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Advance Machinery

Catalog

1909

Full Line

Catalog

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ADVANCE

THRESHING MACHINERY

Number 23, 1909-10



ADVANCE THRESHER COMPANY

INCORPORATED

A. W. WRIGHT, President

S. O. BUSH, Vice-President

B. T. SKINNER, Sec. and Treas.

C. E. THOMAS, Attorney

M. LAFEVER, Superintendent

C. A. LAFEVER, Asst. Supt.

BATTLE CREEK, MICHIGAN
U. S. A.

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1881

1909

®

View from the
Street

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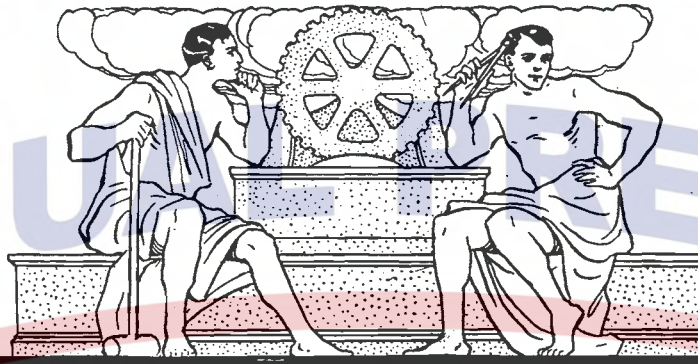
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WE CAN offer no better evidence of the high mechanical perfection, excellent efficiency and operative economy of **Advance machinery** than the fact that we are one of the largest producers of threshing machinery in the world, and have many thousands of our machines in active operation on every part of the globe, every day in the year. In addition to this silent but most powerful testimonial are many enthusiastic expressions of satisfaction which we receive annually from our thousands of customers. These complimentary expressions have inspired and prompted us to leave no effort untried to make our machinery the best that could be produced and to continue to merit them. This has required us to constantly experiment at the factory and then follow with exhaustive field trials, resulting in many valuable improvements. Our immense sales show conclusively that our efforts have been fully appreciated and welcomed. This naturally places us in the position we occupy, namely, **in the foremost rank of thresher manufacturers.**

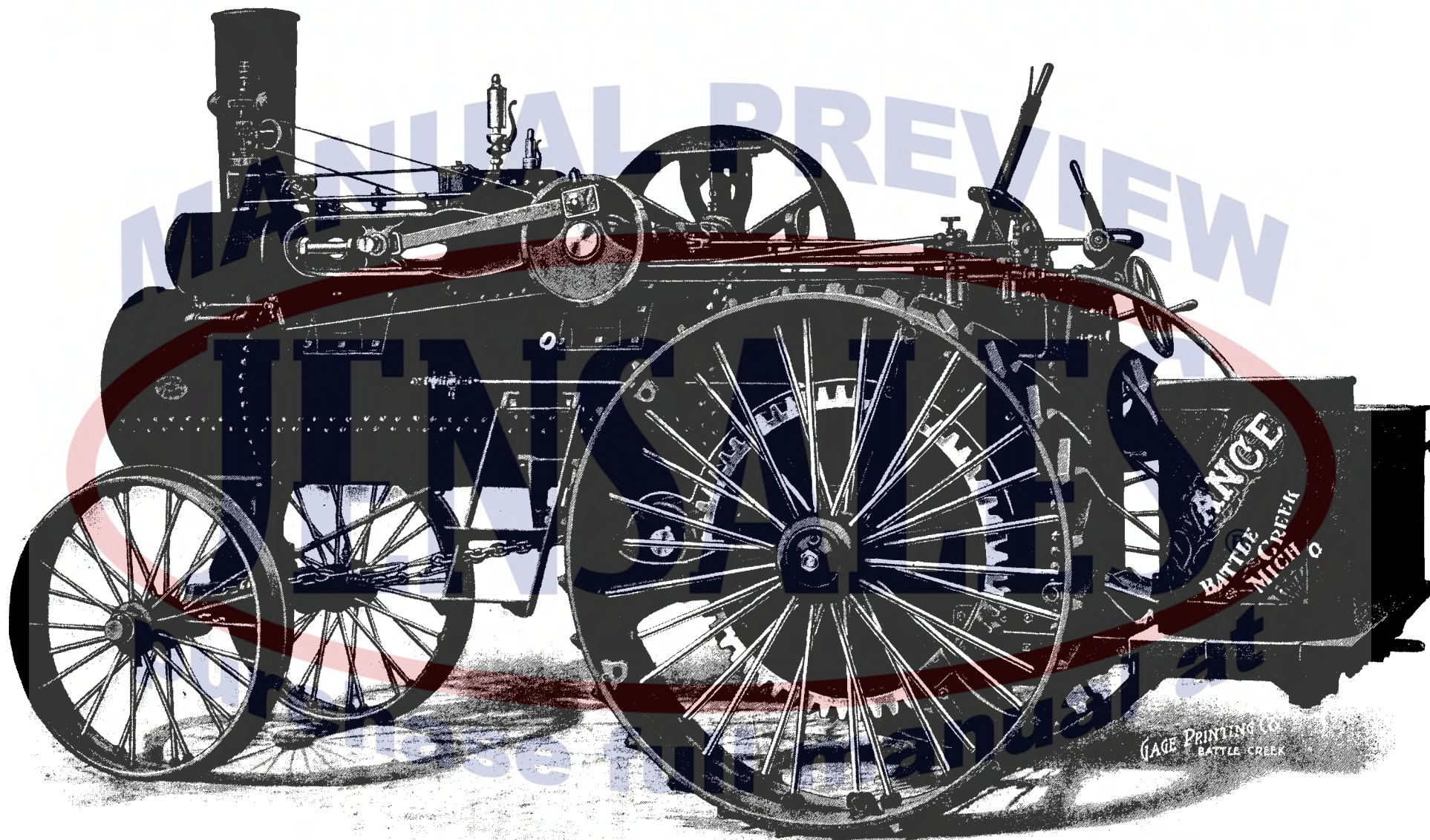
But it is not alone on account of our many new ideas that we merit this position, but it is as well on account of the high grade materials we use and the care we exercise in seeing that every machine is an example of the skill of first class workmen. We do not make cheap machinery. We believe that the name "**Advance,**" as the symbol of the highest grade of machinery, will live long after the memory of cheap and shoddy goods.

In the following pages, we have been able to touch upon but a few of the many superior features of our machinery, but hope that you will read these pages carefully and believe that you will be convinced that the **Advance is the money making machinery that really satisfies.**

Respectfully,

Advance Thresher Company

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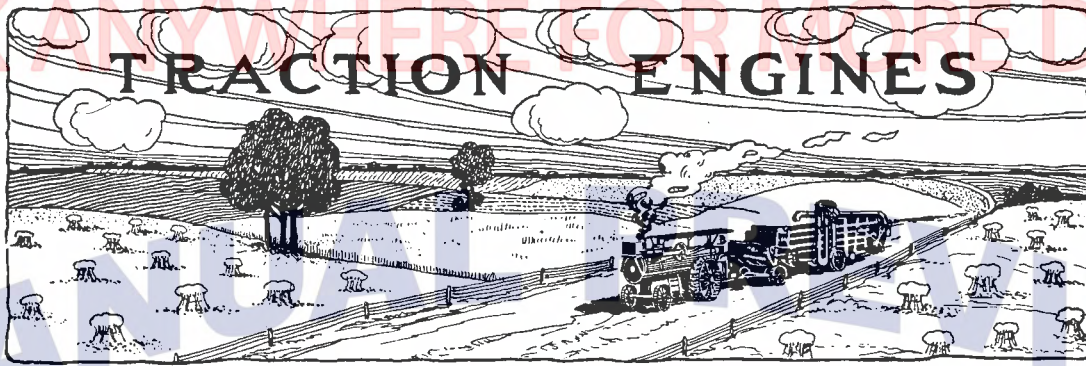


This is an ideal engine for general work. Burns either coal or wood. We rate it 16 horse-power. We have them in operation in every territory and giving perfect satisfaction in connection with Advance separators up to 56-inch.

We also mount it on a Straw-Burner Boiler.

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SATISFACTORY results cannot possibly be obtained from a traction engine unless it is constructed of the very best materials, by good workmen, and is designed for the duties it is called upon to perform. No careful buyer can afford to overlook these points when making a purchase.

In building the Advance engine we use only the very best grade of materials that we are able to obtain, and every piece entering into its construction is carefully inspected by experienced workmen to make sure that it is up to our standard. Our workmen have spent the better portion of their lives in our employ and are specialists in this line, and each piece turned out is carefully made and machined to fit perfectly into its place when ready to be assembled.

The Advance engine is an easy steamer, with the proper amount of heating surface and ample steaming space, and our furnace construction extracts the greatest amount of heat from the fuel. **Our engine is the most economical in water as well as fuel, and consequently our boilers are much longer lived, due to far less evaporation and resultant small amount of sediment.** They are simple, easily understood and operated, and as plain as it is possible to make them. There are no parts to continually get out of adjustment and an expert engineer is not required to keep them in order. They will stand all the rough and tumble abuse due to exposure, to the hardest roads and heaviest pulls, and yet they are always ready no matter what the conditions.

The design of our boiler is patented, and while others have attempted to imitate them we have never known of a traction engine boiler being made that approached the Advance as an easy steamer, made of as thick plates, and as well braced and secured throughout.

All shafting is extra large and strong with an ample margin of safety to cover any excessive strain due to extraordinary conditions of roads or loads, and is carried in boxes with extra long bearings. All brackets have large bearing surfaces with many screws, and rigidity is further assured by proper bracing. Advance gearing is made of iron and steel, the mixture being

under the supervision of a corps of competent chemists, and is mixed to produce gearing of extra toughness, that has the highest breaking strain. Our **cushion compensating gear** takes up all the sudden hard strains, absorbs the shock incident to starting heavy loads, prevents the breakage of gears, and gently transmits motion to the driving wheels. We test our engines **twice**, making them develop nearly three times their rated horse power. This insures our customers that their engine is ready to run and **that the boiler is free from any leaks.**

Our engines have scored signal victories in every field and under all and the most adverse conditions. The details of construction which follow show clearly why the **Advance engines have come to be known everywhere as the best, simplest, strongest, longest lived, and most economical and serviceable engines made.**

B o i l e r s

THE first cost of an engine may be cheapened by reducing the cost of the boiler through the use of poorly selected material and unskilled labor, but it is a dangerous experiment and poor economy for the purchaser. The boiler is the one part above all others that should not be cheapened. A poorly constructed boiler consumes more fuel and water, is short lived, and dangerous to life and property. It is expensive to repair, and repairs are seldom satisfactory. It furnishes the power for operating the machinery and propelling the engine over rough roads, **and is the foundation of the whole structure.** The success or failure of an engine depends upon the boiler — we know it, and spare no expense in the construction and testing of our boilers. **Advance High Pressure Boilers** have a world-wide reputation for durability and steam producing qualities, and are made with an extra large heating surface which **supplies all the steam required by the engine mounted upon it when developing its maximum power on the road, before the plow or under the belt.** We build the locomotive type — of heavy steel plate, double riveted and stayed throughout, and designed to withstand all the severe strains incident to the work of a traction engine.

Advance boilers are made of the very best open hearth homogeneous steel plates of 60,000 pounds tensile strength. Flue sheets, throat sheet, and dome head are $\frac{1}{2}$ -inch plate; shell and all other flanged sheets are $\frac{5}{16}$ -inch plate; the outside fire box sheet is $\frac{1}{2}$ -inch plate; the rivets $\frac{1}{2}$ -inch in diameter, and stay bolts $\frac{1}{2}$ -inch in diameter.

All our boilers up to the 30 horse-power size are built to carry 150 pounds pressure and our 30 and 35 horse-power boilers carry 160 pounds pressure. **After the engine is mounted, each boiler is fired, allowed to cool and again fired and thoroughly tested to insure its being up to standard and free from leaks of any kind.**

Fire Box of Coal-Burner Boiler

It is of the **flat bottom, round corner style**, which design tends to brace it and makes strong seams. There is ample space under the grates for ashes and the proper amount of air for good combustion. Liberal space is provided between the fire box and the shell of the boiler for the free circulation of water and ample room below the grate line for the collection of mud and sediment as will be noticed by referring to the cut below showing a sectional view of the boiler.

Crown Sheet

The crown sheet slopes rearward which facilitates circulation of water and cleaning, and **also insures its being covered with water when going down hill**. Security is assured by a fusible safety plug in the front end of the sheet which will melt in case of low water, allow steam to escape into the fire box and put out the fire.

Flues

We use seamless cold drawn steel tubes made on our own specifications. The material has a smooth surface to which scale does not adhere readily, and the low percentage of phosphorous and sulphur contained renders



Sectional View of
Coal Burning Boiler

Notice the large fire box and space for water circulation and settling of sediment, also hand holes for cleaning

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This engine is noted for its economy and efficiency. It is a Compound Coal- and Wood-Burner. We rate it 18 horse-power.

This is a favorite engine in all sections of the country. Note the strength of the gearing.

We also make it in a Straw-Burner.

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them soft and pliable, and not liable to fracture while being worked. The flues are spaced to allow free circulation of water and easy passage of steam between them to the steam space in the top of the boiler, and the dimensions (see page 33) give a heating surface which allows quick and easy steaming.

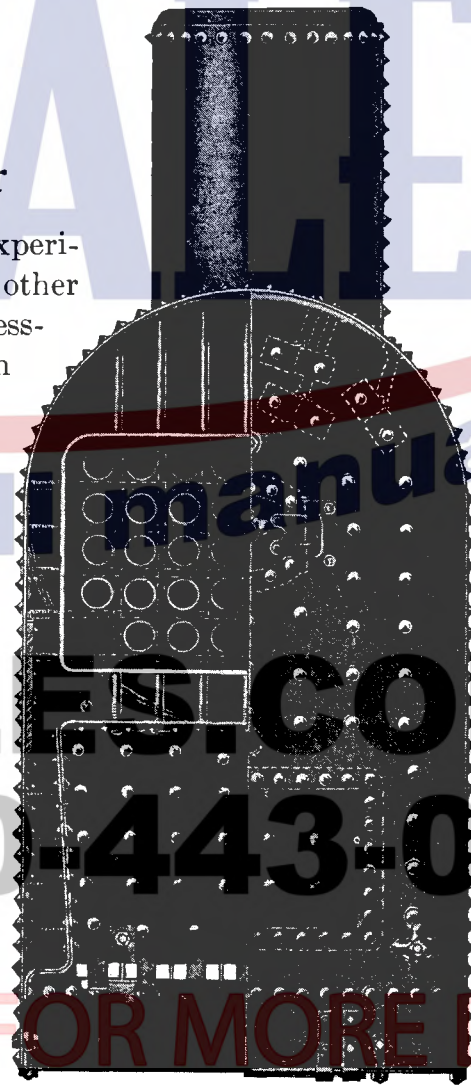
Smoke Box

Smoke has a tendency to travel through the upper rows of flues. By an extension smoke box and a cast iron baffle plate, we retard the draft in the upper row of flues and force the heat through the lower flues, giving the boiler a more uniform temperature and lessening the amount of coal used and the labor in firing. In firing-up the baffle plate may be swung back giving a free passage to the smoke and a straight draft.

Advance Straw-Burner Boiler

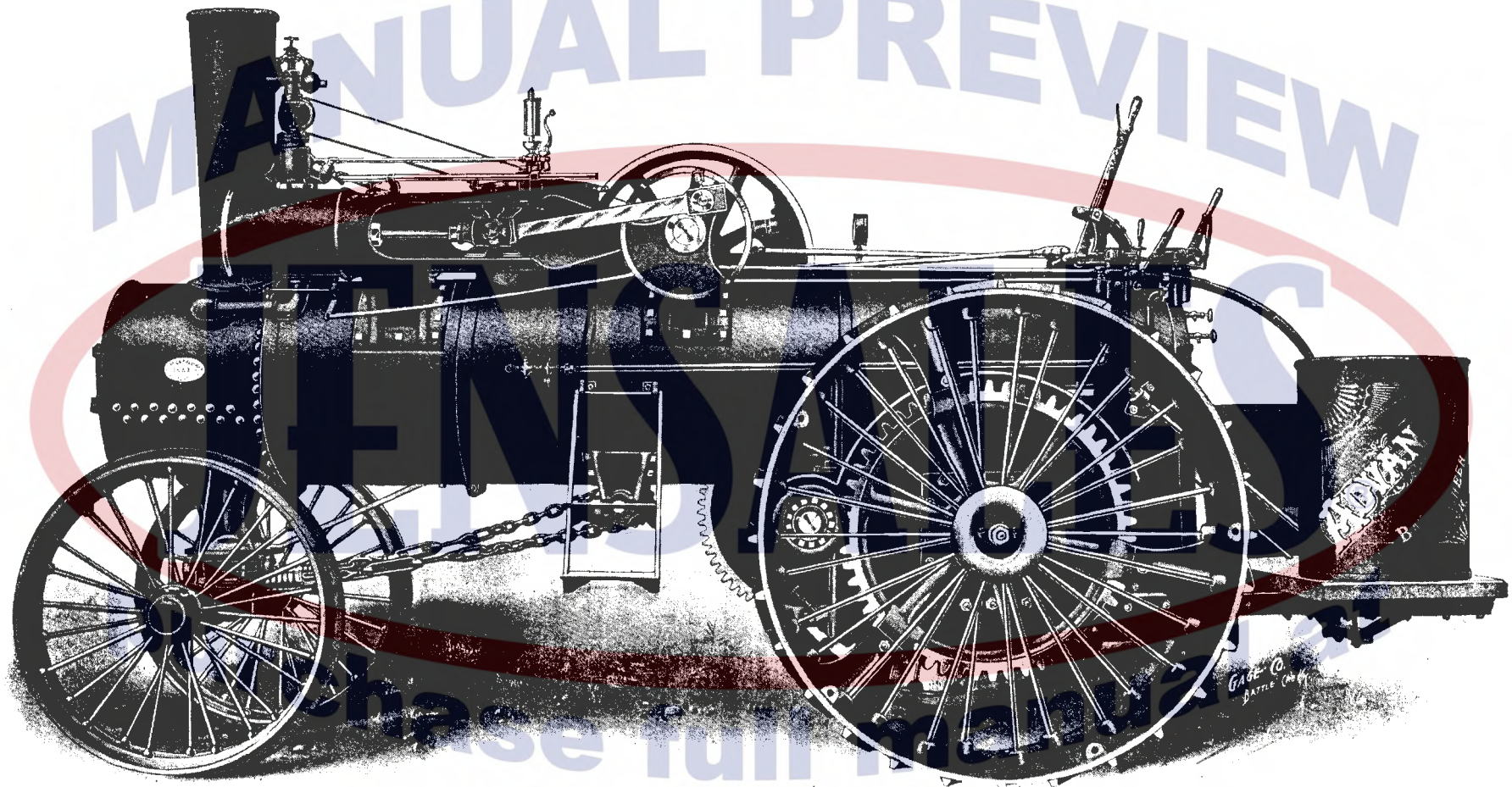
It is admitted by all who have had experience with our engines and those of other makes, that the Advance is the most successful straw burner built. The features in which this boiler differs so radically from others and which made it so successful are covered by our patents and imitators have fallen far short of the original.

By referring to the cut showing the sectional view, it will be noticed that fuel and draft are not taken from the same place, but from opposite ends of the fire box. This is perhaps one of the most distinctive features of our boiler. The draft entering by the door marked "D" underneath the grates "G" forces the flames against the straw, instead of away from it, with a resultant uniform and intense combustion and is not affected by feeding in the straw. The same principle is involved as in burning a



End View of Straw-Burner Boiler
Showing internal construction of fire box

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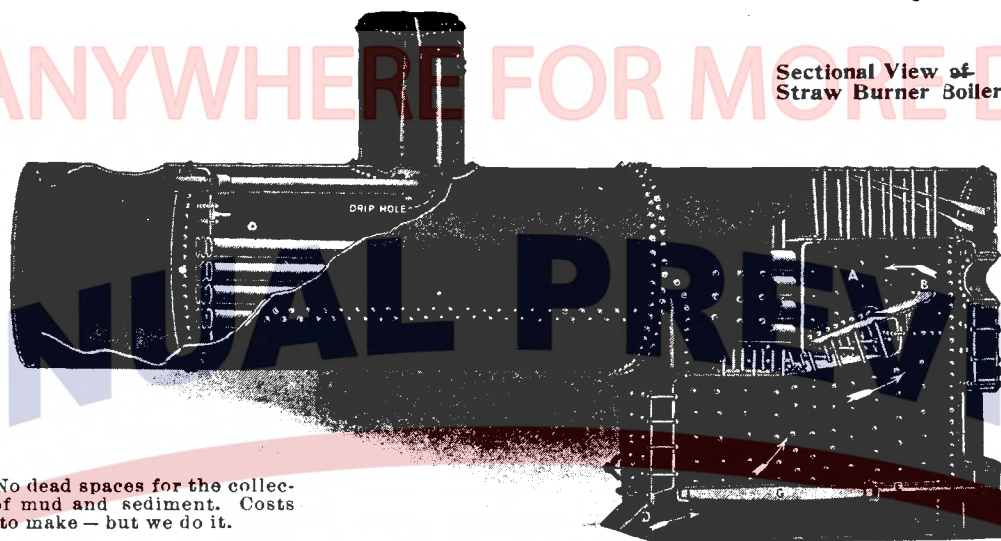
This is one of our best selling engines. We rate it 20 horse-power. Coal- or Wood-Burner. This is a powerful engine on the road and in the belt and at the same time it is not too heavy nor too wide for roads and bridges

Note its simplicity and freedom from intricate troublesome parts.

We also make this engine in the compound, for conditions requiring greater power, without additional weight

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Sectional View of
Straw Burner Boiler

NOTE—No dead spaces for the collection of mud and sediment. Costs more to make — but we do it.

match; if you wish a match to burn quickly, you will not hold it with the lighted end up but rather with the lighted end down so that the flame will run along the stem. To insure forcing the flame against the straw, a dead plate "E" is placed in the front end of the fire box to prevent the draft from taking a **short cut** under the grates, and into the combustion chamber "A".

In order to secure proper combustion of any fuel, it is necessary to have the right amount of space in the combustion chamber. The method of providing this space is unique and found only in the Advance boiler. **Instead of putting in an arch of fire brick, a water leg is inserted just above the fire door and the lower end of the flue sheet, and the draft forcing the flame against the side of this water leg makes it very hot and a great source of steam generation,** and the steam generating rapidly in the water leg creates a violent circulation of water which scours and keeps it perfectly clean. To further deflect the flame to the back end of the fire box and up into the combustion chamber "A" there is a cast iron baffle plate "B" placed on the water leg. This insures perfect combustion of all small particles of straw and also provides a large area around the fire box for generating steam.

The peculiar shape of the fire box in this boiler and the liberal use of stay bolts makes it exceptionally strong and efficient. The flues in the straw-burner boiler are somewhat larger than those of the coal-burner, but with the exception of the flues and the fire box the boiler is constructed along lines similar to the coal-burner. **A ferrule is provided in the smoke box end which enables us to make the holes in the flue sheet larger than the tubes themselves, and allows the flues to be easily removed even though badly encrusted with lime and scale.**

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This is the geared side of our 20 horse-power engine. Note the cushion compensating gear and large dome.
Made as light as possible, yet strong and durable.

We now compound this engine. This gives a large increase in power, with ample steaming capacity and without the usual increased weight.

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