C. P. PRICE.

OIL DISTRIBUTING APPARATUS.

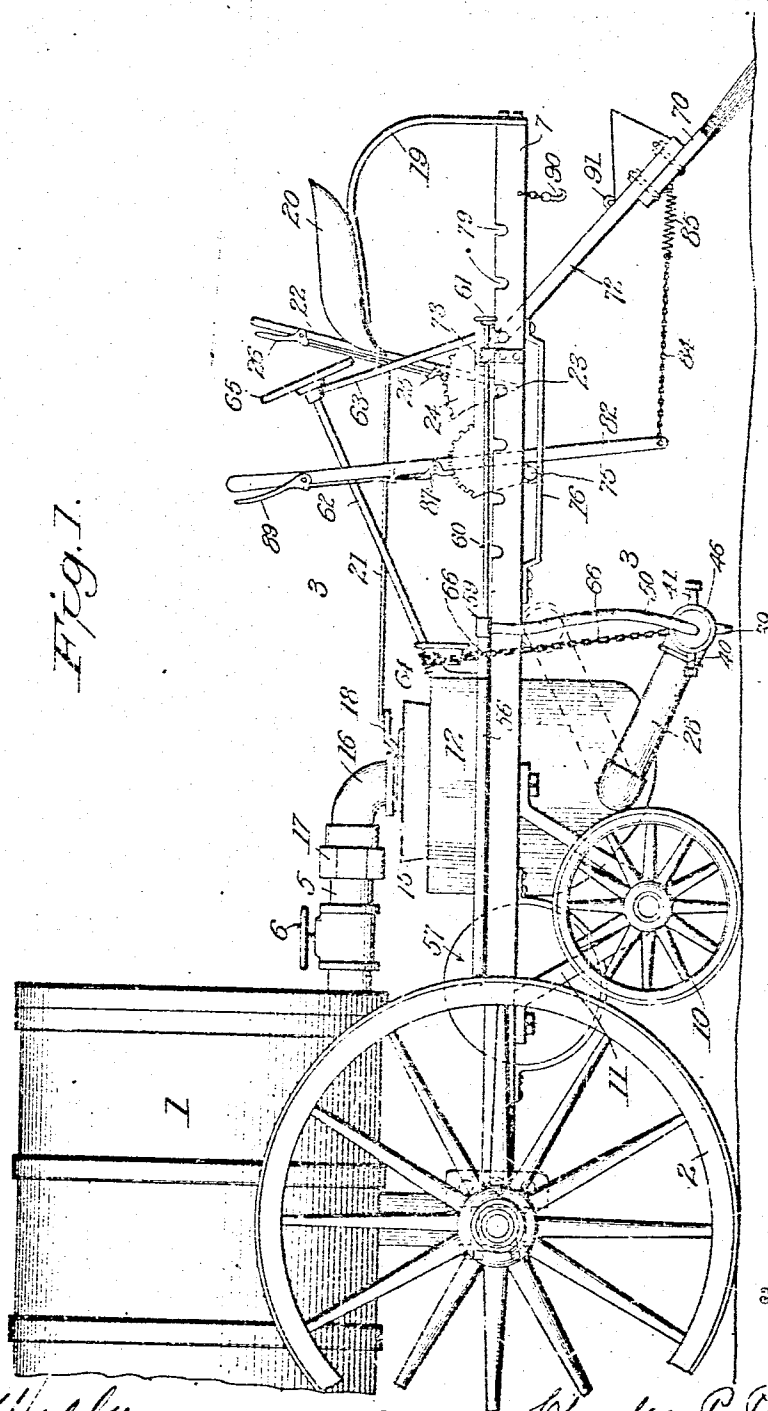
APPLICATION FILED JUNE 6, 1908.

980,002.

Patented Dec. 27, 1910.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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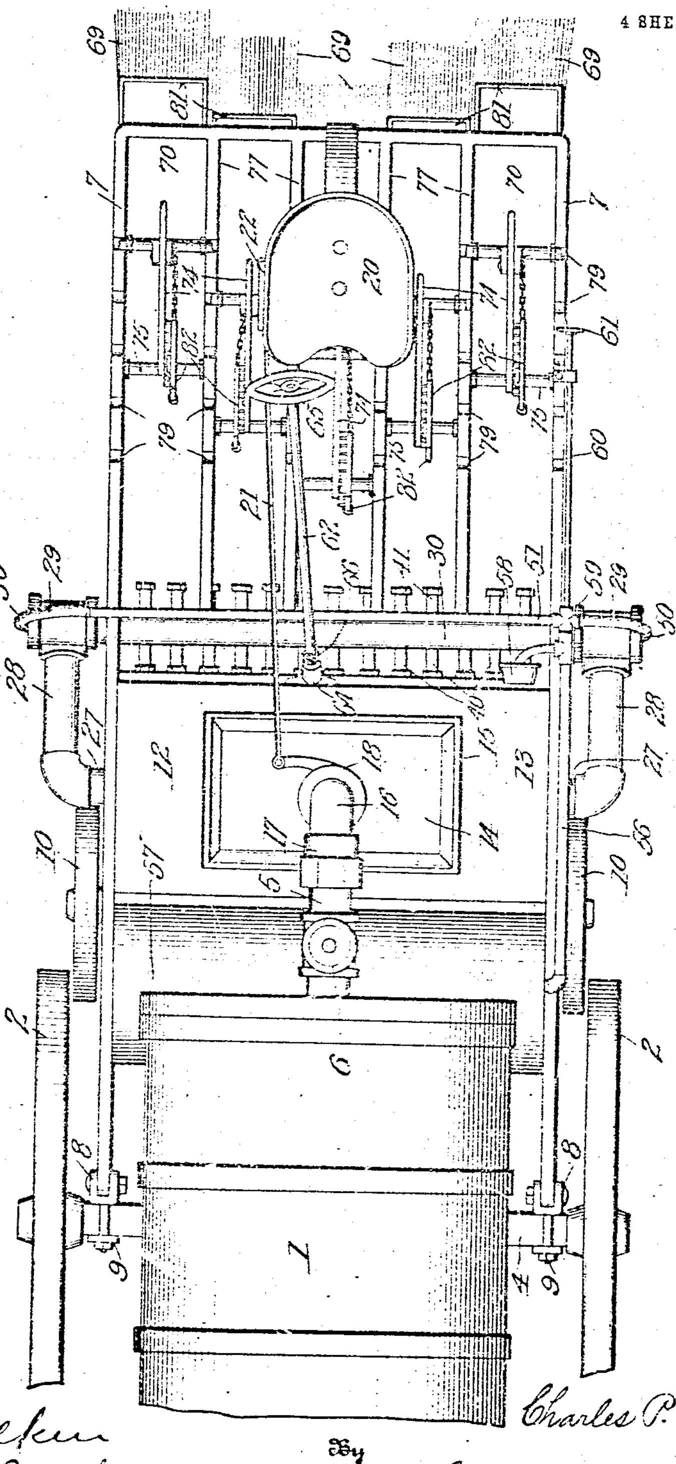
4 SHEETS-SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

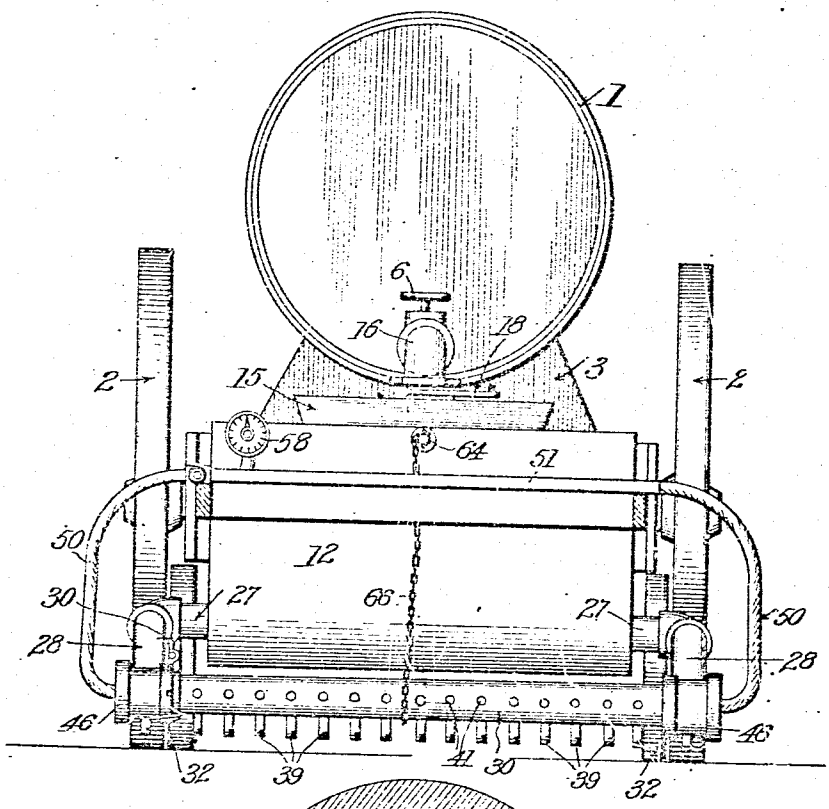
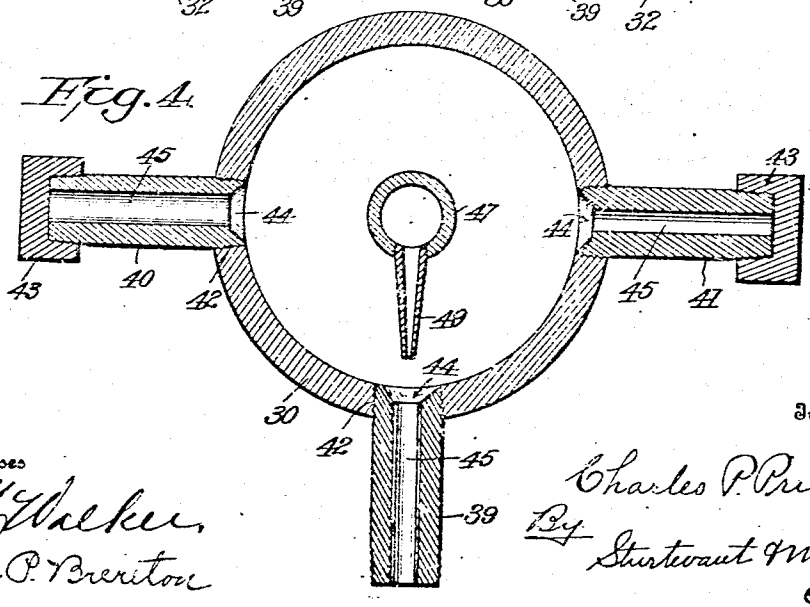


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

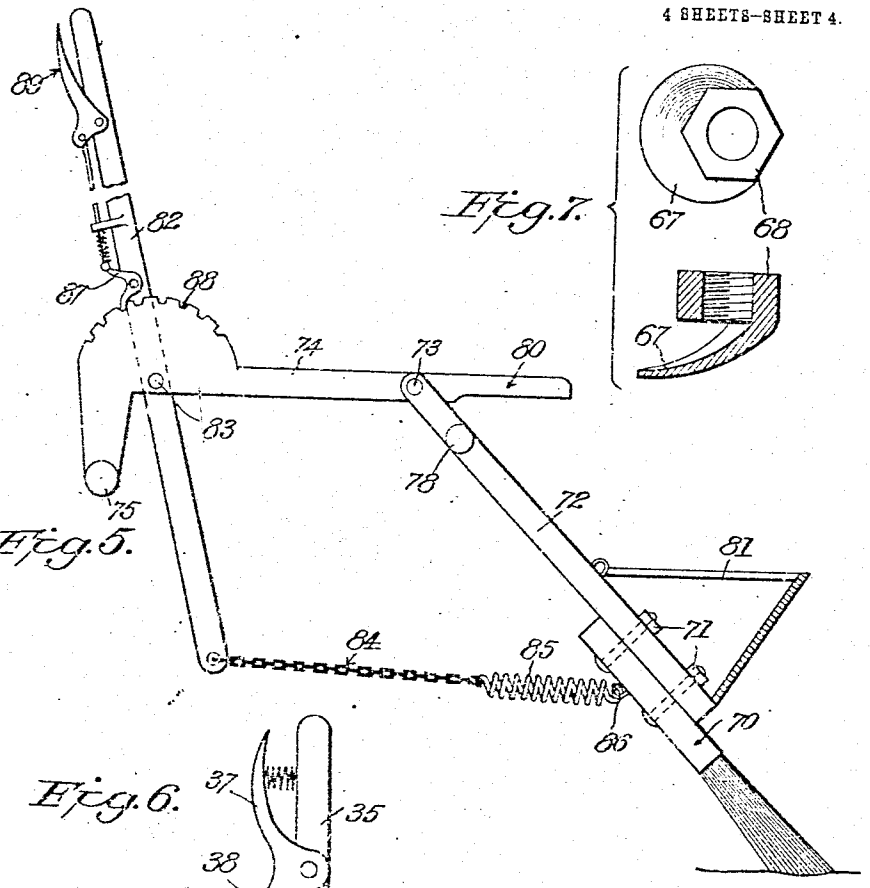
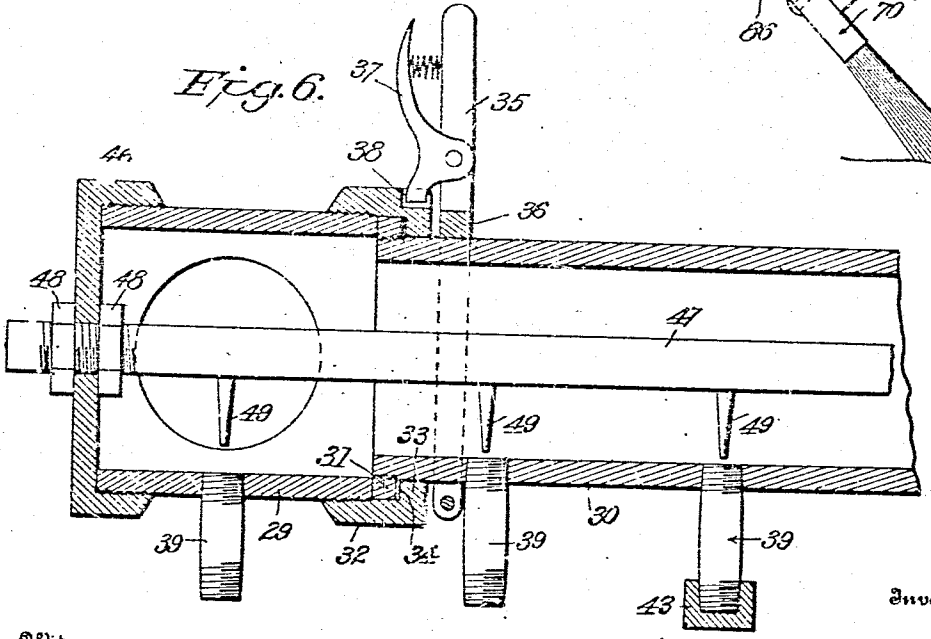


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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OIL-DISTRIBUTING APPARATUS.

980,002. Specification of Letters Patent. **Patented Dec. 27, 1910.**

Application filed June 6, 1908. Serial No. 437,089.

To all whom it may concern:

Be it known that I, CHARLES P. PRICE, a citizen of the United States, residing at Malden, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Oil-Distributing Apparatus, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

My invention relates to new and useful improvements in machines for distributing bituminous liquid preparations, oil or other liquids, upon road beds or the like.

An object of the invention is to provide a distributing means which may be readily adjustable to suit the consistency of the liquid being distributed.

A further object of my invention is to provide a distributing means wherein the flow of the liquid may be quickly regulated or stopped, if desired.

A further object of my invention is to provide a distributing means with a plurality of delivering nozzles, anyone or all of which may be closed when desired.

A further object of my invention is to provide a distributing means of the above character, with a forced flow and with means whereby the delivery nozzles may be readily cleaned.

A further object of my invention is to provide a distributing means of the above character, with means whereby the pressure of the outflow may be quickly varied.

A further object of my invention is to provide a distributing means with a plurality of delivering nozzles, each of which is provided with a spreader.

A further object of my invention is to provide a distributing means of the above character, with a plurality of sets of delivering nozzles, and with means whereby one set or another may be brought into operation.

Still further objects of my invention will in part be obvious, and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration only one embodiment of my invention, Figure 1 is a side elevation, showing an oil cart with my improved apparatus attached thereto: Fig. 2 is a top plan view of the same; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; Fig. 4 is a transverse sectional view of the distributing pipe, taken through the delivering nozzles; Fig. 5 is a detail view of the means for supporting and adjusting the spreaders; Fig. 6 is a longitudinal section of one end of the distributing pipe, showing the means for supporting the same; and Fig. 7 is a top plan view and a sectional view of the spreading pan for the delivering nozzle.

The oil cart may be of any desired construction, and as herein shown consists of a tank 1, which is supported on running wheels in the usual manner, the rear wheels 2, 2, of which are illustrated in the drawing. Said tank rests on a bracket 3, which is secured to the axle 4 for the running wheels 2, 2. Said tank 1 has a delivering pipe 5 at the extreme rear lower end thereof, which is controlled by a suitable hand valve 6.

My improved distributing apparatus is carried by a frame 7, which is detachably secured to the axle 4 in any suitable manner. As herein illustrated, said frame 7 is pivoted to brackets 8, which are clamped to the axle by clamping bolts 9. The frame is also supported by small wheels 10, 10, which are carried by brackets 11 bolted to the frame 7 in any desired manner.

Mounted within the frame 7 is an auxiliary tank 12, which may be of any desired shape, but as herein shown is rectangular in cross section, with its bottom portion slightly rounded. The upper end of the tank 12 is provided with a cover 13, which has an opening 14 centrally thereof. A flanged portion 15 is secured to the cover 13, around the edges of the opening 14, and extends upwardly therefrom.

An elbow pipe 16, is secured to the delivery pipe 5 by means of a suitable coupling 17. Said elbow-pipe 16 is so disposed as to open downwardly centrally over the opening 14 in the auxiliary tank. A gate valve 18 is provided for normally closing the end of the pipe 16.

The framework 7 is provided with a bracket 19, which carries a seat 20 for the operator. The gate valve 18 is connected by a rod 21 to a lever 22, which is pivoted at 23 to the supporting frame 7. Said lever is located adjacent the seat 20, so that the same may be readily manipulated by the operator. A segment rack 24 is secured to the frame 7 and a pawl 25 operated by a hand lever

26, serves as a means for locking the lever 22 in any desired position.

The auxiliary tank 12 is provided at each end near the bottom thereof, with a short section of pipe 27, to each of which is connected a delivering pipe 28. The delivering pipe 28 is secured to the short section of pipe 27 in such a manner that said pipe 28 may be readily swung about the pipe 27 as an axis. At the lower end the pipe 28 is threaded into a sleeve 29. The distributing pipe 30 is connected to the sleeve 29, so that the oil or liquid contained in the auxiliary tank may flow freely through the short length of pipe 27 at each end of the tank, then through the pipe 28 and the sleeve 29 to the distributing pipe 30.

As shown in the present embodiment of my invention, the distributing pipe 30 is threaded at its outer end to receive a collar 31. A clamping cap 32 is provided with a downwardly extending flange 33. Said cap 32 is first placed on the end of the distributing pipe, and then the collar 31 screws thereon. The cap 32 is then screwed on to the sleeve 29, and serves as a means for holding the distributing pipe to said sleeve. A suitable packing 34 may be introduced between the clamping cap and the collar 31.

The distributing pipe may be rotated within the clamping cap 32. As a means for rotating said distributing pipe, I have provided the same with a handle 35, which is carried by a clamping collar 36, secured to the pipe. Said handle 35 is provided with a locking pawl 37, adapted to engage in a recess 38 in the clamping cap, secured to the sleeve 29, and thus hold the distributing pipe 30 in a predetermined position relative to the sleeve 29. The distributing pipe, as shown in Fig. 4, is provided with a plurality of sets of delivering nozzles 39, 40 and 41. As shown in the present illustration of my invention, said sets of delivering nozzles are arranged substantially at 90° apart, although it is obvious that the same may be set closer together, or disposed in any desired manner in the distributing pipe. The delivering nozzle 39 is tapered slightly at its upper end 42, and is threaded to engage a similar tapered threaded socket in the distributing pipe. The outer end of the delivering nozzle 39 is also threaded, so as to receive a cap 43, whereby the nozzle may be closed when desired.

The upper end of the nozzle is tapped, so as to form a tapered opening 44, leading into the delivery opening 45 in the nozzle. The nozzles 40 and 41 are similar to the nozzle 39, except that the delivery opening 45 in the nozzle 40 is much larger than the opening in the nozzle 39, while the opening in the nozzle 41 is very much smaller than the opening in the nozzle 39.

The outer end of the sleeve 29 is closed by a threaded cap 46. It will readily be seen that the distributing pipe 30 may be adjusted by means of the hand lever 35, so as to bring either of the delivering nozzles 39, 40 or 41 at the lower side of the distributing pipe. It will also be readily seen that all the nozzles may be closed by caps, with the exception of the nozzles at the lower side of the distributing pipe, so that the liquid in the auxiliary tank passing down into the distributing pipe will be delivered through the nozzles to the road bed. If a heavy bituminous preparation is being distributed upon the road bed, then the distributing pipe will be so adjusted as to bring the large nozzles at the lower side of the distributing pipe. If a heavy oil is used, the intermediate nozzles may be brought into operation, and when desired, the smaller nozzles may be brought into operation.

It will thus be seen that I have provided a distributer with delivering means which may be varied to accommodate the consistency of the liquid being distributed.

Extending centrally through the distributing pipe and the sleeves 29 is an air pipe 47 which passes through the cap 46, and is secured thereto by suitable nuts 48, 48. Said air pipe is provided with downwardly extending nozzles 49, which are so disposed in the air pipe 47 as to be directly over the oil nozzles, which are located at the lower side of the distributing pipe. Said air pipe 47 is connected by means of flexible pipes 50, 50, and a cross pipe 51, with a pipe 56 running along the upper edge of the framework 7, and connected with the compressed air chamber 57, carried by the framework 7. A suitable pressure gage 58 is connected to the pipe 56, and so disposed as to be readily viewed by the operator. A needle valve 59 is controlled by a valve stem 60 from a hand wheel 61, which is also readily accessible to the operator. By means of the valve 59, the force of the jet of air delivered through the nozzles 49 may be varied whenever desired.

While I have shown the air pipe 47 as located centrally of the distributing pipe 30, it is obvious that said air pipe may be disposed in any other desired manner within the distributing pipe.

The operation of my device above described, will be obvious. The tank 1 is filled to the desired extent with the liquid to be distributed. Preferably said liquid is heated when placed in said tank 1, although it is obvious that from certain aspects of my invention, the distributing apparatus may be connected to a tank having means for heating the liquid, or to a tank from which it is desired to distribute the liquid without heating. The hand valve 6 is opened, so as to allow a free flow of the liquid through

the delivery pipe 5. The operator through the lever 22 and the valve gate 18, controls the flow of the liquid into the auxiliary tank. The liquid in the auxiliary tank passes out through the pipes at the end thereof down into the distributing pipe, and is led from the distributing pipe through the open nozzles to the road bed. When desired, a blast of air is allowed to pass from the nozzles 49, which will cause a forced flow of the liquid through the oil delivering nozzles. By forming the delivering nozzles with a tapering opening leading thereto, the liquid will readily flow into the delivering nozzles. When it is desired to clean out the delivering ports, the flow of liquid may be stopped, and the force of air through the nozzle 49, increased, so as to blow out all deposit within the delivery port.

In order to provide a means for stopping the flow of liquid from the distributing pipe when passing cross walks in the road or the like, I have mounted the delivery pipes 28 as above noted, on the short sections of pipe 27, so that they may be readily turned axially thereon.

A shaft 62 is mounted in suitable brackets 63 and 64, and provided with a hand wheel 65, which is readily accessible to the operator. At its lower end a chain 66 is secured to the shaft 62, so that when said shaft is rotated the chain will be wound up thereon. Said chain at its lower end is connected to the distributing pipe 30 in any suitable way.

It will readily be seen that when the operator turns the hand wheel 65, the chain 66 may be wound on the shaft 62, and the distributing pipe turned about the short section of the pipe 27 as an axis, to a position shown in dotted lines in Fig. 1. In this position of the distributing pipe, the delivering nozzle may be brought above the surface of the liquid in the auxiliary tank, which, of course, will cause the flow through the nozzle to cease. Inasmuch as the height of the liquid in the auxiliary tank determines the force with which the liquid is delivered from the nozzles, the raising of the distributing pipe to an intermediate position, would decrease the pressure of the liquid as it passes from the nozzle.

It will thus be seen that I have provided means wherein the delivering pressure of the liquid may be quickly varied when desired, or the flow may be caused to cease entirely. The operator is in a position so that he may readily view the contents within the auxiliary tank, and by means of the gate 18 and the hand lever 22, regulate the amount of liquid in the auxiliary tank. While any amount of liquid may be allowed to flow into the auxiliary tank, within of course the limits of the tank, it is preferable to keep a small amount of liquid in the auxiliary tank, so that the pressure of the outflowing liquid will not be too great, and, furthermore, so that the distributing pipe may be readily lifted above the upper surface of the liquid, in order that the flow may be stopped.

As a means for spreading the liquid flowing from the delivery pipe, I may use a spreading pan 67, which, as shown in Fig. 7, is spoon-shaped and secured to the lower edge of a nut 68, which may be readily secured on to the outer end of the nozzle. This spreading pan may be positioned as desired upon the lower end of the nozzle, and will cause the liquid to be thrown, so as to cover the entire road bed surface.

As a means for spreading the liquid after being laid upon the road bed, or for dragging the surface of the road bed when desired, I have provided a plurality of brushes 69. Said brushes may be made of wire, heavy reeds or other suitable material, which are secured to a head 70, which in turn is detachably connected by means of bolts 71, to a supporting rod or shank 72. Said supporting shank 72 is pivoted at 73 to a supporting bar 74. Said bar 74 is provided with a cross rod 75, which rests on brackets 76, secured to the lower sides of of the frame 7, and the intermediate frame parts 77. The supporting shank 72 is provided with a cross rod 78, which is adapted to engage seats 79 formed in the upper edges of the frame 7, and the intermediate frame parts 77. The supporting bar 74 extends beyond the pivot 73, so as to form a handle 80. The operator may readily grasp the handle 80, and swinging the supporting bar 74 about the cross rod 75 as a pivot, lift the cross rod 78 out of a seat 79, so that the same may be pushed forward or back and dropped into a corresponding seat 79. By this means, the position of the brushes 69 may be independently varied, so that said brushes may be arranged in a line at right angles to the line of movement of the distributer; or said brushes may be arranged in the form of a V, as shown in the plan view in Fig. 2; or said brushes may be arranged so as to crowd the material toward the center of the road bed, or toward the side of the road bed, in whichever way desired.

As a means for causing the brush to bear with some pressure upon the road bed, I have provided a supporting bracket 81, on which a bag of sand or other heavy object may be placed when desired. I have also provided a hand lever 82, which is pivoted at 83 to the supporting bar 74, and at its lower end connected by means of a chain 84, to a coiled spring 85, which is secured at 86 to the head 70 of the brush. The lever 82 is provided with a dog 87, which engages a rack 88 formed in the supporting bar 74. Said dog 87 is controlled by a hand latch 89, in the usual manner.

By adjusting the lever 82, the tension on the spring 85 may be varied, and thus the pressure caused by the brush upon the road bed also varied. At the same time, the spring 85 will yield to allow the brush to pass over any permanent obstruction in the road bed. When it is not desired to use the brushes 69, or a portion thereof, they may be readily lifted; after releasing the lever 82, so as to engage the hook 90 with an eye 91, carried by the supporting shank of the brush, thus rendering the brush inoperative.

It will readily be understood that in operation, my distributing apparatus or machine, may be attached to any form of storage tank, and that when one tank is empty, said auxiliary distributing apparatus may be readily disconnected therefrom and connected to another. It will also be obvious that instead of using a compressed air cylinder, suitable means may be provided for compressing the air from the movement of the cart.

It should be understood that from certain aspects of my invention, the distributing mechanism may be connected directly to a tank in which the liquid is placed under pressure, without using the intermediate auxiliary tank. It will also be understood that the invention in its broader aspects is not limited to the details of construction herein shown; nor to the proportion of parts; nor to any particular form of construction, as changes may be made herein without departing from the main principle of the invention and without sacrificing its chief advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An oil distributer comprising a liquid-retaining tank, short pipes extending from the ends of said tank, delivering pipes having a swiveled connection with said short pipes, whereby the same may turn axially about said short pipes, said short pipes forming an unobstructed passage between said tank and said delivering pipes, a distributing pipe supported by said delivering pipes, said distributing pipe having a plurality of separated delivering openings, and means whereby the distributing pipe may be swung about said short pipes, so as to cause the flow of liquid through the delivering openings to vary or to stop.

2. An oil distributer comprising an auxiliary tank, a supporting frame for said auxiliary tank, wheels connected to said supporting frame, short pipes extending from the ends of said auxiliary tank, delivering pipes having swiveled connections to said short pipes, whereby the same may turn axially about said short pipes, a distributing pipe supported by said delivering pipes, said short pipes forming an unobstructed passage between said auxiliary tank and said delivering pipes, said distributing pipe having a plurality of separated delivering openings, and means whereby the distributing pipe may be swung about said short pipes, so as to cause the flow of liquid through the delivering openings to vary, or stop.

3. An oil distributer comprising an auxiliary tank, a supporting frame for said auxiliary tank, wheels connected to said supporting frame, short pipes extending from the ends of said auxiliary tank, delivering pipes having swiveled connections to said short pipes, whereby the same may turn axially about said short pipes, a distributing pipe supported by said delivering pipes, said short pipes forming an unobstructed passage between said auxiliary tank and said delivering pipes, said distributing pipe having a plurality of separated delivering openings, and means whereby the distributing pipe may be swung about said short lengths of pipes, so as to cause the flow of liquid through the delivering openings to vary or stop, said means including a shaft mounted in said frame, and a flexible connection between said shaft and said distributing pipe.

4. An oil distributer comprising a liquid retaining tank, a distributing pipe connected to said liquid-retaining tank, said distributing pipe having a plurality of rows of different size delivering openings, means whereby said openings may be independently closed, and means for turning said distributing pipe, whereby any desired row of delivering openings may be brought to the lower side of said pipe and used for distributing the liquid.

5. An oil distributer comprising an auxiliary tank adapted to be connected to a main tank wagon, a frame for supporting said auxiliary tank, a distributing pipe connected to said auxiliary tank, said distributing pipe having a plurality of rows of different size delivering openings, means whereby said openings may be independently closed, and means for turning the distributing pipe, whereby any desired row of openings may be brought to the lower side thereof and used for distributing the liquid.

6. An oil distributer, containing a liquid retaining tank, short pipes extending from the ends of said tank, delivering pipes having a swiveled connection with said short pipes whereby the same may turn axially about said short pipes, said short pipes forming an unobstructed passage between said tank and said delivering pipes, a distributing pipe supported by said delivering pipes, said distributing pipe having a plurality of separated delivering nozzles, an air pipe located within said distributing pipe and having nozzles in line with said delivering nozzles, an air tank, means for connecting the air tank to said air pipe,

and means whereby the distributing pipe may be swung about said short pipes, so as to cause the flow of liquid through the delivering openings to vary or stop.

7. An oil distributer, comprising a liquid retaining tank, short pipes extending from the ends of said tank, delivering pipes having a swiveled connection with said short pipes, whereby the same may turn axially about said short pipes, said short pipes forming an unobstructed passage between said tank and said delivering pipes, a distributing pipe supported by said delivering pipes, said distributing pipe having a plurality of closely spaced downwardly projecting nozzles having a threaded end formed thereon, a nut adapted to be secured to the threaded end of each of said nozzles, said nut having a spoon-shaped spreader extending across the nozzle for spreading the material flowing from the nozzle, and means whereby the distributing pipe may be swung about said short pipes, so as to cause the flow of liquid through the delivering openings to vary or stop.

8. The combination of an auxiliary tank, delivering pipes connected thereto, a distributing pipe connected to said delivering pipes, so as to oscillate relative thereto, a plurality of sets of delivering nozzles carried by said distributing pipe, an air pipe located within said distributing pipe, and having a plurality of downwardly extending nozzles, and means for rotating the distributing pipe relative to the air pipe so that any desired set of delivering nozzles may be brought beneath the nozzles in the air pipe.

9. The combination of an auxiliary tank, delivering pipes connected thereto, collars connected to the ends of said delivering pipes, a distributing pipe connected to said collar so as to rotate relative thereto, caps for closing the outer ends of said collars, an air pipe located within said distributing pipe, and passing through said caps, and means for supplying air to said air pipe.

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

CHARLES PEARL PRICE.

Witnesses:
ARTHUR W. CARY,
J. BYRON BARRETT.