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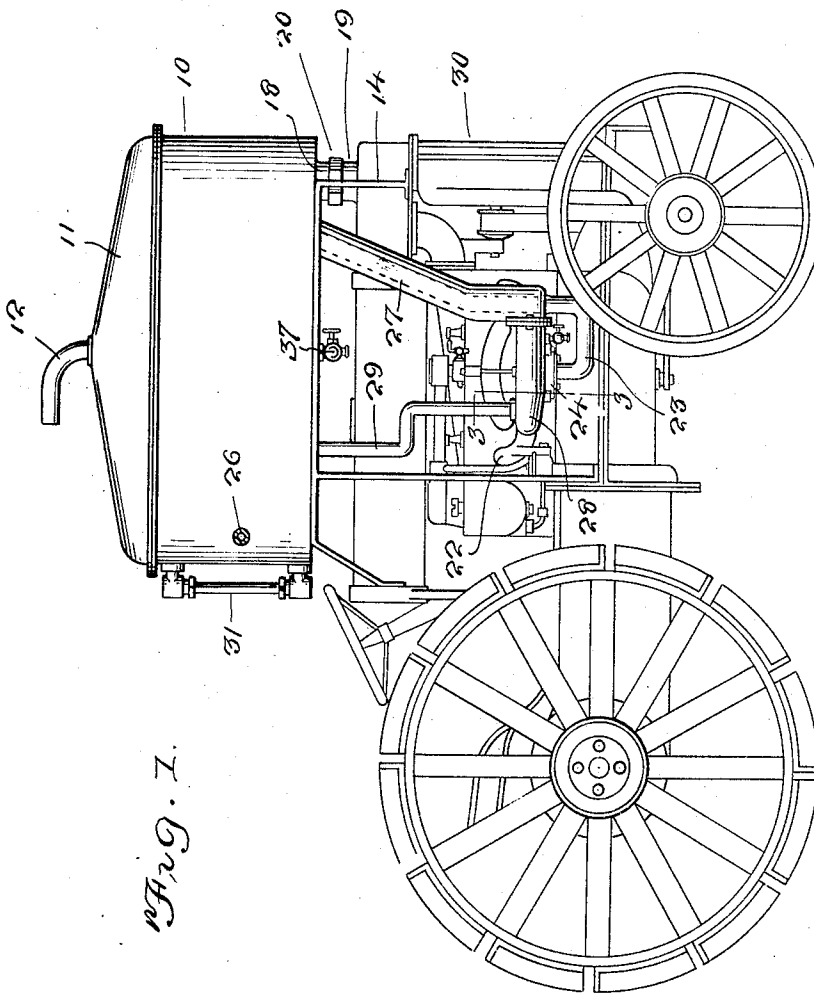
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O. O. HUMPHREY

TOBACCO STEAMING AND DRYING APPARATUS

Filed Feb. 3, 1923

2 Sheets-Sheet 1



E. R. Ruppert

WITNESS:

O. O. Humphrey
INVENTOR

BY Victor J. Evans

ATTORNEY

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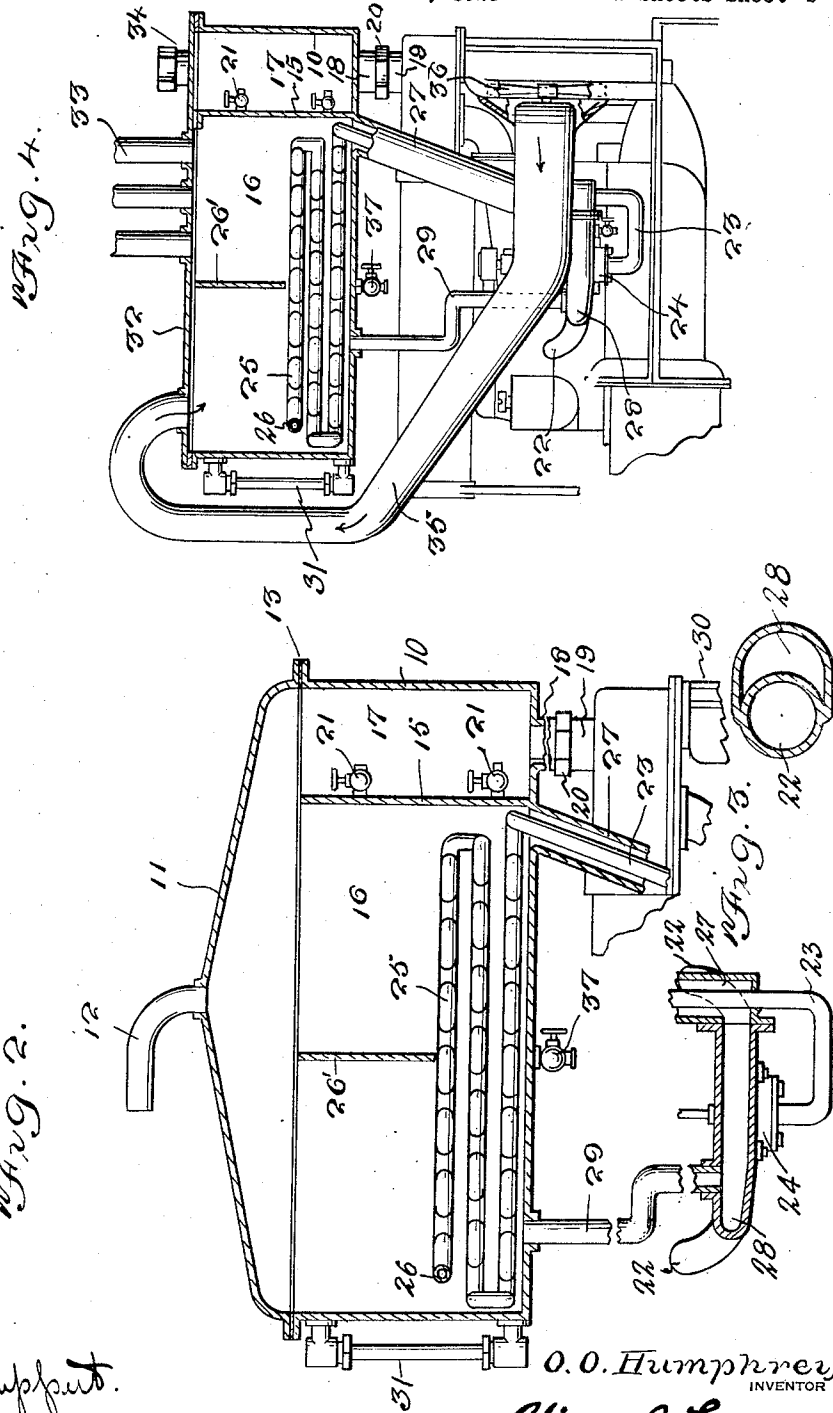
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UNITED STATES PATENT OFFICE.

ORLANDO O. HUMPHREY, OF EAST LEAVENWORTH, MISSOURI.

TOBACCO STEAMING AND DRYING APPARATUS.

Application filed February 3, 1923. Serial No. 616,869.

To all whom it may concern:

Be it known that I, ORLANDO O. HUMPHREY, a citizen of the United States, residing at East Leavenworth, in the county of Platte and State of Missouri, have invented new and useful Improvements in Tobacco Steaming and Drying Apparatus, of which the following is a specification.

This invention relates to improvements in means for curing and treating tobacco and has for an object the provision of means whereby the heat of an internal combustion engine may be utilized either for drying or moistening tobacco.

Another object of the invention is the provision of means whereby an ordinary Fordson tractor may be converted into a drying or moistening apparatus without in any manner interfering with the tractor structure, or preventing its use for ordinary purposes, the construction being such that the moistening and drying apparatus may be removed or attached and readily converted for either use.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings:—

Figure 1 is a side elevation of a Fordson tractor with the invention applied thereto and arranged for use as a moistener.

Figure 2 is an enlarged sectional view through the casing or container.

Figure 3 is an enlarged detail sectional view taken transversely through the exhaust manifold and the heating chamber.

Figure 4 is a view showing a fragmentary portion of a tractor in elevation with a casing or boiler in section, the invention being arranged for use as a drier.

Referring in detail to the drawings wherein like characters of reference denote corresponding parts, the invention is shown in Figure 1, arranged for use as a moistener. As shown in this figure there is positioned above the tractor a casing 10, which, when used as a moistener is provided with an arched or dome-like cover 11 having an escape port therein from which extends an escape pipe 12. The cover 11 is removably

secured to the casing by any suitable means and a gasket 13 is preferably provided to prevent leakage.

The casing is supported above the tractor by means of a frame 14 of suitable structure, the said frame being bolted or otherwise conveniently attached to the tractor structure, whereby it may be removed when desired.

The casing 10 is divided by means of a partition 15 into separate compartments 16 and 17, the last mentioned compartment having extending therefrom a neck 18 which is attached to the top of the neck of the filling opening 19 of the radiator by means of a coupling or union 20. A water circulation between the radiator of the tractor and the casing may thus be established and this water may pass from the chamber 17 into the chamber 16 through valves 21 which are manually controlled.

The exhaust manifold of the tractor which is indicated at 22 is in communication with one end of a pipe 23, the latter being connected with the exhaust manifold as indicated at 24. This pipe 23 extends upward into the chamber 16 of the casing 10 and is in communication with one end of a coil 25 which is located within said chamber. The opposite end of the coil extends outward through the casing 10 as shown at 26. The exhaust from the engine would thus pass outward through the manifold, the pipe 23 and through the coil 25 to the atmosphere, so that the heat of the exhaust is utilized for heating the chamber 16. A vertical partition 26' extends transversely of the chamber 16 above the coil 25. This partition causes water in the chamber 16 to pass downward around the coil 25 during its circulation.

To further aid the heating in chamber 16 there is provided a relatively large pipe or conduit 27 which has one end in communication with the bottom of the chamber 16. The pipe 27 surrounds the pipe 23 and the lower end of the first mentioned pipe is in communication with one end of a heating chamber 28 which is connected to and receives heat from the exhaust manifold 22. A passage is thus provided between the heating chamber 28 and chamber 16. The chamber 16 is also in communication with

the chamber 28 by means of a pipe 29, so that a circulation may be established.

In order to increase the heating capacity of the engine, the front of the radiator is provided with a removable cover 30 so as to interrupt the circulation of air.

In use of the invention as a moistener, water in addition to the ordinary supply for the circulating system is added to chambers 16 and 17, the said water passing from one chamber to the other through the valves 21 so that a uniform height is established through the chamber. This height may be determined by a glass 31 located upon the outside of the casing 10 and in communication with the chamber 16. Heated water from the circulating system will pass from the radiator into the chamber 17 and through the valves 21 into the chamber 16 and back through the chamber 17 to the radiator. In addition, the water within the chamber 16 will be heated from the exhaust as it passes outward through the coil 25, further heating of the water being effected by its circulation through the chamber 28. The water as it comes in contact with the exhaust manifold 22 and the radiator reaches a highly heated condition due to the interference of the circulation of air through the tractor radiator.

In the form of the invention as shown in Figure 4, a drier is provided. To accomplish this, the cover 11 is removed from the casing 10 and a cover 32 substituted. This cover 32 is provided with outlet passages or ports 33 which extend from the chamber 16, and a normally closed filling neck 34 which communicates with the chamber 17. In addition, there is provided a conduit 35, which has one end in communication with the top of the chamber 16, while its opposite end receives air from the fan 36 of the tractor engine.

When used as a drier, water is drained from the casing through a drain cock 37 and the valves 21 are closed so as to cut off communication between the chambers 16 and 17. Water from the tractor radiator may thus circulate between said radiator and chamber 17 but may not enter chamber 16. The exhaust from the engine will pass through the coil 25 as previously described so as to heat the air within the chamber 16, while additional heat will pass into the chamber 16 from the chamber 28. The fan 36 will operate to force air through the conduit 35 into the chamber 16 and the partition 26 within this chamber will cause the air to pass around the coil 25 in its passage to the outlet ports 33. Freshly heated dry air will thus pass outwardly from the chamber 16, so that the casing 10 previously used in the boiler will be converted into an air heating chamber.

The apparatus arranged either as a steam-

ing or drying apparatus may be run into the drying or steaming barn or room, so that the heat or steam will act upon the tobacco, the latter being suitably arranged to receive the steam or heat in any usual well known manner.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention, what I claim is:—

1. The combination with an internal combustion engine having a cooling system including a fan, of a casing having an outlet port, a heating coil within the casing, means connecting the heating coil with exhaust ports of the engine, whereby the exhaust will pass through the coil to heat air in the casing and means for conducting draft from the fan to the casing to force the heated air out through the outlet port.

2. The combination with an internal combustion engine having a cooling system including a fan, of a casing having an outlet port, a heating coil within the casing, means connecting the heating coil with the exhaust ports of the engine, whereby the exhaust will pass through the coil to heat air within the casing, means for conducting draft from the fan to the casing to force heated air through the outlet port and a baffle wall within the casing between the fan draft conducting means and the outlet port for directing air from said fan to the heating coil.

3. The combination with an internal combustion engine including a radiator, of a container supported above and having communication with said radiator, a partition within the casing for dividing the latter into a water chamber and a heat chamber, a coil located within the heat chamber and having one end in communication with the exhaust manifold of the engine and its opposite end open to the atmosphere and conduits leading from the exhaust manifold and communicating with the interior of the heat chamber to provide hot air circulation through said chamber.

4. The combination with an internal combustion engine including a radiator, of a container supported above and having communication with said radiator, a partition within the casing for dividing the latter into a water chamber and a heat chamber, a coil located within the heat chamber and having one end in communication with the exhaust manifold of the engine and its opposite end open to the atmosphere and conduits leading from the exhaust manifold and communicating with the interior of the heat chamber to provide hot air circulation through

said chamber and means for supplying fresh air to the heat chamber.

5 5. Means for drying tobacco comprising in combination with an internal combustion engine, a casing removably mounted upon the engine, said casing including separate chambers and a coil and providing a com-

bined moistener and drier and means whereby the casing may be operatively associated with the engine to receive water from the 10 engine cooling system and heat from the exhaust gases of the engine.

In testimony whereof I affix my signature.

ORLANDO O. HUMPHREY.