Nov. 11, 1947. W. H. PHALOR 2,430,781

FLUID DISTRIBUTING APPARATUS

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Fig. 1.

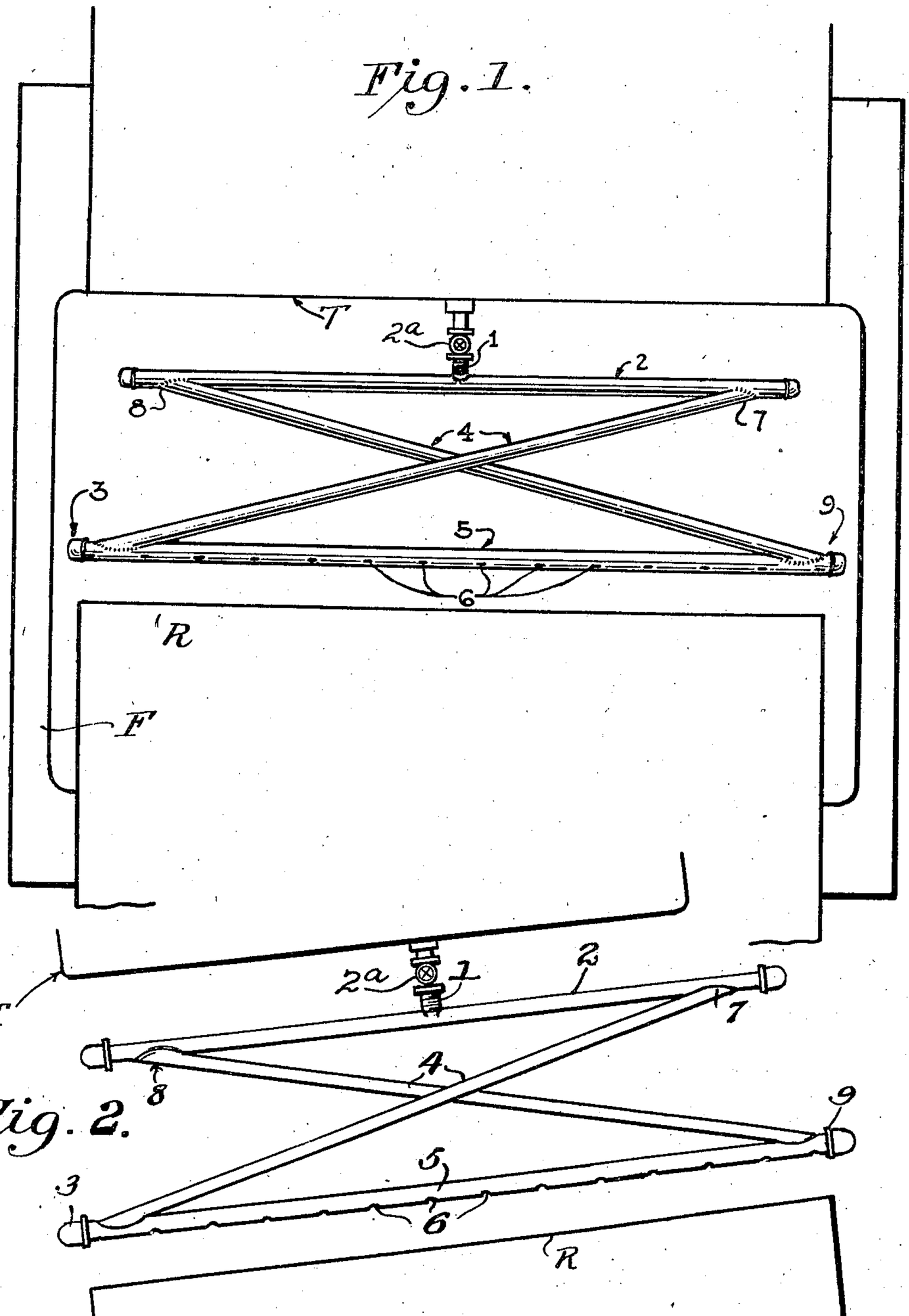

Fig. 2.

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FLUID DISTRIBUTING APPARATUS

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3 Claims. (Cl. 94—50)

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This invention relates to improvements in fluid distributing apparatus, having particular reference to fluid distributors utilizing perforate spray bars from which fluids or fluid-like materials are discharged for distribution over adjacent surfaces. In a more specific aspect, my invention is concerned with an improved fluid distributor for use on asphalt road-rolling machines and adapted for wetting the peripheral surfaces of the road-engaging rolls thereof.

In rolling asphalt or similar road surfaces, it is necessary to keep the rolls of the road rollers wet during the operation. At present, this is accomplished by placing a perforate pipe or spray bar, connected centrally of its length with a water-containing tank, adjacent to and in parallel relation with the upper peripheral surface of the road-engaging roll, so that when water is supplied from the tank to the perforate distributing pipe, the fluid is distributed over the peripheral surface of the roll to render its operation more effective and efficient in the rolling of asphalt roads particularly.

It frequently happens in the operation of such rollers that the distributing pipe and its associated roll will not assume normal horizontal positions, as when the roller is operating at the side of a crowned road, or in other positions in which the distributing pipe assumes a position of acute angular relationship with respect to a true horizontal plane. Under such conditions, water admitted to the center of the pipe flows toward its low side, with the result that only a portion of the associated roll receives its intended fluid supply.

It is, therefore, an object of the present invention to provide an improved fluid distributor for such rolling machines wherein a normal and adequate supply of the wetting fluid is distributed over the full length of the road-engaging roll irrespective of deviations in position of the roll with respect to the horizontal. It will be noted that the application of water is sufficient merely to wet the roller. A small and regulated amount of water will serve this purpose in contrast to such amount as might be necessary if the water was used as a blast or spray under pressure to clean the surface of the roller.

It is another object of the invention to provide a fluid distributor which comprises an inlet pipe having a centrally disposed fluid inlet and an outlet pipe arranged below the inlet pipe in substantially parallel order therewith, said pipes being connected by a pair of crossed fluid-conducting pipes which are united at their ends with

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the end portions of the inlet and outlet pipes, the said crossed pipes serving to conduct fluid to the highest end of the outlet pipe when the latter occupies an angular position to the horizontal, so that the fluid will flow through the full length of the perforate outlet pipe at all times to wet properly the peripheral surfaces of the associated roll throughout its length.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawing, wherein:

Fig. 1 is a front elevational view of the fluid distributor comprising the present invention, an associated tank and roll being shown by the broken lines;

Fig. 2 is a similar view disclosing the distributor when positioned at an angle to the horizontal.

Referring more particularly to the drawings, the numeral 1 designates the centrally disposed threaded nipple of the inlet pipe 2 of my improved fluid distributor. The nipple is adapted to be connected with a water supplying tank T, there being a manually controlled valve 2*a*, for regulating the gravitational flow of the fluid from the tank into the pipe 2. The pipe 2 may be formed from standard metallic tubing and has the ends thereof closed by means of suitable caps. Disposed below and in parallel relation with the inlet pipe 2 is an outlet pipe 5, the latter being arranged immediately over the road-engaging roll R of a road-rolling machine. The ends of the pipe 5 are also closed by means of the caps indicated at 3 and 9 and the under side of the outlet pipe or spray bar 5 is provided with spaced perforations 6, whereby fluid issuing from these perforations is distributed over the peripheral surface of the roll R. Uniting the pipes 2 and 5 is a pair of crossed fluid-conducting pipes 4, the latter being arranged in the order of an X so that the same extend in acute angular relationship to the pipes 2 and 5. The upper ends of the pipes 4 are welded or otherwise joined as at 7 and 8 to the outer end portions of the inlet pipe 2, while the lower ends of the pipes 4 are similarly welded or otherwise joined with the outer end portions of the pipe 5 adjacent to the end closures 3 and 9. This pipe system 2, 4 and 5 is suitably supported in any desired manner in connection with the tank T or frame structure F of a standard road-rolling machine. This arrangement makes it possible to provide water to the highest end of the sprinkler pipe 5 regardless as to the volume of water passing through the pipe 1.

In the use of the device, when the road-rolling

machine assumes a somewhat tilted position, as when operating over the side of a transversely crowned roadway, and as depicted in Fig. 2, water flowing into the inlet pipe 2 passes to the lower end thereof and enters the pipe 4 joined as at 8 with the lower end of the pipe 2. The angularity of this pipe 4 is such as to provide for the gravitational flow of the fluid to the upper end 9 of the spray bar 5, so that the fluid will pass gravitationally through the entire length of the pipe or bar 5, passing through the perforations 6 thereof and distributing itself over the full length of the peripheral surface of the roll R. If the angularity of the system should be the reverse of that illustrated in Fig. 2, the latter will flow through the other of the pipes 4, as will be readily understood. By this arrangement, the roll will be adequately and properly wetted regardless of its operating positions. It will be observed that my improved distributor is fully automatic and requires no moving parts in its operation.

One of the most valuable features of this apparatus resides in the conservation of water that the apparatus makes possible. As illustrated, the tank, valve, sprinkler pipe and diagonal connections are used in combination with a road roller. It is important that excess flow, waste of water be avoided and this is especially true in the use of a roller. The roller cannot be constantly returned to a source of supply for the refilling of the water tank. It is characteristic of such apparatus that the discharge flow is gravitational. Regulated flow to a minimum is desirable and this is the function of the valve 2*a*, which is set to permit enough water to pass to wet the roller while yet avoiding unnecessary volume.

While I have specifically described the apparatus as being adapted to the operation of wetting the rolls of road-rollers, nevertheless, it may be usefully employed in any analogous capacity in which a perforate fluid conductor is present as, for example, in the operation of spray bars used in distributing heated asphalt or other bituminous compounds of a fluid-like nature on highways. Also, while I have disclosed a single practical embodiment of my improved distributor, it will be understood that the same is subject to certain structural modification without departing from its essential operating principles, and I therefore reserve the right to employ all such modifications that may be said to fall within the scope of the following claims.

I claim:

1. In a road roller, a frame, a road-engaging roller rotatably carried by said frame, a water-containing tank mounted on said frame and disposed above said roller in spaced relation thereto, said tank being provided with a water outlet, a straight distributing pipe extending substantially parallel to the axis of said roller and located adjacent the surface of the roller for distributing fluid from openings located at spaced intervals along its length to the surface of the roller, a primary supply pipe positioned above said straight pipe and substantially parallel thereto and in ported communication with said water outlet of said tank, a pair of secondary supply pipes connected to and extending diagonally downwardly from said primary supply pipe and each secondary supply pipe providing ported communication between the primary supply pipe adjacent one end thereof and said distributing pipe adjacent the end thereof farthest removed from the point at which the respective secondary pipe is connected to said primary supply pipe, a control valve between said tank and said primary supply pipe for regulating the flow of water to said primary and secondary pipes and distributing pipe.

2. In a road roller, a frame, a road-engaging roller rotatably carried by said frame, a water-containing tank mounted on said frame and disposed above said roller in spaced relation thereto, said tank being provided with a water outlet, said water outlet being located substantially centrally the length of said roller, a straight distributing pipe extending substantially parallel to the axis of said roller for distributing fluid from openings located at spaced intervals along its length, a primary supply pipe positioned above said straight pipe and substantially parallel thereto and in ported communication with said water outlet of said tank, a pair of secondary supply pipes connected to and extending diagonally downwardly from said primary supply pipe and each secondary supply pipe providing ported communication between the primary supply pipe adjacent one end thereof and said distributing pipe adjacent the end thereof farthest removed from the point at which the respective secondary pipe is connected to said primary supply pipe, a control valve between said tank and said primary supply pipe for regulating the flow of water to said primary and secondary pipes and distributing pipe, said secondary supply pipes being rigid and substantially straight and diagonally crossed with respect to each other.

3. In a road roller, a frame, a road-engaging roller rotatably carried by said frame, a water-containing tank mounted on said frame and disposed above said roller in spaced relation thereto, said tank being provided with a water outlet, said water outlet being located substantially centrally the length of said roller, a straight distributing pipe extending substantially parallel to the axis of said roller and located adjacent the surface of the roller for distributing fluid from openings located at spaced intervals along its length to the surface of the roller, a primary supply pipe positioned above said straight pipe and substantially parallel thereto and in ported communication with said water outlet of said tank, a pair of secondary supply pipes connected to and extending diagonally downwardly from said primary supply pipe and each secondary supply pipe providing ported communication between the primary supply pipe adjacent one end thereof and said distributing pipe adjacent the end thereof of farthest removed from the point at which the respective secondary pipe is connected to said primary supply pipe, a control valve associated with said tank and said primary supply pipe for regulating the flow of water to said primary and secondary pipes and distributing pipe, said secondary supply pipes being rigid and substantially straight and diagonally crossed with respect to each other.

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