

G. H. GRAY.

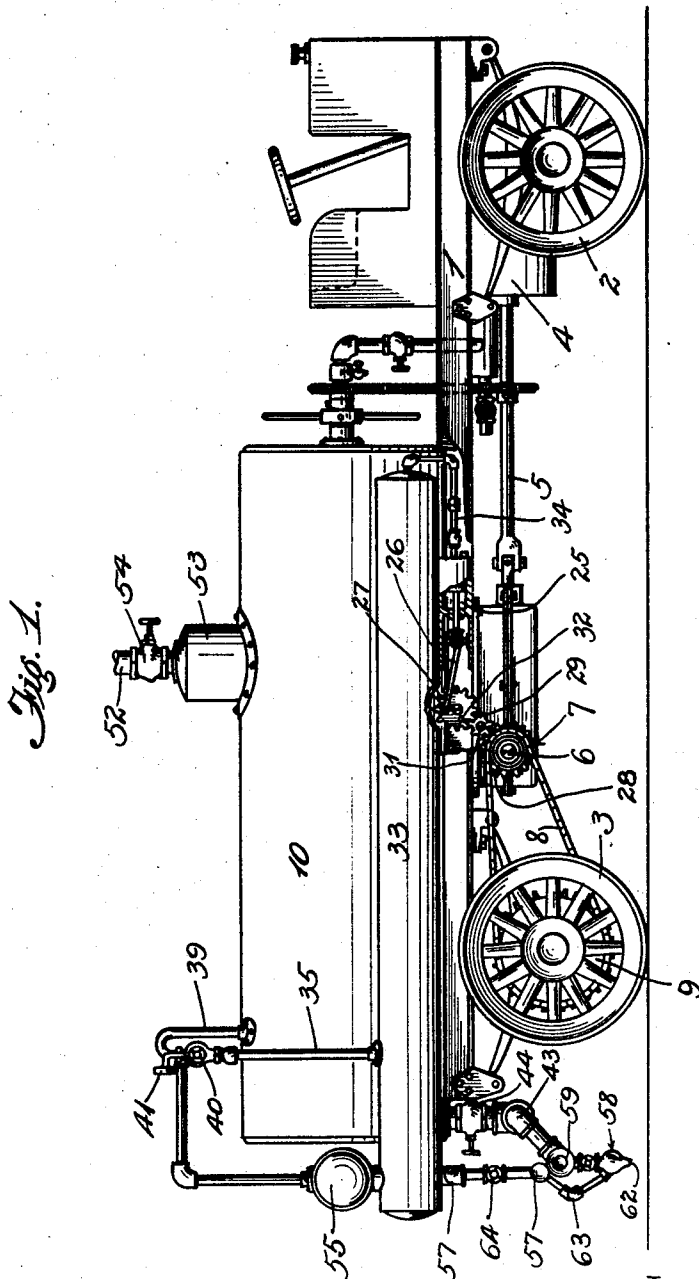
APPARATUS FOR SPRAYING OIL ON ROADS.

APPLICATION FILED MAY 11, 1911. RENEWED NOV. 3, 1913.

1,097,091.

Patented May 19, 1914.

2 SHEETS—SHEET 1.



Witnesses:

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Inventor:
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by

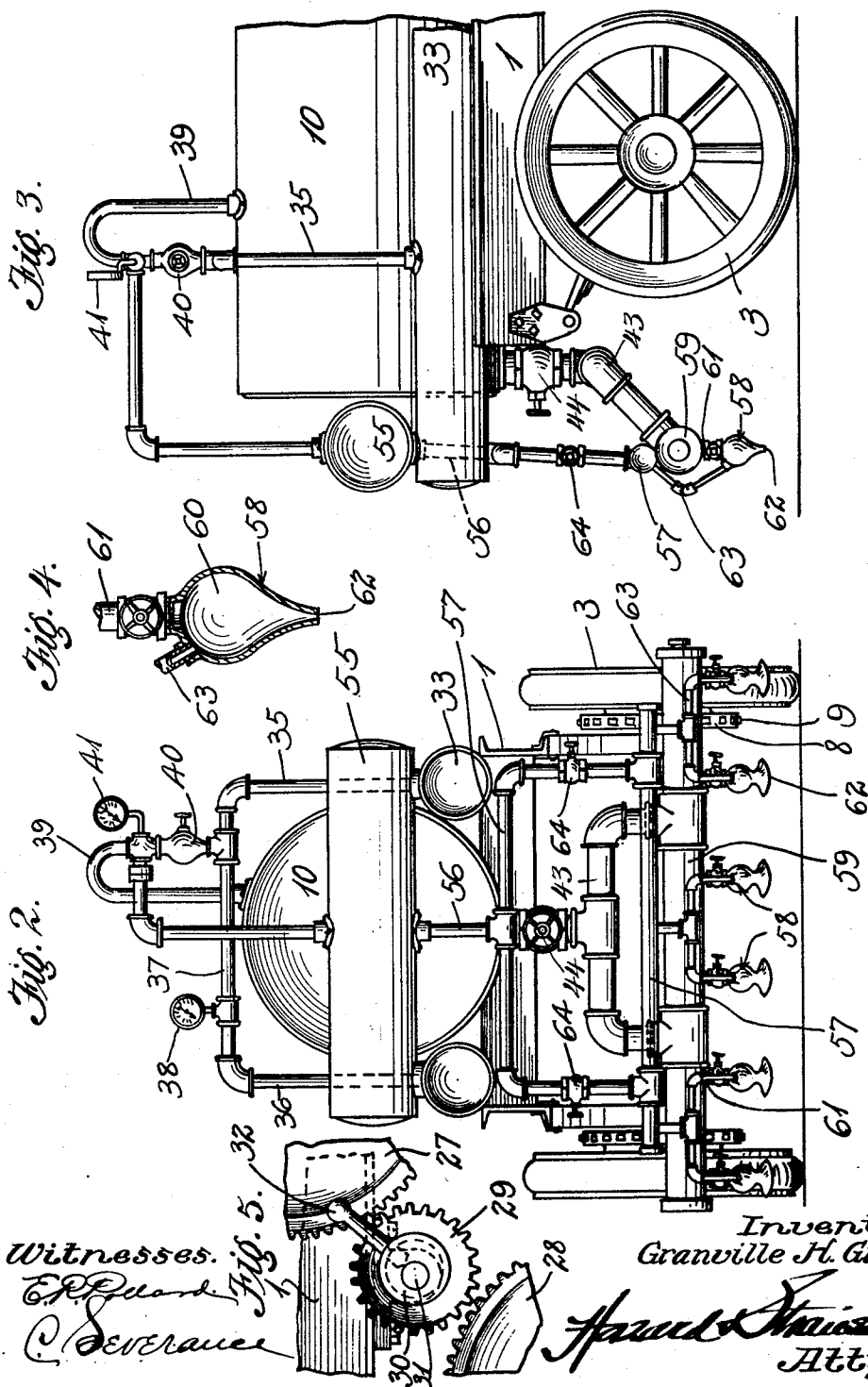
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2 SHEETS-SHEET 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SPRAYING OIL ON ROADS.

1,097,091.

Specification of Letters Patent.

Patented May 19, 1914.

Application filed May 11, 1911, Serial No. 626,440. Renewed November 3, 1913. Serial No. 799,023.

To all whom it may concern:

Be it known that I, GRANVILLE H. GRAY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Apparatus for Spraying Oil on Roads, of which the following is a specification.

This invention relates to improvements in apparatus for spraying oil and is particularly adapted for the spraying and spreading of oil upon roads.

It is an object of the invention to provide a mechanism of the class described provided with a tank or casing in which the oil may be maintained in liquid form and in which any suitable pressure as air, steam, or the like may be introduced for assisting in the proper spraying of the oil when it is distributed from the said tanks.

It is a still further object of the invention to provide a road oiling device comprising a vehicle having a propelling mechanism mounted thereon, an oil tank carried by the vehicle, a pumping mechanism being provided in such a relation to the propelling mechanism of the vehicle that it may be caused to force air into the tank for ejecting the oil under pressure, the mechanism being also arranged so that air may be stored for use in the tank.

In the drawing forming a part of this specification, Figure 1 is a side elevation of the improved apparatus for spraying oil upon the road forming the subject matter of the present invention. Fig. 2 is an end elevation of the same looking at the rear end thereof. Fig. 3 is a side elevation of the same. Fig. 4 is an enlarged detail view of one of the spraying nozzles a portion thereof being sectioned to show the interior structure. Fig. 5 is an enlarged detail sectional view in elevation showing the gears employed for communicating movement from the vehicle propelling mechanism to the pumping mechanisms.

The features of the invention will now be fully described reference being had to the drawings in which—

1 indicates a vehicle frame mounted upon suitable guide wheels 2 and driving or traction wheels 3. The vehicle may be of any ordinary type and may be propelled by a suitable motor preferably a gas engine as at 4, which is provided with a longitudinally

extending driving shaft 5 communicating movement to a transverse shaft 6 through suitable gearing not shown. The said shaft 6 carries actuating gears 7 which are connected by sprocket chains 8 with sprocket wheels 9 secured to the drive wheels 3. The frame 1 of the vehicle carries an oil tank 10 which is made of any desired capacity and is designed to carry a considerable quantity of oil. The tank is of the closed type which is capable of receiving considerable internal pressure.

The oil within the tank is preferably ejected therefrom under a suitable pressure and generally air pressure is utilized for this purpose. A pump 25 usually of the piston type is mounted upon the frame 1 and connected by means of a pitman 26 with a gear 27. The gear 27 is arranged opposite a gear wheel 28 secured upon the shaft 6 of the power transmission mechanism and an intermediate gear 29 is movably mounted between the said gears 27 and 28 so that it may be brought into mesh with both of them for transmitting movement from one to the other. As shown in Fig. 5, the gear 29 is preferably mounted upon an eccentric 30 which is carried by a shaft 31 journaled upon the frame 1, the eccentric being provided with an operating lever 32. The gear 29 may thus be moved into position between the gears 27 and 28 or the eccentric may be turned so as to throw the said intermediate gear to one side of said gears and so as not to mesh with either of them. In this simple manner the mechanism which propels the vehicle may be made to operate the pump 25 for compressing air.

The framing 1 is provided with air tanks 33 preferably extending along on each side of the oil tank 10. The tanks 33 are connected with the pump 25 by any suitable piping as 34. The air pumped by the said pump 25 is thus compressed within the tanks 33 and is in readiness to be led into the tank 10 by means of piping 35 and 36 which extends upwardly from the said tanks 33 and is usually connected across the top of the tank 10 by means of a pipe 37. A gage 38 may be connected with the said pipe 37 for indicating the amount of pressure within the said tanks.

A pipe 39 is arranged to carry the air from the pipe 37 into the top of the tank 10. A reducing valve 40 of any desired type may

be interposed in the piping leading from the cross pipe 37 so as to permit only a given quantity of compressed air to pass from the tanks into the oil tank 10. A gage 41
5 mounted above the reducing valve 40 indicates the amount of pressure within the oil tank.

The oil from the tank 10 is preferably discharged from a cross head 59 which is
10 suspended below said tank 10 at the rear end thereof, this end of the tank overhanging the end of the frame 1. The cross head is connected by a supporting pipe 43 with the tank 10 and a valve 44 controls the
15 passage of the oil to the cross head. Supported on the extended rear ends of the tanks 33 is the pressure tank 55 to supply air pressure especially designed for use at the nozzles and assisting in spraying the oil distributed thereby. The said tank 55 is
20 connected with the pipe 39 at a point adjacent to the reducing valve 40 so that some of the pressure from the tanks 33 will pass into the said tank 55. Piping 56 extends
25 from the tank 55 to a transverse pipe 57 which extends opposite the nozzles 58 carried by the large cross head 59. The nozzles are each formed with enlarged body portions 60 and are connected by valve
30 controlled pipes 61 with said cross head 59. The discharge ends of the said nozzles are drawn together near their outlets and are flared to a considerable extent as indicated at 62. In addition to the pressure of
35 the oil behind the oil within the tank, air is also introduced for producing a proper spraying of the oil, into the enlarged body portions 60 of the said nozzles. Branch piping 63 is conducted to each nozzle so as
40 to introduce air therein at the enlarged portion thereof as clearly shown in Fig. 4. The said branch pipe 63 receives its air

from the cross pipe 57, the passage of air being controlled by valve 64 interposed in said latter piping. In this manner the oil
45 entering the body portion 60 of the nozzle may be forced outwardly through the flaring discharge ends 62 thereof in an even and properly divided spray. It will be understood that steam pressure may be intro-
50 duced into the tank 10 in the place of air pressure if desired, but the air pressure is preferable since it can always be generated by the action of the pump 25 in conjunction with the movement of the vehicle. 55

What I claim is:

A spraying device for roads, comprising a vehicle, an oil tank carried thereon, air storage tanks also mounted on the vehicle, a pump for forcing air into the same, gear-
60 ing connecting said pump with the wheels of the vehicle whereby the pump will be operated when the vehicle is moved from place to place, a transverse pressure tank connecting the air storage tanks, nozzles
65 for discharging oil from the oil tank having chambers formed therein for receiving both oil and air, a transverse pipe adapted to receive pressure from said transverse tank, piping extending from said trans-
70 verse pipe to the chambers in said nozzles, the structure being such that air pressure will tend to force the oil from the tank and will also be distributed to each nozzle chamber for properly spraying oil upon the
75 road.

In witness that I claim the foregoing I have hereunto subscribed my name this 3rd day of May, 1911.

GRANVILLE H. GRAY.

Witnesses:

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EARLE R. POLLARD.