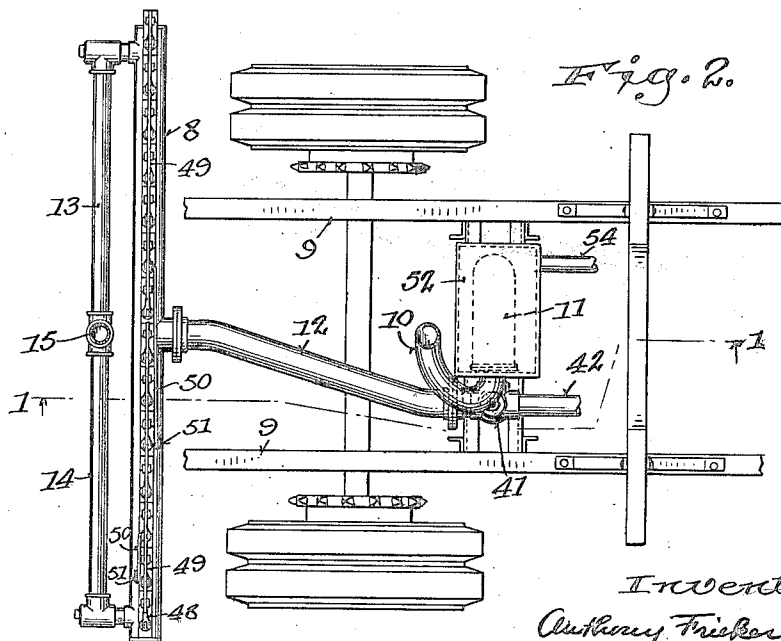
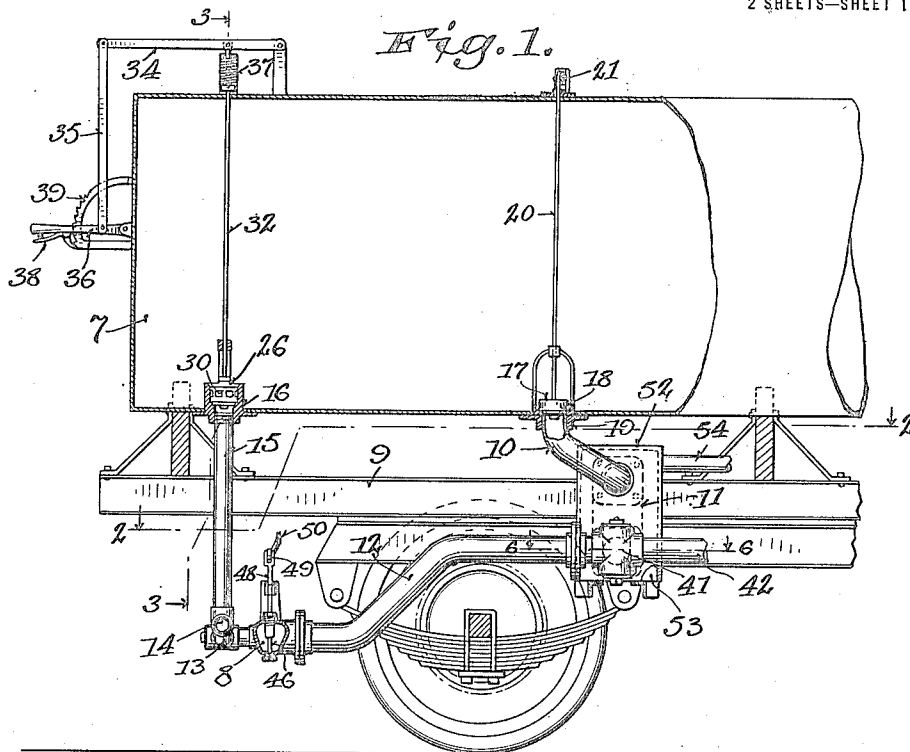


A. FRICKER.
BITUMINOUS DISTRIBUTOR.
APPLICATION FILED MAR. 19, 1918.

1,433,713.

Patented Oct. 31, 1922.

2 SHEETS—SHEET 1.



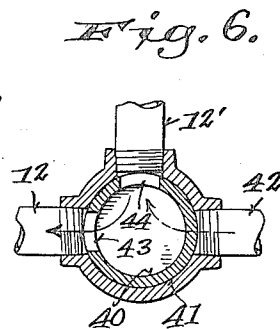
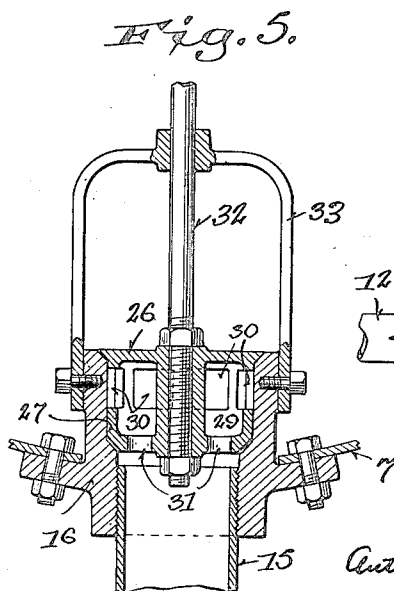
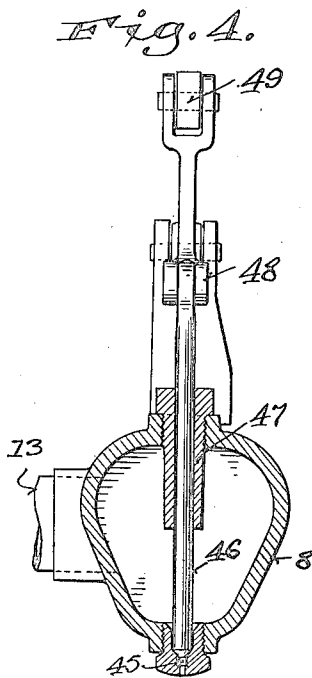
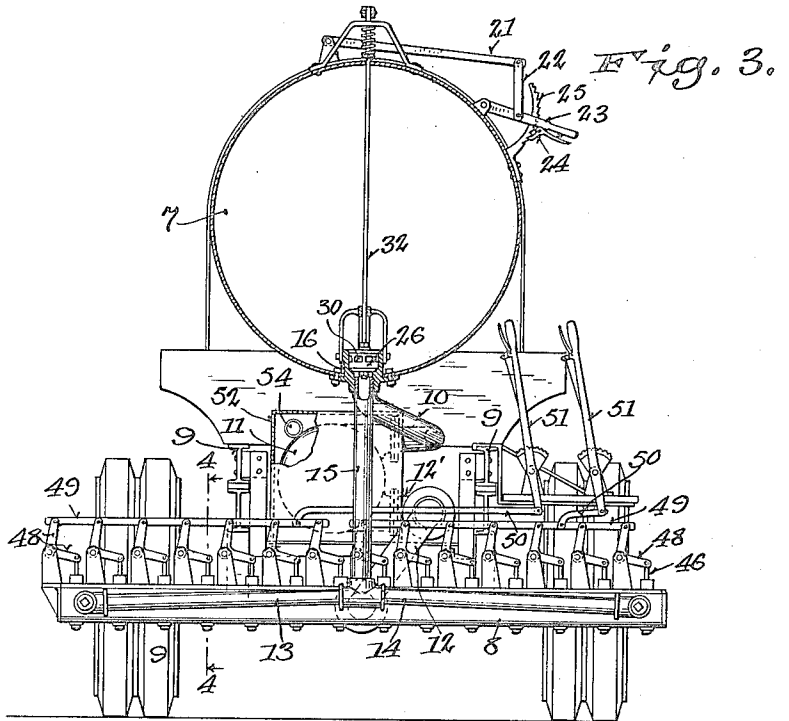
Inventor
Anthony Fricker
By *Worrell, Kennedy & French*
Attorneys.

A. FRICKER.
BITUMINOUS DISTRIBUTOR.
APPLICATION FILED MAR. 19, 1918.

1,433,713.

Patented Oct. 31, 1922.

2 SHEETS—SHEET 2.



Inventor
Anthony Fricker

By *Wm. H. Hensley & Hensley*
Attorneys.

UNITED STATES PATENT OFFICE.

ANTHONY FRICKER, OF CLEVELAND, OHIO.

BITUMINOUS DISTRIBUTOR.

Application filed March 19, 1918. Serial No. 223,293.

To all whom it may concern:

Be it known that I, ANTHONY FRICKER, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Bituminous Distributors, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The invention relates to distributors of bituminous material and petroleum products for road-making and more particularly to the system employed in conducting the material to and from the storage or supply tank.

The material which this machine is designed to handle naturally solidifies and congeals under ordinary temperatures and the object of the invention is to provide an efficient circulating system in which the material is conducted from the tank to the discharge manifold and part or all of which is returned to the tank through direct connections cutting down heat losses and one in which the pressure of the material passing through the distributing manifold is regulated by a valve which is self draining and non-clogging.

It sometimes happens in machines of this kind that the circulating pump becomes clogged and has to be heated by torches and in fact for efficient circulation the pump should be kept heated and as machines of this kind are carried on an automobile truck I have found that a simple and effective way of guarding against clogging of the pump and of keeping it heated is to conduct the hot exhaust gases from the engine around the pump and so far as I am aware this particular feature is broadly new and is a great improvement over former constructions.

The invention further consists in the several features hereinafter set forth.

In the drawings: Fig. 1 is a vertical sectional view through the machine taken on the line 1—1 of Fig. 2;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a section taken on the line 4—4 of Fig. 3;

Fig. 5 is an enlarged vertical sectional view of the pressure regulating valve;

Fig. 6 is a section taken on the line 6—6 of Fig. 1.

In general the device comprises a supply tank 7 for the heated material, a discharge manifold 8, means for circulating the heated material through the manifold, means for regulating or controlling this circulation, means for discharging the material from the manifold and other features hereafter described.

The tank 7 is mounted upon an automobile or other vehicle 9 and the material is delivered from the tank to a pipe 10 and thence by a pump 11 and pipe 12 to the central portion of the manifold 8. From the manifold 8, some or all of the material is returned to the tank through pipes 13 and 14 leading from the ends of the manifold to a return pipe 15 leading to a valve fitting 16 in the bottom of the tank 7. The pump 11 delivers the material to the manifold under pressure. The pipe 10 is vertically disposed and the pipe 12 inclined downwardly so as to drain the material into the manifold when the supply is shut off as hereinafter described and the vertically disposed pipe 15 and the downwardly inclined pipes 13 and 14 drain the material into the manifold when the return valve is shut off. Thus the manifold being at a lower level than the other pipes and the other pipes being inclined to drain into it when the supply is shut off the material in the pipes will drain into the manifold and from thence it is discharged by the discharge mechanism hereafter described so that the whole system is kept clean and free from deposits of congealed material. Also with this construction the heated material from the tank is delivered under pressure to the intermediate portion of the manifold, passes therethrough to the ends and returns through the pipes 13, 14, and 15 to the tank thus continuously circulating the heated material through the manifold and keeping it hot.

The rate of flow of material from the tank 7 to the pipe 10 and the shutting off of supply of material to this pipe and the pump 11 is controlled by valve 17 adapted to register with its seat 18 in a coupling 19 securing the pipe 10 to the bottom of the tank 7. The movement of this valve is controlled through a rod 20, lever 21, link 22, and lever 23 which linkage is adapted to be held in different positions of adjustment by means of

a spring pressed pawl 24 on the lever 23 engaging a segmental toothed rack 25 on the outside of the tank. The downward movement of the lever 23 will through the linkage just described raise the valve 17 and the upward movement of said lever will lower the valve 17.

To increase or decrease the pressure of the material within the manifold I provide a valve in the return to the tank 7. This valve consists of a piston valve member 26 seated in a bore 27 in the fitting 16 said valve having a hollow interior 29, laterally disposed ports 30 leading into said interior and ports 31 leading from the interior to the pipe 15. On the raising of the valve the material from the pipe 15 passes through the ports 31, interior 29 and ports 30 to the tank and when the valve is closed the material will flow down or drain out of the valve through the ports 31 and thus prevent clogging of the valve. The valve may be raised and lowered through any suitable means as the rod 32 working in the guide 33 and extending up through the tank and connected to a lever 34 which in turn is connected by a link 35 with a lever 36, the valve being normally closed by a spring 37 acting against the rod 32 and being maintained in different adjusted positions by means of a spring pressed pawl 38 engaging a segmental toothed rack 39. The member 26 never moves wholly out of the bore 27 but only far enough to move the ports 30 above the valve seat and this keeps the valve in line and insures its proper operation.

For convenience in filling the supply tank 7 I have provided a valve member 40 in the fitting 41 which connects the pipe 12 to the outlet end 12' of the pump 11 and also connects the filling pipe 42 to the outlet end 12' of said pump. This valve member has two spaced apart port openings 43 and 44 adapted to register with the pipes 12 and 12' respectively when the pump is delivering material to the manifold or to register with the pipes 12' and 42 when the drive of the pump is reversed and the material is taken from its source and drawn into the supply tank by the pump through the filling pipe 42.

The means for discharging material from the manifold is similar to that shown and described in my application Ser. No. 173,255, filed June 6, 1917, and consists of a plurality of discharge orifices 45 in the bottom of a downwardly tapered manifold, each orifice being normally closed by a vertically slidable rod 46 disposed within the manifold and mounted in a bushing 47 in the upper part of the manifold and connected by a bell crank lever 48 to a rod 49. The tapering of the sides of the manifold provides for

efficient drainage when the valves are open. In the drawings I show rods 49 on either side of the machine to which series of valves are connected through the levers 48 and each of these rods 49 is reciprocated to open and close its respective valves by means of a link 50 and lever 51.

In order to prevent clogging of the pump 11 and to keep it heated during the operation of the machine I enclose the same in a box 52 open at its bottom 53 and conduct the exhaust gases from the engine (not shown) for driving the machine to a pipe 54 leading into said box 52 and the heat of said gases serves to warm up the pump if it becomes cold and to keep it warm when the machine is running.

From the foregoing description it will be noted that provision is made for filling the tank direct from the source of supply through the pump, that while the machine is running there is a constant circulation of material through the manifold, that the outlet valve from the tank regulates the amount of material fed to the pump and the return valve regulates the pressure of the material in the manifold, that the piping from and to the tank is so arranged as to drain to the manifold when the tank is shut off, thereby preventing clogging of the circulating system and the material drained from the pipes may be readily drained from the manifold and that the general design and combination of the parts produces an efficient circulating system and one which will efficiently take care of material having a natural tendency to clog the system. It will also be noted that both the valves for controlling the passage of material from and to the tank 7 are located within the tank and thus kept heated by the hot material within the tank.

While I have illustrated and described one specific embodiment of my invention I desire it to be understood that constructions coming within the scope of the appended claim I deem to be within the spirit of my invention.

What I claim as my invention is:

In a bituminous distributor, the combination, with a motor driven vehicle and a supply tank and discharge manifold carried thereby, of means including a pump for delivering material from the tank to the manifold under pressure, an open bottom container surrounding the pump and spaced from the same, and a pipe for conducting the exhaust gases from the motor into said container to heat said pump and exhaust the gases to the atmosphere.

In testimony whereof, I affix my signature.

ANTHONY FRICKER.