

W. S. FRENCH.

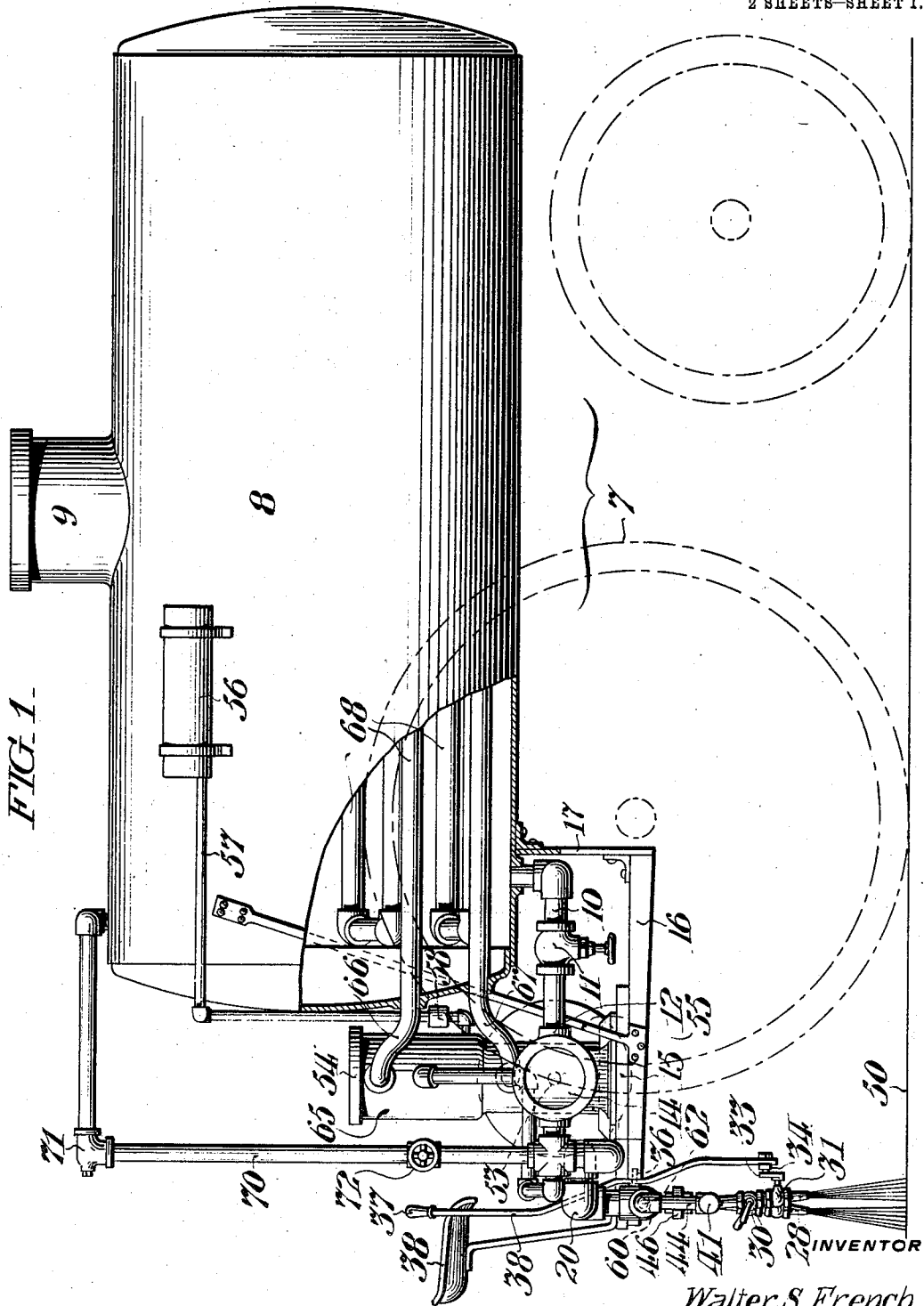
ROAD OILER.

APPLICATION FILED JULY 27, 1910.

1,001,014.

Patented Aug. 22, 1911.

2 SHEETS—SHEET 1.



WITNESSES

J. S. Freeman.  
Clifton C. Halliwell

BY

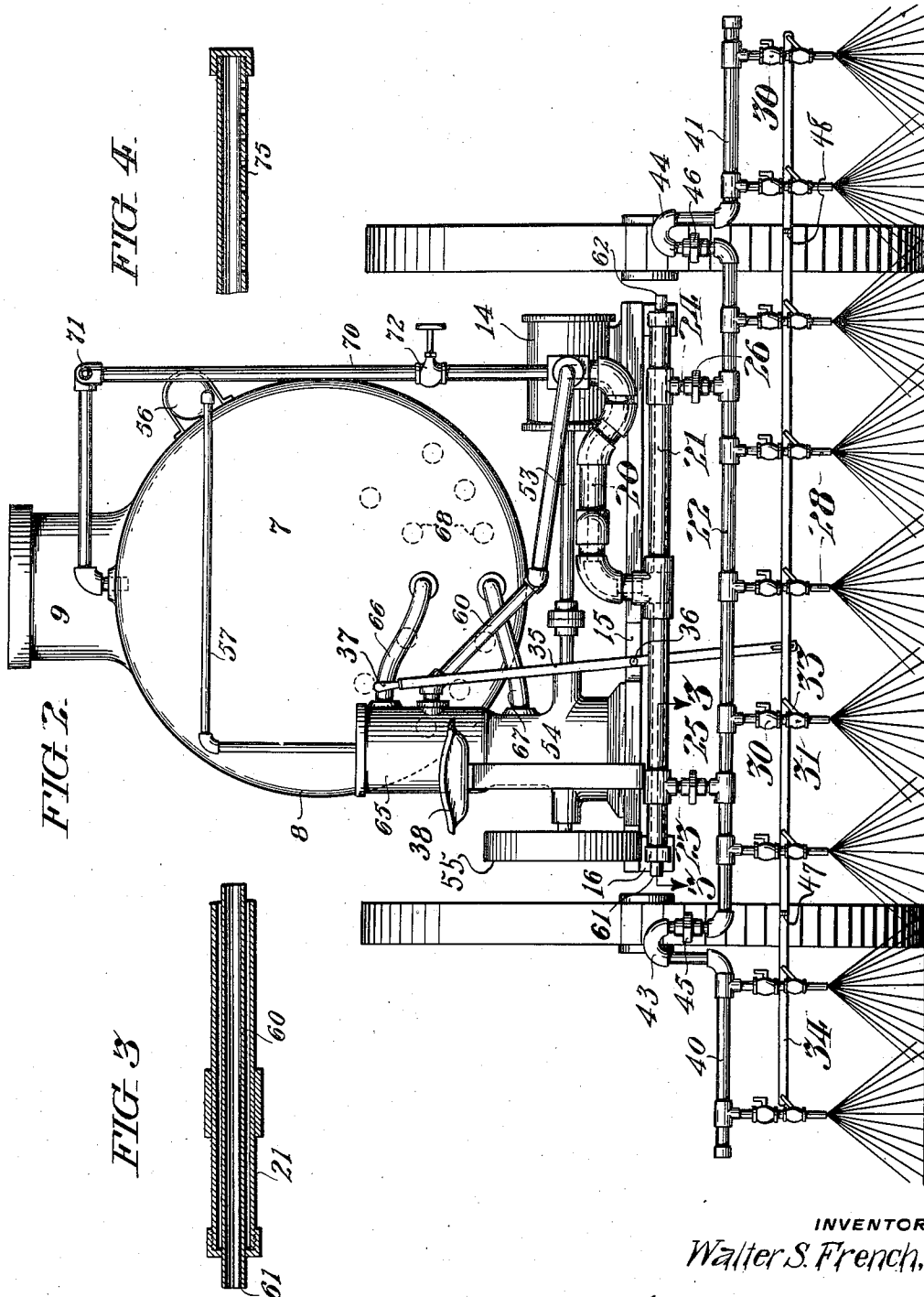
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J. S. Freeman.  
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# UNITED STATES PATENT OFFICE.

WALTER S. FRENCH, OF MOORESTOWN, NEW JERSEY.

## ROAD-OILER.

1,001,014.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed July 27, 1910. Serial No. 574,033.

*To all whom it may concern:*

Be it known that I, WALTER S. FRENCH, a citizen of the United States, and a resident of Moorestown, county of Burlington, and State of New Jersey, have invented certain new and useful Improvements in Road-Oilers, of which the following is a specification, reference being had to the accompanying drawings.

This invention particularly relates to sprinkling devices which are arranged to coat highways with oil, tar products, asphalt binders, and such emulsions as are adapted to laying dust, and rendering the particles of road material coherent.

The principal objects of this invention are to provide such a fluid-distributing device with means whereby fluid is forced under pressure and sprayed through suitable outlet orifices; to provide means to heat the fluid in the fluid reservoir by the waste heat generated by the pressure generator; to provide means comprising a heating conduit whereby the exhaust from the pressure generator is utilized to heat the fluid adjacent to said outlet orifices; to provide a spraying pipe comprising jointed sections provided with outlet orifices; to provide means to contemporaneously control all of said outlet orifices; to provide means to render selected orifices inoperative; and to provide means to control said orifices singly.

The form of this invention, hereinafter described, provides a tank wagon with a pump which may be connected with the tank outlet; an engine arranged to actuate said pump comprising a water-jacket; a circulatory system connected with said water-jacket and comprising a pipe coil within the tank; arranged to heat the fluid therein; a fluid distributing pipe comprising joint sections connected with said pump and having outlet nozzles suitably disposed with respect to the roadbed; a heating conduit for said fluid interposed between said pump and distributing pipe; an exhaust pipe leading from said engine through said heating conduit in contact with the fluid therein; an overflow pipe connecting said pump with said tank; a pressure regulating valve in said overflow pipe to automatically regulate the pressure in the system between the pump and nozzles; a valve arranged to control said pipe; a valve for each nozzle; a link connected to contemporaneously operate all of said nozzle valves; and a valve for each nozzle inde-

pendently operated to control said nozzles separately.

This invention further includes all of the various novel features of construction and arrangement which are hereinafter more definitely specified.

In the accompanying drawings Figure 1 is a side elevational view of a tank wagon, embodying a convenient form of this invention; Fig. 2 is a rear elevational view of the wagon shown in Fig. 1; Fig. 3 is a fragmentary sectional view taken longitudinally through the heating conduit on the line 3—3 in Fig. 2 and Fig. 4 is a fragmentary sectional view showing a slightly modified form of distributing pipe.

In said figures the tank wagon 7 carries the tank 8 provided with the inlet 9 and having the outlet pipe 10 controlled by the valve 11 and connected with the inlet 12 of the pump 14, which is carried by the platform 15, supported on the skids 16 which project from the running gear 17 of the wagon.

The pump 14 is connected by the pipe 20 with the heating conduit 21 which is connected with a distributing pipe 22 through the branches 23 and 24, comprising the unions 25 and 26 respectively, whereby the distributing pipe may be conveniently detached and replaced.

As shown in Fig. 2 the distributing pipe 22 is provided with a series of nozzles 28, each of which is arranged to be controlled by the valves 30 and 31, the valves 30 being independently operated to selectively control their respective nozzles, and the valves 31 having their levers 33 connected by the link 34, said link 34 is arranged to be shifted to contemporaneously actuate all of said valves 31, by the hand lever 35, which is pivoted to oscillate on the fulcrum 36, and which provides the handle 37 convenient to the operator's seat 38.

The distributing pipe 22 is provided with the relatively movable extensions 40 and 41, which are connected therewith by the return bends 43 and 44 respectively having the unions 45 and 46, upon which said extensions are pivoted and whereby they may be swung into planes substantially parallel with the wheels to permit the passage of the wagon through a space normally of just sufficient width for the passage of said wagon.

The link 34 is provided with hinges 47 and 48 whose axes of oscillation are so dis-

posed as to be in alinement with the axes of oscillation of the movable extensions 40 and 41 when the valves are in closed position, so that, as may be noted, the valves 31 must be closed before the extensions 40 and 41 can be shifted out of alinement with the distributing pipe 22 whereby the accidental flooding of the roadbed by turning the plane of the sprays parallel with the plane of movement of the wagon is impossible.

It is to be noted that the sprays discharged from the nozzles 28 are substantially fan-shaped and as best shown in Fig. 2, said sprays overlap near the road bed 50 without interfering with the adjacent sprays, which is effected by directing the axes of alternate nozzles in slightly staggered relation upon opposite sides of a transverse plane but in parallel longitudinal planes, as best shown in Fig. 1.

The pump 14 is directly connected through the shaft 53, to be driven by the engine 54 having the balance wheel 55. Said engine 54 is connected with the fuel supply reservoir 56 through the pipe 57 and carbureter 58 and is provided with the exhaust pipe 60 which extends into the oil pipe 20 adjacent to the pump and through said oil pipe and the heating conduit 21 in contact with the oil therein; and is provided with outlets 61 and 62 respectively disposed exterior to the opposite ends of said heating conduit.

The engine 54 is provided with a water-jacket 65 which is connected through the outlet and inlet pipes 66 and 67 respectively, with the inlet and outlet terminals of the coil 68 which extends within the tank 8 in close proximity to the bottom thereof so that the water in the water-jacket is circulated through the coil 68, and the temperature of the fluid in the tank 8 is thereby raised to render it free to flow to the pump 14 from which it is forced through the pipe 20 and heating conduit 21, where its temperature is still further raised by its contact with the exhaust pipe 60, so that it may be readily forced through the nozzles 28 in a heated state, and by reason of its being heated is capable of being sprayed substantially in the form of vapor upon the roadbed.

The pump 14 is connected with the tank 8 preferably at the top by the overflow pipe 70 to direct the surplus oil back into said tank, and said pipe is provided with the spring pressure regulating valve 71, which prevents the oil from the pump returning to the tank until a predetermined pressure in the pipe 20 and heating conduit 21 is attained, so that it is obvious that although the pump may be continuously operated the valves 30 may be closed as desired, and the oil which is normally forced through the nozzles 28 will flow through the overflow pipe 70 and valve 71 back into the tank

without affecting the normal pressure in the system. Said pipe 70 is also provided with a valve 72 whereby it may be entirely closed if desired or regulated to effect a higher pressure in the nozzles 28 than could be attained by the regulating valve 71.

It will be obvious that the heavy oil when cooled tends to clog the system and therefore it has been found desirable to flush said system by utilizing the pump 14 to force a lighter oil, such as gasoline, through the nozzles and the valves controlling the same, to clear the passageways of the heavy oil when they become clogged.

In the form of this invention shown in Fig. 4, it is to be noted that the nozzles may be omitted, and suitable apertures comprising drill holes or saw-cuts extending through the walls of the distributing pipe 75 may effect the spraying desired.

It is not desired to limit this invention to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. In a road oiler, the combination with a tank wagon, of a distributor disposed transversely with respect to the road-bed, a pump connected with said distributor and connected with the tank, an engine connected to actuate said pump, an exhaust pipe leading from said engine through said distributor, arranged to conduct the heat of the exhaust from said engine to the oil in said distributor, a water jacket embodied in said engine, and a pipe connected with said water jacket and leading through the tank in contact with the oil therein, to heat said oil.

2. In a road oiler, the combination with a distributor comprising a pipe having relatively movable extensions, of nozzles carried by said pipe to direct oil over a road bed transversely, valves arranged to control said nozzles respectively, a link connecting said valves operative to contemporaneously control all of said nozzles, and having extensions movable with said pipe extensions, valves arranged to selectively control said nozzles, a pump operative to direct oil under pressure through said distributor, an engine connected to actuate said pump, and a pipe connected with said engine to direct the waste heat therefrom to the oil in said distributor.

3. In a road oiler, the combination with a tank wagon, of a distributing pipe provided with outlet orifices, a pump operative to direct fluid under pressure through said distributing pipe, an internal combustion engine comprising a water jacket connected to actuate said pump, a pipe connected with

said water jacket and leading through the tank in contact with the oil therein, to heat said oil, and an exhaust pipe for said engine arranged to direct the exhaust fluid 5 through the oil in said distributing pipe.

4. In a road oiler, the combination with a distributor comprising a pipe having relatively movable extensions, of nozzles carried by said pipe arranged to direct oil over a 10 road bed transversely, valves arranged to control said nozzles respectively, a link connecting said valves operative to contemporaneously control all of said nozzles, and having extensions movable with said pipe 15 extensions, valves arranged to selectively control said nozzles, a pump operative to

direct oil under pressure through said distributor, an engine connected to actuate said pump, a pipe connected with said engine to direct the waste heat therefrom to the oil 20 in said distributor, a water jacket embodied in said engine, and a pipe connected with said water jacket and leading through the tank in contact with the oil therein, to heat said oil. 25

In witness whereof, I have hereunto set my hand this 26th day of July, A. D., 1910.

WALTER S. FRENCH.

Witnesses:

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ALEXANDER PARK.