No. 661,953. Patented Nov. 20, 1900.

E. CLIFF.

HOSE REEL.

(Application filed May 23, 1900.)

(No Model.)

Fig. 1.

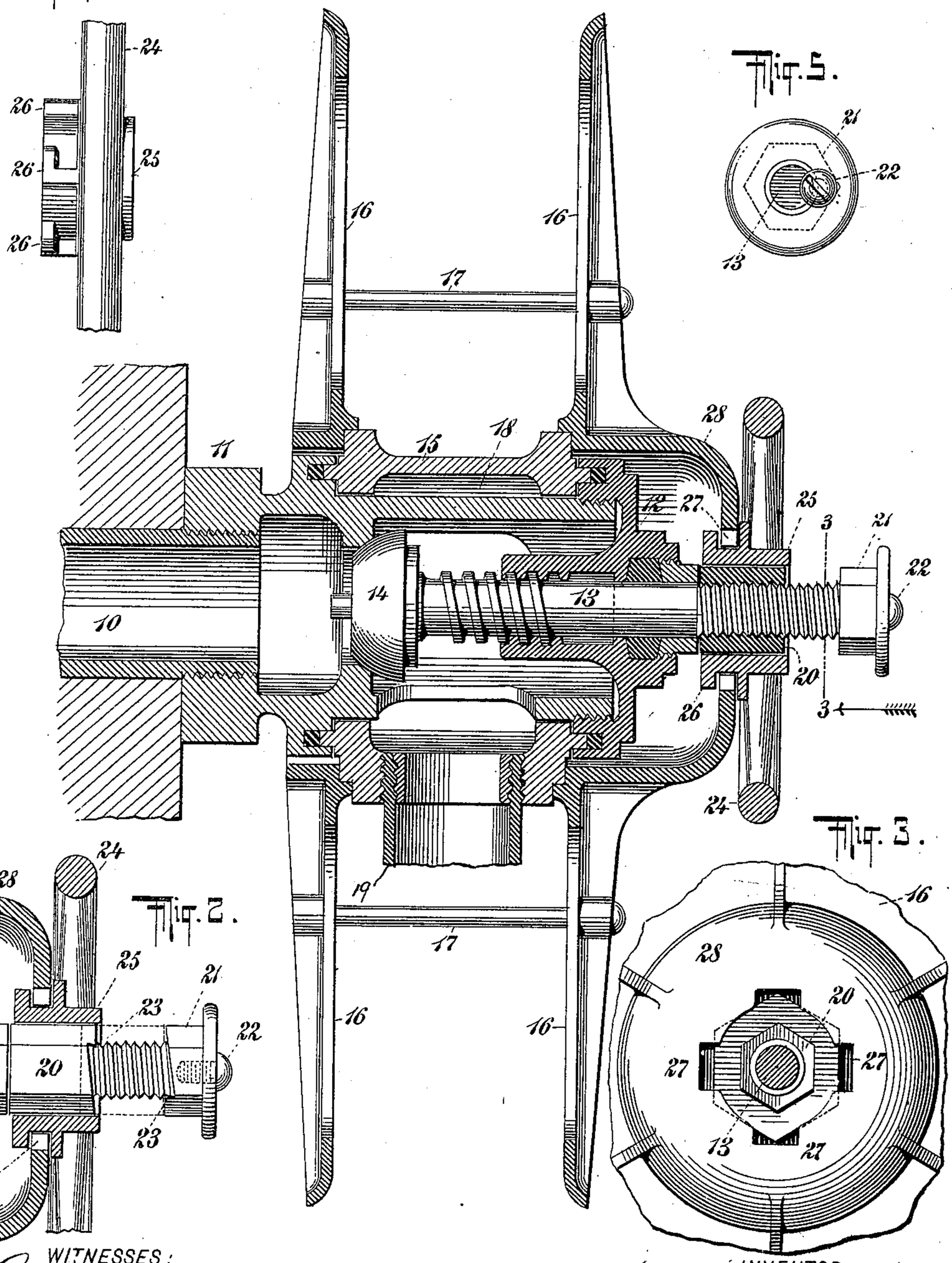

Fig. 5.

Fig. 4.

Fig. 2.

Fig. 3.

WITNESSES:

Gustave Dietrich

Edwin H. Dietrich

INVENTOR

Edward Cliff

BY

Chas. C. Gill

ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE CLIFF & GUIBERT COMPANY, OF NEW YORK, N. Y.

HOSE-REEL.

SPECIFICATION forming part of Letters Patent No. 661,953, dated November 20, 1900.

Application filed May 23, 1900. Serial No. 17,646. (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. Upon the outer threaded portion of the valve-stem is provided an internally-threaded sleeve which keys with the hub of a hand-wheel capable of engagement and rotation with the reel and which sleeve may during a portion of the unwinding of the hose from the reel travel outward on said stem without affecting the valve and then during the latter portion of the unwinding of the hose from the reel become interlocked with the valve-stem and actuate the latter to open the valve, the said valve while being an automatic valve thus not opening until a definite length of hose has been unwound from the reel. Upon the valve reaching its full open position the aforesaid sleeve will have passed entirely free of connection with the reel, and hence any further movement of the reel will not affect the valve.

The present invention relates more especially to improvements upon the hose-reel described and claimed in Letters Patent of the United States No. 643,712, granted February 20, 1900, to me; and it consists in certain novel features hereinafter fully described, and particularly pointed out in the claims pertaining to the means for permitting in automatically-operated valves the valve to remain closed during the first portion of the unwinding of the hose and compelling said valve to open during the latter part of the unwinding of the hose.

The invention will be understood from the description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of a hose-reel and connected parts constructed in accordance with and embodying the invention. Fig. 2 is a section, corresponding with that of Fig. 1, of a portion of the hose-reel, showing the sleeve on the valve-stem in side elevation and by dotted lines indicating the outer position of said sleeve. Fig. 3 is a vertical section of a portion of same on the dotted line 3 3 of Fig. 1, the hand-wheel being omitted. Fig. 4 is a detached edge view of a portion of the hand-wheel, and Fig. 5 is an end view of the valve-stem and the nut thereon.

In the drawings, 10 designates the usual water-supply pipe; 11, the valve-casing applied to the end of said pipe; 12, the bonnet closing the outer end of said valve-casing; 13, the valve-stem carrying the valve 14; 15, the hub of the reel mounted upon said valve-casing, and 16 the disks of the reel, which are connected together by suitable bolts 17, upon which the hose may be wound in a well-known manner, the said valve-casing and other features designated by reference-numerals being of the character shown and described in the aforesaid Letters Patent No. 643,712, granted to me February 20, 1900.

The valve-casing 11 is substantially inclosed by the hub 15 of the reel, and intermediate the main body portions of said valve-casing and said hub is formed the chamber 18, which freely communicates with the interior of the valve-casing by means of openings formed in

said valve-casing, and said hub 15 at one side thereof receives the end of the hose 19, as indicated in Fig. 1.

The outer portion of the valve-stem 13 is threaded, and upon this portion of said valve-stem is applied the internally-threaded sleeve 20 and nut 21, the latter being on the outer end of the valve-stem 13 and fixed thereon by means of a screw 22, which operates as a key and passes into a threaded groove or socket formed partly in the side of the stem 13 and partly in the adjoining wall of the nut 21. The nut 21 screws upon the outer end of the stem 13 and upon arriving in position is there detachably fastened by means of the screw 22. The sleeve 20 and nut 21 are polygonal in exterior outline and correspond in diameter with one another, and the said sleeve 20 is adapted to travel lengthwise upon the outer threaded portion of the stem 13 and at the proper time to engage the rigid nut 21 and effect the rotation of the stem 13 for the purpose of effecting the automatic opening of the valve 14 from its seat. As more clearly illustrated in Fig. 2, the facing end of the sleeve 20 and nut 21 are formed with oppositely-arranged shoulders 23, which when the sleeve 20 moves to its extreme outward position engage one another, whereby the sleeve 20 during its revolving motion is enabled, through the nut 21, to effect the rotation of the valve-stem 13, the latter remaining stationary until the sleeve 20 has traveled outward to and engaged said nut 21.

Upon the sleeve 20 is placed the hand-wheel 24, the bore of whose hub 25 is polygonal and conforms with the outline of the sleeve 20, with the view of insuring the simultaneous rotation of said wheel and sleeve. At its inner portion the hub 25 of the wheel 24 is formed with the series of angular flanges 26, adapted to pass through the recesses 27 of the bonnet 28, formed at the central portion of the outer disk 16 and inclosing the outer end of the bonnet 12 of the valve-casing 11. The hand-wheel 24 is slidable upon the sleeve 20, and when the angular flanges 26 of the wheel 24 are in line with the recesses 27 of the bonnet 28 the said wheel 24 may be pushed inward, so that said flanges 26 will pass through the said recesses 27, and thereupon a slight turn of the wheel 24 will cause said flanges 26 to engage the edges of the bonnet 28 in the manner of a bayonet-catch and serve two purposes, one being to, under such condition, prevent any direct outward movement of the hand-wheel 24 and the other being to so lock said hand-wheel 24 with the outer reel-disk 16 that the rotation of the said reel, as during the unwinding of the hose, will result in the simultaneous rotation of said hand-wheel 24. The bonnet 28 of the outer disk 16 and the hand-wheel 24 to engage the same are illustrated in the aforesaid Letters Patent No. 643,712.

In Fig. 1 the parts of the reel and valve are illustrated in a normal condition with the valve 14 closed. In the event of the happening of a fire the attendant will grasp the usual nozzle (not shown) at the end of the hose and run with the same toward the fire, this act resulting in the unwinding of the hose from the reel and the rotating of the latter in a well-known manner. The rotary motion of the reel is communicated to the hand-wheel 24 and by the latter to the sleeve 20, the said sleeve 20 turning freely upon the valve-stem 13 and traveling outward upon said stem and from within the hub 25 of the wheel 24, but not affecting or rotating said valve-stem 13 until a given amount of the hose shall have been unwound from the reel and the said sleeve 20 shall have passed into engagement with the nut 21, upon the happening of which the continued rotation of the reel, hand-wheel 24, and nut 20 will through the rigid nut 21 cause the valve-stem 13 to rotate and the valve 14 to open. During the unwinding of the hose the valve 14 will not therefore be opened until such time as the sleeve 20 has traveled outward and passed into engagement with the nut 21, and thus the water from the supply-pipe 10 will not pass into the hose until the latter has been to a proper extent unwound from the reel, the final rotations of the latter when the sleeve 20 and valve-stem 13 become locked together at the nut 21 effecting the opening of the valve. The sleeve 20 will be of such predetermined length that when the valve has reached its open position said sleeve will have entirely left the hub of the wheel 24 and be free upon the stem 13, this construction and relation of the parts being desirable, so that any movement of the reel after the valve has become opened will not have any influence upon the valve or the valve-stem, the said wheel 24 during any such further movement of the reel merely turning with the bonnet 28 free of the sleeve 20 and having no influence upon the latter. When the sleeve 20 is within the hub 25 of the wheel 24, it is by reason of its polygonal form keyed to said wheel, and said sleeve does not leave its relation to the wheel 24 until it has traveled outward upon the stem 13 to the nut 21 and said stem 13 has traveled outward sufficiently to open the valve 14, at which time said sleeve 20 will have been carried outward beyond the hub 25 of the wheel 24. After the fire shall have been extinguished the attendant will drop the hose and return to the reel and he will first withdraw the wheel 24 from the bonnet 28 and slide it outward upon the sleeve 20 and nut 21, then together at the outer end of the stem 3, whereupon he will by manual turning of the wheel 24 close the valve 14, this occurring before the hub 25 of the wheel 24 reaches the opening in the bonnet 28. When the hand-wheel 24 is in the outer position just above described, with the valve 14 closed, the reel may be rotated without affecting the valve and at such time the hose will be rewound upon the reel in the usual

manner. The attendant will then move the hub of the wheel 24 from off the nut 21 and permit said hub to engage the sleeve 20 only, whereupon he will by spinning the wheel 24 around rotate the sleeve 20 upon but without affecting the valve-stem 13 until said sleeve has entered within the bonnet 28 and reached the outer portion of the valve-casing and become thereby arrested. The attendant will then move the flanged end of the hub 25 of the wheel 24 into engagement with the bonnet 28 of the outer disk 16, and the reel will then be in its former normal condition (shown in Fig. 1) and prepared for any further emergency which may arise.

One of the main features of the invention consists in providing means whereby in reels having automatic valves the valve shall not open immediately upon the starting of the reel to turn, but shall remain closed until a proper length of the hose has been unwound from the reel and shall open only during the final portions of the rotation of the reel. The accomplishment of this result is very advantageous in many particulars, among which it may be mentioned that the water is excluded from the hose until a proper time for its reception therein and that should any idle person pull the hose a short distance from off the reel the valve 14 will not open. The sleeve 20 may be varied to regulate at will the extent that the hose shall be unwound from the reel before the valve 14 opens, and hence it is in the power of the manufacturer and in accordance with the conditions to be met to regulate the time at which during the rotation of the reel the valve 14 shall open. The greater the distance the sleeve 20 is compelled to travel before it engages the nut 21 the greater will be the length of hose unwound before the valve 14 is affected. In the construction presented the valve-stem 13 is turned to automatically open the valve by the unwinding of the hose; but it will not be turned to effect this result except at the proper time, and the movement of said valve-stem 13 will cease when the valve has been opened, even though the reel may be given some additional movement thereafter.

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 hose-reel mounted on said casing, the water-supply valve within said casing, the valve-stem connected with said valve and projecting outward beyond the hub of said reel, a shoulder at the outer end of said valve-stem, a rotatory device about said stem intermediate said shoulder and the reel and normally free of said shoulder and carried by said reel, and means adapted to move said device freely outward to said shoulder during and by the unwinding of the hose and into locking engagement with said shoulder for opening said valve only after the reel has completed a portion of its unwinding motion; substantially as set forth.

2. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith, and the sleeve on said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve after the reel has completed a portion of its unwinding motion; substantially as set forth.

3. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, and the internally-threaded sleeve on said threaded portion of said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion; substantially as set forth.

4. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, and the internally-threaded sleeve on said threaded portion of said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion, the length of said sleeve being so proportioned that it will have passed entirely free from its connection with said reel when the valve reaches its open position so as to leave the reel free to move without then affecting the valve; substantially as set forth.

5. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith, the sleeve on said valve-stem and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve after the reel has completed a portion of its unwinding motion, and the hand-wheel adapted to engage said sleeve and said reel and permit of the outward movement of said sleeve while it, said hand-wheel, remains in engagement with said reel; substantially as set forth.

6. The water-supply apparatus, and the valve-casing connected therewith, combined

with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and adapted to be moved outward on said stem and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion, and the hand-wheel adapted to engage said reel and said sleeve to normally key said sleeve and reel together, said hand-wheel being adapted to permit the said sleeve to pass beyond its influence when the said valve shall have reached its open position; substantially as set forth.

7. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem, the nut on the outer end of said valve-stem to be engaged by said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally engage said sleeve and said reel to key said sleeve with said reel and also adapted, when detached from the reel, to engage said nut for the manual closing of the said valve; substantially as set forth.

8. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and being of polygonal form externally, the nut on the outer end of said valve-stem of polygonal external form and adapted to be engaged by said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally connect said sleeve with said reel, said hand-wheel having a bore adapted to the polygonal form of said sleeve and said nut, and said hand-wheel being also adapted to be connected with and disconnected from said reel; substantially as set forth.

9. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and having the shoulder at its outer end, the nut on the outer end of said valve-stem and having the shoulder on its inner end to be engaged by the said shoulder on the said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally engage said sleeve and said reel to key said sleeve with said reel, and also adapted, when detached from the reel, to engage said nut for the manual closing of the said valve; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 22d day of May, A. D. 1900.

EDWARD CLIFF.

Witnesses:

CHAS. C. GILL,

GUNDER GUNDERSON.