

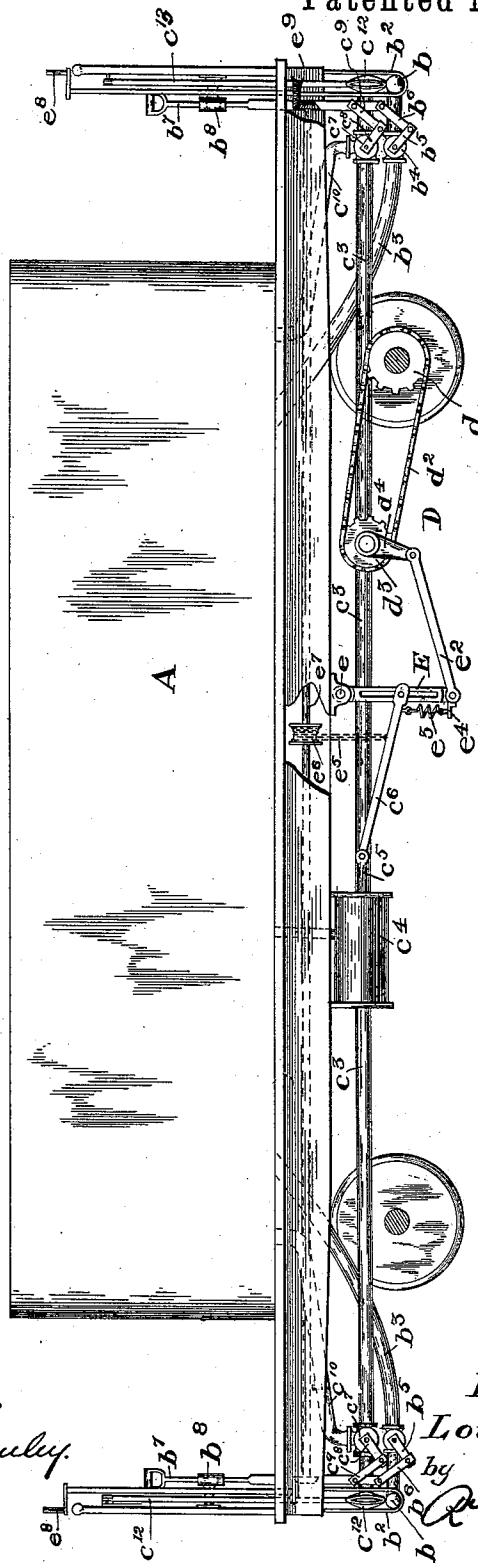
(No Model.)

2 Sheets—Sheet 1.

L. W. CAMPBELL.
STREET SPRINKLING APPARATUS.

No. 549,437.

Patented Nov. 5, 1895.



WITNESSES

Alvan Macaulay.

H. L. Lamy

Inventor;

Louis W. Campbell,

by
Deputy Clerk,
his Attorney.

(No Model.)

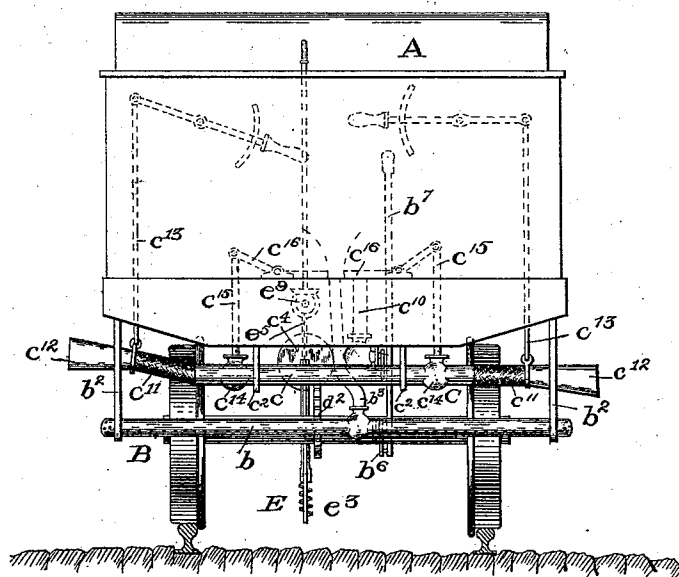
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Fig. 2.



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UNITED STATES PATENT OFFICE.

LOUIS W. CAMPBELL, OF WACO, TEXAS.

STREET-SPRINKLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 549,437, dated November 5, 1895.

Application filed December 5, 1894. Serial No. 530,915. (No model.)

To all whom it may concern:

Be it known that I, LOUIS W. CAMPBELL, a citizen of the United States, residing at Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Street-Sprinkling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to street-sprinkling apparatus.

The object is to produce a thoroughly-efficient but simple and comparatively inexpensive device to be operated by steam, electricity, cable, or horse-power, by which the operation of sprinkling streets may be facilitated and rendered more certain, and either a narrow street be properly sprinkled or a wide street be fully and completely sprinkled from curb to curb, and uniformly at a single trip or operation.

With this object in view the invention consists in a vehicle preferably running upon a railway-track and provided with a water-tank and with independent sprinklers or final water-distributors or sets of distributors, the one located at an end or the ends of the vehicle and discharging by gravity, and the other at the sides thereof, toward an end or the ends, and discharging under pressure or by force.

Furthermore, the invention consists, in a street-sprinkling apparatus, of water-distributing means to discharge water under pressure or by force, located at the front end of the vehicle.

Furthermore, the invention consists in the combination, in a street-sprinkling apparatus, of a gravity water-distributor and a force or power water-distributor, both located or situated at the front end of the vehicle.

Furthermore, the invention consists in the combination, in a street-sprinkling apparatus, of a gravity-distributor located at an end or the ends of the vehicle, and of force-distributors located at the sides thereof toward an end or the ends, the force-distributors between their ends and the supply being flexible, and this flexible portion having connected to it mechanism for raising and lowering it, where-

by the arc of projection of the water may be increased or diminished and the distance of projection thus regulated.

Furthermore, the invention consists in the combination, in a street-sprinkling apparatus, of a gravity water-distributor and a force or power water-distributor, the power-distributor being provided with means for regulating the quantity of water discharged and the velocity of discharge.

Furthermore, the invention consists in the combination, in a street-sprinkling apparatus, of a double-acting force-pump, means for connecting the same with and operating it from the running-gear of the vehicle, and a water-distributing pipe and discharge from the pump.

Furthermore, the invention consists in the combination, in a street-sprinkling apparatus, with the conveying-pipe from the source of supply of water under pressure, of a two-way valve and a return or by-pass valve by which, when the distribution is cut off, the water is returned to the tank, avoiding necessity of stopping the exertion of power; and, finally, the invention consists in various novel details of construction, all as more fully hereinafter set forth.

The discharge of water under pressure may be by a double-acting force-pump, by compressed air, by steam, or other suitable means, and by utilizing the power employed to propel the vehicle.

The invention may be embodied in various forms.

In the accompanying drawings, forming part of this specification, and in which like letters of reference indicate corresponding parts, I have shown one means of carrying my invention into effect.

In the drawings, Figure 1 is a view in side elevation representing a tank, vehicle, or car to run on a track, showing the tank, gravity-distributors at each end of the car, with mears of support, and supplied by pipes from the tank, pressure-distributors discharging laterally at each end of the car, fed by pipes from the double-acting force-pump supplied from the tank, means for turning on and cutting off the water to and from the gravity and the pressure-distributors, and return or by-pass pipes from the valves of the pressure-

distributers to return the water to the tank when the pressure-discharge is cut off, showing, furthermore, the rod for raising and lowering the ends of the pressure-distributers to increase or diminish the arc of projection of the water from the same, and, finally, means for operating the double-acting force-pump and for controlling the quantity of water discharged thereby and therefrom; and Fig. 2 is a view in end elevation showing, in addition to what is shown in Fig. 1, the means for raising and lowering the ends of nozzles of the pressure-distributing pipe, and further means of controlling the discharge from these pipes.

Referring to the drawings, A is a water-tank mounted on a car. In addition to this there may be trail water-tank cars either feeding this tank directly or through proper hose connections to the sprinklers.

B indicates a gravity-distributor, the perforated cross-pipe *b* of which is properly supported at the end of the car or any vehicle in stirrups, straps, or braces *b*², or other suitable or usual support. The perforated cross-pipe is supplied with water by a pipe *b*³, leading to it from the tank, and this pipe has a cut-off valve *b*⁴, which by levers *b*⁵ *b*⁶ is connected with a rod or bar *b*⁷, suitably supported in a guide *b*⁸ at the platform.

C indicates a pressure-distributor, the unperforated cross-pipe *c* of which is properly supported at the end of the car or any vehicle, preferably above the situation of the perforated pipe *b*, by stirrups, straps, or braces *c*², and this cross-pipe is supplied with water by a pipe *c*³, leading to it from a double-acting force-pump *c*⁴, having a piston-rod *c*⁵ and connecting-rod *c*⁶ to the power, and this pipe has the ordinary two-way cut-off valve *c*⁷, which, by levers *c*⁸ *c*⁹, is connected with the rod or bar *b*⁷. Leading from the valve of the pressure-distributor is a return or by-pass pipe *c*¹⁰, the purpose of which is to return the water to the tank when the flow through the valve to the cross-pipe for distribution is cut off, so that it will not be necessary to stop the pump. When the valve is turned to close the discharge, it opens the by-pass pipe, and when the valve is opened to permit discharge it closes the by-pass pipe, as is well understood in such devices. From the ends of the unperforated cross-pipe extend flexible tubes *c*¹¹ to distributing-nozzles *c*¹², preferably of fan shape. From these flexible pipes extend upward rods *c*¹³ to a hand-lever and catch device on the front board, dash-board, or fender of the platform, and by raising or lowering these rods the nozzles *c*¹² or either of them may be raised or lowered to increase or lessen the arc of the water coming out from the nozzles, thus causing it to fall at a greater or less distance from the apparatus, according to the greater or less width of the street to be sprinkled. The unperforated cross-pipe may be supplied with regulating-valves *c*¹⁴, operated through rods

*c*¹⁵ and foot-levers *c*¹⁶ on the platform, the valves ordinarily not to be completely closed, though they may be, if desired, and the increased or diminished closure regulating the quantity of water to be discharged from the nozzles. These valves are not essential, and will generally be omitted, since it is preferred to regulate the quantity and velocity of the discharge at the nozzles from the power-supply itself. To this end, the double-acting force-pump being operated from the running-gear D by any means—as by an eccentric, or, as shown, from a sprocket-wheel *d* on a wheel of the vehicle, from which a sprocket-chain *d*² turns a sprocket-wheel *d*³, having a crank *d*⁴, connected with the piston-rod of the pump—there is interposed between the pump and the driving device therefor a link E, pivoted to and depending from the body of the vehicle, as at *e*, and at its lower end pivoted to one end of a connecting-rod *e*², the other end of which is on the pin of the crank. It will be observed that as the crank revolves the link will be moved to and fro. The link device is shown on an enlarged scale for clearness. At the outer end the connecting-rod *c*⁶ has a pin which is set into the slot of the link in a manner free to move up and down. The connecting-rod *c*⁶ will be held normally at the lower end of the link by a spiral spring *e*³, which is fixed to the link on a bracket *e*⁴ and at the other end is attached to the connecting-rod *c*⁶. According to the position of the connecting-rod in the link, down or up, greater or less movement will be given to the piston, and thus a greater or less quantity of water will be discharged from the pump under greater or less velocity, as desired. The connecting-rod is raised or lowered by means of a chain *e*⁵, winding upon a drum *e*⁶, fixed upon a rod *e*⁷, preferably of steel, which will be turned from the platform by a hand wheel or crank *e*⁸ and bevel-gears *e*⁹. By this device the pump may be worked to its full capacity or to any fractional part thereof—that is to say, if the pump working to its full capacity would throw twenty gallons to the revolution of the sprocket-wheel, then by means of the attachment it may be made to throw any number of gallons less than twenty, and the flow of water through the pump may be stopped altogether without stopping the car, disengaging the sprocket wheel or chain or throwing the same out of gear, and, likewise, the throw of water may be made uniform no matter what speed is given to the vehicle.

In some cases the gravity-distributers may be dispensed with and the pressure-distributor have nozzles extending to the rear of the vehicle as well as at the sides.

It is to be understood that in general the sprinkling devices will be located at both ends of the car, but the devices may be at one end only. It is of importance that the devices be located at the front end of the vehicle, whereby the operation will be under the im-

mediate view of the operator, and it is a feature that the devices are under control of one person, who may be the sole individual employed to do the work of sprinkling. By locating the sprinklers at both ends of the car and not one the necessity of turn-tables and the trouble of turning the car are avoided and the sprinkling may be effected from both ends of the car. In some cases water may be allowed to pass through the nozzles by gravity only.

Where compressed air is employed as a motive power, or even where it is not, the force for the pressure-distributers may be supplied by compressed air, as by pressure over the surface of the water in the tank or otherwise.

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

1. In a street-sprinkling apparatus, the combination with a perforated cross-pipe, constituting a gravity distributor, connected directly with the source of supply, and a pressure distributor connected with a force-pump and through a by-pass with the source of supply, of valves operating to control the passage of water to the said distributors, the valve on the pipe leading from the force-pump normally closing the by-pass pipe, but opening the same when the supply of water to the pressure distributor is cut off, and a movable bar to which both of the valves are connected whereby to effect the simultaneous operation of the valves, substantially as described.

2. In a sprinkling apparatus, the combination with a wheeled vehicle, of a tank for containing liquid, and a force pump, carried by said vehicle; mechanism operated by the motion of the wheels, for operating said force pump; a distributing pipe leading from said force pump, a by-pass pipe connected thereto; a two-way valve for alternately directing the flow of water either through said distributing pipe or through said by-pass pipe, whereby a continuous flow of water from said pump may be provided for; independent means for regulating the output of said pump, and so controlling the flow of water from the distributing pipe; a perforated pipe connected directly to the bottom of the tank and operated by gravity, a valve controlling the flow of water from this pipe, and a hand lever connected both to said valve and to said two-way valve, and adapted to operate both simultaneously, substantially as described.

3. In a sprinkling apparatus, the combination with a wheeled vehicle, of a tank for containing liquid, and a reciprocating force pump, carried by said vehicle; a crank shaft rotated by the motion of the wheels; a slotted arm pivoted beneath the vehicle and vibrated by said crank shaft; a connecting rod pivotally connected at one end to the piston rod of said force pump, and at the other end

to said slotted arm; a spring tending to draw the latter end of the connecting rod down toward the end of said slotted arm, a chain connected to this end of the connecting rod, a shaft with a drum thereon for winding up said chain, and hand mechanism for revolving said shaft in either direction, and thus raising or lowering the said end of the connecting rod, whereby the stroke of said pump may be varied; a distributing pipe leading from said force pump, a by-pass pipe connected thereto, means for alternately directing the flow of water either through said distributing pipe or through said by-pass pipe, whereby a continuous flow of water from said pump may be provided for, substantially as described.

4. In a sprinkling apparatus, the combination with a wheeled vehicle, of a tank for containing liquid, and a force pump, carried by said vehicle; mechanism operated by the motion of the wheels, for operating said force pump; a distributing pipe leading from said force pump, a by-pass pipe connected thereto; a two-way valve for alternately directing the flow of water either through said distributing pipe or through said by-pass pipe, whereby a continuous flow of water from said pump may be provided for; independent means for regulating the output of said pump, and so controlling the flow of water from the distributing pipe; a perforated pipe connected directly to the bottom of the tank and operated by gravity, a valve controlling the flow of water from this pipe, and a hand lever connected both to said valve and to said two-way valve, and adapted to operate both simultaneously, and a hand lever and connections for altering the inclination of the orifice of said delivery pipe, substantially as described.

5. In a sprinkling apparatus, the combination with a wheeled vehicle, of a tank for containing liquid, and a reciprocating force pump, carried by said vehicle; a crank shaft rotated by the motion of the wheels; a slotted arm pivoted beneath the vehicle and vibrated by said crank shaft; a connecting rod pivotally connected at one end to the piston rod of said force pump, and at the other end to said slotted arm; a spring tending to draw the latter end of the connecting rod down toward the end of said slotted arm, and means for adjustably raising this end of the connecting rod against the action of said spring, whereby the stroke of said pump may be varied; a distributing pipe leading from said force pump, a by-pass pipe connected thereto, means for alternately directing the flow of the water either through said distributing pipe or through said by-pass pipe, whereby a continuous flow of water from said pump may be provided for, and a hand lever and connections for altering the inclination of the orifice of said delivery pipe, substantially as described.

6. In a sprinkling apparatus, the combina-

tion with a wheeled vehicle, of a tank for containing liquid, and a reciprocating force pump, carried by said vehicle; a slotted arm pivoted beneath the vehicle and vibrated by
5 said crank shaft; a connecting rod pivotally connected at one end to the piston rod of said force pump, and at the other end to said slotted arm; a spring tending to draw the latter end of the connecting rod down toward
10 the end of said slotted arm, a chain connected to this end of the connecting rod, a shaft with a drum thereon for winding up said chain, and hand mechanism for revolving
15 said shaft in either direction, and thus raising or lowering the said end of the connecting rod, whereby the stroke of said pump

may be varied; a distributing pipe leading from said force pump, a by-pass pipe connected thereto, means for alternately directing the flow of water either through said distributing pipe or through said by-pass pipe, whereby a continuous flow of water from said force pump may be provided for, and a hand lever and connections for altering the inclination of the orifice of said delivery pipe, 20
25 substantially as described.

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

LOUIS W. CAMPBELL.

Witnesses:

OSCAR WIEL,

WM. T. GOULD.