J. E. WARD.

APPARATUS FOR SATURATING THE GROUND WITH OIL.

APPLICATION FILED JUNE 26, 1909.

962,728.

Patented June 28, 1910.

3 SHEETS—SHEET 1

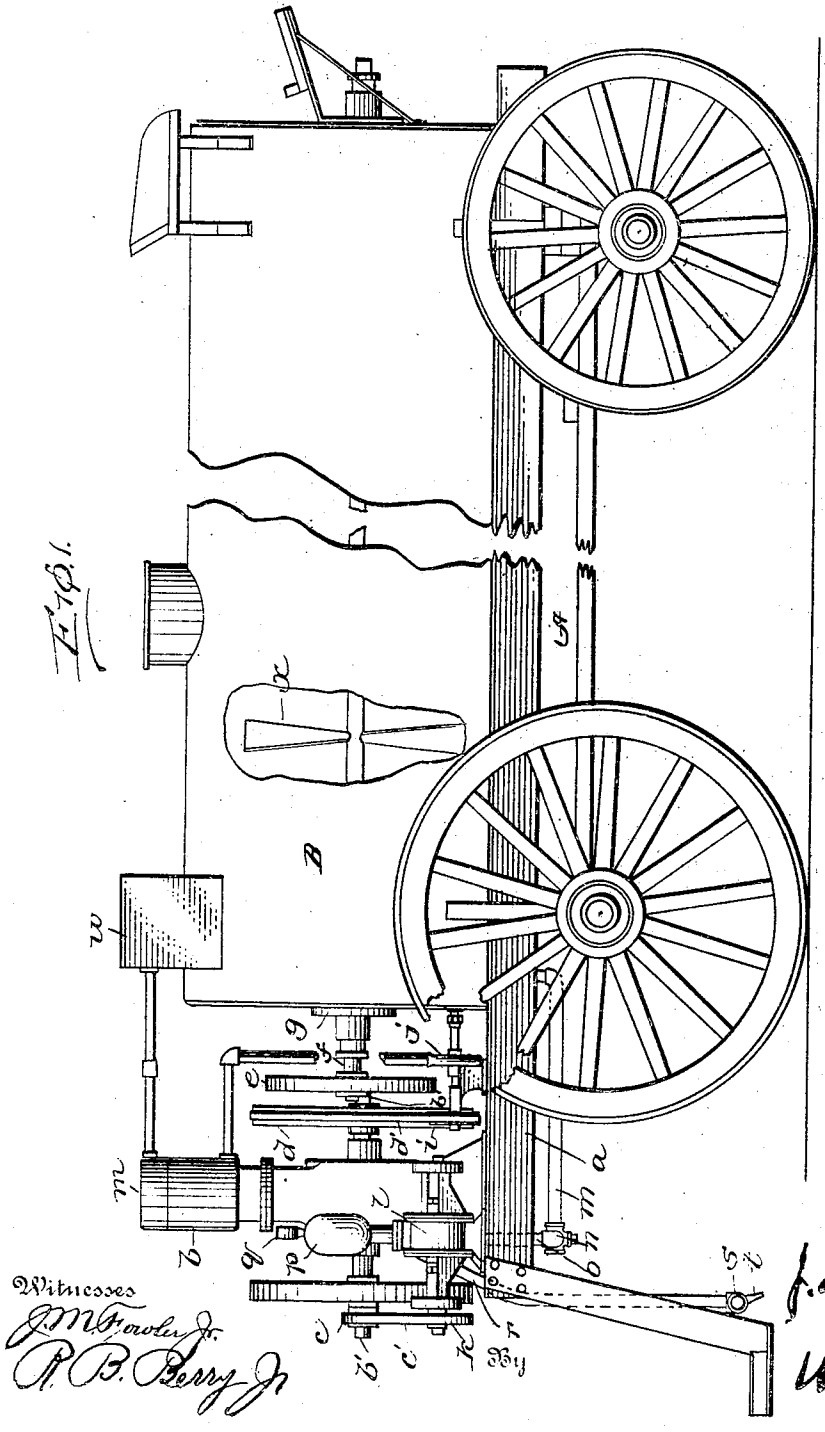

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Fig. 2.

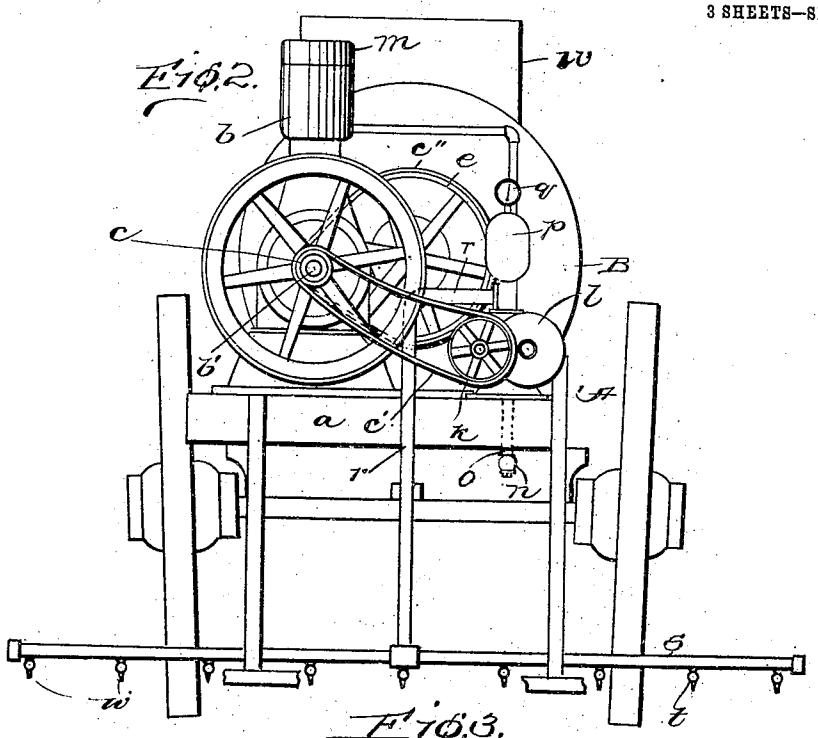


Fig. 3.

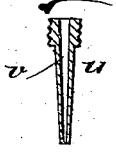
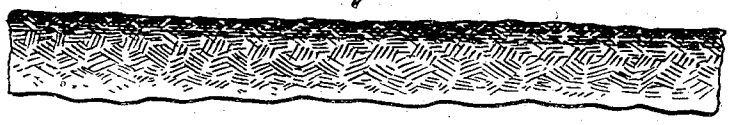


Fig. 4.

Fig. 5.



Witnesses

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3 SHEETS—SHEET 3.

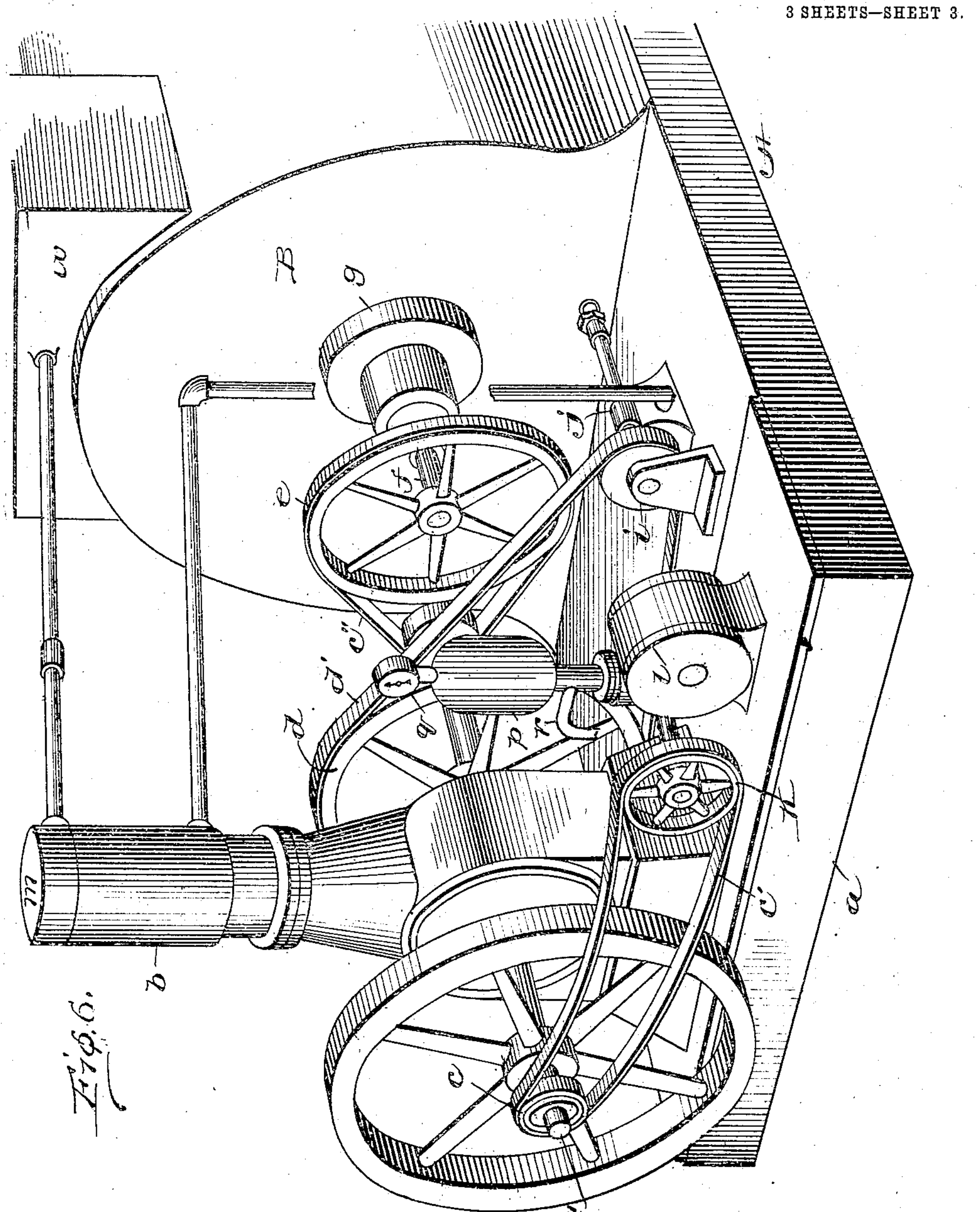

Fig. 6.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SATURATING THE GROUND WITH OIL.

962,728. Specification of Letters Patent. Patented June 28, 1910.

Application filed June 26, 1909. Serial No. 504,618.

To all whom it may concern:

Be it known that I, JOSEPH E. WARD, a citizen of the United States, and residing at 253 Pacific avenue, Longbeach, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Apparatus for Saturating the Ground with Oil, of which the following is a specification.

This invention relates to oil delivering machines and more particularly to a device for forcing oil into the dust of roads and other highways.

The object of the present invention is to provide a device of this character which will force an oil emulsion with great force into the dust of the road.

The device is illustrated in the accompanying drawings, in which,

Figure 1, is a side elevation of the device, Fig. 2, a rear elevation of the device, Fig. 3, a sectional view of one of the nozzles, Fig. 4, a sectional view of a roadway which has been sprinkled with oil, and Fig. 5, a similar view of a road oiled with my device. Fig. 6 is a perspective view of the mechanism mounted on the rear platform.

In the drawings A, represents a vehicle of any suitable construction, having thereon a tank B, for the containing of the oil emulsion said oil tank having a water tank *w* therewith. At the rear of the vehicle the bed is extended as at *a*, to form a platform for the support of the mechanism next to be described. On the platform, *a*, is suitably secured a gas or other motor, *b*, provided with a small band wheel or pulley, *c*, on the shaft, *b'*. On the opposite end of the shaft, *b'*, is a large band wheel, *d*, which by means of a belt, *d''*, and the pulley, *i*, operates the circulating pump, *j*, for forcing water through the water jacket *m* of the motor, *b*. A belt, *c'*, connects the pulley, *c*, with the pulley *k*, of the oil pump, *l*. Connected to the under side of the tank B as shown in Fig. 1, is a pipe *m*, which communicates through a three way cock, *n*, and a pipe *o*, with the oil pump *l*.

The pump, *l*, is of the intergear piston type, but may be of any suitable form. The pump, *l*, is provided with an air chamber *p*, and a pressure gage, *q*. A pipe, *r*, leads from one side of the pump, *l*, downward to the central portion of a horizontal pipe, *s*. The pipe, *s*, is located about six or eight inches above the road, and is provided at intervals of about six inches with nozzles, *t*, which are screwed into the under side of said pipe, *s*, and incline forward and downward. Each of the nozzles, *t*, as shown in Fig. 3, comprises a tapered casting, *u*, having a bore, *v*, which is tapered at its lower end to increase the force of the oil. The upper end of the nozzle is provided with external threads to engage threads in the pipe, *s*. Suitable stop cocks, *w*, are provided in the nozzles, *t*, to control the flow of oil. A shaft-bearing and packing *g*, is suitably secured to the rear end of the tank B, and receives the shaft *f*, which carries the agitator, *x*, within the tank. The outer end of the shaft, *f*, has thereon a fly wheel, *e*, suitably geared by means of a belt, *c''*, to the motor shaft, *b'*.

In the operation of the device the tank B, being filled with oil emulsion, the stop cocks, *w*, are adjusted and the engine, *l*, started and the vehicle driven along the road.

The engine through the belts drives the pump, *l*, and the pump, *j*. The pump *j*, circulates water through the cooling jacket of the engine.

The shaft *f*, rotates the agitator and stirs the emulsion in the tank.

The pump, *l*, draws the oil through the pipe, *m*, and discharges it through the pipe *r*, into the pipe, *s*, and out of the nozzles *t*, into the dust.

The oil is driven with a force of approximately two hundred pounds pressure and is injected to about an inch into the road bed.

Upon reference to Figs. 4 and 5 it will be readily seen that the road when sprinkled is rendered slippery by reason of the oil staying on the surface while with the present invention the oil is driven to a considerable depth mixing intimately with the soil; and presenting a harder surface.

It will be seen that a device has been produced which is both efficient and effective.

Having described my invention what I claim is:

1. In combination with a vehicle having an oil tank thereon, a gas engine having a water jacket, a water circulating pump, a water tank located on said oil tank, said circulating pump being operated by said engine, forcing nozzles, an oil forcing pump operated by said engine, connections between said nozzles, pump, and oil tank including a valve, an agitator in said oil tank, also operated by said engine.

2. In combination with a vehicle, an oil tank, a rotary agitator in said tank, said agitator having a shaft journaled in the rear end of said oil tank and provided with a belt wheel, a rotary oil forcing pump located on said vehicle, a gas engine on said vehicle, a water circulating pump, a water jacket on said engine, a water tank on said oil tank, said water circulating pump adapted to circulate water through said water jacket, means on said engine for simultaneously driving said oil pump, water circulating pump, and said agitator, and valved nozzles located below said vehicle and having free communication with said oil pump and adapted to force oil into the soil of the road bed and a valved communication with said oil tank.

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

JOSEPH E. WARD.

Witnesses:
H. R. MALTBY,
ED. H. WALLACE.