

No. 618,494.

Patented Jan. 31, 1899.

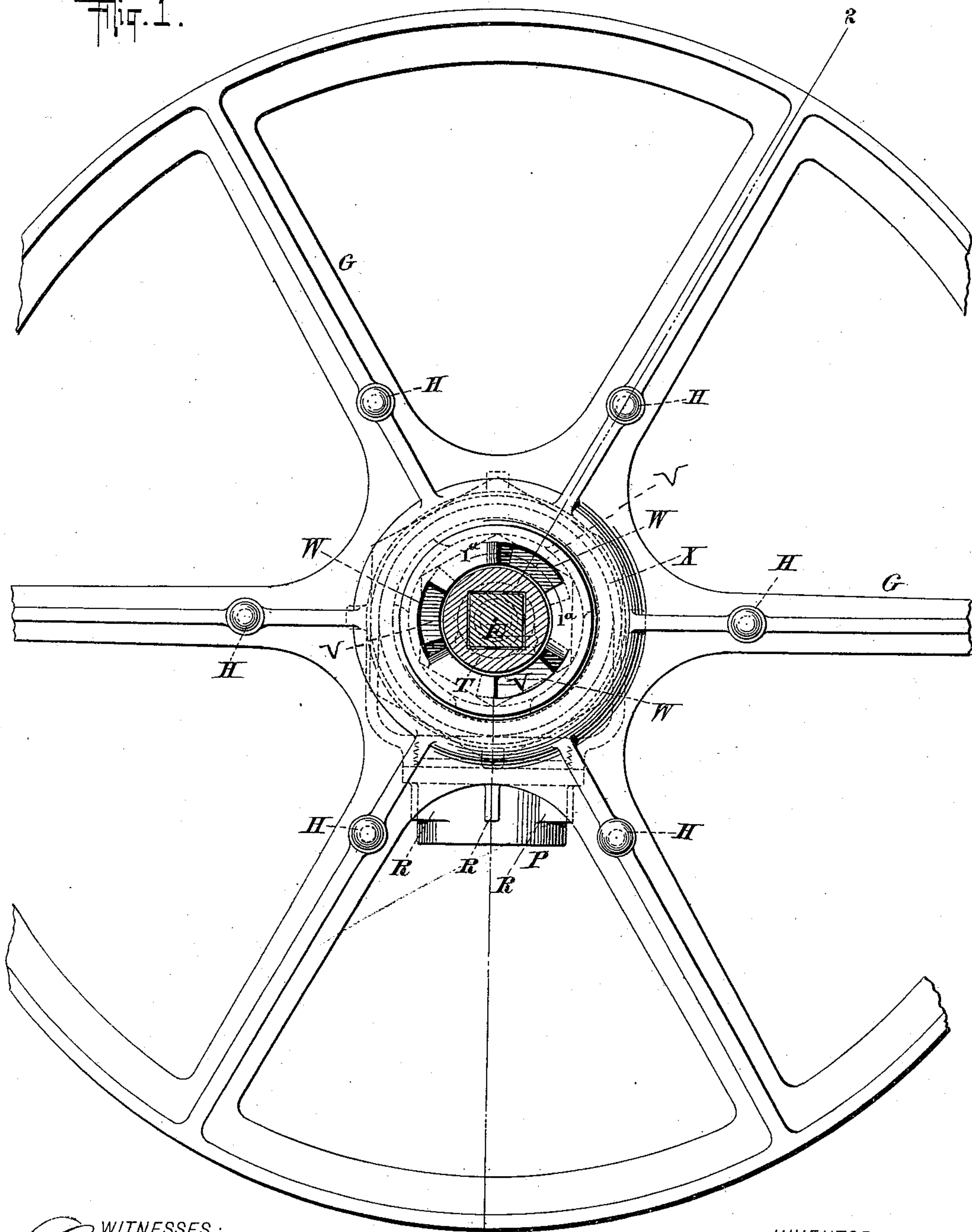
E. CLIFF.
HOSE REEL.

(Application filed Sept. 28, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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Fig. 1^a
X V W a

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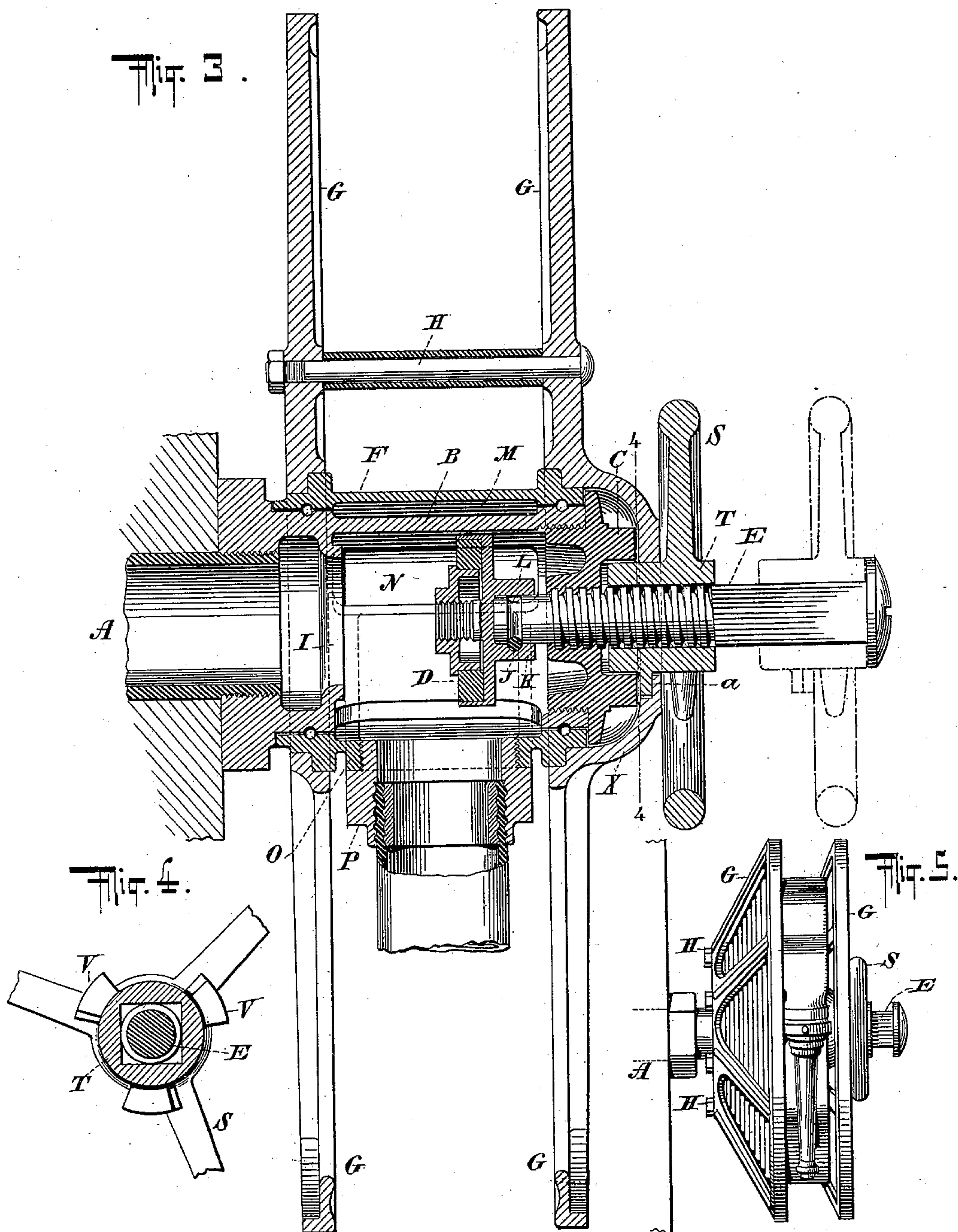
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UNITED STATES PATENT OFFICE,

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

HOSE-REEL.

SPECIFICATION forming part of Letters Patent No. 618,494, dated January 31, 1899.

Application filed September 28, 1898. Serial No. 692,048. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hose-Reels, of which the following is a specification.

The invention relates to improvements in hose-reels, and particularly to improvements in hose-reels of the character employed in buildings having a fixed water-supply apparatus to which the hose-reel may be permanently applied.

In the embodiment of my invention herein presented the reel proper is mounted upon a hollow valve-casing which is connected with the water-supply pipe and upon which the reel may be freely revolved. The hollow valve-casing is inclosed throughout its main portion by the hollow hub of the reel, and this hub intermediate the disks of the reel is provided with a hose-attaching nozzle, to which one end of the hose is removably connected and which communicates with the interior of the hollow valve-casing. The hollow valve-casing is at its inner end provided with a valve-seat, and within the casing is provided a reciprocating valve to engage said seat and cut off the water-supply from the hose or to be moved from said seat and permit the water to flow freely to the hose. The reciprocating valve within the valve-casing is connected with a threaded valve-stem which engages the thread in the bonnet of the valve-casing, and the outer end of the said valve-stem is of polygonal form in cross-section and carries a hand-wheel by which when the same is turned the valve-stem and the valve connected therewith are caused to have a horizontal motion toward or from the valve-seat.

In the present embodiment of my invention I provide means for detachably connecting the aforesaid hand-wheel with the hose-reel in order that during the unwinding of the hose from the reel the motion of the latter may be imparted through said hand-wheel to the valve-stem and the valve thereby caused to automatically recede from its seat and permit the water to pass directly to the hose. After a fire has been extinguished and before it is desired to rewind the hose upon the reel the hand-wheel without being removed from

the valve-stem may be detached from the hose-reel and used for the purpose of closing the valve without revolving the reel.

My invention also contemplates constructions of apparatus by which after the valve is automatically opened to the desired extent it will cease to have any further movement even though the reel continues to revolve. In accordance with the apparatus presented in this specification the unwinding of the hose may, if desired, result in the automatic opening of the valve controlling the supply of water, and also, when desired, the unwinding of the hose may be accomplished without automatically opening the valve controlling this supply of water, these two alternative methods of use being governed simply by shifting the hand-wheel upon the valve-stem. When it is desired that the unwinding of the hose shall not result in the automatic opening of the water-supply valve, it will be necessary after the hose has been unwound to manually open the water-supply valve by means of the hand-wheel.

My invention also embraces various details of form and construction, and said invention and suitable means for carrying the same into effect will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly broken away and partly in section, on the dotted line 1 1 of Fig. 2, of a hose-reel and connected parts constructed in accordance with and embodying the invention. Fig. 1^a is a section on the dotted line 1^a 1^a of Fig. 1. Fig. 2 is a substantially vertical section of same on the dotted line 2 2 of Fig. 1. Fig. 2^a is a detached perspective view of the hollow valve-casing. Fig. 3 is a view corresponding with Fig. 2, but illustrating the water-supply valve in its open position and by dotted lines the position to which the hand-wheel will be shifted when it is desired after a fire has been extinguished to manually close the valve without revolving the reel. Fig. 4 is a detached sectional view through a portion of the reel on the dotted line 4 4 of Fig. 3 and illustrating more particularly the position of the threaded portion of the valve-stem within the angular bore of the hub of the hand-wheel at the time

when said wheel will cease to act upon said valve-stem and said valve-stem and the valve connected therewith will cease to travel outward under the action of the reel. Fig. 5 is
 5 a detached edge view, on a reduced scale, of one form of the invention.

In the drawings, A designates the usual water-supply pipe; B, the valve-casing applied to the end of the said pipe; C, the bonnet closing the outer end of the said valve-casing; D,
 10 the valve within said casing; E, the valve-stem; F, the hub of the reel mounted upon said valve-casing, and G G the disks of the reel, which are mounted upon said hub F and
 15 connected together by the series of bolts H, upon which the hose may be wound.

The valve-casing B is hollow and provided with the valve-seat I to receive the valve D, and the said valve-casing B at its outer end
 20 receives the threaded flange of the bonnet C, which at its center is provided with the threaded aperture to receive and engage the male thread on the valve-stem E. The valve-stem E when revolved is adapted to have a
 25 reciprocating motion in line with the longitudinal center of the valve-casing B and to move the valve D toward and from the seat I. The inner end of the valve-stem E is connected with the valve D by means of a pin J,
 30 which passes through the flange K of the valve and engages an annular groove L formed on said valve-stem, and thus the valve-stem may have its revolving motion without imparting any revolving motion to the valve D, it being
 35 the purpose of this part of the construction to enable the valve D to be moved directly from or toward the valve-seat I without having any revolving motion. The flange K of the valve forms a socket to receive the inner
 40 end of the valve-stem E, as shown in Figs. 2 and 3, and hence when the valve is being moved outward from the seat I the valve-stem E will pull against the pin J, and when the valve D is being moved toward said seat
 45 I the inner end of the valve-stem E will press centrally against said valve.

The valve-casing B is substantially inclosed by the hub F of the reel, and intermediate the main body portions of said valve-casing
 50 B and said hub F is formed the chamber M, which freely communicates with the interior of the said valve-casing by means of the openings N, formed in said valve-casing. The hub F contacts with the valve-casing B only at
 55 the inner and outer edges of the latter, and hence the chamber M is extended entirely around said valve-casing.

The hub F is provided with the internally-threaded nozzle O, to which the coupling-flange P of the hose may be applied at will.
 60 The flange P is threaded at its upper outer surfaces to engage the internal thread of the nozzle O, and said flange P has an interior bore Q, into which the end of the hose will
 65 be expanded in a well-known manner. The surfaces of the bore Q of the flange P are corrugated or roughened, so that an effective

contact of the hose with said flange may be readily accomplished. The exterior surfaces of the flange P below the nozzle O are provided with the ribs R, as shown in Fig. 1, to
 70 facilitate the application, by means of a claw-wrench, of the hose (with the flange P thereto applied) to the nozzle O.

The nozzle O forms a part of the hub F, and
 75 hence with said hub revolves around the valve-casing B. The normal position of the hub F and the nozzle O is that illustrated in Fig. 2, in which it will be seen that the nozzle O extends downward directly in line with
 80 one of the openings N in the valve-casing B. During the revolving of the hub F around the valve-casing B the nozzle O will pass the various openings N in the valve-casing B and will also be maintained in constant communication with the water-chamber M, which is
 85 intermediate said valve-casing B and the hub F, and hence during the unwinding of the hose from the reel the water will pass within the nozzle O as soon as the valve D shall have
 90 left its seat I. When the apparatus is in use in the extinguishment of a fire, the weight of the hose hanging from the nozzle O will maintain the latter in the position in which it is
 95 shown in Fig. 2, and hence the hose will not only receive its water from the opening N of the valve-casing B directly over the nozzle O, but will also receive water from the chamber M, surrounding the valve-casing B and communicating with the nozzle O at the opposite
 100 edges of the said opening N, then directly over said nozzle O. One of the main purposes of the chamber M is, however, not only to guarantee the full supply of water to the hose, but to create around the valve-casing B an equalized water-pressure, so that
 105 the hose-reel will have a regular and steady revolving motion and not be subjected to the irregularities of force which would result if the water-pressure were not equalized entirely around the valve-casing.
 110

The outer end of the valve-stem E is polygonal in cross-section, and upon this polygonal portion of the valve-stem is mounted the
 115 hand-wheel S, whose hub T contains an aperture conforming to the outline of the outer end of the said valve-stem. The purpose of the hand-wheel S is to form a convenient means for revolving the valve-stem E, and thus opening or closing the valve D. The
 120 hand-wheel S may be used to either manually open or close the valve D without in any manner affecting the hose-reel. The hand-wheel S will always be used manually in the closing of the valve D; but in the preferred embodiment of the invention the hand-wheel S will
 125 be automatically operated by the motion of the reel during the unwinding of the hose to open said valve, and hence means are provided whereby the hand-wheel S may be detachably connected with the reel. At the
 130 inner side of the hand-wheel S are provided the segmental wings V, which are adapted to pass through correspondingly-shaped re-

cesses W, formed at the center of that portion X of the outer disk G which incloses the bonnet C of the valve-casing B. The segmental wings W are integral with the hand-wheel S, and when they are in line with the corresponding recesses W on the reel they may be passed freely into and out of said recesses; but when it is desired to operatively connect the hand-wheel S with the reel the said segments after being moved inward into the recesses W will by giving the wheel a slight turning motion be caused to pass from direct alinement with said recesses and to engage the shoulders α , formed in the reel slightly beyond the edges of the recesses W, (see Fig. 1^a,) and thus the segmental wings V become thrown into operative engagement with the reel, so that when the reel is revolved by the unwinding of the hose the said shoulders α will operate to bear against said segmental wings V and cause the hand-wheel S (and through the latter the valve-stem E) to revolve with the reel. When it is desired that the hand-wheel S shall be freed from the reel, the said wheel will be given a slight turning motion in the reverse direction, so as to bring the segmental wings V into direct alinement with the recesses W, and at such time the hand-wheel S may be freely moved outward from the reel and to the outer end of the valve-stem E.

It is not desired that the valve-stem E should revolve (during the unwinding of the hose) continuously with the revolving action of the hand-wheel S, due to the engagement of the latter with the reel, and hence the construction presented is such that during the unwinding of the hose the valve-stem E will revolve with the hand-wheel S and with the reel only so long as the polygonal outer end of the said valve-stem remains within the hub of said hand-wheel. During the unwinding of the hose the valve-stem will travel outward through the hub of the wheel S, and when the polygonal portion of the valve-stem passes outward beyond the hub of said wheel the valve-stem and wheel will thereby become unkeyed and the valve-stem will come to a stop, while the reel and hand-wheel continue to revolve. After the valve-stem E has reached its outward position and come to a stop, as shown in Fig. 3, the further revolving action of the hand-wheel S will be around the threaded portion of the valve-stem, and thus the said hand-wheel will be prevented from having any further effect upon the valve-stem or the valve carried thereby.

In the use of the invention the hose will, as illustrated in Fig. 3, be applied to the coupling-flange P and the latter will be applied to the nozzle O, and thereupon the hose having been connected with the hub F of the reel (and the hand-wheel S having been shifted to the outer end of the valve-stem E, so as not to be in connection with the reel) the reel will be revolved to wind the hose upon the bolts H, which operate as the hub for the hose.

After the hose has been applied to the nozzle O the reel is revolved by hand until all of the hose has been wound upon said bolts H, substantially as illustrated in Fig. 5, and thereupon the hand-wheel S will be moved inward and turned into engagement with the reel, as illustrated in Fig. 2, the apparatus being then in condition to be left for future use. In case of fire the attendant will grasp the discharge-nozzle of the hose and run with the same toward the fire, this act resulting in the drawing of the hose from the reel and the revolving of the latter. The revolving motion of the reel is communicated to the hand-wheel S and by the latter to the valve-stem E, and thus during the unwinding of the hose the valve-stem will be revolved and the valve D withdrawn from the seat I in order to permit the water from the pipe A to pass into the hose. The revolving of the valve-stem E during the unwinding of the hose will continue until the threaded portion of the valve-stem occupies the hub of the wheel S, and thereupon the valve-stem E and the valve D will cease their movement, although the reel and the hand-wheel S may continue to revolve until all of the hose has been unwound from the reel. After the hose has been unwound from the reel it will be found to be ready for immediate use, and after the fire has been extinguished the attendant will drop the hose and return to the reel and by means of the hand-wheel S will close the valve D against its seat I. The hose may be then rewound upon the reel, or it may be detached from the nozzle O and dried before being returned to the reel. When it is desired to rewind the hose upon the reel, the hand-wheel S will be shifted outward upon the valve-stem E, so as to be free of the reel, and thereupon by turning the reel the hose may be wound upon it. After the hose has been rewound upon the reel the hand-wheel S may, if desired, be at once moved inward into engagement with the reel in order that in the event of another emergency the unwinding of the hose may result in the automatic opening of the valve D.

If it is desired to avoid any of the dangers which might result from curious persons idly pulling on the hose after it has been wound upon the reel, the hand-wheel S may be moved to its outer position upon the valve-stem and free of the reel, since when it is in this position any idle person pulling upon the hose would simply unwind it from the reel without opening the valve D. The construction is such, therefore, that the reel may be left in condition for the valve D to be automatically opened by the unwinding of the hose from the reel without requiring the attendant to do more than simply pull upon the discharge-nozzle of the hose, or that the hose may be unwound from the reel without opening the valve D, or that the attendant upon reaching the apparatus may first connect the hand-wheel S with the reel before pulling off the hose in order to effect the automatic opening

of the valve D, or that when desired the wheel S may be left entirely free of the reel during the pulling off of the hose, in which latter event, however, if there be but one attendant, it will be necessary for him to return to the reel after the hose has been unwound in order to manually open the valve D. After the fire has been extinguished the attendant will return to the reel and disengage the wheel S therefrom and after sliding the wheel S outward upon the valve-stem manually close the valve D by turning said wheel and the valve-stem E.

In Figs. 1, 2, and 3 I have illustrated the disks G G as being in a vertical plane and parallel with one another, and this will be the ordinary construction of the disks G G for many purposes. When the disks G G are of the form illustrated in Figs. 1, 2, and 3, it will be necessary to pull the hose at either one side or the other of the reel, and thus the hose can ordinarily be pulled in but two directions. In order, however, to lend facility in the use of the reel, I shall prefer to construct the disks G G in the manner illustrated in Fig. 5, in which it will be seen that those portions of the disks G G beyond the bolts H are deflected outward on lines which diverge from the line of said bolts H and at an angle to the side wall through which the supply-pipe A will project, and the reason for thus constructing the disks G G is to enable the attendant to unwind the hose by pulling on the latter at either side of the reel or at the front of the reel, the inclination of the disks G G being such that when the hose is pulled in a line in front of or at right angles to the reel the latter will revolve and release the hose. Thus the capacity and convenience of the reel are, by the construction shown in Fig. 5, increased. The reel illustrated in Fig. 5 differs from the reel illustrated in Figs. 1, 2, and 3 in no respect except in the outward inclination given to those portions of the disks G G exterior to the line of the bolts H H.

One important feature of the constructions above described is that the unwinding of the hose results in the revolving of the threaded valve-stem E to automatically open the valve D and that when the valve has reached its open position it will cease its movement, while the male thread on the said stem continues in engagement with the stationary female thread. Thus when the valve has ceased its movement the reel may continue to revolve under the action of pulling off the hose, and the said threads will hold the said valve in a condition to resist the water-pressure and also in a condition to permit of the convenient and rapid closing of the valve by hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The water-supply apparatus, and the valve-casing connected therewith, combined with the reel to receive the hose, the valve within said casing for regulating the supply of water, the threaded valve-stem connected

with said valve and having the outer key portion, the hand-wheel upon said stem, and means for connecting said hand-wheel with said reel, said hand-wheel being capable of disengagement from the reel so that the valve may be closed by hand; substantially as set forth.

2. The water-supply apparatus, and the valve-casing connected therewith having the valve-seat and threaded bonnet, combined with the reel mounted upon said valve-casing and receiving the hose, the threaded valve-stem passing through said bonnet and carrying at its inner end the valve and having at its outer end the key portion, combined with the hand-wheel upon the outer portion of said valve-stem and adapted to open said valve and also to revolve independently of said valve-stem when the key portion of the latter has left its engagement with said wheel; substantially as set forth.

3. The water-supply apparatus, and the valve-casing connected therewith and having the ports or openings in its sides, combined with the reel having the hub mounted upon said valve-casing and forming between itself and said valve-casing the water-chamber, the hose-attaching nozzle connected with said hub, the valve within said valve-casing, and means for operating said valve; substantially as set forth.

4. The water-supply apparatus, and the valve-casing connected therewith and provided with the ports or openings in its side walls, combined with the reel having its hub mounted upon said valve-casing and forming between itself and said casing the water-chamber, the hose-attaching nozzle connected with said hub, the valve within said casing, the valve-stem carrying said valve and extending beyond said casing and means for detachably connecting said valve-stem with said reel in order that said valve may be automatically opened and thereafter manually closed; substantially as set forth.

5. The water-supply apparatus, and the valve-casing connected therewith and having the openings or ports in its side walls, combined with the reel having its hub mounted upon said valve-casing and forming between said hub and said valve-casing the water-chamber, the hose-attaching nozzle connected with said reel, the valve within said valve-casing, the stem carrying said valve and projecting through said casing and having the polygonal outer end, the hand-wheel mounted upon said polygonal outer end and slidable thereon, and means for connecting said hand-wheel with the reel; substantially as set forth.

6. The water-supply apparatus, the valve-casing connected therewith, and the reel having its hub mounted upon said valve-casing and provided with the hose-attaching nozzle, combined with the valve within said casing, the threaded valve-stem carrying said valve and projecting through said valve-casing and having the polygonal outer end, and the hand-

wheel mounted upon said polygonal outer end and having the wings, the said reel having the receiving-recesses to receive said wings; substantially as set forth.

5 7. The water-supply apparatus, the valve-casing connected therewith, and the revolvable reel to receive the hose, combined with the valve within said casing for controlling the water-supply, the valve-stem carrying
10 said valve at its inner end, and the hand-wheel at its outer end, said hand-wheel having wings and said reel having recesses to receive said wings, whereby said hand-wheel and said reel may be detachably connected
15 together; substantially as set forth.

8. The water-supply apparatus, and the valve-casing and hose-reel connected therewith, combined with the valve within said casing, the threaded stem for operating said
20 valve and having the polygonal outer portion, the hand-wheel slidable upon said valve-stem, and means for detachably connecting said hand-wheel with said reel in order that, when desired, the unwinding of the hose may au-
25 tomatically open said valve and that said hand-wheel may thereafter be manually used for closing said valve; substantially as set forth.

9. The water-supply apparatus, and the
30 valve-casing and reel connected therewith, combined with the valve within said casing, the valve-stem for operating said valve and having the polygonal outer portion, the hand-wheel slidable upon said polygonal outer por-
35 tion of the valve-stem, and means connected with said hand-wheel for locking the same into engagement with said reel whereby the reel may be enabled to operate the valve-stem, and when desired may be revolved without
40 operating the valve-stem; substantially as set forth.

10. The water-supply apparatus, and the valve-casing and reel connected therewith, combined with the valve within said casing,
45 the threaded valve-stem for operating said

valve and having the polygonal outer portion, and the hand-wheel upon said polygonal outer portion, the diameter of the bore of the hub of said hand-wheel being such that the threaded portion of said valve-stem may pass into
50 the bore of said wheel when the valve has reached its open position; substantially as set forth.

11. The water-supply apparatus, and the valve-casing and reel connected therewith, 55 combined with the valve within said casing, the threaded valve-stem for operating said valve and having the polygonal outer portion, and the hand-wheel loosely mounted upon said polygonal outer portion of said valve-
60 stem, the bore of the hub of said hand-wheel being such that during the opening of the valve the valve-stem will slide through said hub and the polygonal portion of said stem leave said hub so that said valve upon reach-
65 ing its open position will remain stationary while the reel and said hand-wheel may continue to revolve; substantially as set forth.

12. The water-supply apparatus, and the valve-casing and reel connected therewith, 70 combined with the valve within said casing, the threaded valve-stem carrying the said valve and itself engaging the stationary female thread, and means connecting said valve-stem with the reel so that upon the unwind-
75 ing of the hose said valve-stem will be revolved to open said valve but permitting said valve-stem to free itself from the reel, without said threads becoming disengaged from one another, so that when the valve has
80 reached its open position its movement will cease; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 27th day of September, A. D. 1898.

EDWARD CLIFF.

Witnesses:

CHAS. C. GILL,
E. JOS. BELKNAP.