. On many other occasions men have admitted, as they did on the job shown above, that the tractor that threshermen have always wanted is now available in the Bryan.

There can be no question about steam being the ideal power for belt work. For years practically all of the grain threshing of the world has been done with this power. Despite the fact that it is necessary to haul coal and water to the steam traction engine, practical men have preferred it to any other kind of power. The Bryan Light Steam Tractor has all the advantages of the steam traction engine in stored and steady power—dependable and flexible power with none of its disadvantages as regards fuel, water and weight.

The belt pulley on the Bryan Light Steam Tractor is located on the right side. It is driven direct from the engine through a spur gear mounted on the engine crankshaft. There is no frictional loss of power. At ordinary belt speed, the engine in the Bryan is turning over at the decidedly low speed of 220 r. p. m. This trac-

tor, like the steam traction engine, has stored power to take care of peak loads and to maintain constant speed.

Threshermen have always shown a marked preference for steam engines. One reason for that is the steady power output peculiar only to power plants of this type. A tractor, to do a good job of threshing, must maintain the rated speed of the threshing machine constantly. Any variation of speed lowers the capacity of the thresher at the cylinder and means a waste of grain throughout the entire process of threshing. The Bryan Light Steam Tractor, because of its stored, flexible power, can and does maintain constant speed in threshing work.

The only difference between the old type of steam traction engine and the Bryan Light Steam Tractor is that the latter is a modern machine built on a smaller scale but capable of doing more work per pound of weight. Steam is used expansively in the cylinders of the Bryan steam engine as in the traction engine and, consequently, the same steady power is available. The Bryan is a refinement—a light steam tractor that has been built to do more work for its size at less cost and with more convenience.

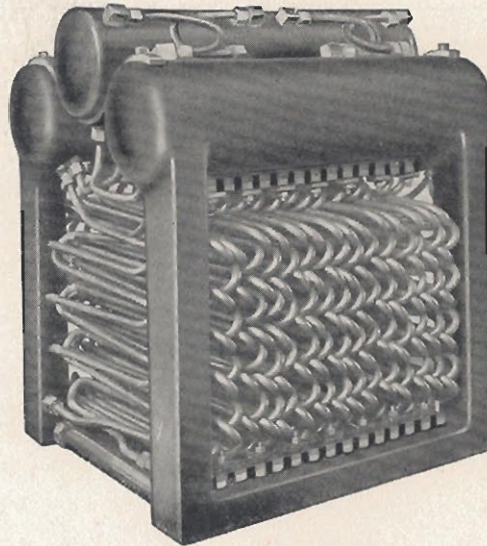
In every class of belt work this new tractor will serve better. Here, at last, is a small, compact steam tractor that will handle both heavy and light loads. It can be throttled down so that the belt pulley is barely moving or it can be opened up and deliver its rated power. It is flexible. On a heavy job or a light job the power is the same, to be used as the operator desires. It's good old steam power modernized.



The BRYAN is the World's First Light Steam Tractor

No Shell
Sheeting or
Stay Bolts

Absolutely
Non-
Explosive



Bryan Steam Generator

The Bryan Steam Generator is a water tube type, one in which the water is contained within the tubes instead of around tubes as is the case in the type of generators or boilers most commonly used today. This generator is consequently different from others. It has no crown sheet and no stay-bolts and because of its unusual construction it is absolutely non-explosive. This generator is not of the flash or semi-flash type. A water-level, about two-thirds of its capacity, is maintained in service.

EASY REMOVAL OF TUBES.

As the Bryan Light Steam Tractor has overcome the many disadvantages of the old type steam traction engine and of ordinary tractors, so has the Bryan Steam Generator overcome the disadvantages of other types of steam generators or boilers. In this generator, for instance, any tube can be removed and another replaced quickly and without affecting any other tube. It is possible to remove and replace a tube in this generator in thirty minutes. These tubes are interchangeable.

EXPANSION AND CONTRACTION.

The most troublesome feature of steam generators or boilers has been expansion and contraction caused by the heating and cooling of the device. Here, again, the Bryan Steam Generator stands out for, while expansion and contraction naturally takes place in this generator, it cannot cause any damage for the reason

that the tubes are flexible and can take care of this action. The two illustrations at the top of this page show the degree of flexibility in the tubes of a Bryan Steam Generator.

RAPID CIRCULATION.

Practical steam men know that rapid circulation of water in a steam generator means rapid steaming. Experts who have tested the Bryan Steam Generator claim that it has more nearly ideal circulation advantages than any other generator. It is not only a rapid steaming device but it is also an efficient generator—one that produces more steam per gallon of fuel. Liming up of the tubes in this generator is eliminated due to the rapid circulation.

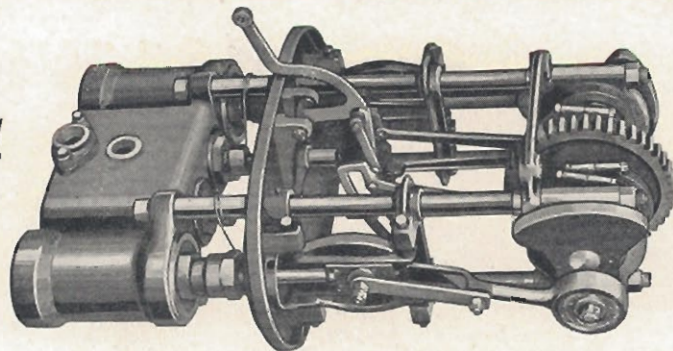
LIFE OF GENERATOR.

The main frame of the Bryan Steam Generator, consisting of the steam domes and water legs will last indefinitely for the reason that it is built of exceptionally high grade steel and is not touched by flame. The tubes, any one of which can be replaced quickly and easily, will give service for several years and can be replaced complete at a very nominal cost. These tubes, 42 in number in the tractor, are fitted into the domes and water legs with ground, tapered joints. There are no threads to leak. The tubes are made of seamless steel tubing. This generator is patented and controlled by Bryan Harvester Company. Safety, flexibility, durability and economy are combined in the Bryan Steam Generator.



The BRYAN is the World's First Light Steam Tractor

Only 13
Slow-Moving
Wearing
Parts



Positive
Lubrication
Throughout

The Bryan Steam Engine

The Bryan Steam Engine has several new and interesting features and its general design follows the best known methods of correct steam engine practice. This engine is a two-cylinder, double acting, simple type with balanced piston valves. It has a total of only 13 slow-moving, wearing parts and has been built to give unusually long service.

The bore of the cylinder in the Bryan Steam Engine is 4 inches and the stroke is 5 inches. The valve gear is of Stephenson Link type. All parts of this engine have been machined to precision limits. The maximum of interchangeability of parts has been provided for.

LOW SPEED.

With the Bryan Light Steam Tractor running at its given speed for plowing or belt work, this engine is turning over 220 revolutions per minute. With positive force-feed lubrication to the engine cylinders and the remainder of the engine operating in an oil bath, it can be readily understood why, with such low engine speed and such perfect lubrication, this unit of the Bryan Light Steam Tractor should last and give service for half a century or more.

ROLLER BEARINGS ON CRANKSHAFT.

Roller bearings are used on the crankshaft of this engine and also on connecting rods. Adjustable cross-head and connecting rod bearings are provided. All bearings operate in an oil bath. Cylinders are cast in one piece and are finished by a special process which gives an initial finish that is the same as would ordinarily be the case when the engine has been run for a considerable length of time. Extra wide piston rings are fitted to pistons. All engines are given tests on special equipment before being installed in tractors.

Difficulties encountered in the past in setting eccentrics on steam engines have been eliminated with the Bryan Steam Engine. Eccentrics are in one piece and are keyed and pressed onto the crankshaft. Slip-

page and set-screw trouble is entirely done away with and valve setting is a simple operation.

BUILT OF GOOD MATERIAL.

Strength does not depend on quantity but on quality of materials. Parts in the Bryan Steam Engine are all made of exceptionally good material. A special grade of grey iron is used for cylinders. All shafts, piston-rods, main-rods and cross-heads are heat-treated, chrome-nickel steel. Cross-head guides are of a special grade of phosphor bronze. All moving, wearing steel parts are hardened and ground.

BALANCED PISTON VALVE.

A balanced piston valve is used in the Bryan Steam Engine because of its advantages over other types. These include accessibility, lightness, more perfect balance and less wear and tear on essential parts.

In addition to the oil proof housing used for the rear end of the engine, another housing is provided, and is easily removed, for the space between the cylinders and the engine frame. This permits easy access to packing nuts on piston and valve stems. Cylinders are lagged with asbestos and housed, also.

DIRT AND DUST PROOF.

Summed up, this unusual engine leaves little to be desired. Positive lubrication assures maximum efficiency and life. The engine is entirely dirt and dust proof. It has only 13 slow-moving, wearing parts and is built of the best materials. Compared to ordinary tractor engines, the Bryan Steam Engine is an interesting departure. It is the engine that does not require constant overhauling, no delicate adjustments are necessary. It will work year in and year out without the need of expert attention. It is the engine farmers have always liked, built better than steam engines have ever been built before. The Bryan engine is the best, simplest and most efficient tractor engine that has ever been built.



The World's First Light Steam Tractor

Operated With High Pressure Superheated Steam

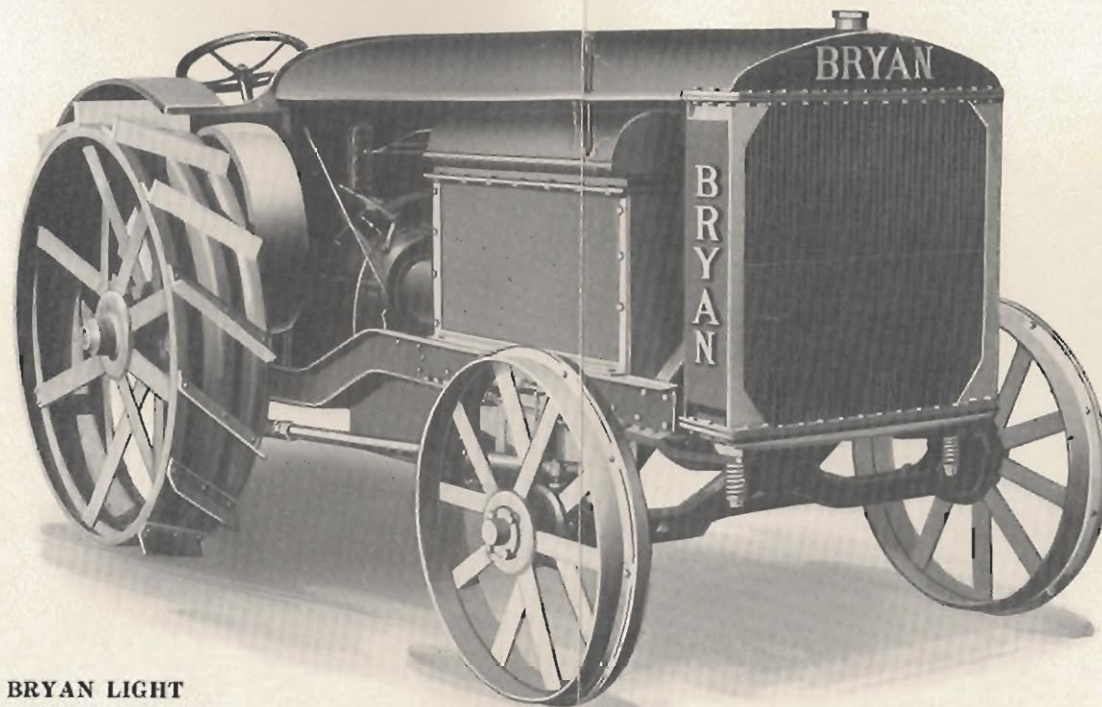
No Spark Plugs

No Gear Shift

No Clutch

No Vibration

No Smoke



BRYAN LIGHT
STEAM TRACTOR.
(Condensing Type)

39 Slow Moving-Wearing Parts

In the Bryan Light Steam Tractor there are 39 slow-moving, wearing parts. This includes 13 slow-moving, wearing parts in the engine. Any man knows that the greater the number of moving, wearing parts in any kind of machine, the more trouble he will have with that machine. In the Bryan Light Steam Tractor there is the added advantage of slow motion. Unquestionably this new tractor has less parts by hundreds than ordinary tractors and still the few that it does have are all slow-moving which means long-wearing. Other tractors have more parts and most of them operate at high speed thus shortening their life.

The minimum of parts; perfect lubrication; vibrationless and noiseless—surely no more could be required of a manufacturer. Simplicity in operation—a movement of the throttle is all that is necessary when a peak load is encountered. No gears to shift, no speeding the motor, no clutch.

Some tractors have, in the past, claimed over-load ability but a steam tractor is the only type that can successfully handle this con-

dition. STEAM TRACTORS HAVE STORED POWER FOR EMERGENCIES. OTHERS DO NOT!

The tractor is essentially a slow speed machine and because the steam engine has its greatest power at low speed, it is only natural that the Bryan Light Steam Tractor should stand out as the greatest farm tractor produced since the beginning of power farming.

Health is wealth and should be guarded. Riding a noisy, vibrating piece of machinery is, and has proven to be in many instances, detrimental to good health. Many farmers have considerable difficulty in securing competent operators for ordinary tractors for the very reason that the average operator knows that his physical well-being is endangered in this work. Unburnt gases can cause serious illness as can excessive vibration and noise. The Bryan Light Steam Tractor is well worthy of consideration from this standpoint. It is not only economical, dependable and simple—it is also a tractor that can be operated day in and day out without affecting the health of the operator.

No Cranking

No Carburetor

No Magneto

No Wiring

No Noise

Economical

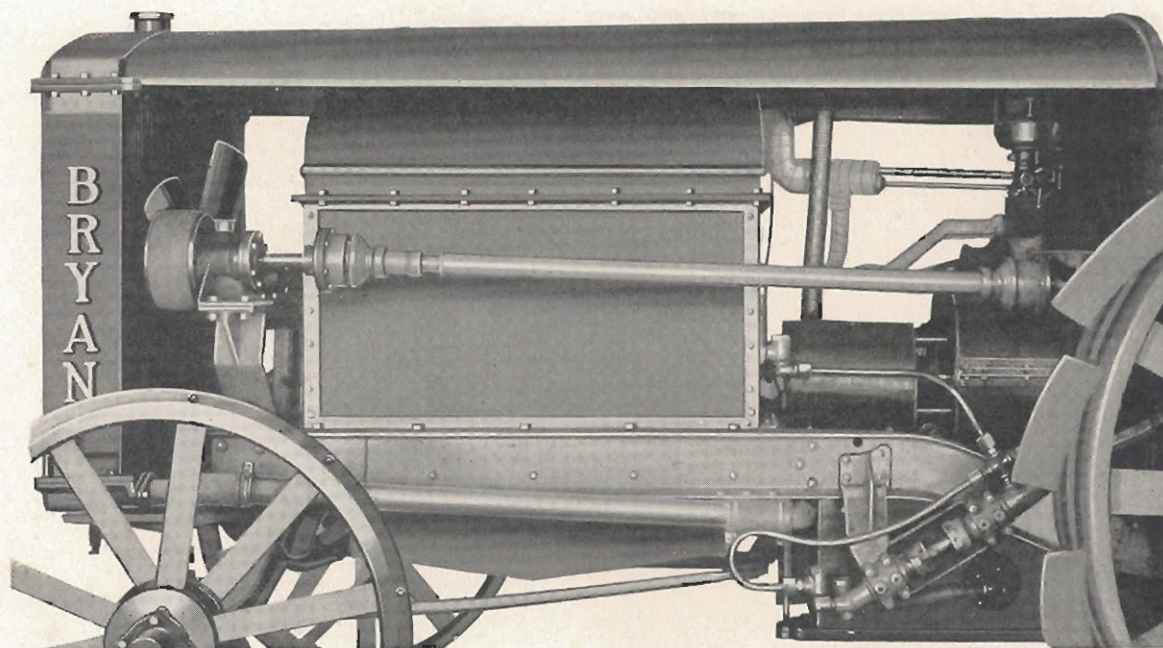
To be successful, a tractor must be dependable, efficient and economical. Good service must be obtained at a reasonable cost. The Bryan Light Steam Tractor is one that meets all three requirements. Economical is one of the most important advantages of this tractor.

The life of a tractor means much from the standpoint of economy. The practice of buying a new tractor every four or five years is not productive of economy. The Bryan is built for long service, built to last a long time with reasonable care. Steam engines are built for their long service—one of the main reasons for the long life of the Bryan.

Economy in operation is possible in the Bryan tractor through the complete combustion of low-grade fuel and a small quantity of lubricating oil required. The enormous repair costs of tractors in the past have been eliminated in the Bryan due to the fact that an operator can make his own repairs.

Built of good materials, dirt and dust proof, and powered with a long-life steam engine, the Bryan tractor is the most attractive farm power investment from the standpoint of economy than can be obtained. This tractor has all the advantages of other tractors and eliminates a large number of disadvantages. It is the most economical farm power machine.

The BRYAN is the World's First Light Steam Tractor



An Accessible Tractor

"How much do I have to take off before I can get at this or that part?" Many a man has asked that question for it has been proven that with ordinary tractors more time is used in getting to a broken part than is required to repair it. Here, again, the Bryan Light Steam Tractor stands out. This is really an accessible tractor in every sense of the word.

Note from the picture above the general simplicity. First comes the condenser, then the steam generator, then the engine and rear axle. To get at the steam generator is but a few minutes work. Side plates are easily and quickly taken off. Then repairs can be made quickly and conveniently. The same is true of the engine and other parts. All are accessible—easy to get at—easy to repair.

The travel of water and steam in this tractor is started by the pumps which carry water from the tank to the generator. Steam is directed through the throttle, super-heater and governor and thence to the engine.

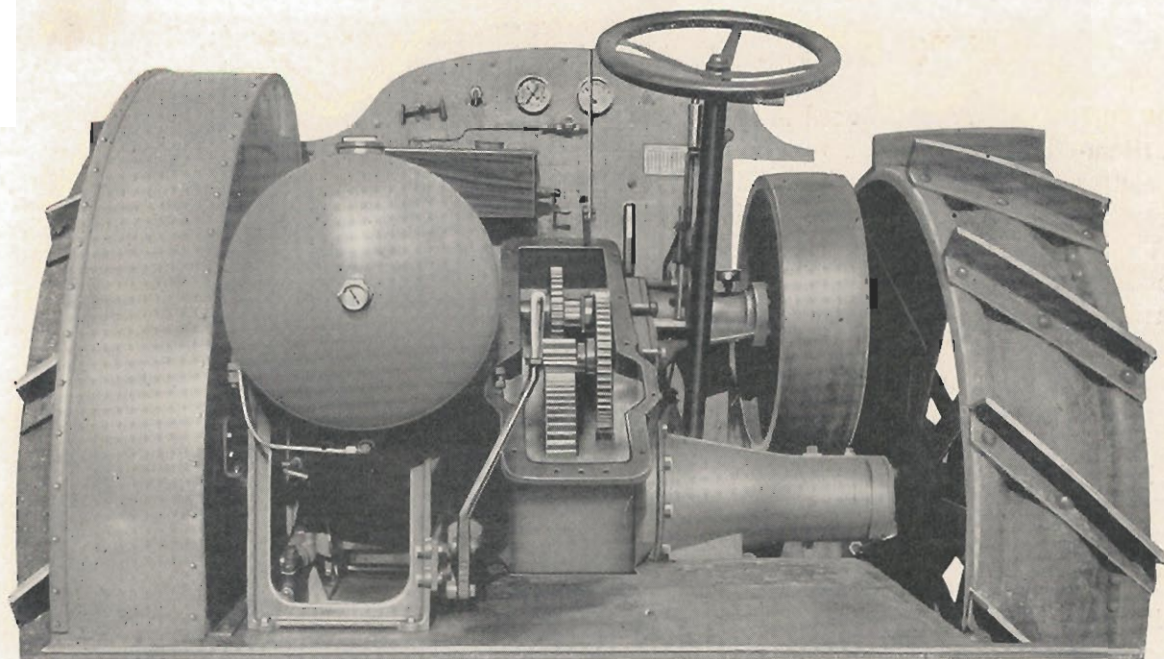
Its force expanded there, the steam exhausts into the condenser where it is returned to liquid state and piped back to the water tank. It is a simple and complete circulation system.

The best of material is used in the construction of the Bryan Light Steam Tractor. Copper piping is employed whenever possible. The best grade of asbestos in different forms is used to retain heat and prevent the loss of efficiency. Housings are made of good material to combine strength and accessibility. The entire tractor has been built so that all units will give dependable service year after year.

It is believed that the excellent lubrication advantages of this tractor eliminate much of the trouble ordinarily caused by wear and tear in a tractor. There is no denying the fact that any machine will occasionally require attention. The Bryan has been built with the smallest number of slow-moving, wearing parts—it has ideal lubrication throughout, it should rarely require attention, but it has been built so that when inspection or repairing might be necessary a man can get at things without tearing the machine to pieces.



The BRYAN is the World's First Light Steam Tractor



Simplicity of Operation

The above is a rear view of the Bryan Light Steam Tractor with one fender and transmission case cover removed. It will be noted that the oil level comes to the center of the differential giving all parts of the rear axle and the engine positive lubrication at all times. This oil will give long service for the reason that nothing can enter the engine or rear axle housing to destroy the lubricating qualities of the oil.

Note the exceptional simplicity of the transmission. Only six heat-treated spur gears are used. This number includes the differential ring gear and the small gear used to transmit power to the belt pulley. Where is another tractor with so simple and durable a transmission as is used in the Bryan? Where is another that has positive oil bath lubrication for engine transmission and rear axle as a unit?

Being centrally located, this transmission provides a positive balance and eliminates undue strain on any

part when abnormal conditions are encountered. The belt pulley, it will be noted, is driven direct from the engine through a single spur gear. This pulley, 24 inches in diameter, acts as a fly-wheel for the engine.

Located just to the left of the steering wheel is the throttle in easy reach of the operator. The steam gauge, air gauge, oil sight feed and water level indicator are located on the dash. The reverse lever is directly in front of the steering post. The tank shown is a fuel tank. Just ahead of it is a Madison-Kipp lubricator. An auxiliary water tank (not shown) is used as a base for the tractor seat.

The general simplicity of the Bryan Steam Tractor has brought enthusiastic comment from thousands of practical tractor men. The simplicity of the transmission, the simplicity of operation and freedom from so many of the disadvantages of other tractors cannot but appeal strongly to the average man. Just plain, common-sense engineering has built the Bryan. Freaks and fancy theories have been left out. It's a real "he-man" tractor built so that any man can thoroughly understand it.



The BRYAN is the World's First Light Steam Tractor

Burner

The fuel burning system used in the Bryan Light Steam Tractor is of the vaporizing type. This insures complete combustion of all grades of kerosene or distillate and results in fuel economy. Vaporization of fuel is by use of a vaporizing coil located above the burner into which raw kerosene or distillate is forced under air pressure. The gases thus produced are directed to the burner and distributed properly with an air mixture that is always correct.

A pilot light is employed to ignite the main burner. This pilot light has its own vaporizer. No electrical equipment of any kind is used.

While the vaporizing type of burner has been in use for many years, the Bryan burner has several new features and improvements which eliminate some of the common faults of this system of fuel burning. Simplicity and accessibility are features of the Bryan burner. All parts are easily and quickly cleaned.

Wherever fuel is burned there remains a carbon deposit. In the Bryan Light Steam Tractor provision is made for the easy removal of carbon. A screen, located in the end of the vaporizer and on the outside, catches all carbon that may have passed through the vaporizer. This screen is quickly cleaned by the removal of a single nut.

Carbon in the engine is impossible with the Bryan Light Steam Tractor. This constant source of trouble in other tractors is entirely done away with. Carbon exists, of course, but it is retained in the screen in the end of the vaporizer and cannot affect or damage any part of the engine or lower its efficiency.

The entire fuel burning system of the Bryan Light Steam Tractor is simple. Where in other tractors there are four or more pilot lights or spark plugs, there is but one in the Bryan. Consequently there is less trouble to be expected from this unit. The positive vaporization of fuel in this vaporizer encourages the use of the cheapest grades of fuels, in fact, the cheaper the fuel, the greater the heat.

The location of this burner is directly under the steam generator. Both generator and burner are encased with sheet asbestos, one and one-half inches thick, in addition to a metal housing. This insulation provides for the maximum of efficiency.

Pumps

The pumps used on the Bryan Light Steam Tractor to force water into the steam generator are double-acting and work from one set of check valves. These pumps deliver a constant flow of water to the generator and, being balanced, the drive being self-aligning, having no cross-head, should last the life of the tractor. Water may be pumped into the generator at any temperature up to the boiling point. A by-pass valve which returns excess water to the tank is provided. The pumps are encased in a boot, making them dust and dirt proof.

Water Level Indicator

Automatic devices, sometimes used to indicate the level of water in a steam generator, are not employed in the Bryan Light Steam Tractor. A water-level indicator, connected directly to the top and bottom of the generator, is provided and is conveniently located so that the operator can always see the exact location of water. This indicator differs from the ordinary type in that there is no danger from breaking. It is a simple, accurate and dependable water-level indicator.



The BRYAN is the World's First Light Steam Tractor



How to Compare!

The Bryan Light Steam Tractor is not to be confused with any other tractor. It is different! Surpassing the old reliable steam traction engine, as it does, this new tractor takes an entirely new place in the tractor field. It is distinctive. More work and a greater variety of work can be done with the Bryan than with any other tractor that has ever been built.

Here at last is the farm power machine that can be used for any job. It will develop its rated horse power at belt or draw-bar and can handle overloads successfully. It can also be throttled down so that its belt pulley is barely moving. Brute power one moment, toying power the next and both effective. Take, for example, the photograph shown above. Where can you find another tractor that can be throttled down to run a washing machine and still be economical in fuel consumption? Where can you find another tractor that can furnish heat to boil water for washing? Surely the Bryan deserves its reputation of having the widest range of uses of any tractor in the world.

For many odd jobs, the Bryan fits in as efficiently

as on the big jobs. It can be used for spraying. A line of steam can be used for many things at butchering time. For disinfecting and hundreds of other jobs requiring heat or power, the Bryan will come in handy.

For these reasons, and more that have been and can be cited, no comparison can ever be made between the Bryan and other tractors. It is obviously different. High-pressure, superheated steam is a new power and used successfully for the first time in the Bryan Light Steam Tractor. Steam power has always been best and with the additions in the way of power that are found in the Bryan, this tractor stands out as the mechanical master-piece of the age.

No tractor can boast of any essential features that the Bryan does not have and **NO OTHER TRACTOR CAN BOAST OF FEATURES THAT THE BRYAN DOES HAVE!** None are built better—none have so few parts—none have the dependability and economy of steam power. All are different and the Bryan stands out alone, the incomparable farm power machine. It is the tractor that has been built to do more work at less cost for a longer time. It is the tractor that will help reduce production costs. It is here at last, the result of years of work, and it is here to stay!



SPECIFICATIONS

GENERAL

H. P. Rating.....	20 H. P. Steam
Normal Engine Speed.....	220 R. P. M.
Road Speed.....	Creeping to 5 M. P. H.
Total Tractor Length.....	11 ft. 8 in.
Total Tractor Width.....	6 ft. 5½ in.
Total Tractor Height.....	5 ft. 6 in.
Diameter of Rear Wheels.....	52 inches
Face of Rear Wheels.....	12 inches
Diameter of Front Wheels.....	32 inches
Face of Front Wheels.....	6 inches
Weight.....	5500 pounds
Ground Clearance.....	12 inches
Height of Drawbar from ground.....	14½ inches
Turning radius.....	15 feet
Regular Equipment—Angle iron Grouters, Tool Kit.	
Special Equipment—Extension Rims; Special Lugs; Road Cleats; Special Grouters; Road-bands; Canopy; Condenser Screen; Umbrella Attach- ment; Canvas Covers; Headlight; Whistle; Rubber-tired Equipment.	

ENGINE

Cylinders.....	Two, cast en bloc
Bore.....	4 inches
Stroke.....	5 inches
Double-acting.....	
R. P. M.....	220
Valves.....	Balanced Piston Type
Valve-gear.....	Stephenson Link
Crankshaft.....	Balanced drop forged and heat treated.
Connecting Rods.....	Chrome Nickel Steel Interchangeable.

LUBRICATION

Cylinders by force-feed with Madison-Kipp Lubrication. Rear axle and engine operating in oil bath.

PROTECTION AGAINST DUST.

Moving parts are all enclosed with dust-proof and oil tight housings.

GOVERNOR.

Pickering. Enclosed.

STEAM GENERATOR

Bryan Patented Water Tube. Non-explosive. Working pressure 600 pounds. Each tube and complete assembly tested to 1200 pounds hydrostatic pressure before leaving factory. Each tube removable independent of all others. Tubes are interchangeable. Tubes are flexible to accommodate expansion and contraction.

BEARINGS

Roller bearings for crankshaft and connecting rods. Special taper bearings for crosshead.

ECCENTRICS

One piece, keyed onto crankshaft.

BURNER

Vaporizing type. Automatic shut-off functions when pressure reaches 600 pounds.

FUEL AND FUEL SUPPLY SYSTEM

Any grade of kerosene or distillate. Capacity of fuel tank is 30 gallons.

PUMPS

Plunger type. Specially designed to successfully handle hot water against high pressure.

WATER LEVEL INDICATOR

Bryan, designed for safety and reliability.

CONDENSOR

G. & O. Tubular. Demountable.

WATER TANK CAPACITY

60 Gallons. Sufficient for one full day's operation, under average conditions.

BELT PULLEY

Diameter 24 inches. Face 6½ inches. Belt Pulley is driven from jack-shaft mounted in roller and ball bearings. Pulley speed 300 R. P. M. at normal engine speed.

TRANSMISSION

Spur gears used thruout. All gears are machined and heat treated. Only 6 spur gears used in entire transmission. Splined shafts of high carbon steel, machined to precision limits and heat treated. Operate in heavy duty roller bearings. Entire transmission is absolutely dust-proof and operates in a bath of oil.

DIFFERENTIAL

Mounted centrally in ball bearings on rear axle.

*The World's
First Light
Steam
Tractor*



*Built
to
Last a
Lifetime*