

APPLICATION FILED APR. 20, 1914.

Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.



Witnesses

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 APPARATUS FOR APPLYING BINDER TO ROADWAYS.
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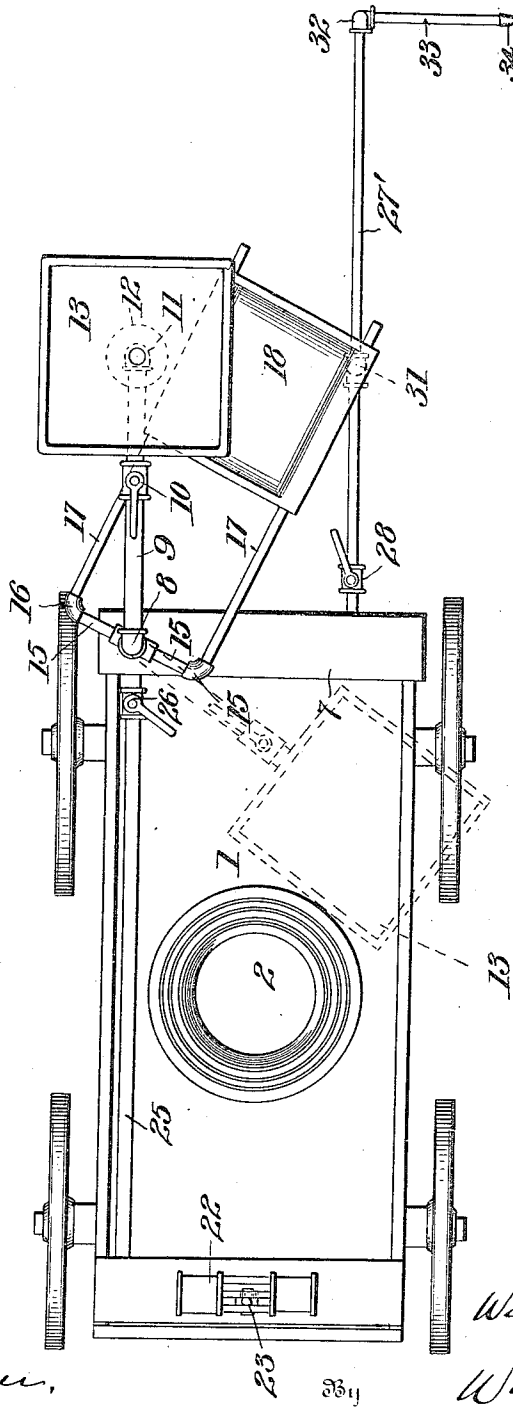


Fig. 5.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR APPLYING BINDER TO ROADWAYS.

1,124,604.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. GAILOR, a citizen of the United States, residing at Saratoga Springs, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Apparatus for Applying Binders to Roadways, of which the following is a specification.

This invention relates to apparatus for applying an oily or bituminous binder to a roadway. Specifically, the invention is concerned with apparatus for use by road patrolmen in making repairs on roadways constructed of bituminous macadam. In making repairs in roadways of this character, it is necessary to fill in depressions which may be discovered, with road material, such as gravel or broken stone, and to apply thereto a binder which will hold the material in place. Ordinarily it is the practice to apply such binder by pouring the same from a dipper, but with this method it is impossible to secure satisfactory penetration, and moreover, the patrolman is quite likely to use too much of the binder. This is not only wasteful, but results in forming an objectionable hump or bump.

The object of the present invention is to provide a cheap, simple, and serviceable apparatus for patrolmen's use, by means of which the binder may be sprayed on under sufficient air pressure to drive it into the interstices in the road material. This method results in obtaining a satisfactory bonding with the use of a comparatively small amount of binder. Means are provided for heating the binding material as required for use, and for properly distributing it to any point of the roadway.

In order that the invention may be clearly understood, reference is had to the accompanying drawings forming part of this specification, and in which,

Figure 1 is a side elevation of my improved heating and distributing apparatus shown as applied to a vehicle, parts being in section; Fig. 2 is a rear elevation of the same; Fig. 3 is a transverse section through the fire pot hereinafter described; Fig. 4 is a horizontal section on an enlarged scale on the line 4—4 of Fig. 1; and, Fig. 5 is a complete plan view of the apparatus as shown in Fig. 1.

Referring to the drawings in detail, 1 indicates a suitable vehicle to which my im-

proved apparatus can be attached. It is shown as in the form of an ordinary horse drawn wagon, but it will, of course, be understood that a motor truck could be equally well employed. In the wagon is carried a barrel 2, or other receptacle, in which the binding material is stored.

Carried by the vehicle and preferably located at the rear thereof is a closed reservoir 3, shown as a cylindrical drum. This reservoir may be supported by means of bands 4 attached to the wagon frame. Extending upwardly from the reservoir is a vertical pipe 5, preferably of a comparatively large size, such as an inch and a half. In the pipe 5 is included a T 6. The pipe 5 passes upwardly through a cross-brace 7, and has swiveled to its upper end an elbow 8. Into the elbow 8 is screw-threaded a horizontally extending pipe section 9, in which is included a cock or valve 10. At the outer end of the pipe section 9 is an elbow 11, in which is pivotally mounted a flange 12, riveted or otherwise secured to a kettle 13. This kettle is made of metal and preferably is of substantially the same capacity as the reservoir 3.

Loosely fitting over the pipe 5 above the cross-brace 7 is a double T or cross 14 having laterally extending arms 14', into which are threaded nipples 15 of suitable length. To the ends of these nipples are secured elbows 16, and in these elbows are mounted the ends of a pair of spaced parallel, horizontally extending arms 17. It will be understood that the joints between the various pipe fittings shown may be screwed up tight enough to maintain these arms in position, but pins or keys in the joints may be used if necessary to prevent turning.

At the outer end of the arms 17 is mounted a heater for the kettle, which heater may be of any desired construction, and may be designed to employ either solid or liquid fuel. As shown, this heater is in the form of a pan or fire pot 18, having its upper lateral edges bent over as indicated at 19, in Fig. 3, so as to rest upon the arms 17, the pan being suspended between such arms.

While I have shown and described specific means for supporting the heater, it will, of course, be understood that in place of the pipe connections shown I may employ special castings. As above stated, the T 14 rotates upon and slides freely on the pipe 5, and

may be vertically adjusted thereon as desired. It is secured in position by means of a collar 20, provided with a set screw 21.

In order to provide the necessary air pressure to forcibly project the binder upon the roadway, I provide an air pump 22 which is shown as of a manually operated type having a hand lever 23. This pump delivers air into a pressure tank 24, through a check valve (not shown) in a well known manner. The pump and pressure tank may be located at any suitable point about the vehicle. They are shown as placed near the front where the pump is within easy reach of the driver's seat.

A pipe line 25 extends from the pressure tank 24 and connects with the T 6, a cock or valve 26 being included therein.

A distributing pipe, preferably of small size, such for instance as one-half inch, extends from the reservoir 3. This pipe can conveniently be formed of sections 27, 27', connected together by a swivel joint 31 and having included therein a cock or valve 28. The pipe section 27 screws into one side of an elbow 29, the other side of which is connected with a short stub nipple 30 in such a manner that the distributing pipe can be swung around the nipple 30 as a center. At the outer end of pipe section 27' is a short section 33, connected with section 27' by means of a swivel joint 32 in such a manner as to swing in a vertical plane. The pipe section 33 carries at its lower end any suitable form of nozzle 34.

By virtue of the construction above described, the kettle 13 may be swung from the position shown in full lines, in which it is adjacent the heater, to the position shown in dotted lines into proximity with the barrel 2, so that it may be conveniently filled. The heater itself, moreover, may be swung in a horizontal plane and the angular relation between the kettle and heater varied as desired. This is frequently rendered necessary in windy weather, in which case the kettle is, of course, placed to leeward of the heater so that the heat will impinge thereon. Also it may be desirable to swing both the heater and kettle from one side of the wagon to the other. This arrangement makes it possible to conveniently heat a small shovel or other tool used for removing the binding material from the barrel, such material, when heavy, being often difficult to handle in cold weather. My apparatus is, however, equally adapted for applying either oils or heavy bituminous material, such as petroleum residues or asphalt.

After the material has been heated in the kettle 13, the cock 10 is opened, the cocks 26 and 28 being, of course, closed, and the material allowed to run by gravity through the pipes 9 and 5 into the reservoir 3. If, now, cock 10 is closed and cock 26 opened, it will

be evident that air pressure from the tank 24 will immediately enter the reservoir 3 and be exerted upon the material therein. Then when the cock 28 is opened, the material is discharged forcibly from the nozzle 34 in the form of a spray. By virtue of the swiveled connections 30, 31, and 32, it is, of course, possible to swing the distributing pipe around so as to reach any desired point on the roadway. This pipe when not in use is adapted to be folded against the reservoir 3, as will be apparent.

Ordinarily, after the material has been heated in the kettle and allowed to flow into the reservoir 3, it will remain hot as long as required for use. However, should the material in the reservoir 3, for any reason, become cold or stiff, I provide means for heating it. To this end a suitable bracket is attached to the reservoir and arranged to support the fire pan 18, or other heater. This bracket can conveniently be constructed as follows: A pair of studs 35 are screw-threaded into the back of the drum 3, and upon these studs are fitted elbows 36. Short sections of pipe 37 are attached to these elbows and a pair of arms 39 is secured to the lower end of pipes 37 by means of elbows 38. The arms 39 are so spaced that the overturned edges 19 of the pan will just fit thereover as indicated by dotted lines in Fig. 2. Thus, the same heater may be placed in position under either the kettle or the reservoir as required. In this connection it will be noted that when the heater is placed under the reservoir in this manner, it will also extend under the pipe sections 27 and 27', if folded against the reservoir as above described, and consequently any material which may have solidified in the distributing pipe can be thus melted out.

From the above it will be obvious that I have provided a very simple, cheap, and convenient apparatus which, while light and compact, is, at the same time, efficient and serviceable in operation, and it is thought that the many advantages of the apparatus will be appreciated without further discussion.

What I claim is:

1. A heating and distributing device for oily or bituminous material comprising a closed reservoir, an open heating kettle disposed above the same, a pipe connecting the bottom of the kettle with the reservoir whereby material may flow from the former to the latter, said pipe constituting the sole connection between said kettle and reservoir, a heater arranged below said kettle, a distributing pipe extending from said reservoir, and means for exerting air pressure upon the material in said reservoir.

2. A heating and distributing device for oily or bituminous material comprising a closed reservoir, a pipe projecting vertically

upward therefrom, a horizontally extending pipe section pivotally attached at one end to the upper end of said pipe, a kettle mounted upon the other end of said horizontal pipe section, a heater disposed below said kettle, the arrangement being such that said kettle may be swung around said vertical pipe as a center toward and away from said heater, and a distributing pipe connected with said reservoir.

3. A heating and distributing device for oily or bituminous material comprising a closed reservoir, a distributing pipe connected therewith, a pipe projecting vertically upward from said reservoir, a horizontally extending pipe section pivotally attached at one end to the upper end of said pipe, a kettle mounted upon the other end of said horizontal pipe section, a heater disposed below said kettle and pivotally supported on said vertical pipe, the arrangement being such that both said kettle and heater may be independently swung in horizontal planes, and their relative position varied as desired.

4. A heating and distributing device for oily or bituminous material comprising a closed reservoir, an open kettle disposed above the same, a heater for the kettle,

whereby material may flow by gravity from the latter to the former, an air tank, a pipe connecting said reservoir and kettle, a pipe connecting said reservoir and air tank, a distributing pipe extending from said reservoir, and an independent valve in each of said three pipes, whereby the reservoir may be first filled with material from the kettle, and air pressure then admitted to said reservoir only.

5. The combination with a distributing reservoir and a kettle located above the same and connected therewith, of a heater, and means for interchangeably supporting said heater adjacent either said reservoir or kettle.

6. The combination with a reservoir, of a foldable distributing pipe extending therefrom, said pipe comprising pivotally connected sections, a kettle located above said reservoir and connected therewith, a heater, and means for interchangeably supporting said heater adjacent either said kettle or said reservoir and pipe when folded.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM H. GAILOR.

Witnesses:

ROBERT WATSON,

JOS. H. BLACKWOOD.