

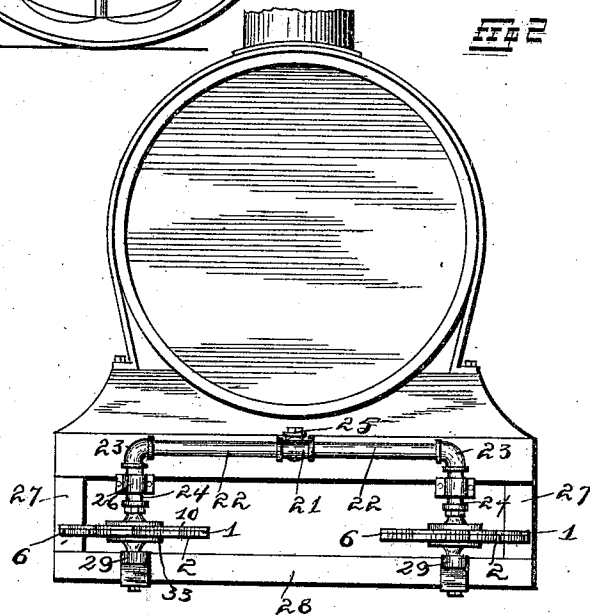
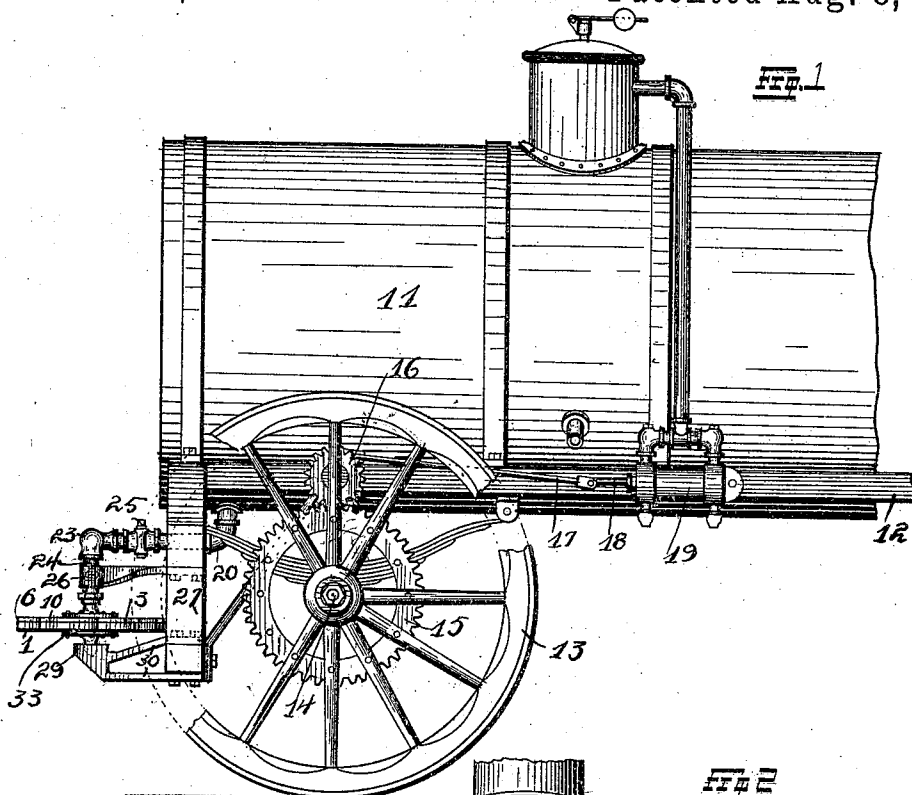
(No Model.)

2 Sheets—Sheet 1.

G. LANGER.
STREET SPRINKLER.

No. 503,093.

Patented Aug. 8, 1893.



WITNESSES

Alfred A. Bickel
Herbert A. Robinson

INVENTOR

Gotthold Langer
By his Attorneys Sigdon & Sigdon & Longan.

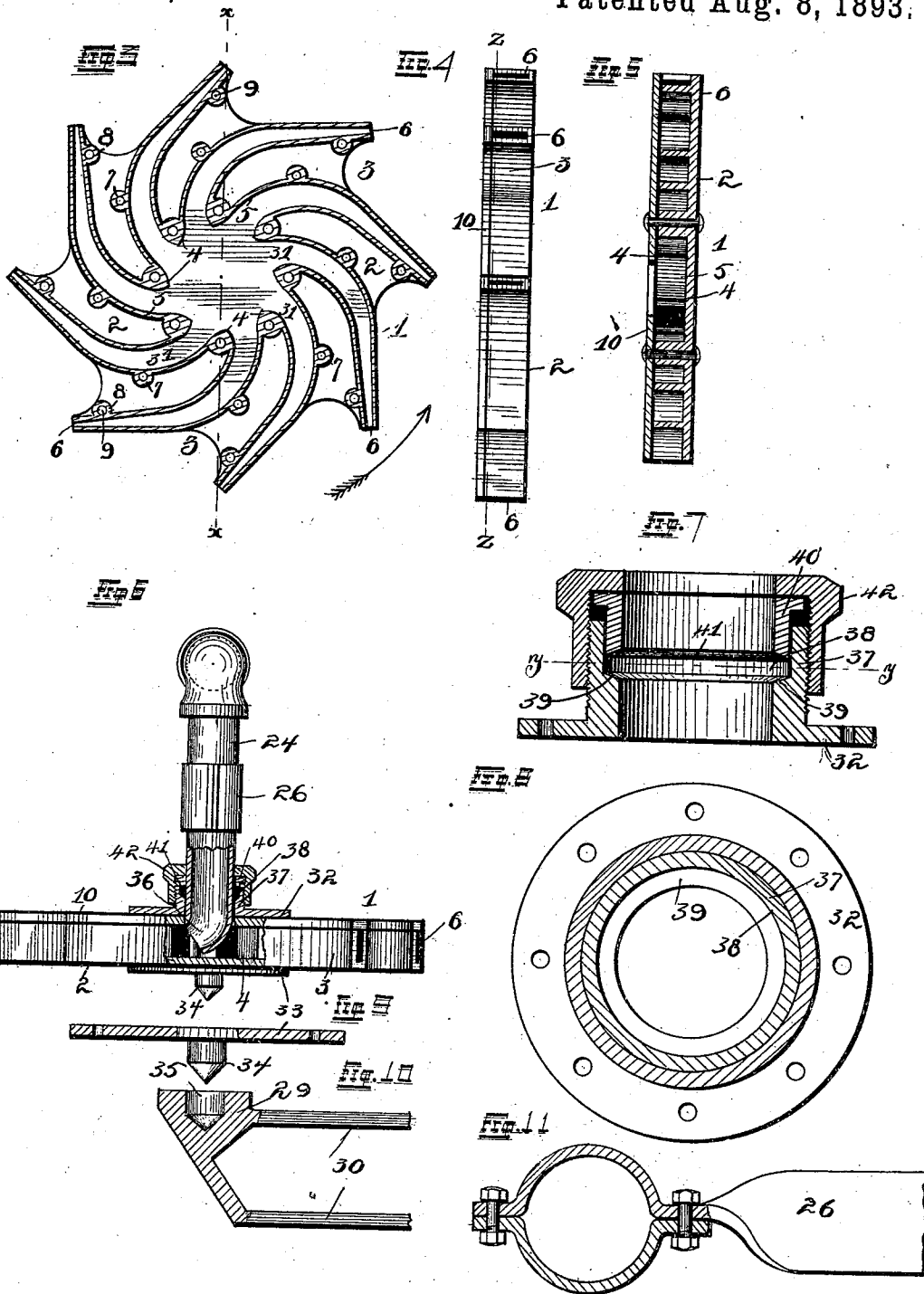
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UNITED STATES PATENT OFFICE.

GOTTHOLD LANGER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HENRY G. STIEBEL, JR., OF SAME PLACE.

STREET-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 503,093, dated August 8, 1893.

Application filed November 8, 1892. Serial No. 451,351. (No model.)

To all whom it may concern:

Be it known that I, GOTTHOLD LANGER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Street-Sprinklers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in street sprinklers, and consists in the novel arrangement and combination of parts as will be more fully hereinafter described and set forth in the claims.

The object of my invention is to construct a distributing wheel which by the weight of water alone, will operate successfully. The spouts of the wheel being smaller than the chambers which the water enters, gives to the water a pressure or force which sends the same to a great distance over the street, as well as causing the wheel to revolve.

In the drawings: Figure 1 is a side elevation of a sprinkling cart with parts removed and broken away. Fig. 2 is a rear end elevation of same with parts broken away and removed. Fig. 3 is a sectional plan view of the distributing reaction wheel, taken on a line Z—Z in Fig. 4. Fig. 4 is a side elevation of the wheel. Fig. 5 is a transverse sectional view taken on a line X—X in Fig. 3. Fig. 6 is a side sectional elevation of the wheel and its pipe connections showing parts broken away and sectioned. Fig. 7 is a vertical sectional view of the swivel water-supply joint. Fig. 8 is a plan sectional elevation of same taken on a line Y—Y in Fig. 7. Fig. 9 is a detail sectional view of a plate with a bearing-point depending therefrom, said plate being secured to the under side of the reaction wheel. Fig. 10 is a detail sectional view of the bearing made use of in connection with the construction shown in Fig. 9. Fig. 11 is a detail sectional view of a brace used to support the feed pipe.

Referring to the drawings: 1 indicates what I term a reaction wheel, the same consisting of a bottom-plate 2 having segmental portions 3 cut out of its periphery, the same describing curvilinear hook-shaped depressions. Arranged radially around the center of the plate 2 are a number of upwardly projecting cast-

ings 4 from which extend curvilinear webs or walls 5 to the periphery of the wheel. For instance one of these projections 4 has a wall extending from one of its sides to form one side of a spout 6 while from its other side extends a wall which is of greater length and forms the adjacent wall for another spout.

The walls of the alternate projections 4 which form the spout 6 are slightly inclined toward each other at the extremity of same, in order to form the spout mentioned.

7 and 8 indicate radially arranged projections, which are the height of the walls 5 and which are at farther relative distances from the center than the projections 4, all of said projections 4, 7 and 8 being provided with vertical circular bores 9 corresponding to similar bores in the cover 10 and bolts are adapted to be placed through said cover 10 and wheel 1 to secure the parts together, the bolts passing through the projections 4 also passing through other constructions hereinafter described.

11 indicates an ordinary sprinkling tank mounted on a wagon frame 12, and 13 the rear wheel of same. Secured to the spokes of said wheel and with its periphery at equidistances from the axle 14 is an annular gear rim 15 the teeth upon which are adapted to mesh into the teeth upon a gear pinion 16 which is mounted upon a crank, not shown in the drawings and from which operates a connecting rod 17 connecting with a piston rod 18 in an air compressor 19 which is more fully shown and described in another application, filed November 8, 1892, Serial No. 451,352.

A pipe 20 leads from the under side of the tank to a T-joint 21 from which pipes 22 extend to elbow couplings 23 adjacent opposite sides of the wagon. From the couplings 23 depend pipes 24 which eventually lead into the reaction wheel 1. A valve 25 is connected in the pipe 20 between the tank 11 and the T-coupling 21, to cut off the connection with the wheels 1 if found desirable or necessary. The pipe 24 is held in a stationary vertical position by means of a brace 26 which is secured to a depending portion 27 of the wagon-frame 12. The two side depending timbers 27 are connected at their lower ends by a cross-piece 28 upon which the bearing blocks

29 are secured by arms 30 which project from same and are bolted to said cross-piece 28. The lower end of the pipe 24 is bent so as to throw the stream of water coming through same directly into the chambers 31 which form the entrance of the spout 6.

The wheel 1 has a plate 32 adapted to be secured to the top of said wheel, by bolts which pass through the same and through the projections 4 within said wheel and which also secure a circular plate 33 from which depends a bearing point or cone 34 which is adapted to revolve in a coincidingly turned opening 35 in the bearing block 29.

It will be noticed that the bent portion 36 of the pipe 24 does not project beyond the longitudinal plane of the pipe, so that no trouble is had in placing the same in position.

To prevent the water from passing upwardly through the joint between the pipe and the wheel, I have provided a stuffing-box device for the introduction of packing. The plate 32 has an upwardly projecting annular portion 37 exteriorly screw-threaded, and having an interior counter-bore 38 which provides an inclined annular surface 39. The packing is placed upon this inclined face 39 and an annular shell or rim 40 is slipped over the pipe and rests upon said packing, its lower face 41 also being inclined or chamfered. To compress the packing the gland 42 which is interiorly screw-threaded is turned down upon the screw-threads upon the portion 37 thus tightening the shell 40 upon the packing.

I will now proceed to describe the action of the water within the wheel 1. The weight of the water passing through the pipes 24 and entering the wheel 1, serves to throw the water against the inwardly projecting walls 5 of the chambers 31. This force of the water together with the spouts formed by the bringing together of said walls causes the water to receive an impetus which throws the same out through the spout 6. The weight of the water and the angle at which it is discharged against the curvilinear walls, causes the wheels to rotate. The water is necessarily sprayed out through the spout 6, and fulfills the function of the construction.

The object of pumping air into the tank is to force the water out, by means of the pressure given by the air.

Each revolution of the wheel 13 operates the pump a number of strokes, the check valves in the pump allowing the air to be forced upwardly through the pipe to a point above the water line.

As the tank 11 is air and water-tight I have provided a check valve upon the top of the dome, which will allow the escape of air if the pressure becomes too great.

The usual necessary appliances are necessary in connection with the wagon, for manipulating the valves which cut off the supply of water to the wheels, but are not herein shown and described as they are well known.

Having fully described my invention, what I claim is—

1. An improved street sprinkler having a reaction wheel, comprising a number of radially projecting curvilinear chambers, formed by walls curving from points near the center of said wheel, spouts terminating said chambers, and a feed pipe inserted into the center of the lid of said wheel, said pipe giving a curved entrance to the water in order that it will strike the inwardly projecting wall of a chamber and of each successive chamber as the wheels rotate by the weight of the water, substantially as set forth.

2. An improved street sprinkler having a reaction wheel, a feed-pipe with its lower end curved, leading therein, a plate 32 having a projecting portion 37, said annular projection 37 exteriorly screw-threaded, said projection provided with an interior bore 38 and having a downwardly inclined face 39, a rim or shell 40 adapted to fit over the pipe 24 packing interposed between the portion 37 and the rim or shell 40, and a gland 42 interiorly screw-threaded adapted to be placed over the pipe 24 and screwed down upon the shell 40 to compress the packing located between the face 39 of the counter-bore 38 and the lower face of the shell 40, substantially as set forth.

3. An improved street sprinkler having a reaction wheel 1 provided with projections 4, a pipe 24 having its lower end 36 curved, a brace 26 secured to the wagon and adapted to support said pipe in a vertical position, a plate 33 secured to the lower side of said wheel 1 and having a downwardly-projecting bearing 34, a casting 29 secured to the wagon and provided with a bearing socket 35 in which is journaled the bearing 34, a plate 32 secured to the upper side of the wheel, and bolts passing through said plates 32 and 33 and the projections 4 of the wheel; substantially as set forth.

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

GOTTHOLD LANGER.

Witnesses:

HERBERT S. ROBINSON,
JULIAN C. HARVEY.