

No. 754,172.

PATENTED MAR. 8, 1904.

E. SUTHERLAND.
LAWN SPRINKLER.

APPLICATION FILED NOV. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

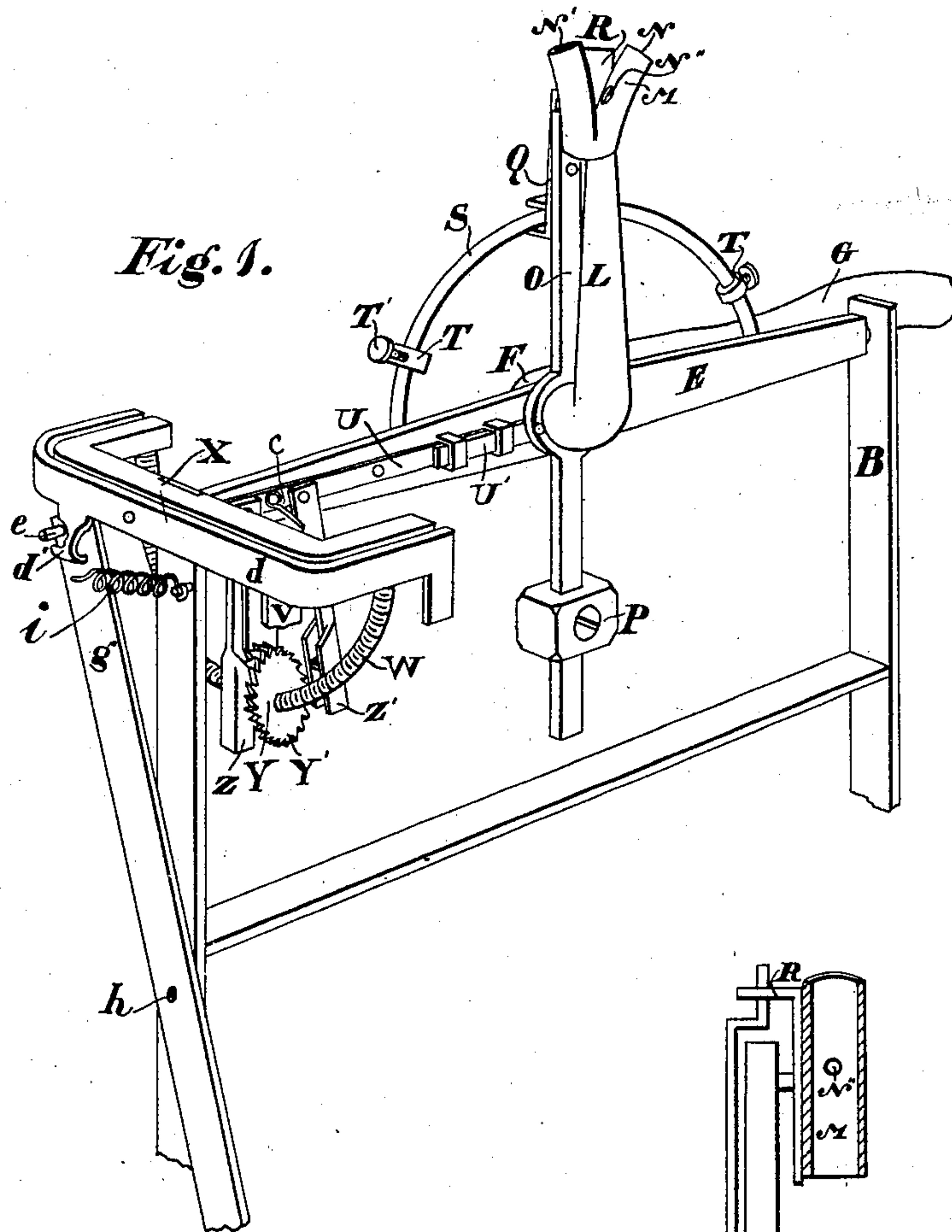


Fig. 1.

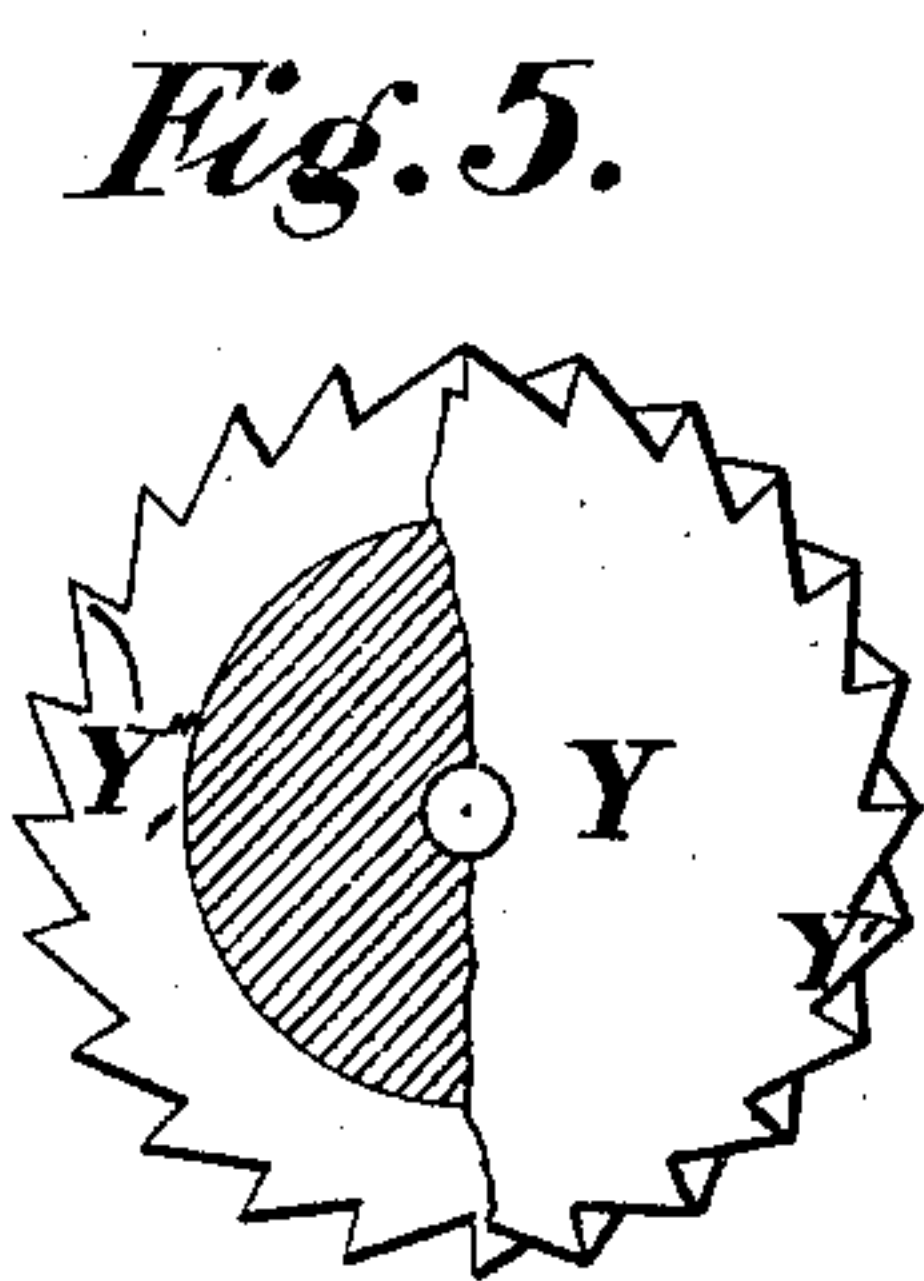


Fig. 5.

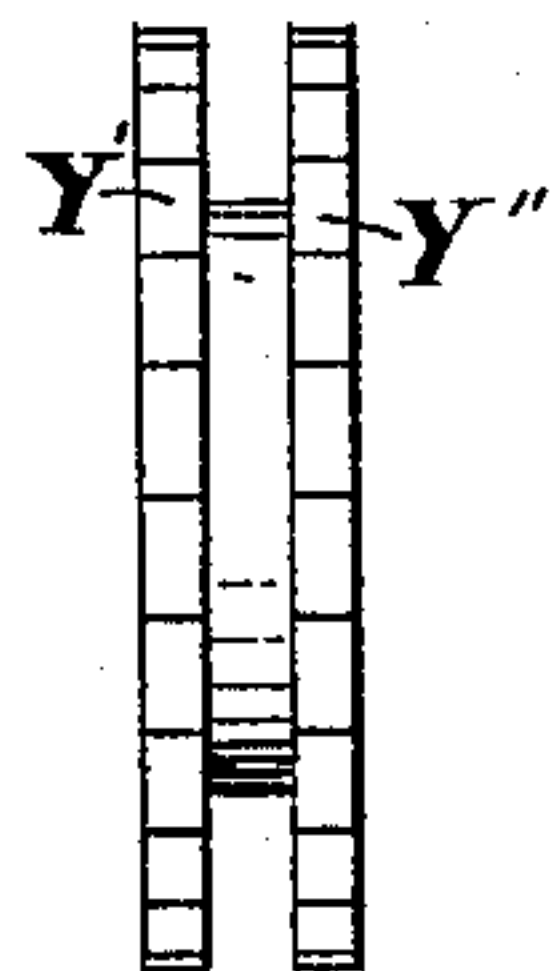


Fig. 6.

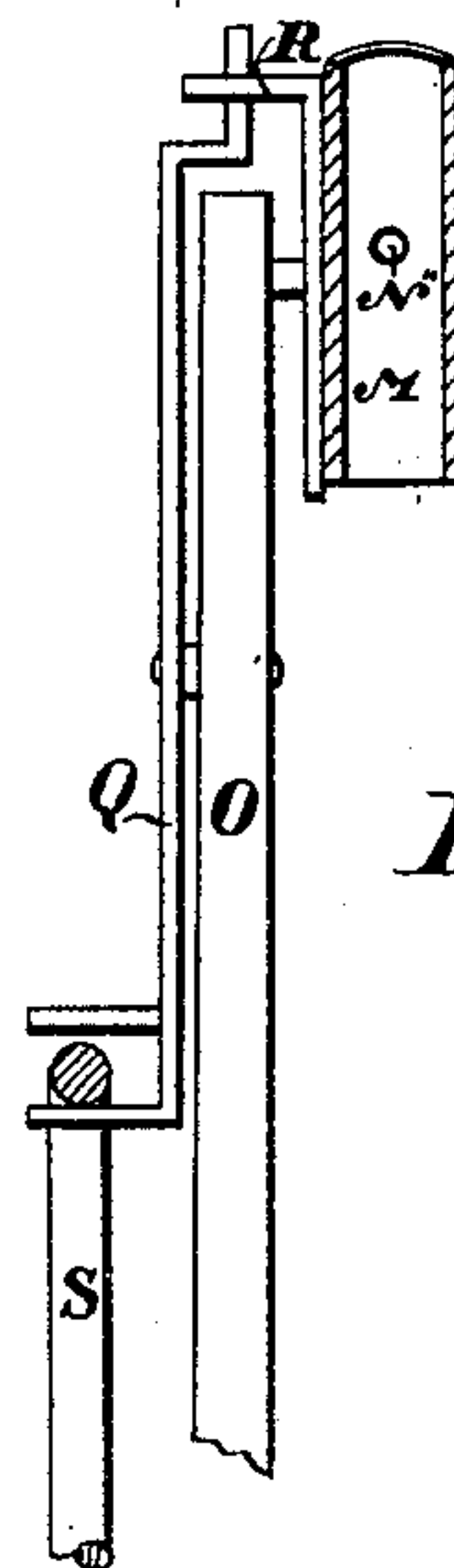


Fig. 7.

Witnesses
 Jim H. Barkley
 Margaret L. Nicholson.

Inventor *Emil Sutherland*
by *Hazard & Harpam*
Attorneys.

No. 754,172.

PATENTED MAR. 8, 1904.

E. SUTHERLAND.
LAWN SPRINKLER.

APPLICATION FILED NOV. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

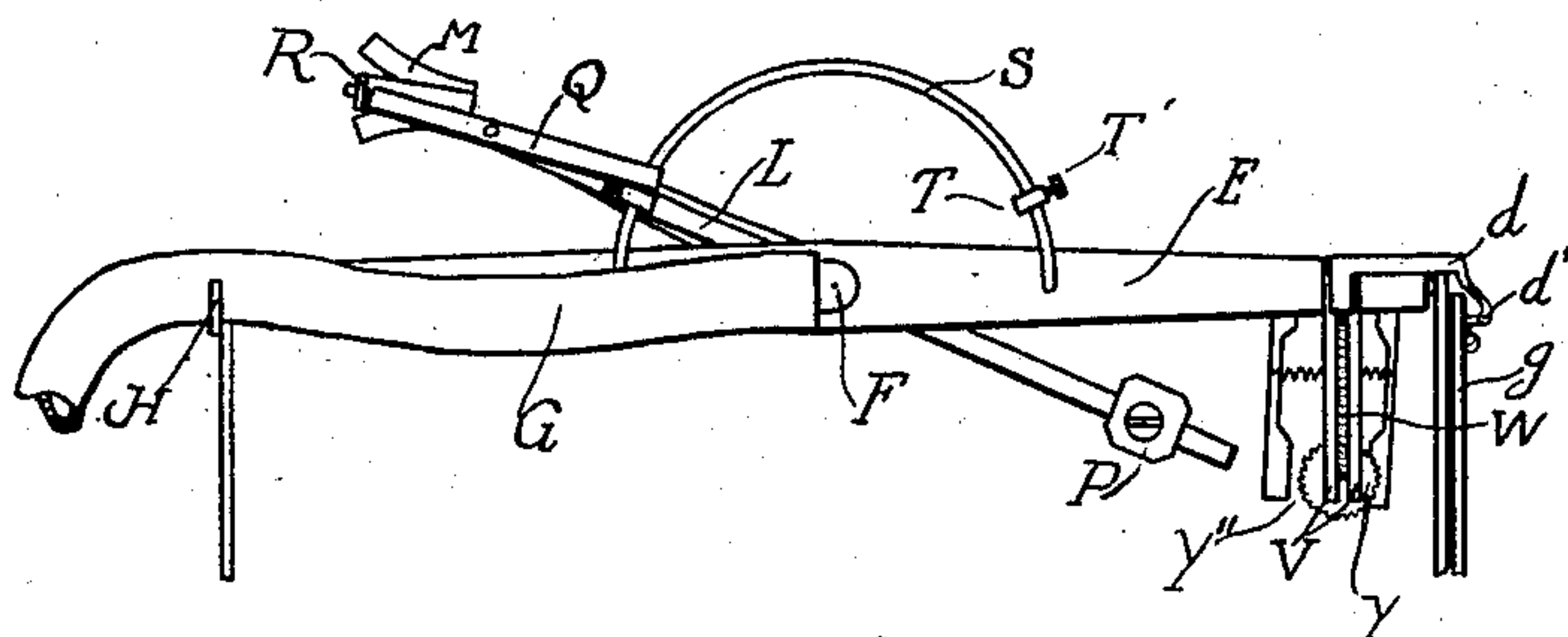


Fig. 2.

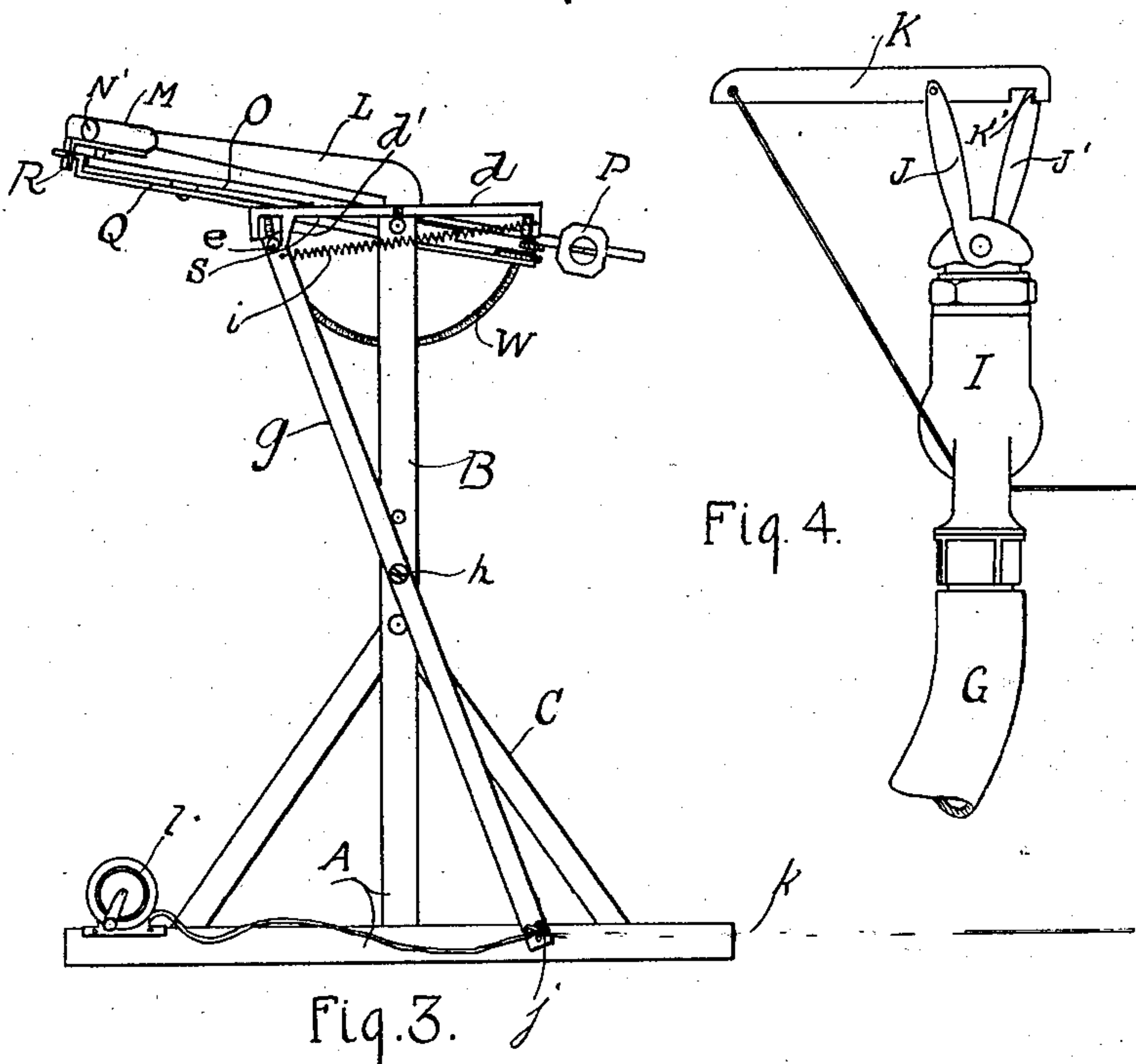


Fig. 3.

Fig. 4.

Witnesses
Amos C. Barker
Margaret L. Nickerson.

by

Inventor
Emil Sutherland
Hazard & Harpham
Attorneys.

UNITED STATES PATENT OFFICE.

EMIL SUTHERLAND, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO J. T. POLLOCK, OF LOS ANGELES, CALIFORNIA.

LAWN-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 754,172, dated March 8, 1904.

Application filed November 16, 1903. Serial No. 181,417. (No model.)

To all whom it may concern:

Be it known that I, EMIL SUTHERLAND, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Lawn-Sprinklers, of which the following is a specification:

The object of my invention is to provide a lawn-sprinkler which will automatically change the position of the nozzle of the sprinkler from time to time, so that the water will be sprinkled over a large area of lawn, and which will automatically shut off the water when the area is sprinkled. I accomplish this object by the mechanism described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the upper part of the machine with some of the parts broken away for clearness of illustration. Fig. 2 is a side elevation of the upper portion of the frame and of the turning mechanism viewed from the side opposite that shown in Fig. 1 with the nozzle shown in a different position. Fig. 3 is an end view of the frame and turning mechanism in the position shown in Fig. 2 and with a portion of the release mechanism shown at the bottom of the same. Fig. 4 is an end elevation of the hydrant and its release mechanism with a section of hose attached to the hydrant. Fig. 5 is a side view, partly in section and partly broken away, of the ratchet-wheel. Fig. 6 is an edge view of the ratchet-wheel. Fig. 7 is a side view of the upper part of the nozzle-shifting mechanism with the sprinkling-nozzle shown in section and the delivery-nozzle omitted.

In the drawings, A is the base of the frame, to which are secured the standards B. These standards are braced by bars C, secured thereto and to the base. The standards are secured together at the bottom and center thereof by the binding-rods D. Revolvably mounted in the top of the standard is the supporting-bar E, to the center of which is secured the elbow F, to which elbow the hose G is secured. This hose passes through a supporting-hook, H secured near the top of the standard, so as to retain the hose parallel with the supporting-bar,

as shown in Fig. 2. The other end of the hose 50 is secured to a self-closing hydrant I, whose operating-handles J and J' are held together by locking-lever K to keep the hydrant open. This lever is pivoted to handle J and has a notch K' in its outer end, which passes over 55 the end of handle J' to keep the hydrant open, as shown in Fig. 4. On the opposite side of the supporting-bar from the hose and revolvably secured to elbow F is delivery-nozzle L, whose outer end projects within the sprinkling-nozzle M, as shown most clearly in Fig. 1. This sprinkling-nozzle is provided with channels N and N', the outer ends of which curve away from each other and away from the central line of discharge from the delivery-nozzle, so that when in the position shown in 60 Fig. 1 the discharge of the water from the delivery-nozzle into the sprinkling-nozzle will cause the travel of the sprinkling-nozzle and the discharge end of the delivery-nozzle to the 65 left, and when the sprinkling-nozzle is shifted, so that the water may pass into channel N', the discharge of water therethrough will cause the sprinkling-nozzle and the free end of the delivery-nozzle to travel toward the right. In 70 order to provide a greater distribution of water passing through these nozzles, I have provided them with small outlets N'' in their opposing faces, so that a portion of the water from the discharge-nozzle may pass out therethrough 75 and be distributed in a different place than would happen if the whole thereof passed out of the main channels. To the base of the discharge-nozzle I rigidly affix a rod O, on one end of which is adjustably secured the counterbalance-weight P, and on the other end is pivotally mounted the sprinkling-nozzle. (Best 80 shown in Fig. 3.) This end of the rod O, I will designate as the "upper" end and the end carrying the counterbalance-weight as the 85 "lower" end of the rod. Between the supporting-bar and the outer end thereof is pivoted thereto the shifting lever Q, the outer end of which passes through a plate R, secured to the sprinkling-nozzle. The inner end of the 90 shifting lever moves along the stop-bar S, which is provided with stops T, slidably mounted thereon and secured in any desired

position thereon by thumb-screws T', which stops engage the inner end of the shifting lever to limit its movement.

In the operation of my device, the hose being connected thereto and to the hydrant with the hydrant locked open, as shown in Fig. 4, and assuming the parts to be in the position shown in Fig. 1, the discharge of the water through the sprinkling-nozzle will cause its travel to the left until the lower end of the shifting lever contacts with the stop on the left-hand side of the stop-bar. The momentum of the parts and the force of the water will cause the free end of the delivery-nozzle to travel still farther to the left; but the travel of the inner end of the shifting lever having been stopped it will cause the inner end of the sprinkling-nozzle to shift its position, so that the water from the delivery-nozzle will now be discharged into channel N', thereby causing the sprinkling-nozzle and the free end of the delivery-nozzle to travel to the right until the inner end of the shifting lever contacts with the stop on the right-hand side of the stop-bar, when the inner end of the sprinkling-nozzle will be automatically shifted back, so that the water will again be discharged into channel N, thereby causing the backward and forward movement of the sprinkling-nozzle from one end of the frame to the other end thereof.

To the supporting-bar is pivoted a spreader-operating lever U, the inner end U' of which is slidably secured to the other portion thereof, as shown in Fig. 1. The inner end of the member U' of this lever is pivotally secured to the collar O' of the rod O. To the supporting-bar are rigidly secured shifting-arms V, the lower ends of which are bifurcated and straddle the screw-threaded rod W, which is rigidly secured to a U-shaped cross-arm X, which is rigidly secured to the top of the standard at the left-hand side of the machine. Between the shifting-arms on this screw-threaded rod is the internally-screw-threaded ratchet-wheel Y, having in the periphery thereof oppositely-pointed teeth Y' and Y". (Most clearly shown in Fig. 5.) Pivotally secured to the outer end of the spreader-operating lever are dogs Z and Z'. To these dogs are secured the spring a, which cause the free ends of the dogs to engage the ratchet-wheel. These dogs near their attachment to the lever are provided with notches b for the reception of the free end of the bar c, which is pivoted to the same lever as the dogs. When the bar c engages the notch in the dog Z', as shown in Fig. 1, the dog is held out of engagement with the ratchet-wheel and the dog Z is brought into engagement therewith, and as the bar O oscillates the ratchet-wheel is caused to travel on the rod W, thereby causing the supporting-bar E to be gradually turned. It will be understood that at the beginning of the operation, however, the supporting-bar and the delivery-

nozzle are in the position shown in Fig. 3 and that when the ratchet-wheel has made its complete travel on the rod W the sprinkling and delivery nozzle will be on the right-hand side of the frame at the same elevation as is shown to the left in Fig. 3. Just before the extreme limit of movement is reached by the ratchet-wheel the shifting-arm contacts with the end of the rocking lever d, which lever is pivoted to the cross-arm X, as shown most clearly in Fig. 1. This rocking lever is provided near one end with a catch d', which bends outwardly and then inwardly and is adapted to engage a pin e, which is mounted in the top of the tripping-lever g, which is pivoted to the cross-bar by a small bolt h, as best shown in Figs. 1 and 3. To the top of this lever is secured a spring i, the other end of which is secured to the cross-bar X. On the lower end of this lever are studs j, which provide means for attaching a small wire cord k, which extends to and under the hydrant and is attached to lever K, as shown in Figs. 3 and 4. When the tripping-lever is set, as shown in Fig. 3, the pin engages catch d' and holds it in that position. When the ratchet-wheel has worked over to either end of the threaded rod W, the shifting-arm V raises the end of the rocking lever and releases the catch d' from engagement with the pin on the upper end of the tripping-lever, thereby permitting the spring attached to the upper end thereof through the wire cord to release the catch K' from engagement with the handle J' of the hydrant, thereby permitting the hydrant to automatically close. When it is desired to start the sprinkler again, it is moved to a new place, the dog Z' is thrown into engagement with the ratchet-wheel, and the dog Z is locked out of engagement with the ratchet-wheel. The hydrant is locked open, as shown in Fig. 4. The wire cord k is drawn taut, as shown in Figs. 3 and 4, and secured to the tripping-lever, which is fastened in the position shown in Fig. 3, as hereinbefore described. A reel l is provided on the base of the frame to take up the slack, if any, in the cord k, or to pay out more cord, if desired.

It will thus be seen that my improved sprinkling-nozzle will automatically work itself from a position nearly horizontal on one side of the frame to a like position nearly horizontal on the other side of the frame and that it also moves automatically backward and forward from one end to the other end of the frame as it travels from one side of the frame to the other. The width of the strip of lawn that is sprinkled thereby is regulated within certain limits by the position of the stops T.

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

1. A lawn-sprinkler comprising a delivery-nozzle operatively connected to a sprinkling-nozzle, said sprinkling-nozzle having two

curved channels whose outer ends curve away from each other and whose inner ends lie adjacent to each other, and means to cause the delivery-nozzle to alternately discharge its contents into first one and then the other of the channels of the sprinkling-nozzle.

2. In a lawn-sprinkler a delivery-nozzle operatively connected to a sprinkling-nozzle, said sprinkling-nozzle having two curved channels whose outer ends curve away from each other and whose inner ends lie adjacent to each other; means to cause the delivery-nozzle to alternately discharge its contents into first one and then the other of the channels of the sprinkling-nozzle; means to cause the movement of the nozzle from one side of the machine to the other side thereof.

3. In a lawn-sprinkler a sprinkling-nozzle having two curved channels whose outer ends curve away from each other and whose inner ends lie adjacent to each other; means to cause the delivery of water alternately first into one and then into the other of the channels of the sprinkling-nozzle; means connected thereto to cause the travel of said sprinkling-nozzle from one side of the frame to the other side thereof.

4. In a lawn-sprinkler a sprinkling-nozzle having two curved channels whose outer ends curve away from each other and whose inner ends lie adjacent to each other; means to cause the delivery of water alternately first into one then into the other of the channels of the sprinkling-nozzle.

5. The herein-described sprinkler comprising a frame; a supporting-bar rotatively mounted in the upper part thereof; a delivery-nozzle revolubly mounted in said supporting-bar; a bar having a collar secured to said delivery-nozzle and projecting in front and to the rear thereof; an adjustable weight on the rear end of said bar; a sprinkling-nozzle having two curved channels, the front ends of which curve away from each other and the rear ends of which lie adjacent to each other pivotally secured to the front end of said bar, said channels being adapted to receive the discharge of the delivery-nozzle; a shifting lever pivotally connected to said bar near its center and operatively connected at its front end to said sprinkling-nozzle; a stop-bar adjacent to the lower end of said shifting lever and having its ends secured to said supporting-bar; adjustable stops on said stop-bar; means to attach the hose to said supporting-bar.

6. In a lawn-sprinkler the combination of a frame; a delivery-nozzle revolubly mounted therein; a sprinkling-nozzle having two curved channels whose front ends curve away from each other and whose rear ends lie adjacent to each other, said sprinkling-nozzle being pivotally mounted in front of the discharge end of the delivery-nozzle; means to cause the delivery of water into the sprinkling-nozzle alternately first into one and then into the other

of the channels comprising a shifting lever pivotally mounted at the rear of the sprinkling-nozzle and operatively connected to one end thereof; stops secured in said frame in the path of the movement of the lower end of the shifting lever and adapted to be engaged thereby, whereby the channels of the sprinkling-nozzle are alternately shifted so as to receive the discharge from the delivery-nozzle.

7. In a lawn-sprinkler the combination of a frame; a supporting-bar revolubly mounted therein; a delivery-nozzle revolubly mounted in said bar; a sprinkling-nozzle having two curved channels whose front ends curve away from each other and whose rear ends lie adjacent to each other, said sprinkler-nozzle being pivotally mounted in front of the discharge end of the delivery-nozzle; means to cause the delivery of water into the sprinkling-nozzle alternately, first into one and then into the other of the channels; means to cause the sprinkling-nozzle to travel from one side of the frame to the other comprising a lever pivotally mounted near the center thereof and operatively connected to the delivery-nozzle at such point as will cause the oscillation of the other end of the lever; dogs secured to said lever; a ratchet-wheel having oppositely-pointed teeth adapted to be engaged by said dogs; a curved threaded rod secured in said frame and passing in threaded contact through said ratchet-wheel; shifting-arms secured to said frame on opposite sides of said ratchet-wheel; means to prevent one of said dogs from engaging said ratchet-wheel while the other dog is in engagement therewith.

8. In a lawn-sprinkler the combination of a frame; a delivery-nozzle revolubly mounted therein; a sprinkling-nozzle having two curved channels whose front ends curve away from each other and whose rear ends lie adjacent to each other pivotally mounted in front of the discharge end of the delivery-nozzle; a self-closing hydrant operatively connected to said delivery-nozzle; means to lock said hydrant open; means to cause the sprinkling-nozzle to travel from one end of the frame toward the other end of the frame; means to cause the sprinkling-nozzle to travel from one side of the frame to the other side of the frame; means to release the lock on the hydrant.

9. In a lawn-sprinkler the combination of a frame; a delivery-nozzle revolubly mounted therein; a sprinkling-nozzle having two curved channels whose front ends curve away from each other and whose rear ends lie adjacent to each other pivotally mounted in front of the discharge end of the delivery-nozzle; means to cause the delivery of water into the sprinkling-nozzle alternately first into one and then into the other of the channels; means to cause the sprinkling-nozzle to travel from one side of the frame to the other; means to automatically shut off the supply of water

when the sprinkling-nozzle has reached its limit of side motion comprising; a tripping-lever pivotally mounted near its center to the frame; a spring secured to said lever and to the frame; a rocking lever pivotally mounted on said frame and having a catch adapted to engage the upper end of said tripping-lever and hold the same against the spring-pressure; a wire cord adjustably secured to the lower end of said tripping-lever and connected to a locking-lever on the hydrant; a self-closing hydrant having operating-handles to open said hydrant by pressing the outer ends thereof toward each other; a locking-lever pivotally

mounted on one of said handles and having a catch in one of its ends adapted to receive and retain the other handle of said hydrant to lock the hydrant open; means to release said tripping-lever when the sprinkling-nozzle has reached the limit of its side movement.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day of November, 1903.

EMIL SUTHERLAND.

Witnesses:

G. E. HARPHAM,
MARGARETE C. NICKELESON.