No. 858,422. PATENTED JULY 2, 1907.

J. E. SMALES.

APPARATUS FOR CLEANING AND IMPROVING THE SURFACE OF ROADS.

APPLICATION FILED MAR. 8, 1907.

Fig. 1.

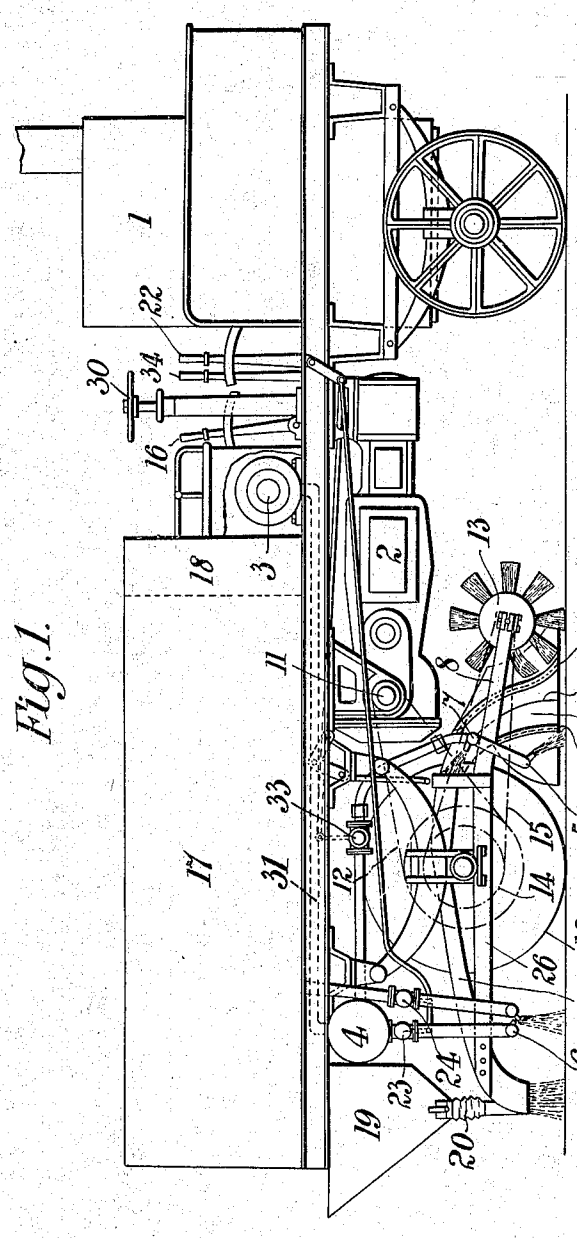
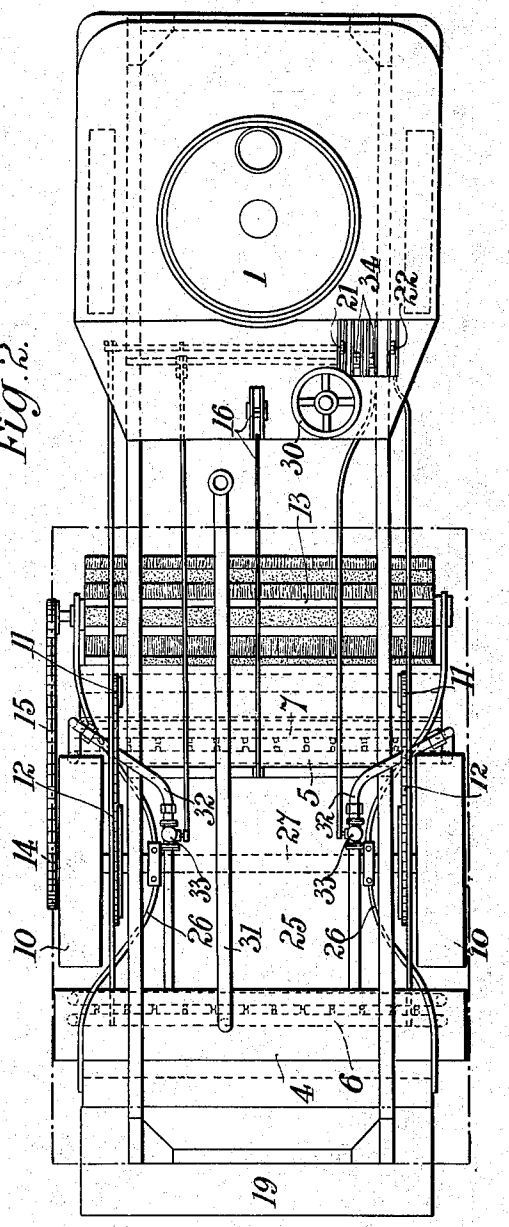


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN ELLIOTT SMALES, OF LEATHERHEAD, ENGLAND.

APPARATUS FOR CLEANING AND IMPROVING THE SURFACE OF ROADS.

No. 858,422. Specification of Letters Patent. Patented July 2, 1907.

Application filed March 8, 1907. Serial No. 361,394.

To all whom it may concern:

Be it known that I, JOHN ELLIOTT SMALES, a subject of Great Britain, residing at Langley, Reigate Road, Leatherhead, in the county of Surrey, England, surveyor, have invented certain new and useful Improvements in Apparatus for Cleaning and Improving the Surface of Roads, Foot-Paths, and the Like, of which the following is a specification.

My invention relates to apparatus for thoroughly cleansing roads, footpaths, and the like from dust and other refuse and for spraying over the cleansed surface a coating of tar or other liquid suitable for laying the dust, and for improving the surface generally.

To this end I employ apparatus comprising a tar receptacle and sprayer and a jet or jets of compressed air which impinging on the road remove the dust that is then conveyed into a hopper by a current of air produced by a blower or fan and then delivered by means of a trough into a receptacle, or distributed upon the surface which has been sprayed with the tar or other suitable liquid on the road. A revolving brush or brushes is or are preferably used to precede the air and liquid distributing apparatus. The dust swept by the brush is drawn into the hopper by a fan or blower and is either retained in the receptacle or is distributed as required over the sprayed surface as may be desired.

The whole apparatus is mounted on or attached to a suitable vehicle and propelled by mechanical, electric or animal power and is provided with a suitable air compressor, an air chamber, and a tank or tanks. A spreader or squeegee may be attached for the better equalizing of the liquid on the surface. Lime or other absorbents may be distributed over the tar or other liquid either separate or mixed with the dust.

In the drawings which illustrate the preferred embodiment of this invention Figure 1 is a side elevation of the complete machine without the rear wheel in detail; and Fig. 2 is a sectional plan of the same.

The numbers apply to the same parts on both drawings.

A boiler 1, supplies steam to the engine 2, and the air compressor 3, charging the air vessel 4, which supplies air to the jets 5, 6, 7, which impinge on the road, spray the tar, and convey the dust into and through the hopper 9, respectively. The rear wheels 10, are driven from pinions 11, by chains 12. The revolving brush 13, is driven from the toothed wheel 14, by chain 15, and is raised or lowered together with the hopper 9, and trough 25, by means of levers and rods 16.

17 is the tar tank, and 18, is the water tank for supplying water to the boiler. The lime hopper 19, is connected to the discharging end of dust trough 25, by flexible tubes 20, levers 21, and 22, regulate the compressed air and tar taps 23 and 24. The revolving brush, hopper 9, and trough 25, are attached to two rocking bars 26, which oscillate on the rear axle 27. The hopper 9, contains a division plate 28, to prevent the current of air from jets 5 from acting on the dust raised by brush 13 and two perforated or wire screens 29, 29, to arrest the larger particles of the dust or grit that may be raised. A division plate 8 upon which the brush 13 impinges is for the purpose of dislodging the dust in the brush. The air jets 5 and 7, are attached to the hopper 9, and rise and fall with it, being provided with flexible tubes 32, 32, connecting the jets with the air supply taps 33, 33, controlled by the lever 34. Pipe 31, connects the air compressor 3 with the air vessel 4.

30 is the steering wheel of the vehicle.

The apparatus shown in the drawings performs the operation as follows:—The revolving brush or brushes having removed and partly cleared the surface of the road of dust is followed by the jet or jets of air under pressure blowing on the road, dust arising from the brush and air jets is conveyed by a current of air into the hopper, the tar or other liquid is then sprayed on to the cleaned surface of the road and the dust distributed in the rear over the surface that has received the tar or other liquid.

The liquid to be sprayed may be heated by means of a coil supplied with live or exhaust steam or by any other suitable means and the liquid may be discharged from the receptacle by air or other pressure. For the better spreading of the tar or other liquid on the road, any of the well known spraying or atomizing devices may be employed. The air and liquid jets may have discharging orifices of any desired form, or may consist of one long slit or a series of slits.

Any number of liquid or air jets may be closed so that those remaining open will operate on a narrower strip of the surface of the road and a shorter brush, to correspond with the surface to be sprayed, may be used.

For the purpose of operating on footpaths projecting arms to which are attached the air and liquid jets may be employed.

I am aware that dust collectors having revolving brushes and means for conveying the dust by air currents, and sprinkling devices are not new and that arrangements for propelling such dust collecting machines are also not new and I do not claim as my invention any of these features.

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

1. Apparatus for cleaning and spraying the surfaces of roads and the like, comprising a vehicle carrying a revolving brush, a dust hopper in rear of said brush and communicating with a dust trough or receptacle having a discharge outlet at the rear, compressed air jets located adjacent to and in the dust hopper so as to cause the dust to collect and be raised therein, a tank for tar or other suitable liquid, a discharge pipe therefrom, and means for spraying the discharged liquid over the ground, substantially as described.

2. Apparatus for cleaning and spraying the surfaces of roads and the like, comprising a vehicle carrying a dust

hopper communicating with a dust trough or receptacle, compressed air jets located adjacent to and in the dust hopper so as to cause the dust to collect and be raised therein, a tank for tar or other suitable liquid, a discharge pipe therefrom, and means for spraying the discharged liquid over the ground, substantially as described.

3. Apparatus for cleaning and spraying the surfaces of roads and the like, comprising a vehicle fitted with means for sweeping the dust and raising it by air pressure, means for spraying tar or other suitable liquid on to the swept surface, and means for returning the dust to the sprayed surface, substantially as and for the purpose hereinbefore described.

4. Apparatus for cleaning and spraying the surfaces of roads and the like, comprising a vehicle fitted with means for raising the dust by air pressure, and with means for spraying tar or other suitable liquid on to the road surface, substantially as and for the purpose hereinbefore described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses this 14th day of February 1907.

JOHN ELLIOTT SMALES.

Witnesses:
H. D. JAMESON,
H. C. MANGOLD.