

(No Model.)

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H. W. KNIGHT.  
STREET SPRINKLER.

No. 572,640.

Patented Dec. 8, 1896.

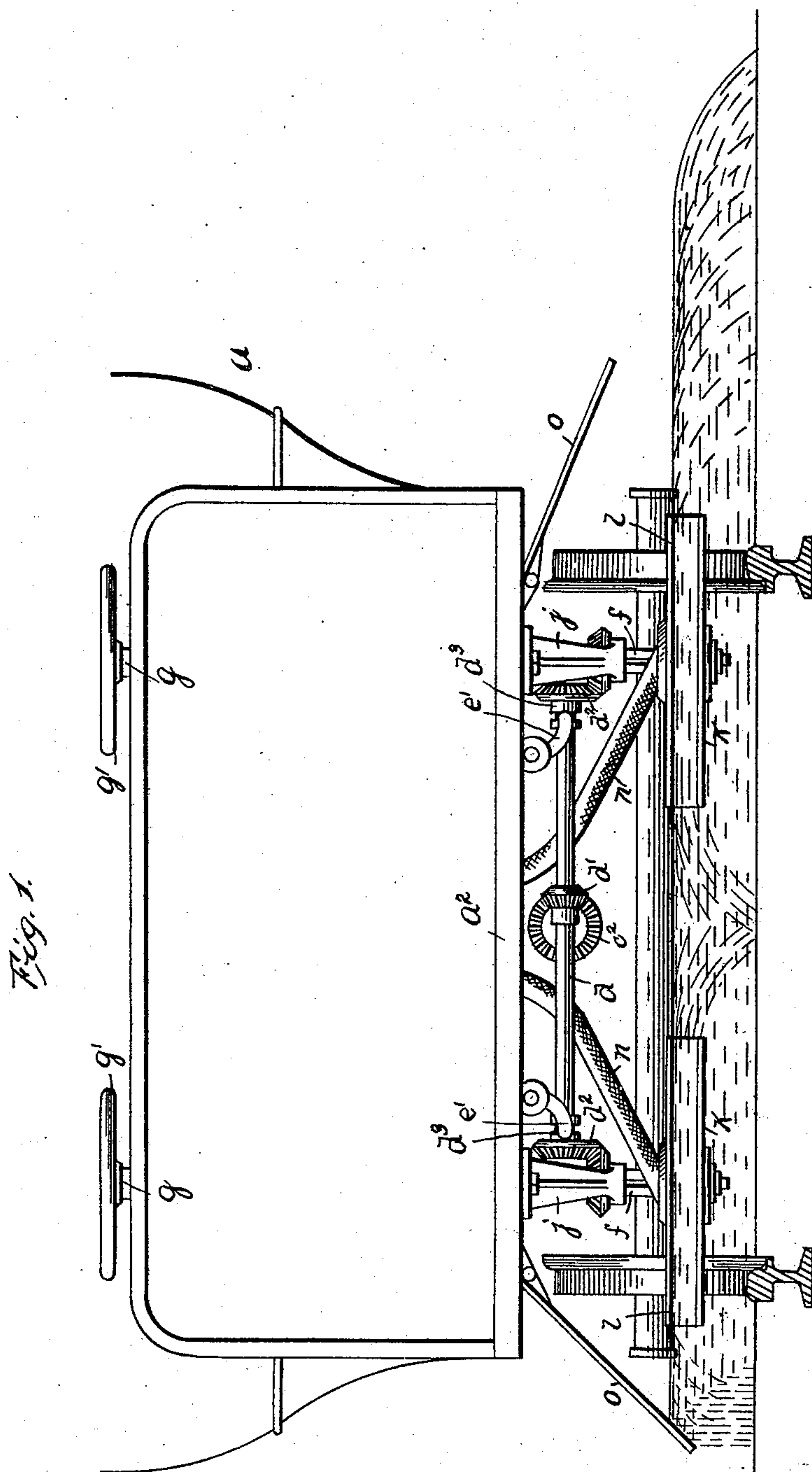


Fig. 1.

Witnesses:

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By *O. C. Duff*  
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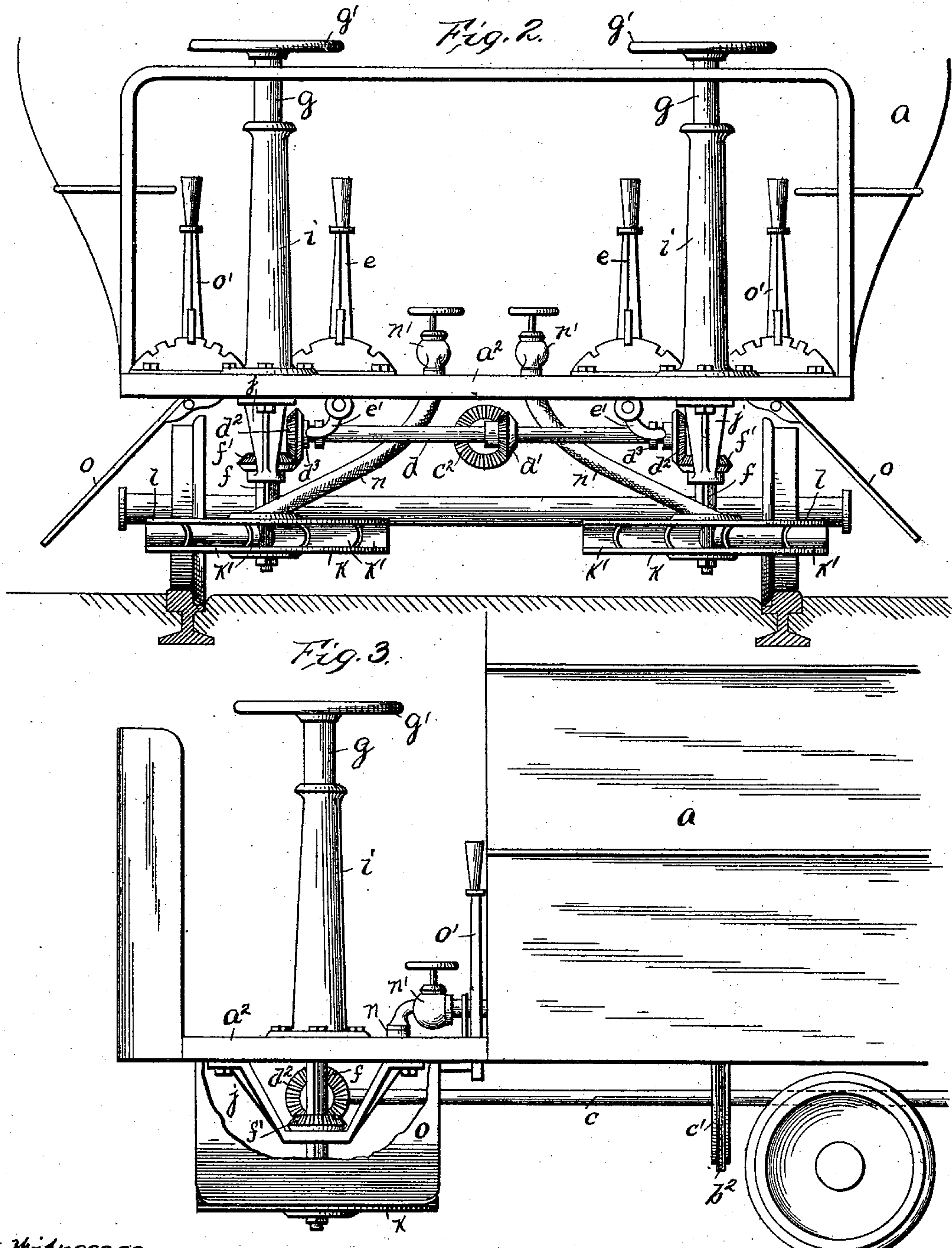
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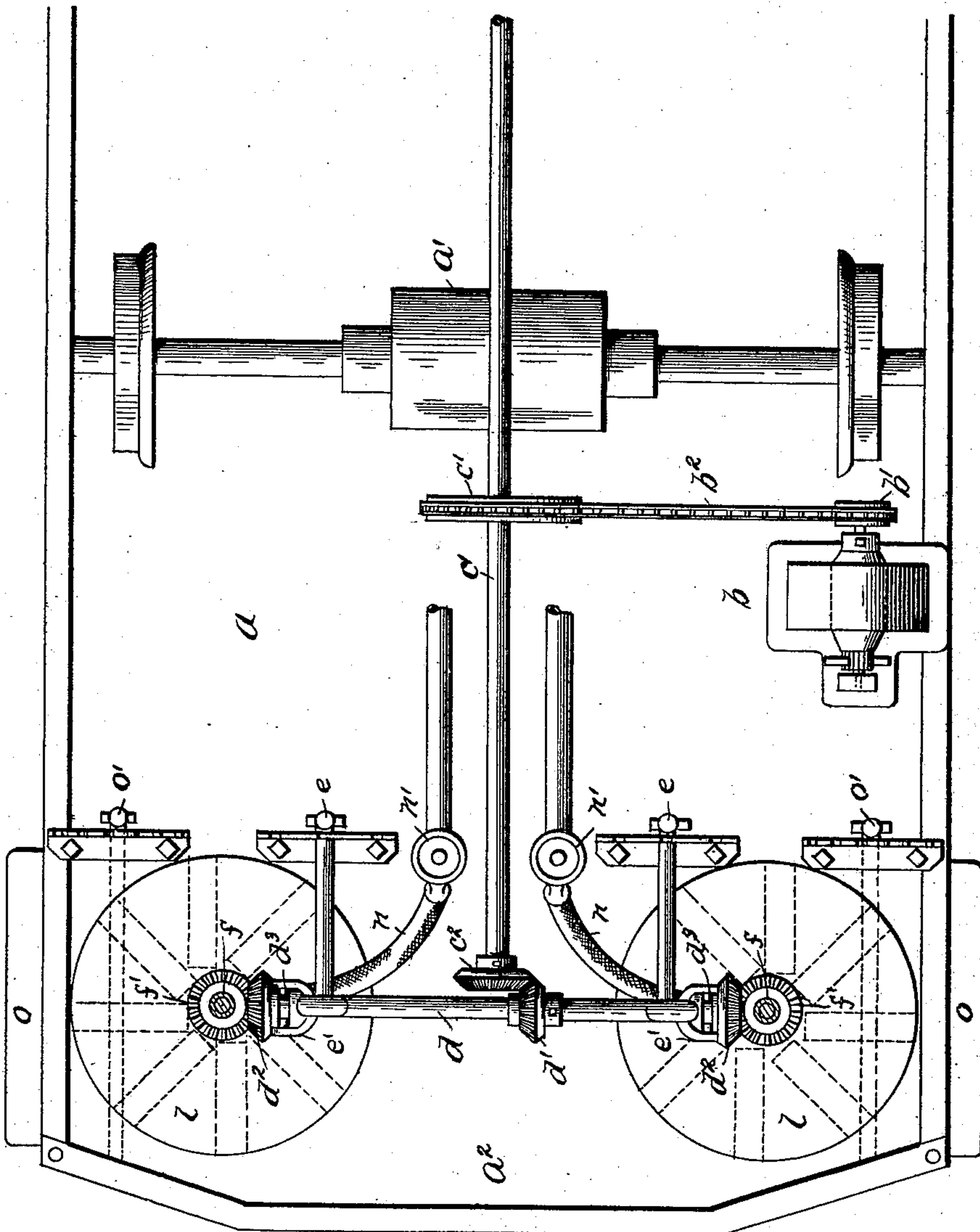
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Fig. 4.



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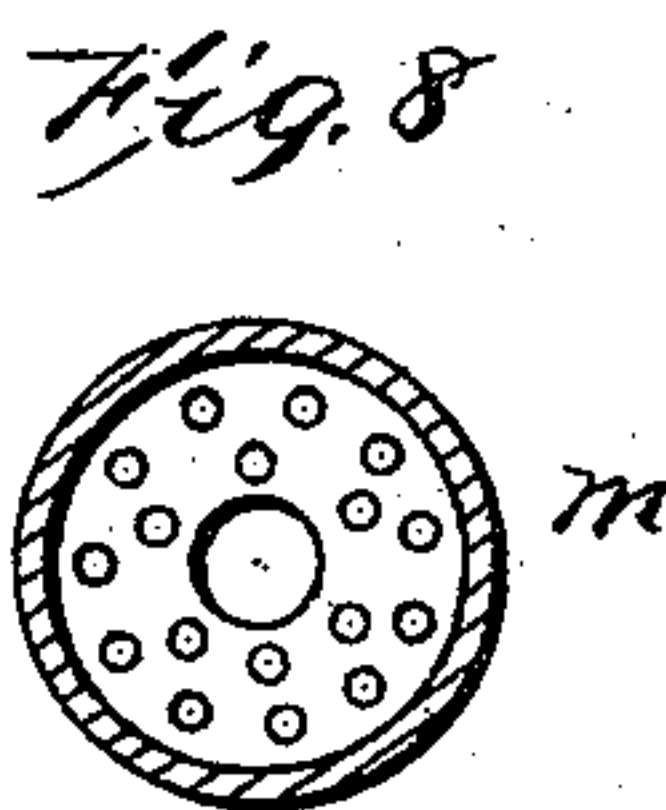
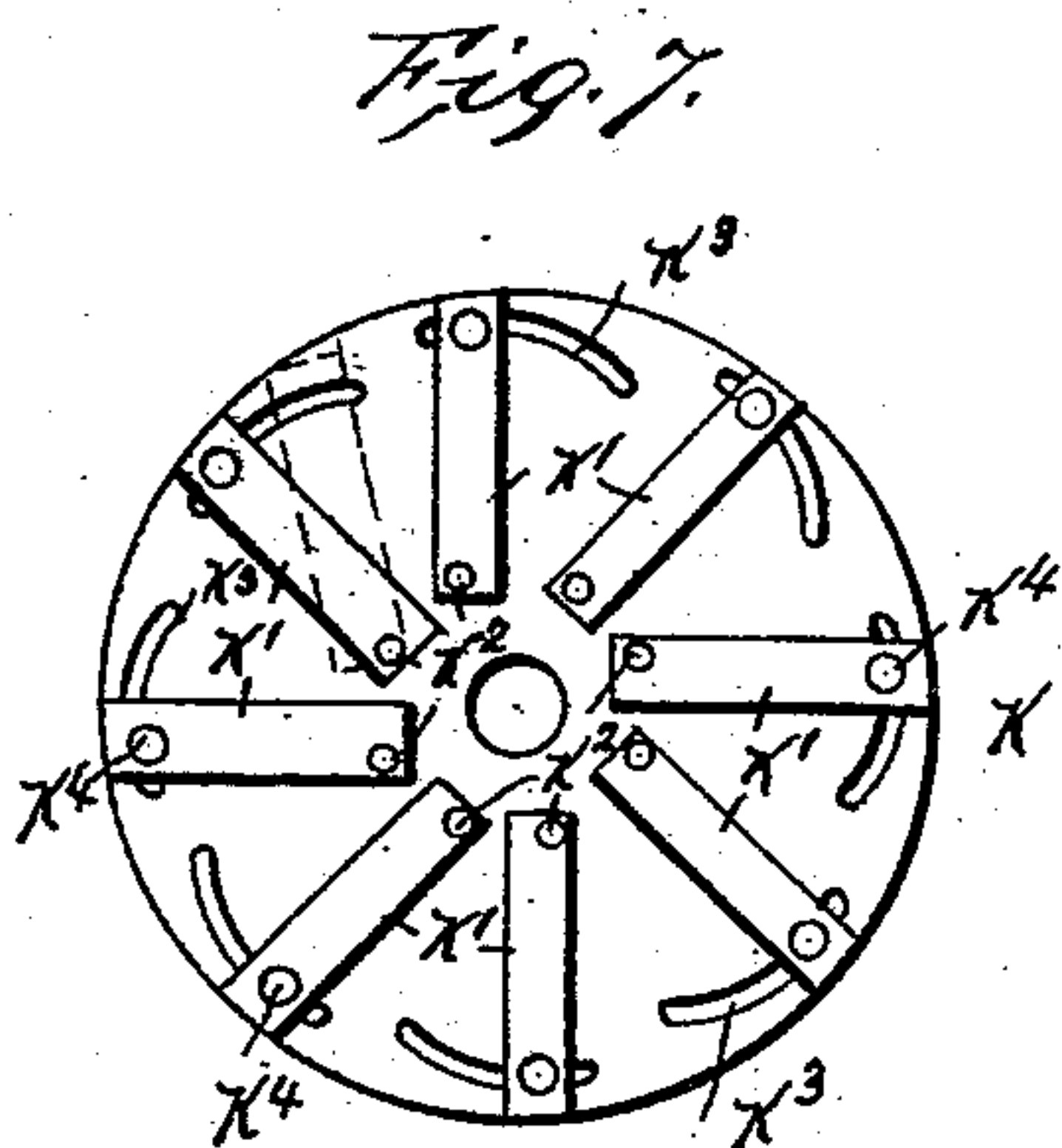
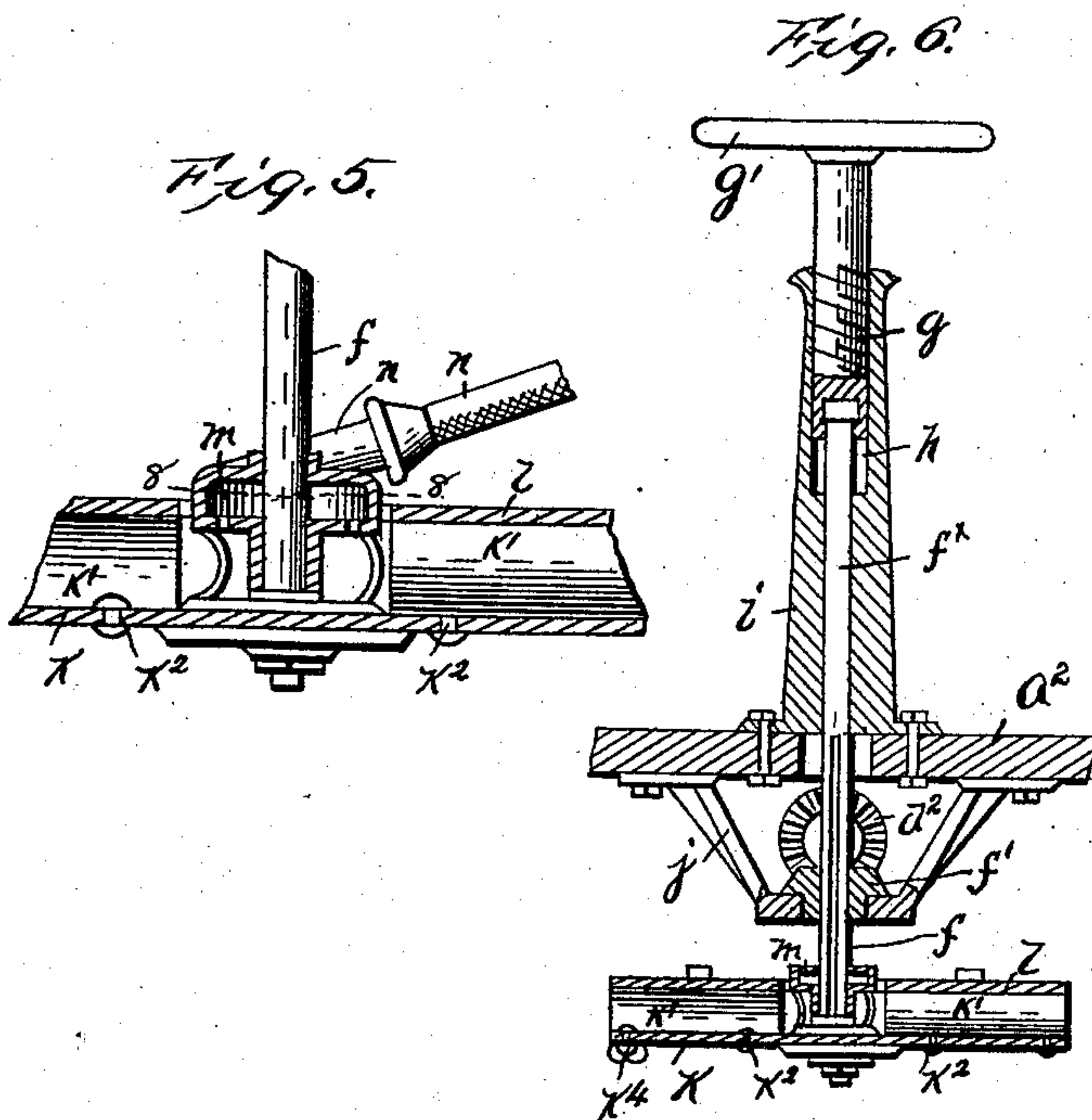
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H. W. KNIGHT.  
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Witnesses.

E. C. Ruffy

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# UNITED STATES PATENT OFFICE.

HENRY W. KNIGHT, OF TOLEDO, OHIO.

## STREET-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 572,640, dated December 8, 1896.

Application filed April 1, 1895. Serial No. 543,986. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. KNIGHT, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Street-Sprinklers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in street-sprinklers, and more particularly to an electrically-operated motor-car sprinkler.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly pointed out and specifically described hereinafter.

Referring to the accompanying drawings, Figure 1 is a front elevation of a trolley-car provided with the invention disclosed herein and showing the same in operation. Fig. 2 is a front end view of a portion of the car with the front dash broken away. Fig. 3 is a partial side elevation with one of the side deflectors partially broken away. Fig. 4 is a top plan of the apparatus beneath the car, the platform and car-body not being shown. Fig. 5 is a detail vertical section enlarged. Fig. 6 is a vertical section of the adjusting device. Fig. 7 is a detail plan of one of the rotary spraying-disks, dotted lines showing a different position of one of the adjustable buckets. Fig. 8 is a section on the line 8 8, Fig. 5.

In the drawings, *a* is the car, in the present instance illustrated as an electric trolley-car having the driving electric motor *a'*. The car is provided with or forms a suitable water-tank and with the usual end platforms *a''*, each having its dash.

*b* is a supplemental or auxiliary electric motor arranged on the under side of the car entirely independent of the driving mechanism and provided with such connections, switches, &c., that said auxiliary motor can be thrown into and out of the actuating-circuit entirely independent of the car-driving

motor. The sprinkling devices hereinafter set forth can thus be easily driven at any time. The auxiliary-motor armature-shaft has a sprocket *b'*, connected by drive-chain *b''* with the sprocket-wheel *c'* on the long shaft *c*, extending longitudinally of the under side of the car and mounted in suitable bearings. The opposite ends of the shaft have the bevel-gears *c''* meshing, respectively, with the bevel-gears *d'*, rigid on the transverse shafts *d*. Each platform has a shaft *d*, mounted in suitable bearings beneath the same, and the two shafts *d* are rotated by the longitudinal shaft from the motor.

The mechanism at one end of the car will be described to avoid confusion, as the sprinkling devices at opposite ends of the car are preferably and generally duplicates. The opposite ends of shaft *d* have the bevel-gears *d''*. These gears *d''* are formed to rotate with said shaft, but by means of keys and slots can be moved longitudinally thereof. Each gear *d''* usually has a grooved hub *d'''* to loosely receive a swinging fork *e'*, controlled by upright laterally-swingable lever *e*, extending above the platform and provided with suitable locking devices.

The two hand-levers *e*, above the platform and usually on opposite sides thereof, are within convenient reach of the motorman to enable the two gears *d''* to be independently operated and independently thrown into or out of gear with the two separate sprinkling devices hereinafter set forth.

Two vertical parallel shafts *f* are arranged on opposite sides of the platform behind the dash and extending above and below the same. The lower end of each shaft carries a horizontal rotary sprinkling or spraying device, while the shaft is supported and adjusted vertically by having its upper end loosely secured to the lower end of a vertical screw *g*, fitted and screwing vertically in a vertical threaded socket *h* in the upper end of a support *i*, secured to and extending up from the platform. The upper end of the screw has a suitable wheel or turning-handle *g'*, while the lower end thereof is so coupled to the upper end of its shaft *f* as to support and raise and lower said shaft and yet permit the shaft to rotate independently. Each shaft *f* and its sprinkling device can thus be



independently raised or lowered to independently control the throw of the sprinklers. The two shafts  $f$  have bevel-gears  $f'$  thereon meshing with and driven by the gears  $d^2$  of the shaft  $d$ . Each gear  $f'$  is coupled to its shaft, so as to rotate with the same, by means such as a key and slot which will permit longitudinal vertical play of the shaft through the gear. Each gear  $f'$  is loosely supported by a depending bracket  $j$  from the under side of the platform.

Each water thrower, sprayer, or sprinkler consists of a horizontal disk  $k$ , rigidly secured on the lower end of a shaft  $f$  and on its upper surface having the series of radial, or approximately radial, longitudinally-concaved buckets  $k'$ , preferably with their inner ends arranged a short distance from the shaft, although I do not limit myself in this respect. Each bucket is preferably pivoted at its inner end at  $k^2$  to said disk  $k$ , so that its outer end can be swung or adjusted into or from a radial line from the shaft. The outer end of each bucket is preferably held in the desired position by a slot  $k^3$  in the disk and a bolt  $k^4$  from the bucket, passing therethrough, although I do not limit myself to such specific construction. By thus adjusting the buckets the throw of the sprayer can be controlled within certain bounds.

$l$  is a top ring or plate having a central opening around the shaft and arranged on and over the buckets and secured to move with the buckets and bottom disk and with the same constituting the sprayer.

$m$  is a distributing-chamber arranged loosely and concentrically on the shaft within the central opening in said top plate. This chamber does not turn with the shaft, although it moves vertically with the same. The chamber has a perforated bottom to evenly distribute the water into the center of the sprayer at the inner ends of the buckets.

$n$  is a pipe or connection into the top of the distributing-chamber from the water-tank of the car. This pipe is flexible throughout at least a portion of its length and is provided with a stop-cock  $n'$  above the platform within convenient reach of the motorman.

The two separate and independent pipes  $n$  at each end of the car are usually arranged on opposite sides of and above the platform, and then extend down through the platform. The supply of water can thus be cut off from anyone or all of the sprinklers. These sprayers throw the water by centrifugal action in sheets to a great distance.

$o$  are swinging fenders or deflectors arranged opposite the outer sides of sprinklers, so as to extend across the range of throw from the sprinkler and retard and stop the throw of water therefrom. Each deflector preferably consists of a plate depending from its upper edge at the outer side of the under por-

tion of the platform opposite the sprinkler at that side, so that the deflector can be swung outwardly and upwardly out of the throw or path of the water from the sprinkler, so as to permit full and free throw of the water the full distance, or the deflector can be dropped across the path of the water to a greater or less angle, so as to deflect the water downwardly to the pavement at a greater or less distance from the car, or directly beneath the car if the deflector be dropped to the vertical position.

A deflector is provided for each sprinkler, and each deflector has an upwardly-extending hand-lever  $o'$  rigid therewith and extending above the car-platform within convenient reach of the motorman and provided with suitable locking means to hold the deflector in the desired position. By means of these swinging deflectors the motorman can easily deflect the spray of water from either sprinkler quickly and easily without stopping the sprinkler. This is a particularly advantageous device to momentarily check the throw of water when the car is passing a vehicle, pedestrian, or bicycle.

It will be clearly understood that the motorman can from the platform raise or lower either or both sprinklers to increase or diminish the throw thereof for streets of different widths or where the car-track is not in the center of the street and it is desired that one sprinkler should throw a greater distance than the other; also, the motorman can from the platform throw either sprinkler out of gear entirely with the driving power, or he can shut off or start the driving power for all the sprinklers, or he can independently control the throw of water by the deflectors or by adjusting the buckets.

It is evident that various changes might be made in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact construction herein set forth.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

A centrifugal water-sprayer comprising a vertical shaft, a horizontal disk rigid therewith, radial buckets arranged on the upper face thereof, a horizontal plate having an open center and resting on the buckets and the water-distributing chamber loose on the shaft in said open center and having the perforated bottom, substantially as described.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

HENRY W. KNIGHT.

Witnesses:

WILLIAM WEBSTER,  
FLOYD R. WEBSTER.