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DISTRIBUTOR FOR ASPHALT AND THE LIKE

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Atty.
This invention relates to distributors for asphalt and similar materials and has for its object the provision of means whereby certain of the heating devices may be placed out of commission when the asphalt in the tank reaches a low level, thereby preventing the asphalt from coking on the inner wall of said tank above the level of the asphalt remaining in said tank.

The object is attained by the mechanism illustrated in the accompanying drawings.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawings, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described except as required by the scope of the appended claims.

Of the drawings:

Figure 1 represents an elevation of an asphalt distributor embodying the principles of the present invention.

Figure 2 represents a vertical section of the asphalt distributing unit, on line 2, 2, on Fig. 3, and

Figure 3 represents a longitudinal section of the same on line 3, 3, on Fig. 2.

Similar characters indicate like parts throughout the several figures of the drawings.

In the drawings, 10 is a motor truck of any well known construction and provided with a platform 11 which may be used for any desired purpose, said platform being perfectly flat and adapted to have superimposed thereon the base 12 of an asphalt distributing unit.

This base is composed in part of cradles 13 in which rests a tank 15 adapted to contain asphalt to be heated and then distributed over the surface of a road, said tank being secured to said cradles by metal straps 14.

The tank 15 is provided at the top with an opening 16 through which the asphalt may be inserted into said tank, said opening 16 being provided with a cover 17.

From the bottom of the tank 15 extends a pipe 18 extending to a pump 19 from which extends a return pipe 20 to the tank 10.

The inlet to the pipe 18 is provided with a valve 21 for regulating the discharge of asphalt through said pipe 18, said valve 21 having a rod 22 extending upwardly through the tank 15 and provided at its upper end with a wheel 23 by which said valve 21 may be opened and closed in any well known manner.

From the pump 19 extends a discharge pipe 24 to the distributor or sprayer bar 25, said pipe 24 having a valve 26 therein to cut off communication between the pump 19 and the distributor bar 25.

The pump 19 is driven by a motor 27 and when valve 26 is closed and valve 21 open the pump may be operated to create a circulation of the asphalt through the tank.

When the valve 21 is closed and valve 26 open the circulation of the asphalt through the tank will stop and the asphalt will then be discharged under pressure through the distributor bar 25.

The inner end of a pipe 29 has a downward extension 28 the mouth of which is near the bottom of the tank 10.

Within the tank 10 is a vertical pipe 29 the lower open end of which extends through the bottom wall of the tank while the upper open end thereof extends through the upper wall and is encased by the cap 30.

Should the heated asphalt fill the tank 10, portions thereof will pass through the openings 31 and pass into the upper end of pipe 29 from which it will be discharged throughout the lower end 32 thereof.

Near the front wall of the tank 10 is a partition 33 forming a heating chamber 34 having a stack 35 extending from its upper end.

Near the rear end of the tank 10 is a similar partition 36 forming a heating chamber 37 having a stack 38 extending from its upper end.

Positioned in the partitions 33, 36 and connecting the heating chambers 34, 37 are a plurality of flues 39 through which the heated air is adapted to pass to heat the asphalt within the tank 10.

Below these flues 39 is a U-shaped tube 40 one end of which terminates in the partition 36, while the other or inlet end extends through said partition 36 and heating chamber 37 and terminates in the end wall of the tank 10.

The return bend 41 of said tube 40 is ad
jacent but not in contact with the partition 33.

In the inlet end of the tube 40 is disposed some means for creating an intense heat which may be forced through the tube 40 and flues 39 and thereby heat the asphalt until it reaches a consistency suitable for distribution upon the road.

In the drawings a nozzle 42 is indicated which produces the required heat, air being admitted thereto through the openings 43 thereof.

The heat producing device is not shown in detail as it forms no part of the present invention.

The rear end of the U-shaped tube 40 rests on a support 44 and is secured in position thereon by the plate 45 and bolt 46.

The rear ends of the flues 39 are adapted to be closed by a gate 47 hinged at the upper end thereof at 48 to the partition 36 so that normally the weight of the gate will retain it against the rear ends of the flues and prevent the heated air from passing through said flues.

When the gate 47 is in the position shown in Fig. 3 the heated air passing through the U-shaped tube 40 will be discharged into the heating chamber 37 and pass upwardly therein to the stack 38.

Secured to the lower end of the gate 47 is one end of a chain 49 having its opposite end extending through the rear wall of the tank and provided with a ring 50 by which the gate 47 may be moved about its hinges 48 into a horizontal position against the stop 51, thus shutting off the upper end of heating chamber 37 and uncovering the flues 39.

At the ends of the gate 47 are partitions 55 which coact with the gate 47 when in its horizontal position to shut off the upper end of chamber 37.

At this time the heated air emitted from the U-shaped tube 40 into the heating chamber 37 will pass through the flues 39 to heating chamber 34 and then to the stack 35.

When the tank 10 is well filled with asphalt both the tube 40 and flues 39 are utilized to convey heat through the tank 10 while a circulation of said asphalt is being kept up by the operation of pump 19.

When the asphalt reaches a low level the flues 39 are shut off by the gate 47 and then there is sufficient heat in the tube 40 to keep the asphalt in proper condition for distribution.

When the distributor is moving to the point where the work is to be done, the heater will be in operation but as soon as this point is reached and the asphalt has the proper consistency for distribution the heat is cut off, the valve 21 closed and valve 26 opened so that the asphalt may be forced by pump 19 through the sprayer bar 25.

When the heat is passing through the flues 39 the asphalt surrounding the same will be kept in liquid condition but when the asphalt reaches a low level below said flues it would cake onto the walls of the tank if heat was permitted to continue to pass through these flues, but by shutting off these flues this caking on the wall is obviated.

When only a small job is to be done and little asphalt is required therefrom, the flues 39 may be placed out of commission by closing the gate 47 as the heat passing through the tube 40 will be sufficient to heat the small quantity of asphalt to be used.

By providing the U-shaped tube 40 with its return bend 41 removed from the partition 33 there is no danger of burning out said partition by the intense heat forced therethrough, this heat when emitted from the opposite end of the tube 40 being insufficient to have an injurious effect upon the end wall of the tank against which it is discharged.

This makes a very effective asphalt distributor which may be used on either large or small jobs without any opportunity being afforded for the asphalt to cake upon the inner wall of the tank.

While the distributor is described as being used for asphalt it may be used equally as well for tar, and many other similar bituminous materials.

It is believed that the operation and many advantages of the invention will be understood without further description.

Having thus described my invention, I claim:

1. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; an outlet from each chamber; a U-shaped tube within said tank extending forwardly from the rear chamber with its inlet and adjacent said rear chamber and its outlet communicating with the rear heating chamber; means for supplying heat to the inlet of said U-shaped tube; and means within the rear chamber adapted to close either the flues or the outlet to said rear chamber.

2. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; a gate in the rear chamber for closing said flues and adapted to close the outlet from the rear chamber when the flues are open; an outlet from each chamber; a U-shaped tube within said tank extending forwardly from said rear chamber with its inlet and adjacent said rear chamber and its outlet communicating with the rear heating chamber; and means for supplying heat to the inlet of said U-shaped tube.

3. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; a gate in the rear chamber for closing said flues and adapted to close the outlet from the rear chamber when the flues are open; an outlet from each chamber; a U-shaped tube within said tank extending forwardly from said rear chamber with its inlet and adjacent said rear chamber and its outlet communicating with the rear heating chamber; and means for supplying heat to the inlet of said U-shaped tube.
contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; a gate in the rear chamber for closing said flues; means for moving said gate to open said flues; an outlet from each chamber, the outlet from the rear chamber being closed by said gate when the entrance to said flues is opened; a U-shaped tube within said tank extending forwardly from the rear chamber with its inlet end extending through said chamber and the outer wall thereof and its outlet communicating with the rear heating chamber; and means for supplying heat to the inlet of said U-shaped tube.

4. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; an outlet from each chamber; a U-shaped tube within said tank extending forwardly from the rear chamber nearly to the front chamber with its inlet end extending through said chamber and the outer wall thereof and its outlet communicating with the rear heating chamber; a heat generating nozzle extending into the inlet of said U-shaped tube; and means within the rear chamber for simultaneously closing the outlet from said rear chamber and opening said flues.

5. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers an outlet from each chamber; means in the rear chamber for temporarily closing said flues and simultaneously opening the outlet from said rear chamber; a U-shaped tube with its inlet end extending through the rear chamber and its outlet communicating with the rear heating chamber; and a heat generator extending into the inlet of said U-shaped tube.

6. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers an outlet from each chamber; means in the rear chamber for temporarily closing said flues and simultaneously opening the outlet from said rear chamber or closing said outlet and opening said flues; a U-shaped tube extending forwardly from the rear chamber with its inlet end extending rearwardly through said chamber and the outer wall thereof and its outlet communicating with the rear heating chamber; and means for supplying heat to the inlet of said U-shaped tube.

7. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein; a plurality of flues connecting said chambers; a movable gate in the rear chamber adapted in one position to close said flues and in another position to shut off the upper end of the rear chamber; a chain for moving said gate extending through a wall of said tank; an outlet from each chamber; a U-shaped tube extending forwardly from the rear chamber nearly to the front chamber with its inlet end extending rearwardly through said chamber and the outer wall thereof and its outlet communicating with the rear heating chamber; and means for supplying heat to the inlet of said U-shaped tube.

8. The combination of a tank adapted to contain asphalt or similar material and having front and rear heating chambers confined therein with outlets at the top thereof; a plurality of flues connecting said chambers; a gate in the rear chamber adapted to be moved into position to close either the entrance to said flues or the outlet from the rear chamber; means outside said tank for operating the gate; a U-shaped tube extending forwardly from the rear chamber with its inlet end extending rearwardly through said chamber and the outer wall thereof and its outlet communicating with the rear chamber; and means for supplying heat to the inlet of said U-shaped tube.

9. The combination of a tank adapted to contain asphalt or similar material and provided with front and rear heating chambers confined therein with outlets at the top thereof; a plurality of flues connecting said chambers; a U-shaped tube in the bottom of said tank with its discharge end communicating with the rear chamber and its inlet end extending through the rear wall of said tank; a heat generator in the inlet of said U-shaped tube; and means for temporarily placing said flues in commission and at the same time closing the outlet from said rear chamber.

10. The combination of a tank adapted to contain asphalt or similar material and provided with front and rear heating chambers confined therein with outlets from the top thereof; a plurality of flues connecting said chambers; a U-shaped tube in the bottom of said tank with its discharge end communicating with the rear chamber and its inlet end extending through the rear wall of said tank; a heat generator in the inlet of said U-shaped tube; and means adapted to be actuated to direct the passage of hot gases to the outlet of the rear chamber or through said flues to the front heating chamber as desired.

11. The combination of a tank adapted to contain asphalt or similar material and provided with front and rear heating chambers confined therein having outlets from the top thereof; the outlet from the rear chamber being closed under certain conditions; a plurality of flues connecting said chambers; a
U-shaped tube in the bottom of said tank below said flues with its discharge end communicating with the rear chamber; a heat generator in the inlet of said U-shaped tube; and a single movable gate positioned for simultaneously placing said flues out of commission and opening the outlet from the rear chamber.

12. The combination of a tank adapted to contain asphalt or similar material and containing a heating chamber at each end thereof; an outlet from each chamber; a U-shaped tube within the bottom of said tank having its inlet end extending through the rear wall of said tank and its outlet end communicating with the rear heating chamber; flues above said tube connecting said chambers; and a single device operable either to close the entrance to said flues and open the outlet from the rear chamber or open said flues and close said outlet.

Signed by me at 746 Old South Bldg., Boston, Massachusetts, this 22nd day of November, 1927.

ERNEST B. NEAL.