2 Sheets--Sheet 1.

G. M. STEVENS.

Railroad Sprinkler.

No. 165,184. Patented July 6, 1875.

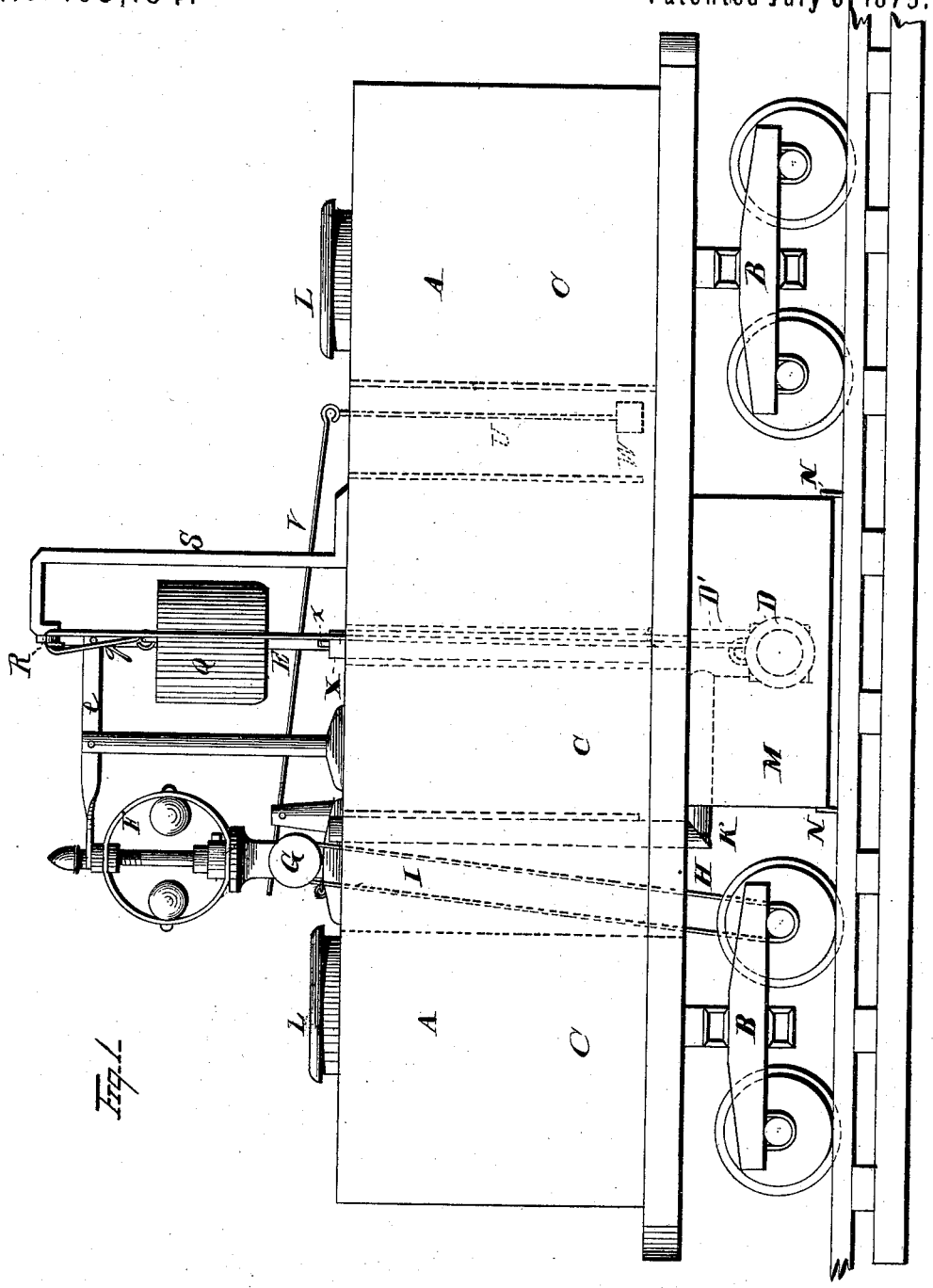

Fig. 1.

WITNESSES

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2 Sheets--Sheet 2.

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Fig. 2.

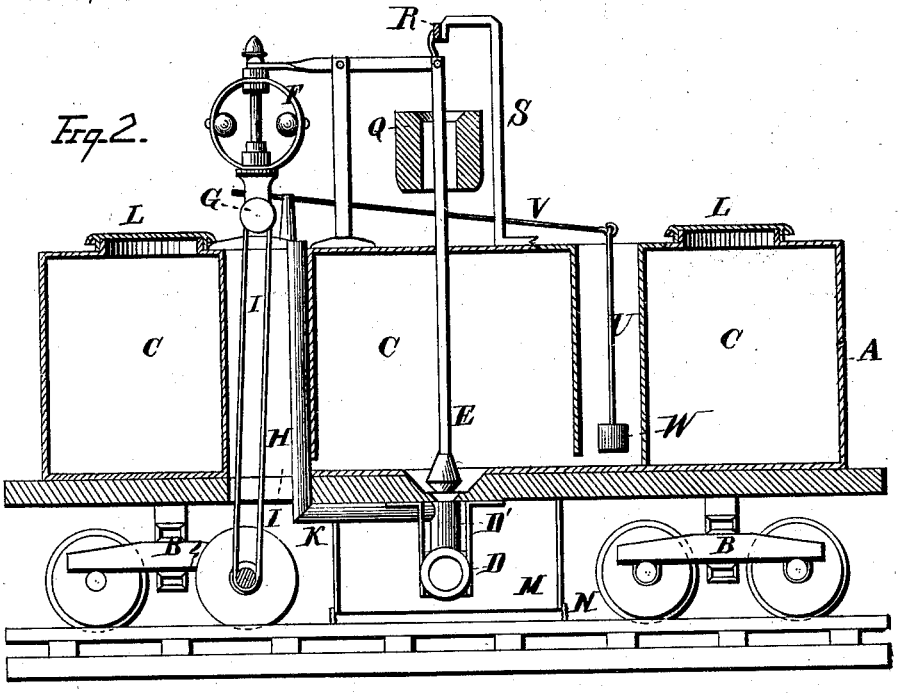

Fig. 3.

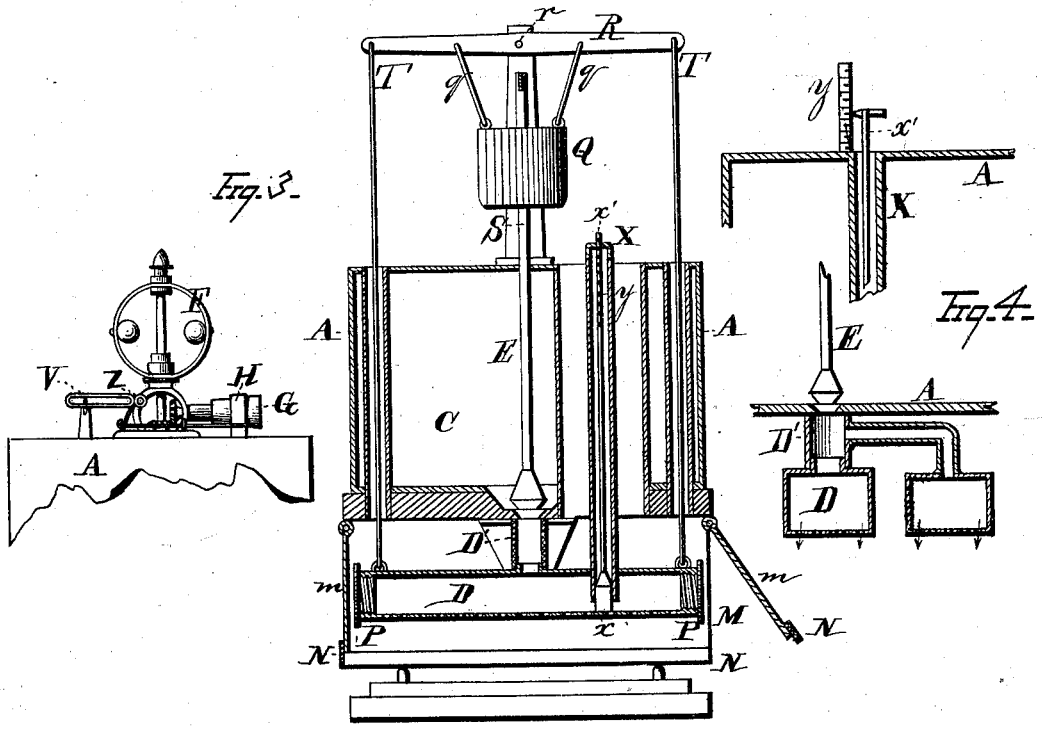

Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE M. STEVENS, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO HORACE M. STEVENS, OF SAME PLACE.

IMPROVEMENT IN RAILROAD-SPRINKLERS.

Specification forming part of Letters Patent No. **165,184**, dated July 6, 1875; application filed March 5, 1875.

To all whom it may concern:

Be it known that I, GEORGE M. STEVENS, of Cleveland, county of Cuyahoga, State of Ohio, have invented a new and Improved Sprinkler; and declare the following to be such a full, clear, and exact description thereof as will enable others skilled in the art to which my invention relates to make and use it, reference being had to the accompanying drawings, which form a part of my specification.

In the drawing, Figure 1 is a side elevation of a car embodying my improvements. Fig. 2 is a longitudinal section of the same, exhibiting my invention in action and elevation. Fig. 3 is a transverse vertical section of same. Fig. 4 is a variation of my invention.

My invention relates to a car designed to sprinkle the track and roadway for the purpose of allaying the dust; and is intended to be used more especially with passing trains.

A is a tank, supported, as car-bodies are ordinarily supported, upon trucks B. The tank is divided into partitions C C C, open at the bottom, so as to communicate with each other, the object being to prevent the surging of the water within the car. D is a sprinkler, perforated along the bottom for an outlet of the water. It rests beneath the car as near as convenient to the track. It connects with the water in the car by means of the pipe D′. E is a valve, which governs the flow of water from the tank or car into the sprinkler. By raising this valve E the water flows into the sprinkler, and thence upon the roadway. By closing the valve the flow of water is stopped. The valve E passes out of the top of the car, and is attached, by means of lever *e*, or in any suitable manner, with a governor, F, which is geared with the axle of the car by the pulley G and band H, or in any other suitable manner, whereby the motion of the car-axle regulates the motion of the governor, and it in turn governs the valve, so that when the car is not in motion, or has a slow motion, the valve stands closed. When in rapid motion it stands open, and opens more and more as the speed of the car is increased. The belt G passes down through the tank through the tube I.

In order that water may flow readily from the sprinkler, and not be held back by air that may have accumulated within the sprinkler, an air-pipe, K, is made to extend from a point below the valve to a point above the tank in any suitable manner, whereby the equilibrium with the external air is established within the sprinkler. L L are feed-ports, whereby water is introduced into the tank.

In order that the valve may be placed at such a point as to draw all the water from the tank, it is placed at the bottom of the well L that is made in the bottom of the tank, so as to locate the valve beneath the level of the bottom of the tank.

I do not limit myself to the style of governor shown in the drawing; because any governor whereby the motion of the valve is governed by the speed of the train will answer the purpose, and many such constructions are obvious. Nor do I limit myself to the method shown of gearing the governor with the axle, because that is also susceptible of many changes, while retaining the principle of my invention. Thus, for instance, the governor may be placed beneath the car, and geared directly with the axle; and so the valve-rod might enter from below instead of from above. M is a box or casing that extends down and around the sprinkler to prevent the drafts of air from blowing the water from one side to another, and thus prevents its being spread evenly over the roadway. Hinge-doors *m* at the ends serve to give access to the sprinkler. The bottom of the box M is provided with canvas or its equivalent N, which may extend down close to the track, and will not be damaged by striking obstacles. P P are caps placed over the ends of the sprinkler, whereby a brush or swab may be run through the sprinkler to clean its perforations of any sediment that may have collected therein.

There may be one or more sprinklers, and they may be independent, or they may be connected with each other, so that water entering one or the main sprinkler, if it should back up, would run over into and out from another, and thus the escape for the water would be as great as the capacity of the valve for admitting it into the sprinkler.

I propose generally to maintain a certain quantity of air between the valve and the level of the water in the pipe D′, in order that the water may not connect with that in the

tank above, for should it back up so as to connect therewith it would waste from the sprinkler; because it would then escape under a pressure due to a column of water of a height extending to the level of the water in the tank. I therefore pass the pipe X from the sprinkler up through, and out of, the top of the car, and in this pipe place a float, *x*, with a light stem, *x'*, extending from the top of the car, whereby may be indicated upon a suitable scale, *y*, the exact height of the water in the sprinkler or pipe D'; and if, under a high speed, the valve feeds so rapidly as to cause the water in the pipe D' to connect with that in the tank, the float will show it, and the governor may be altered so as to cause it to feed less rapidly.

Instead of running the pipe X up through the car it may pass up outside the same, or be arranged in any other suitable manner.

In the drawings the sprinkler is represented as suspended at the center, and the pipe D' is a flexible pipe, so that it will conform to the motions of the sprinkler. The object in suspending the sprinkler on a pivot is, that it may be made to conform to the tilting of the car, so that when the car is tipped the sprinkler will be level, and will always maintain this level position. The pipe X that is connected with the sprinkler passes up through an elongated opening, so that as the car tips the same pipe X will remain erect. Q is a weight suspended by arms *q* to a horizontal beam, R, that in turn is pivoted at *r* to the upright S. At the ends of the bar R are rods T that extend down, and are connected with the sprinkler at its ends. The weight Q acting upon the bar R, and the rods T, serve to hold the sprinkler always in a level position.

It is desired that the rapidity of the feed should be governed both by the speed of the train and the amount of water in the tank. The governor connected with the axle, as before described, regulates the feed in proportion to the speed of the train. In order to regulate the feed in proportion to the height of water in the tank, the following device is employed: The band-wheels over which the band H passes are made conical, reverse in form, in the nature of an ordinary conical feed, so that as the band is shifted to a larger portion of the cone upon the axle, it will operate upon a similar portion of the cones above. U is a rod, to which the float is attached. It is attached at the long end of a lever, V. The short end of the lever V operates, through the medium of a toggle-joint, to shift the bolt and change the feed. In this way it will be seen that while the water is high in the tank the governor will run at a low speed, and consequently will permit a limited amount of water to pass through the valve into the sprinkler. When the water in the tank is low, and is acting with a less pressure, the float will fall, the band will be gradually shifted, so that the governor will operate more rapidly, and the diminished pressure in the tank will be compensated by a gradual valve-opening. Instead of employing the float for shifting, any other suitable device may be employed. So, also, instead of employing a conical feed, any other suitable means of regulating the motion of the valve-opening to conform at the same time to the speed of the train, and the height of water in the tank may be employed. Any other suitable device may be employed for stopping the flow of water through the sprinkler at any time, as, for instance, a train, in passing along a dusty road should come upon a belt of country where the dust had been settled by a recent rain, the flow of water through the sprinkler should be stopped until that belt had been passed. The float U rises and falls in a suitable well.

What I claim, and desire to secure by Letters Patent, is—

1. A railroad-sprinkler, consisting of the tank A, mounted upon car-trucks B, and provided with a sprinkler, D, and valve for governing the flow of water into the sprinkler, and the governor for regulating the operation of the valve to conform to the speed of the car, substantially as and for the purpose described.

2. In combination with a railroad-sprinkler, the box or case M, surrounding the said sprinkler, substantially as and for the purpose described.

3. In a railroad-sprinkler, the combination, with the box M, of the canvas, or its equivalent N, substantially as and for the purposes described.

4. The combination, with the tank of a sprinkler, pivoted at its middle point, and provided with a suitable mechanism, Q R T, whereby it may be maintained in a level position, substantially as and for the purposes described.

5. The combination, with the pivoted sprinkler, of the weight Q, pivoted bar R, standard S, and rods T, substantially as and for the purposes described.

6. The combination, with the valve, of a float, U, lever V, and suitable mechanism Z F *e*, whereby the float is made to vary the valve-opening, substantially as and for the purpose described.

7. The combination, with the valve, of the float U, lever V, toggle-joint Z, band H, and governor F, substantially as and for the purpose described.

8. The combination, with the tank A and sprinkler D, of the vent-pipe K, rising above the top of the tank, substantially as and for the purposes described.

9. In a railroad-sprinkler, the combination, with the car-axle and the valve-rod, of an intermediate governor, F, for regulating the flow of water into the sprinkler, substantially as and for the purposes described.

GEO. M. STEVENS.

Witnesses:

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WELLS W. LEGGETT.