

No. 706,289.

Patented Aug. 5, 1902.

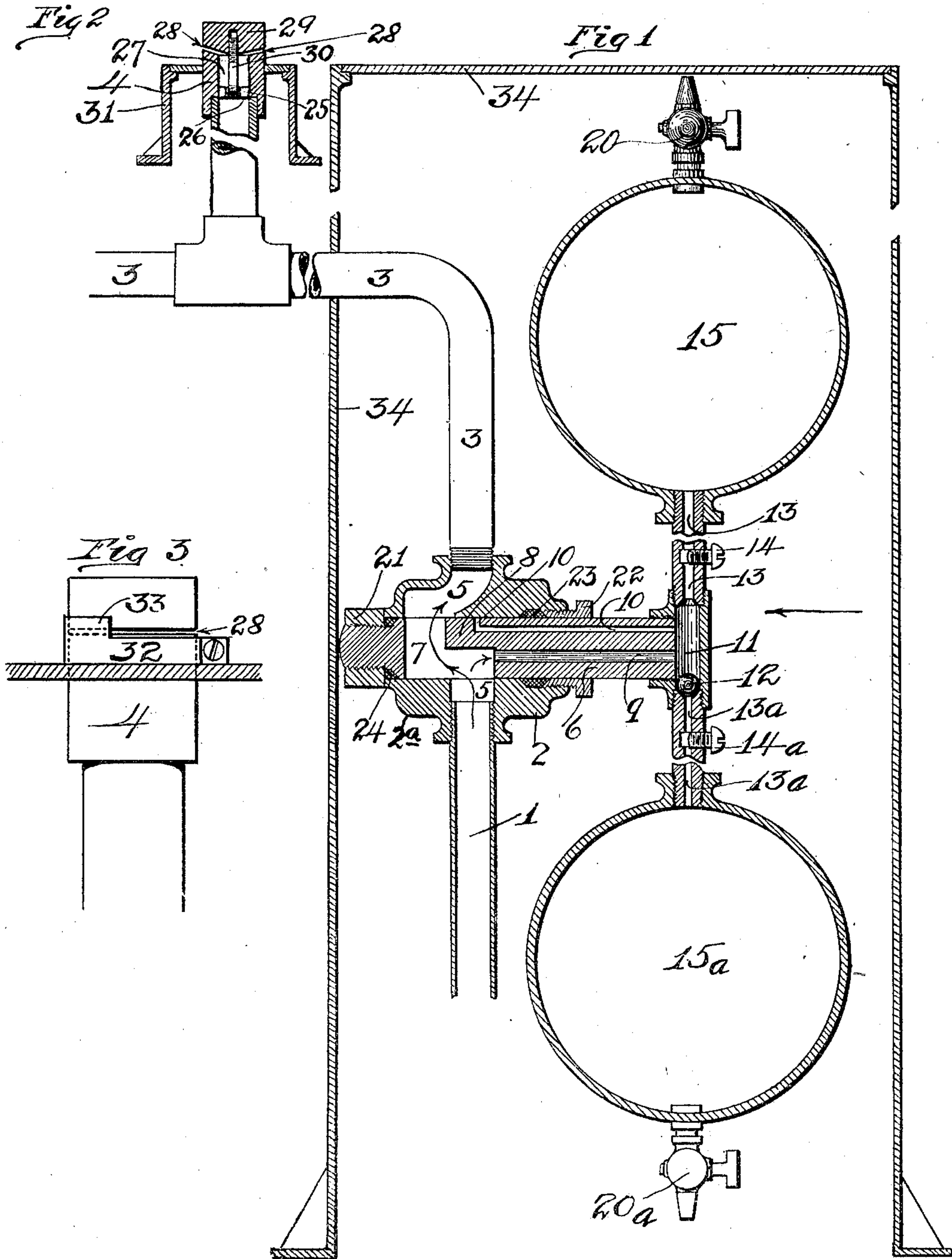
T. D. YOUNG.

AUTOMATIC STREET SPRINKLING DEVICE.

(Application filed Sept. 9, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

Wm Kyle
J B Hiebrand

INVENTOR

Jerry D. Young
J H Weatherford
ATTORNEY.

No. 706,289.

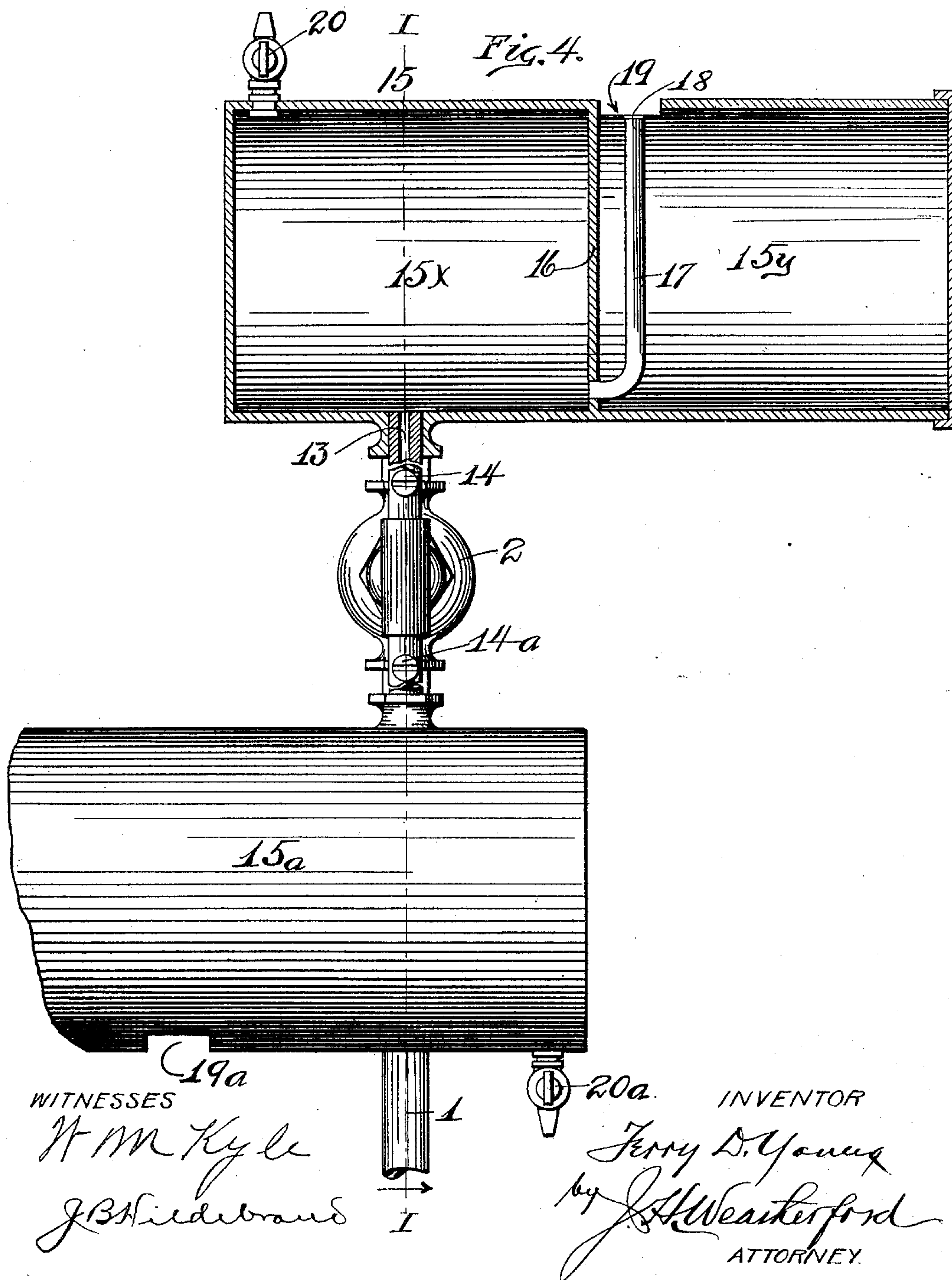
Patented Aug. 5, 1902.

T. D. YOUNG.
AUTOMATIC STREET SPRINKLING DEVICE.

(Application filed Sept. 9, 1901.)

(No Model.)

3 Sheets—Sheet 2.



No. 706,289.

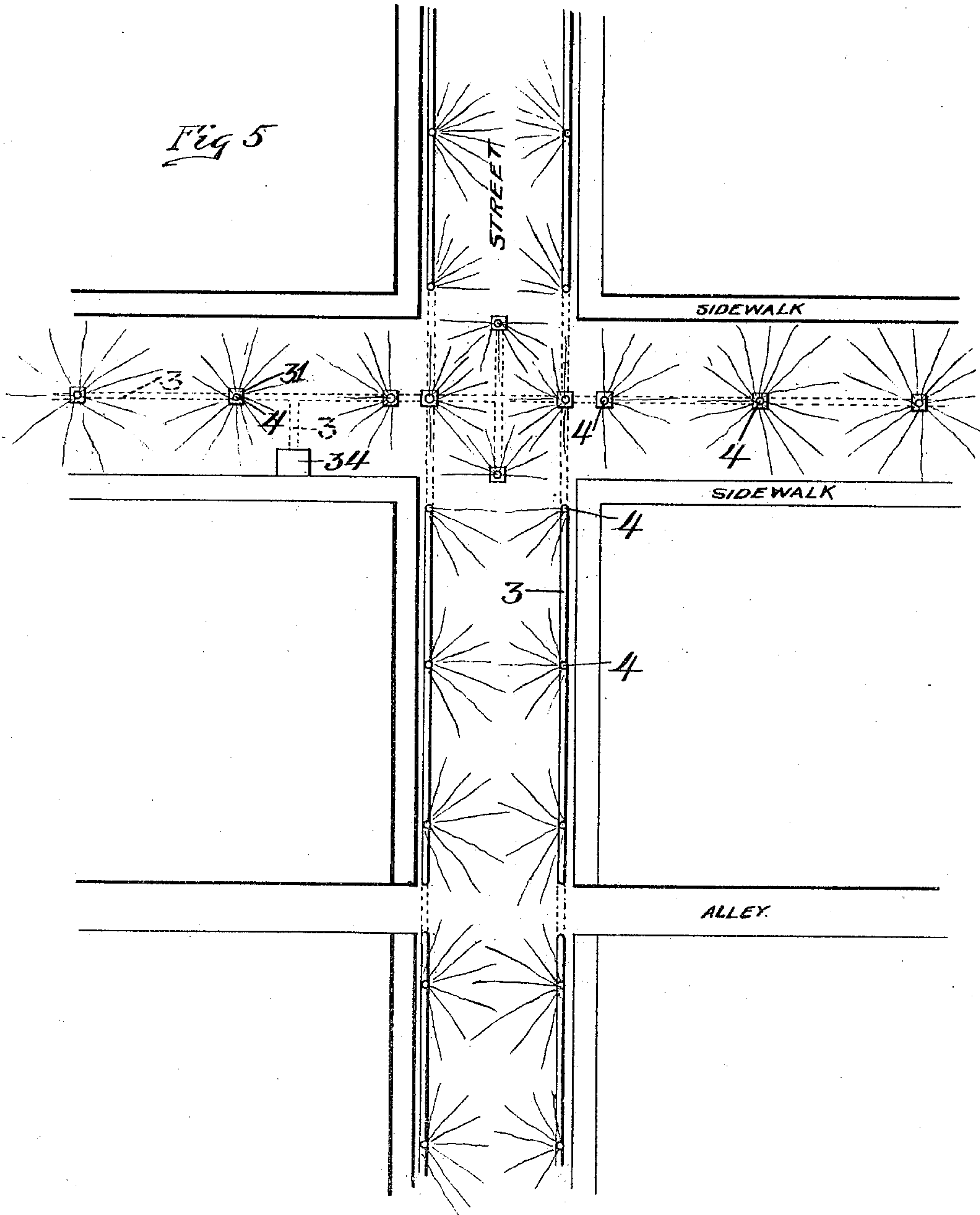
Patented Aug. 5, 1902.

T. D. YOUNG.
AUTOMATIC STREET SPRINKLING DEVICE.

(Application filed Sept. 9, 1901.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES

H M Kyle
J B Hildebrand

INVENTOR

Terry D. Young
by J. H. Weatherford
ATTORNEY.

UNITED STATES PATENT OFFICE.

TERRY D. YOUNG, OF MEMPHIS, TENNESSEE.

AUTOMATIC STREET-SPRINKLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 706,289, dated August 5, 1902.

Application filed September 9, 1901. Serial No. 74,849. (No model.)

To all whom it may concern:

Be it known that I, TERRY D. YOUNG, a citizen of the United States, residing at Memphis, Shelby county, State of Tennessee, have
5 invented certain new and useful Improvements in Automatic Street-Sprinkling Devices, of which the following is a specification.

My invention relates to certain new and useful improvements in automatic street-sprinkling devices, and more especially to a simple and effective means whereby at regular and predetermined intervals the streets may be sprinkled and omitted to be sprinkled alternately.

15 The objects of my invention are to provide a simple and efficient means whereby the water, acting under pressure of city mains or other suitable source of supply, may be turned on and off the pipe to which the sprinklers are attached at regulated intervals and to
20 provide a system whereby the streets may be thoroughly and efficiently sprinkled without causing inconvenience to pedestrians or to passing vehicles. I accomplish these objects,
25 first, by providing an automatic regulating-valve which will remain open for a predetermined time and will then close and so remain for another predetermined time, the lengths of which are independently regulated
30 and which may be varied as desired; second, by providing a system of sprinkling-heads arranged close to the surface of the street and so made that the water thrown out will have a flat trajectory and will therefore not inconvenience horses or damage vehicles or their contents; third, by providing these heads at street-crossings and in proximity to pavements with shields which will cut off the flow from those passages set apart for pedestrians,
40 and, last, by the novel construction and arrangement of parts for accomplishing these objects.

In the drawings, Figure 1 is a sectional elevation, on the line 1 1 of Fig. 4 looking in the
45 direction of the arrow shown, of the automatic regulating device for the water-valve and shows also the box arrangement whereby this valve and regulating device is protected beneath the line of the street. Fig. 2 is a sectional elevation of my street-sprinkling head and a valve-box for same. Fig. 3 is an enlarged elevation of the sprinkling-head and

further shows a form of shield adapted to protect the sidewalks and crossings from being sprinkled. Fig. 4 is an end elevation of the
55 valve and regulating device looking in the direction of the arrow, Fig. 1, with the upper part of the latter in sectional elevation. Fig. 5 shows the intersection of two streets and the general plan or arrangement of the
60 sprinkling-heads, in such a case part of the heads being arranged along the center of one street, while those on the other street are placed at the side.

Referring now to the drawings, in which
65 like numerals refer to the same or like parts in all the views, 1 is a water-supply pipe leading from the water-main (not shown) or other convenient source of supply to the regulating-valve 2, through which passes the water
70 and a distributing-pipe 3 to the sprinkling-heads 4, a number of which are preferably supplied from one regulating-valve 2. The valve 2 consists of a casing 2^a, through which there is a water-channel 5.

6 is the valve-stem, which rotates in the casing 2^a and extends out therefrom at one side. Through this stem a water-channel 7 is cut, which channel is cut off from the water-supply
80 when the stem is rotated one hundred and eighty degrees by the solid portion 8 of same being brought over the water-channel 5 and in close proximity to same. Two small channels 9 and 10 extend longitudinally through the valve-stem 6 to supply the regulating device
85 with water, and thereby rotate the valve-stem and open and close the valve. While the valve is open the water passes through the channel 9 into a T 11 at right angles thereto, from which extend oppositely-disposed pipes 13 and
90 13^a, that one of which is at the bottom being closed by a ball 12, resting on the end of same as a valve-seat, and thence upward through the pipe 13 into the water-reservoir 15, the flow being regulated by a screw 14, which extends into the pipe 13.

In Fig. 4 I show the water-reservoir 15 and an overbalance-chamber 15^v, which are preferably formed by dividing a cylinder into two parts by a partition 16. At the lower part of
105 this partition a pipe 17 leads from the compartment or reservoir 15 into and extends upward within the compartment or overbalance-chamber 15^v, with its end 18 terminating just

within the top of the said chamber. When, therefore, the water has filled the reservoir 15 and the pipe 17, it will overflow at 18 and begin filling the overbalance-chamber 15^v. When this chamber becomes sufficiently full, it overbalances the cylinder enough to overcome the friction of the valve-stem 6 and to cause same to rotate until the upper reservoir 15 assumes the position 15^a. During this rotation the water in the overbalance-chamber 15^v is rapidly emptied through the opening 19, so that when the reservoir 15 reaches the position 15^a the overbalance-chamber 15^v is completely emptied. The reservoir 15 is emptied slowly through a cock 20, which may be enlarged or reduced to regulate the flow, air being admitted through the pipe 17 to the (then) upper end of the said reservoir. The cocks 20 and 20^a are so regulated that they empty their reservoirs respectively in exactly the same time that it takes to fill the opposite (or then upper) reservoirs. When the reservoir 15 descends by rotation to the position 15^a, the solid portion 8 of the valve-stem 6 cuts the water off entirely at the channel 5 from the sprinklers 4. The water, however, flows through the channel 10 of the valve-stem 6 in this position into the T 11, and thence upward, the ball 12 automatically closing the bottom pipe through the pipe 13^a, occupying then the position 13, into the reservoir 15^a, occupying then the position 15, which is now at the top. Regulation is effected by the set-screw 14^a, and the time of filling the reservoir 15^a is governed thereby. This being the time in which the water is shut off from the sprinkler system, it should necessarily be very much longer than in the former position, when the water was turned on, and the pipes and passages are therefore indicated as smaller. The periods the sprinklers are in use and cut off are thus each regulated by the length of time necessary to fill the reservoir which govern them, respectively, and since the length of time necessary to fill either of them may be regulated as desired it follows that they may be set to work at and for lengths of time exactly suited to the street where they are to be used.

The valve-stem 6 is held in the valve 2 by the nut 21, one end being packed by a stuffing-box 22 and packing 23 and the other by packing 24, held in place by the nut 21. The sprinkling-head 4, Figs. 2 and 3, is arranged so that the water comes through the pipe 3, passes through the openings 25 between the webs 26, which support regulating-screw 30, thence into the space 27, and is sprayed on the street through the openings 28, the amount of water discharged being regulated by screwing the adjustable head 29 down or up on the screw 30. The lower surface of the head 29 is made in the form of a very flat inverted cone, and the adjacent upper surface of the sleeve 4 is a similar cone, so that a thin conical sheet of water is thrown outward and slightly upward. 31, Fig. 2, is a valve-box to protect this head where same is placed in the

street, the head projecting above it sufficiently to allow the free flow of water through the opening 28. These heads are placed on the end of a vertical pipe or in case the street is not level at right angles to the surface, and the slot 28 is brought as close to the surface of the street as may be convenient. Water thrown out is given a very flat trajectory, and therefore does not rise high enough to reach and injure vehicles or their contents. It is thus possible to sprinkle at any time without interference from or with traffic. In the case, however, of pedestrians this is different, and provision must therefore be made for them.

In Fig. 3 I show a shield for protecting the sidewalk or street-crossing. This shield consists of a band 32, encircling the sprinkling-head 4 just below the opening 28. One part 33 of the band is extended upward, so that it covers this opening 28 and shuts off the flow of any desired portion, ordinarily one-half, so that these heads may be placed at street-crossings or along sidewalks without throwing water on persons passing.

In Fig. 5 I illustrate the manner of locating my sprinklers along the street. Where permissible, the sprinkling-heads 4 are located down the center of the street and are protected by boxes 31. In such case the pipe 3 runs under the ground, as indicated by the dotted lines. 34 is the valve-box containing the regulating-valve 2 and in Fig. 1 is shown broken in order to get it on the sheet. Where for any reason the arrangement down the street is not permissible or where it is for any cause desirable to change the arrangement, the sprinkling-heads 4 may be located along the street-curb and connected by surface pipes 3. (Shown in full lines.) At street-crossings or alleys these pipes are depressed. The action of the guard-shields 33 for the sprinkling-head will be more clearly understood by reference to this view. As will be noted, water thrown from those located against the sidewalk or in proximity to crossings is thrown outward from the sides of the street to center, while with those located in the center of the street, except at crossings, it is thrown out radially in all directions.

Various changes in details of construction may be made without departing from my invention. I wish it fully understood, therefore, that I do not limit myself to the exact construction here shown and expressly reserve the right to make such changes as may not interfere with the merits of the case.

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

1. In a street-sprinkling device, the combination with a supply-pipe and an automatic regulating-valve for same consisting each of a vertical pipe, a sleeve on said pipe having its upper surface beveled in the form of a flat inverted cone, a flat inverted cone fitting the bevel top of said sleeve, and adjustable to and from it to regulate the flow of water,

and a flat band surrounding the head below the opening thus formed and having a part extended above and closing the said opening, substantially as and for the purposes described.

2. In a street-sprinkling device, the combination with a supply-pipe and an automatic regulating-valve for same, of sprinkling-heads consisting each of a vertical pipe, a sleeve on said pipe having its upper surface beveled in the form of a flat inverted cone, a hub in said sleeve, a screw extending upward from said hub and an inverted flat cone fitting the bevel top of said sleeve and adjustable toward and from it along said screw, and a flat band surrounding the head below the opening thus formed and having a portion extended above and closing part of the said opening, substantially as and for the purposes set forth.

3. In an automatic street-sprinkling device, the combination with a sprinkling-head and a water-supply pipe of means of regulating the flow of water to said sprinkling-head, consisting of a valve, a valve-stem extending beyond the said valve suitable stuffing-boxes for said valve-stem, water-channels through said valve-stem, which are alternately open to the water in said valve, a T on the end of said valve-stem, pipes leading oppositely from said T, water-reservoirs on said pipes substantially as and for the purposes set forth.

4. In an automatic street-sprinkling device, the combination with a sprinkling-head and a water-supply pipe of means of regulating the flow of water to said sprinkling-head consisting of a valve, a valve-stem extending beyond the said valve, suitable stuffing-boxes for said valve-stem, water-channels through said valve-stem, which are alternately open to the water in said valve, a T on the end of said valve-stem, pipes leading oppositely from said T, a ball-valve in said T adapted to rest on the lower pipe and close the passage through same and water-reservoirs on said pipes, substantially as and for the purposes set forth.

5. In an automatic street-sprinkling device, the combination with a sprinkling-head and a water-supply pipe of means of regulating the flow of water to said sprinkling-head, consisting of a valve, a valve-stem extending beyond the said valve suitable stuffing-boxes for said valve-stem, water-channels through

said valve-stem, which are alternately open to the water in said valve, a T on the end of said valve-stem, pipes leading oppositely from said T, a ball-valve in said T adapted to rest on the lower pipe and close the passage through same, means of regulating the flow of water through said pipes, and water-reservoirs on said pipes, substantially as and for the purposes set forth.

6. In an automatic street-sprinkling device, the combination with a sprinkling-head and a water-supply pipe of means of regulating the flow of water to said sprinkling-head, consisting of a valve, a valve-stem extending beyond the said valve suitable stuffing-boxes for said valve-stem, water-channels through said valve-stem, which are alternately open to the water in said valve, a T on the end of said valve-stem, pipes leading oppositely from said T, a ball-valve in said T adapted to rest on the lower pipe and close the passage through same, means of regulating the flow of water through said pipes, an overbalance-chamber on the sides of each of said water-reservoirs and means of filling said overbalance-chamber after the water-reservoir has filled, substantially as and for the purposes described.

7. In an automatic street-sprinkling device, the combination with a sprinkling-head and a water-supply pipe of means of regulating the flow of water to said sprinkling-head, consisting of a valve, a valve-stem extending beyond the said valve suitable stuffing-boxes for said valve-stem, water-channels through said valve-stem, which are alternately open to the water in said valve, a T on the end of said valve-stem, pipes leading oppositely from said T, a ball-valve in said T adapted to rest on the lower pipe and close the passage through same, means of regulating the flow of water through said pipes, an overbalance-chamber on sides of each of said water-reservoirs, a pipe leading from the bottom of same to near the top of the overbalance-chamber, and suitable drains for each, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

TERRY D. YOUNG.

Witnesses:

WM. M. FARRINGTON, Jr.,
E. R. TURLEY.