

No. 639,788.

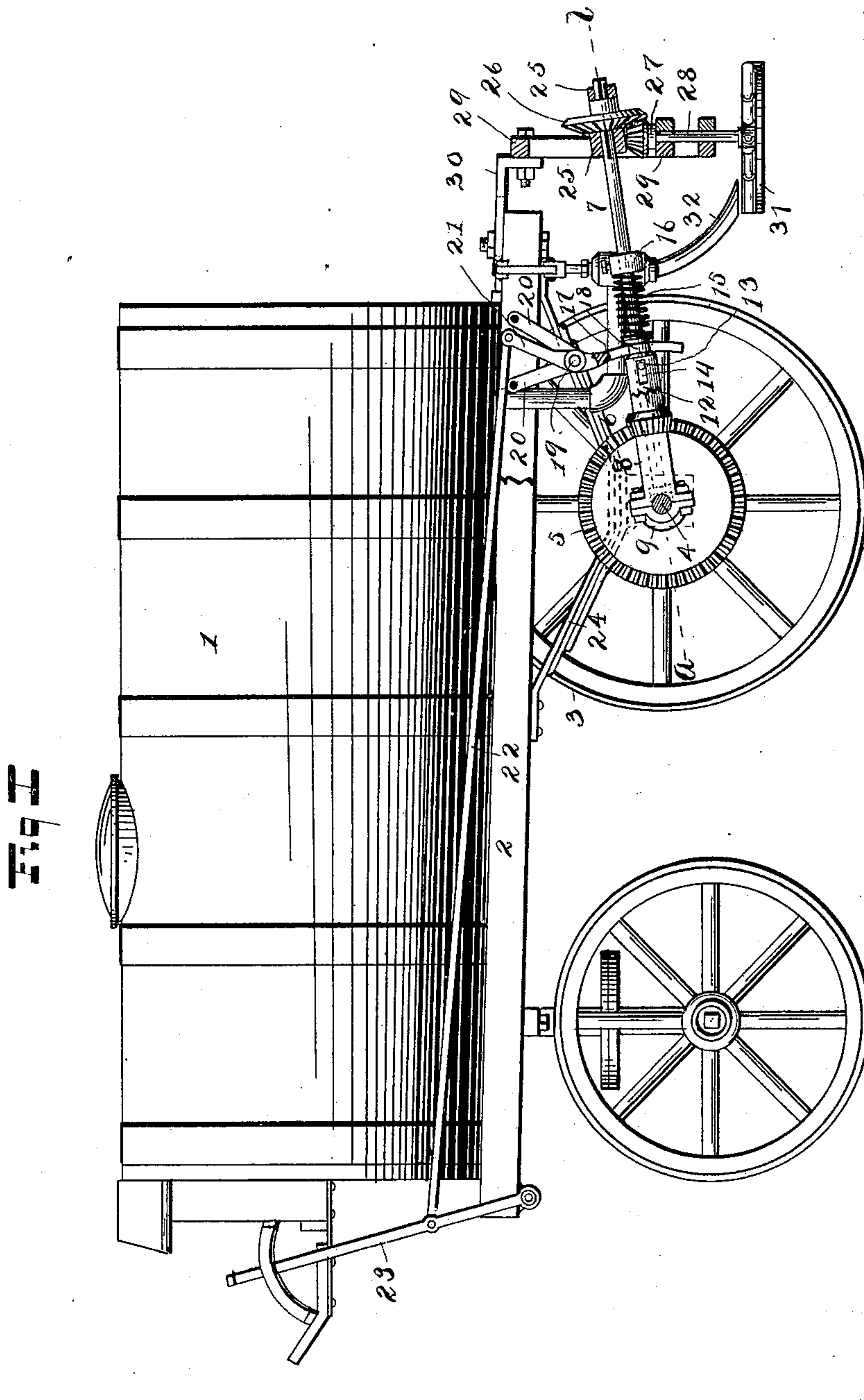
Patented Dec. 26, 1899.

J. L. STIEBEL.
STREET SPRINKLER.

(Application filed Oct. 17, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

L. A. Washburn.
D. W. House

J. L. Stibel,

INVENTOR.

BY

Warren D. House,
His ATTORNEY

No. 639,788.

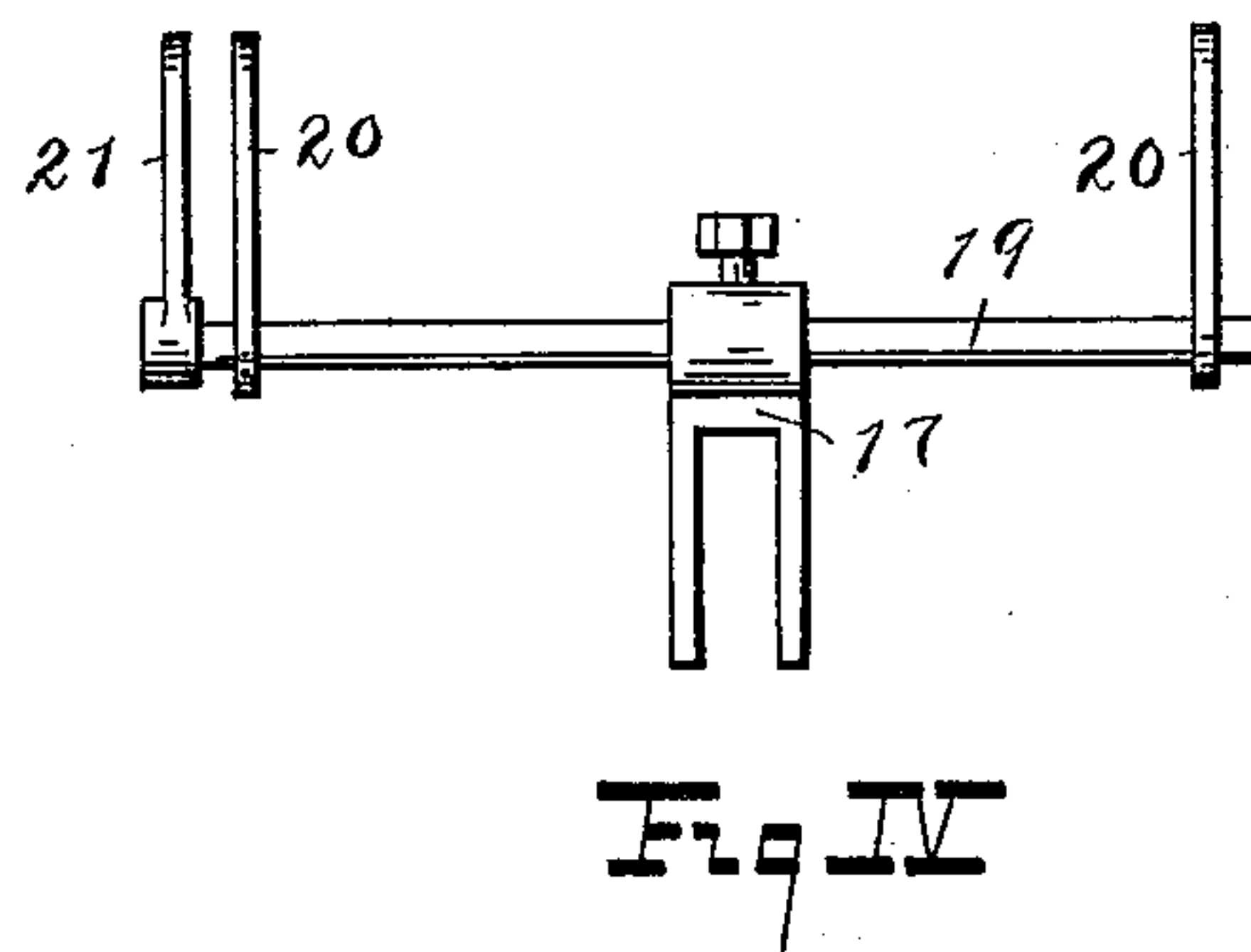
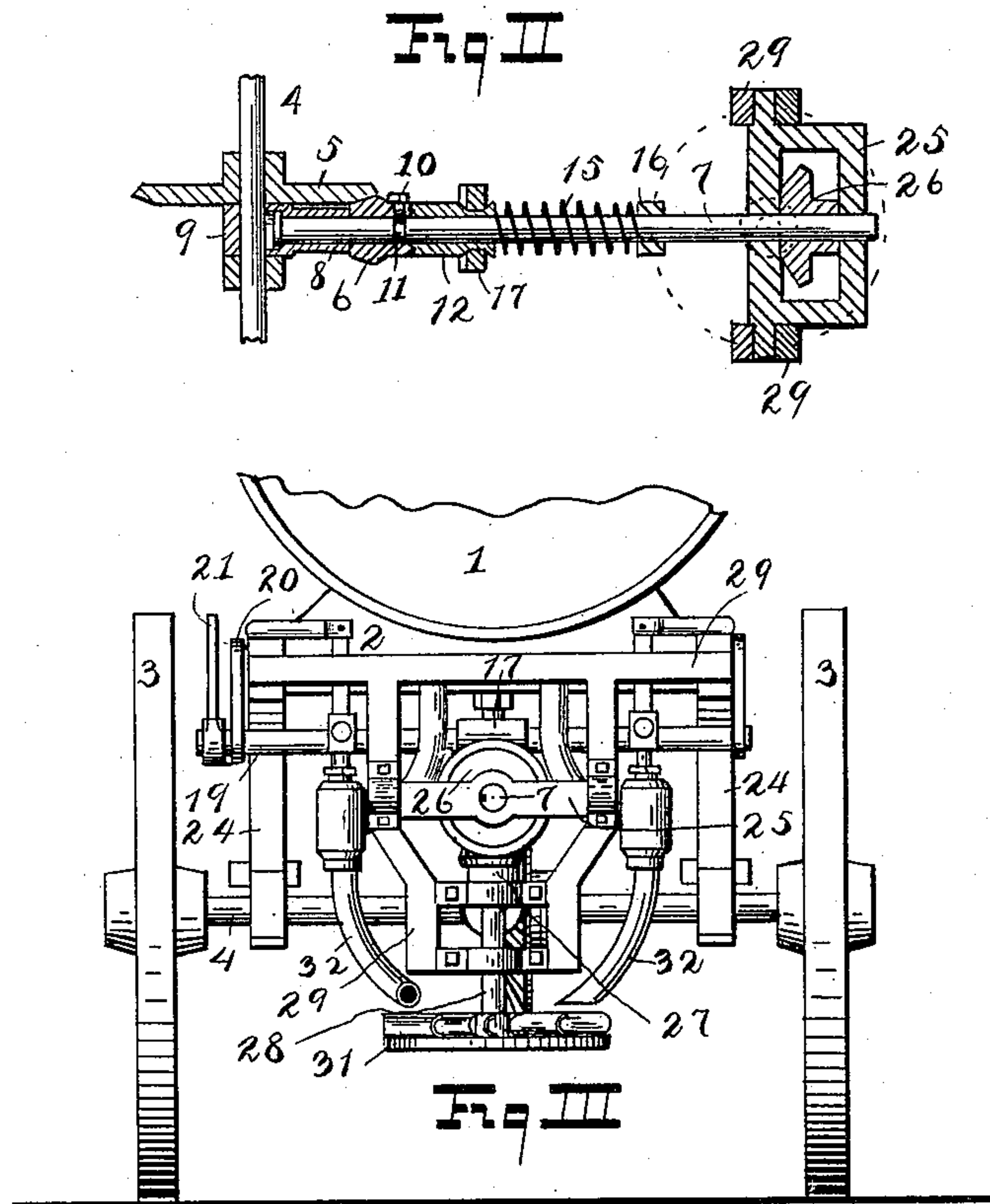
Patented Dec. 26, 1899.

J. L. STIEBEL.
STREET SPRINKLER.

(Application filed Oct. 17, 1898.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES

L. A. Washburn
Witness

INVENTOR.

J. L. Stiebel,

BY

Warren D. House,
His ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH L. STIEBEL, OF KANSAS CITY, MISSOURI.

STREET-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 639,788, dated December 26, 1899.

Application filed October 17, 1898. Serial No. 693,711. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. STIEBEL, a citizen of the United States of America, residing in Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Street-Sprinklers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to improvements in street-sprinkling vehicles, such as wagons, cars, &c.

It relates particularly to the class of street-sprinkling vehicles provided with a disk capable of rapid rotation in a horizontal plane and having radial wings or vanes for distributing the water, which is supplied to the disk from a tank carried by the vehicle, the disk being rotated by means of driving mechanism connecting it with the vehicle-wheels.

20 The object of my invention is to provide a driving mechanism for rotating the centrifugal disk comprising shafting, bevel-gearing, and other parts, the peculiarities of construction being fully described and claimed hereinafter.

A further object of my invention is to provide a construction which will readily accommodate itself to the vertical oscillations of the spring-supported frame carrying the water-tank, while at the same time permitting the throwing in or out of gear of the driving mechanism.

35 In the accompanying drawings, illustrating my invention, Figure I represents a side-elevation view of a sprinkling-wagon provided with driving mechanism constructed in accordance with the principles of my invention, a portion of the supporting-frame-work being broken away and the axle, centrifugal disk, supporting-frame, and slotted crank-arm being shown in vertical section. One of the water-supply pipes and valve is removed. Fig. II represents a transverse sectional view of some of the driving mechanism, taken on the dotted line *a b* of Fig. I. Fig. III represents a rear-elevation view, a portion of the tanks and other parts being removed. Fig. IV represents a rear-elevation view of the slotted crank-arm, the rock-shaft supporting it, and parts immediately connected therewith.

50 Similar numerals of reference indicate similar parts.

1 denotes the water-tank, 2 the rectangular tank-supporting frame, and 3 the rear or driving vehicle-wheels, rotatable with the rear axle 4, upon which is rigidly secured a large bevel gear-wheel 5, which meshes with a smaller similar wheel 6, rotatably secured upon the shaft 7, the forward end of which is provided with a head and is rotatably fitted in a seat provided therefor in the rear end 8 of a boxing, which is secured rotatably upon the axle 4 by the forward end 9, the two parts of the boxing being secured together by means of suitable bolts. To prevent rearward movement of the gear 6 upon the shaft 7, it is provided with a screw 10, which is adapted to travel in an annular groove 11, provided in the periphery of the shaft 7. The rear end of the hub of the gear 6 is provided with ratchet-teeth, adapted to engage with similar teeth in the forward adjacent end of a clutch-sleeve 12, which is longitudinally movable upon the shaft 7, but is prevented from rotation thereon by a pin 13, secured in the shaft 7 and operating within a slot 14 in the side of the sleeve 12. The sleeve is normally forced forward by means of a coil-spring 15, encircling the shaft 7 and abutting at its rear end against a collar 16, secured rigidly upon the shaft 7.

The sleeve 12 is forced out of engagement with the gear 6 by means of a crank-arm 17, slotted at its outer end, the bifurcated parts of which are located, respectively, upon the sides of the sleeve 12 in a peripheral groove 18 provided therein. The crank-arm 17 is rigidly secured to a horizontal transverse rock-shaft 19, the ends of which are supported by brackets 20 of any desirable form and secured, respectively, to the sides of the frame 2. At one end of the rock-shaft 19 is secured a crank-arm 21, to the outer end of which is pivotally connected the rear end of a forwardly-extending connecting-rod 22, the forward end of which is pivotally connected with an upwardly-extending operating-lever 23, the lower end of which is pivoted to the frame 2. Any desirable locking device may be employed to hold the operating-lever 23 in the position in which it may be placed. The bifurcated ends of the crank-arm 17 are preferably curved with the concave side forward to prevent cramping with the sleeve 12 when the frame oscillates vertically upon the supporting-springs 24. The rear end of the shaft 7 is rotatably mounted in a horizontal boxing

25, the center of which is provided with an opening in which is located a bevel gear-wheel 26, which meshes with a bevel gear-wheel 27, secured upon the upper end of the vertical shaft 28, which is mounted in bearings provided in a vertical frame 29, between the two side arms of which is pivoted the two ends of the boxing 25. The upper end of the frame 29 is secured to two forwardly and rearwardly adjustable brackets 30, mounted, respectively, upon the sides of the frame 2. The rear end of the shaft 7 is provided with a feather-and-groove connection with the gear 26, so that the latter may have longitudinal but not rotatory movement upon the shaft 7. To the lower end of the shaft 28 is secured the disk 31, provided upon its upper side with a series of curved radially-arranged vanes or wings adapted when the disk is rapidly rotated to throw the water received from the supply-pipes 32 horizontally in all directions. The supply-pipes 32 are connected with the tank 1 and are provided with any desirable form of shut-off valves.

My invention is operated as follows: When the sprinkling-wagon is moving forward, if it is desired to not operate the sprinkler the operating-lever 23 is thrown forward, thus rocking the rock-shaft 19 through the intermediacy of the connecting-rod 22 and the outer crank-arm 21. The rock-shaft being rocked throws the lower end of the bifurcated crank 17 rearwardly, thus forcing rearwardly the sleeve 12 and disengaging its teeth from the teeth in the hub of the gear 6 and stopping rotation of the shaft 7. If then it is desired to operate the sprinkler, the lever 23 is released and the coil-spring 15 can then force the sleeve 12 forward on the shaft 7 until the teeth of the sleeve engage the teeth of the gear-hub 6, when the rotation of the gear 6 taken from the gear 5, which is secured to the rotating axle 4, is imparted to the shaft 7 and thence to the gear 26, gear 27, and shaft 28, to which is secured the centrifugal disk 31. Rotation having been thus imparted to the disk 31, water is permitted to flow thereon through the supply-pipes 32 and is evenly distributed over a broad area. It will be observed that the forward end of the shaft 7 is pivoted to the axle 4 by means of the boxing 8 and 9 and lies in a radial line starting from the axis of the gear 5. The gear 6 will thus describe an arc of a circle, which coincides with the teeth of the gear 5 when the rear end of the shaft 7 moves vertically up or down due to the vertical oscillations of the frame 2 and frame 29. It will therefore be evident that the gears 5 and 6 will always be in proper mesh, while at the same time permitting free rotation of the shaft 7. The slot in the crank-arm 17 permits vertical movement of the said arm, while not disturbing its connection with the sleeve 12. By mounting the gear 26, as described, on the shaft 7 the shaft is free to move forward or rearward in the boxing 25 without disturbing the relative positions of the gears

26 and 27. The pivotal mounting of the ends of the boxing 25 in the frame 29 prevents any cramping of the shaft in the boxing, the teeth of the gears 26 and 27 being so formed that the movement of the boxing on its trunnions will not cause the gears to jam with each other.

Various modifications of the construction shown may be made without departing from the spirit of my invention.

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

1. In a street-sprinkler, the combination with the rotatable wagon-axle, of springs mounted thereon, a tank-supporting framework carried by the springs, a driving-shaft having one end supported by the said framework and the other end pivotally connected with the axle, the centrifugal disk-shaft supported by the framework, gearing connecting the axle and the driving-shaft and gearing connecting the two shafts, substantially as described.

2. In a street-sprinkler, the combination with a driving gear-wheel, of a driving-shaft radially located with respect to the axial center of the said gear-wheel and adapted when oscillated to describe an arc of a circle the center of which is the axial center of the said gear-wheel, a pinion mounted upon the said shaft and meshing with the said gear-wheel, the centrifugal disk-shaft, gearing connecting the two shafts, suitable supports for the two shafts and means for imparting rotation from the sprinkler vehicle-wheels to the driving gear-wheel, substantially as described.

3. In a street-sprinkler, the combination with a driving gear-wheel, of a pinion meshing therewith, a driving-shaft upon which the pinion is mounted, means for imparting rotation from the pinion to the driving-shaft, supports for the driving-shaft provided with means by which the pinion describes an arc of a circle the center of which is the center of the driving gear-wheel when the shaft is oscillated, the centrifugal disk-shaft, gearing connecting the two shafts, and means for imparting rotation to the driving gear-wheel, substantially as described.

4. In a street-sprinkler, the combination with a driving gear-wheel, of the rotatable axle upon which the said gear-wheel is mounted, a framework supported by the axle, a driving-shaft provided with bearings in the framework and pivotally supported by the axle, a pinion meshing with the said driving gear-wheel, a releasable clutch for imparting rotation from the pinion to the driving-shaft, the centrifugal disk-shaft supported by the said framework, and gearing connecting the said shaft with the driving-shaft, substantially as described.

5. In a street-sprinkler, the combination with the rotatable axle, of the driving gear-wheel mounted thereon, a driving-shaft pivotally connected with the axle at one end, a

pinion rotatable upon the driving-shaft and meshing with the driving gear-wheel, a clutch device for imparting rotation from the pinion to the driving-shaft, means for operating said clutch device, the centrifugal disk-shaft, gearing connecting the two shafts, and suitable supports for the disk-shaft and the free end of the driving-shaft, substantially as described.

6. In a street-sprinkler, the combination with the sprinkler-axle, of a gear-wheel rotatable thereby, a pinion meshing with the driving gear-wheel, a driving-shaft upon which the pinion is rotatably mounted, means for imparting rotation from the pinion to the driving-shaft, the centrifugal disk-shaft, gearing connecting the two shafts, supports for the two shafts, and a boxing in which one end of the driving-shaft is rotatably mounted pivoted upon the axle, substantially as described.

7. In a street-sprinkler, the combination with the axle, of a driving-shaft, the forward end of which is pivotally supported thereby, means for imparting rotation from the axle to the driving-shaft, the centrifugal disk-shaft, a frame in which the disk-shaft is mounted and which also supports the rear end of the driving-shaft, a gear-wheel rotatable with the disk-shaft, a gear-wheel meshing therewith mounted upon the driving-shaft and movable lengthwise thereon but rotatable therewith, and a yielding support for the said frame carried by the axle, substantially as described.

8. In a street-sprinkler, the combination with the axle, of a bevel gear-wheel mounted thereon and rotatable therewith, a driving-shaft, a bevel gear-wheel meshing with the first one and mounted upon the driving-shaft, means for imparting rotation from the second bevel gear-wheel to the driving-shaft, a boxing pivoted to the axle and in which the driving-shaft is journaled at its forward end, a vertical disk-shaft, gearing connecting the two shafts, a frame supporting the rear end of the driving-shaft and the disk-shaft, and a yielding support for the said frame carried by the axle, substantially as described.

9. In a street-sprinkler, the combination with a rotatable axle, of a driving gear-wheel rotatable therewith, a pinion meshing with the gear-wheel and rotatably mounted upon a driving-shaft, the said driving-shaft having one end pivotally connected with the axle, a clutch for imparting rotation from the pinion to the driving-shaft, an operating-lever, mechanism connecting the operating-lever with the clutch, the centrifugal disk-shaft, a frame supporting the disk-shaft and one end of the driving-shaft, a yielding support for the frame mounted upon the axle, and gearing connecting the two shafts, substantially as described.

10. In a street-sprinkler, the combination with the rotatable axle, of a driving-gear mounted thereon, a pinion meshing with the driving-gear, a driving-shaft supporting the

pinion and having its forward end pivotally connected with the axle, a clutch-sleeve rotatable with the driving-axle and movable thereon so as to engage with the pinion, a spring for making such engagement, means for disengaging the clutch-sleeve and the pinion, the centrifugal disk-shaft, a frame supporting the disk-shaft and the rear end of the driving-shaft, gearing connecting the two shafts, and a yielding support for the said frame mounted upon the axle, substantially as described.

11. In a street-sprinkler, the combination with the rotary axle, of a driving gear-wheel rotatable therewith, a pinion meshing with the driving gear-wheel, a driving-shaft on which the pinion is mounted, a vertically-movable frame, a boxing pivoted therein, and in which the rear end of the driving-shaft is rotatably mounted and movable lengthwise in, a centrifugal disk-shaft mounted in the said frame, and gearing connecting the two shafts, substantially as described.

12. In a street-sprinkler, the combination with the axle, of a frame capable of vertical oscillation, a centrifugal disk-shaft rotatably mounted in the said frame, a bearing rotatably mounted in the said frame, a driving-shaft rotatably mounted in the said bearing and movable lengthwise therein, the forward end of the said driving-shaft being pivotally supported by the axle, gearing connecting the axle and the driving-shaft, and gearing connecting the two shafts, substantially as described.

13. In a street-sprinkler, the combination with the rotary axle, of the boxing pivoted thereto, the driving-shaft having one end journaled in the said boxing, the frame pivoted therein and having journaled therein the rear end of the shaft, the shaft journaled in the frame, the gear rotatable with the shaft, the gear rotatable with the driving-shaft and movable lengthwise thereon and meshing with the gear, the gear rotatable with the axle, pinion rotatable on the driving-shaft, and a clutch for engaging the pinion with the driving-shaft, substantially as described.

14. In a street-sprinkler, the combination with the centrifugal disk-shaft journaled in a suitable support, of the rotary axle, a driving-shaft, gearing connecting the two shafts, a gear-wheel rotatable with the axle, a pinion mounted on the driving-shaft and meshing with the said gear-wheel, a clutch for engaging the driving-shaft and the pinion, a rock-shaft provided with a crank-arm for operating the clutch, and means for rocking the said rock-shaft, substantially as described.

In testimony whereof I have hereunto affixed my signature in presence of two witnesses.

JOSEPH L. STIEBEL.

Witnesses:

WARREN D. HOUSE,
L. E. LYONS.