

(No Model.)

4 Sheets—Sheet 1.

E. CLIFF.
HOSE REEL.

No. 585,861.

Patented July 6, 1897.

Fig. 1.

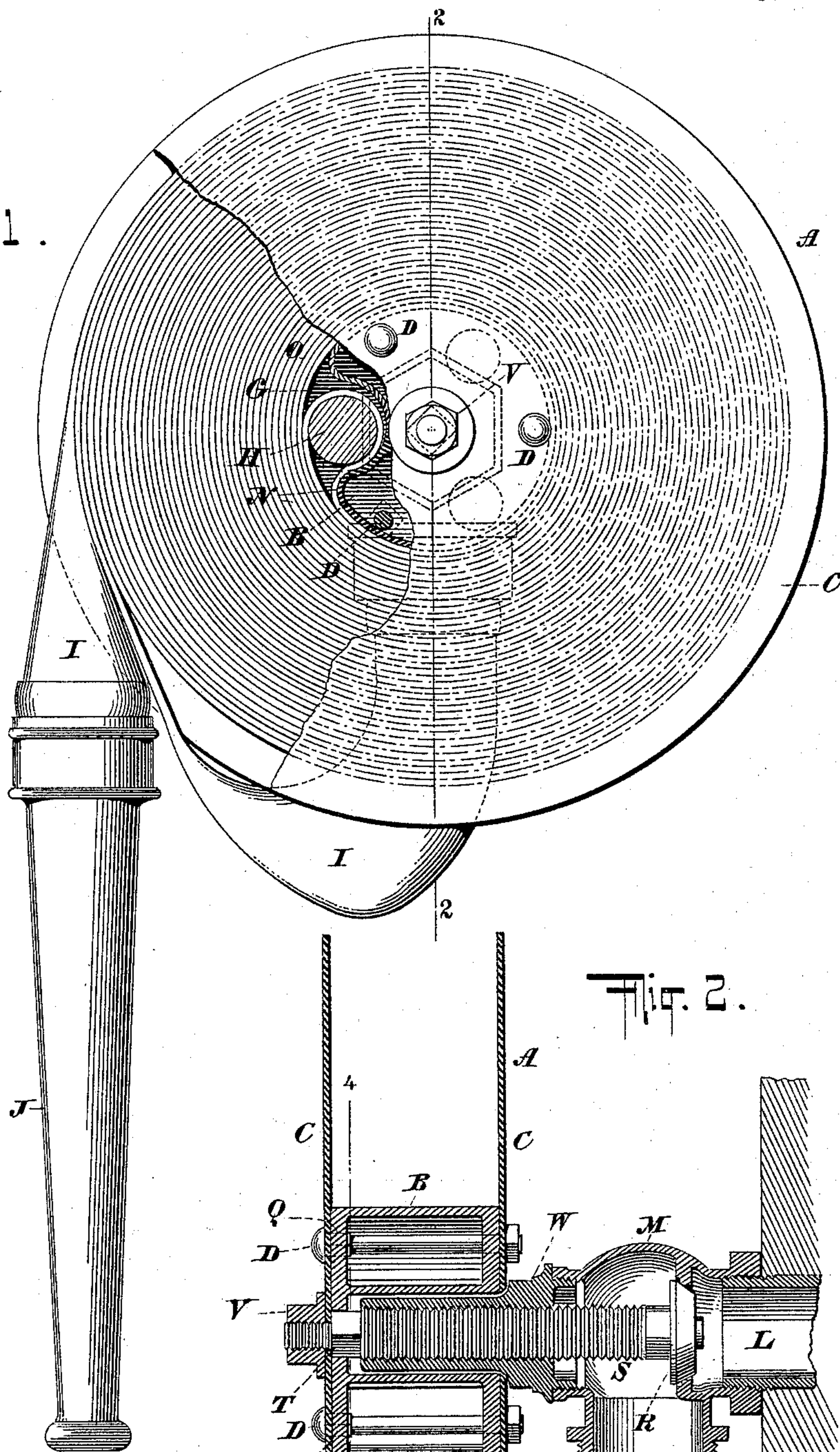
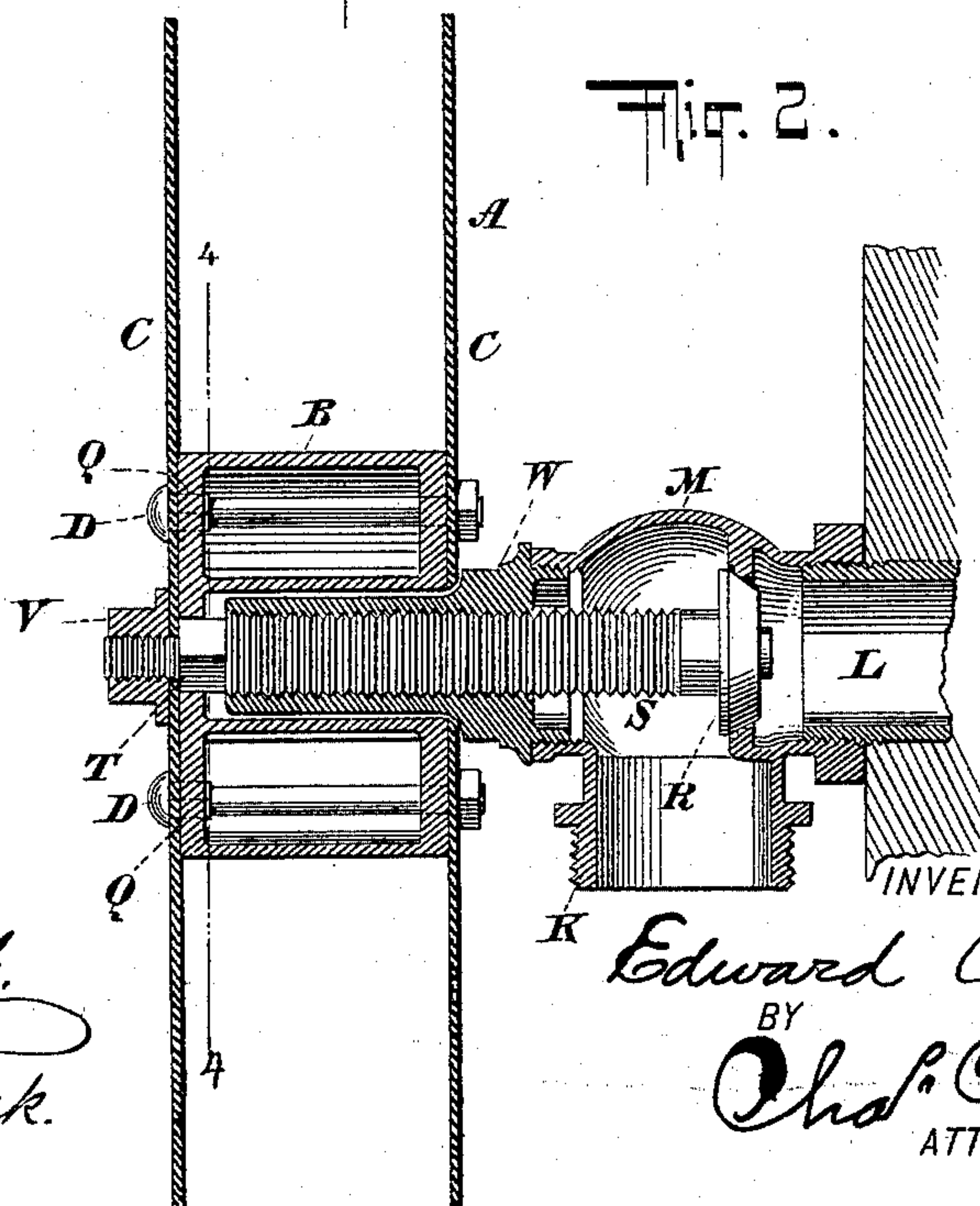


Fig. 2.



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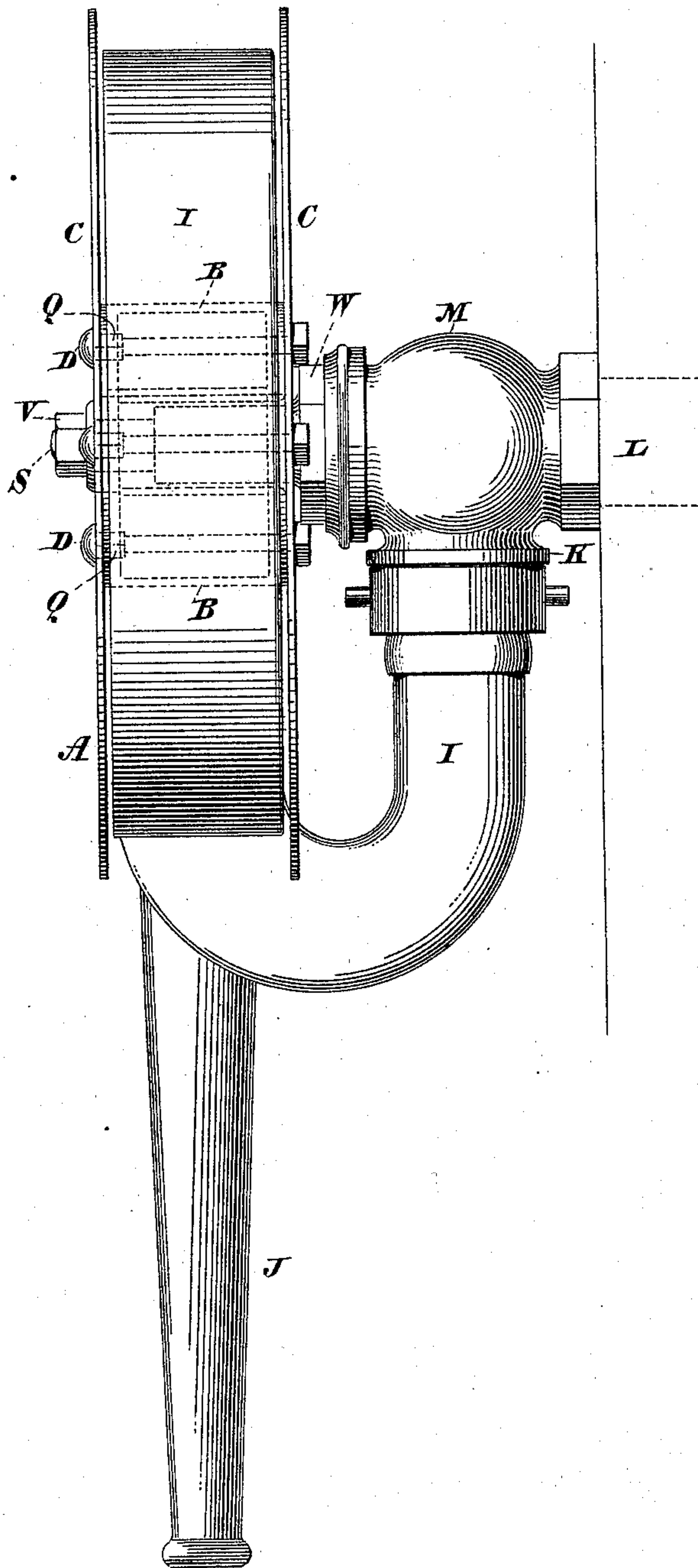
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Fig. 3.



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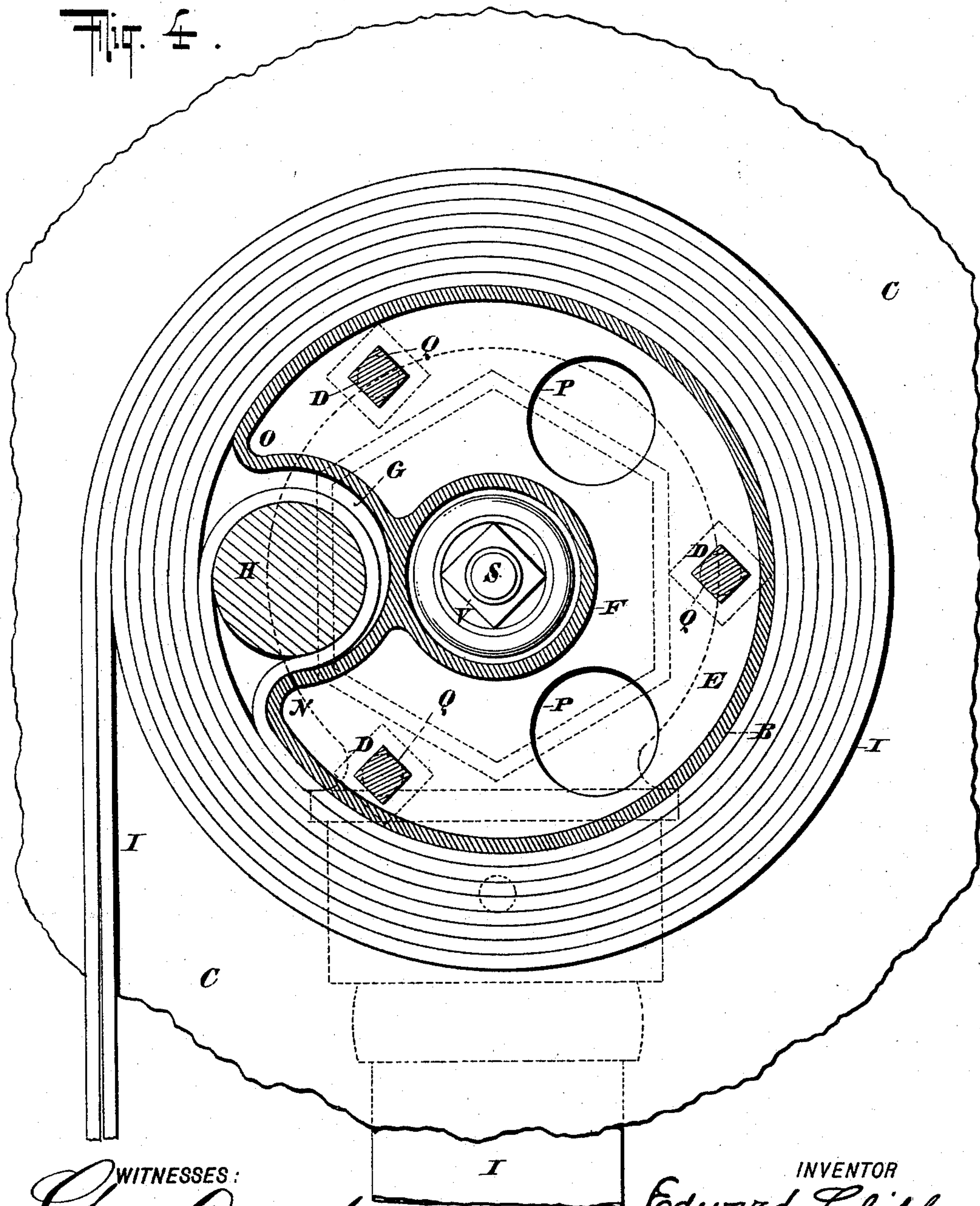
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Fig. 4.



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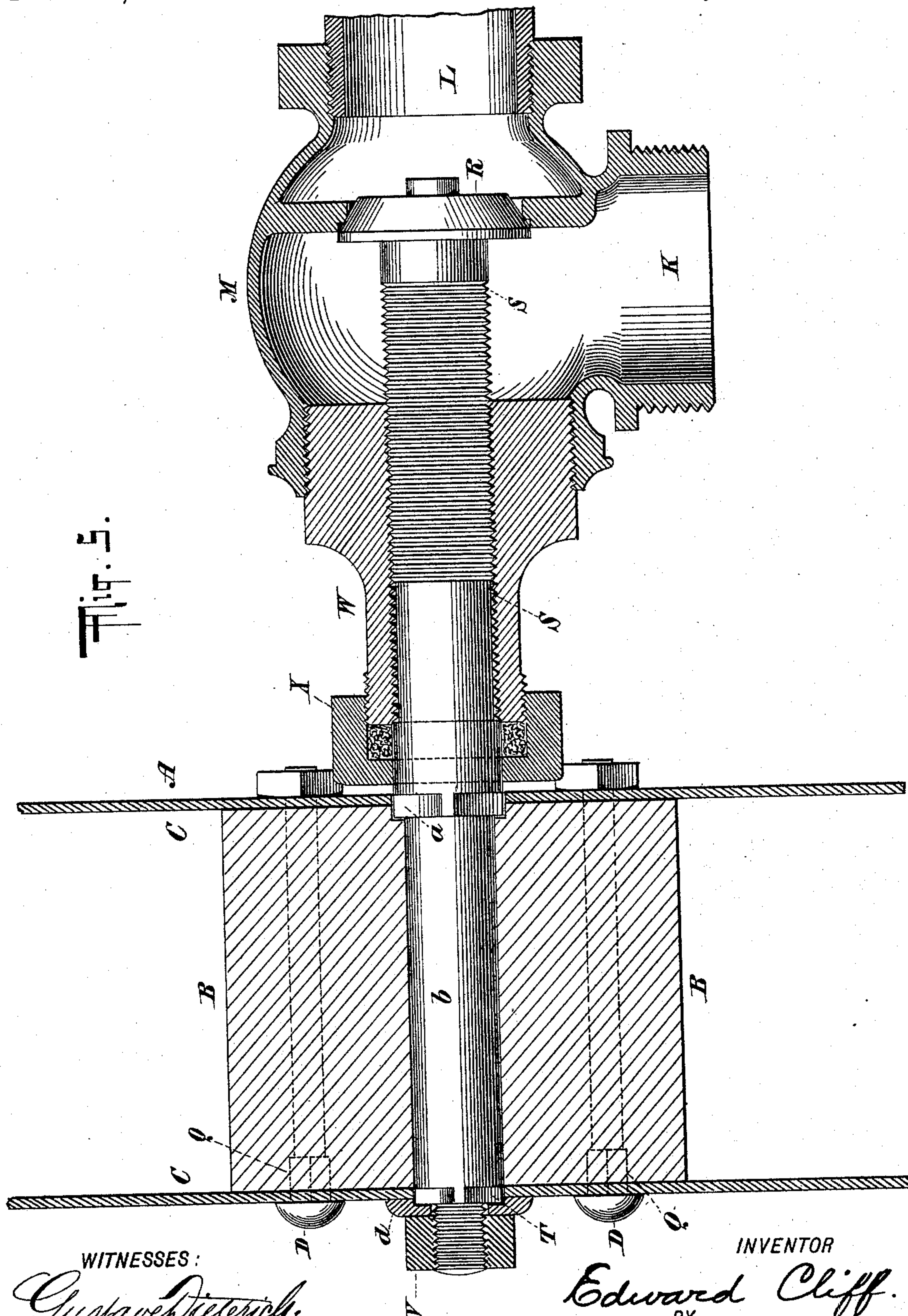
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EDWARD CLIFF, OF NEWARK, NEW JERSEY.

HOSE-REEL.

SPECIFICATION forming part of Letters Patent No. 585,861, dated July 6, 1897.

Application filed March 25, 1897. Serial No. 629,144. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hose-Reels; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 a part of this 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 may be permanently applied.

In the embodiment of my invention herein presented the reel proper is directly keyed upon the stem of the valve controlling the flow of water, and said valve is opened by the unwinding of the hose from the reel, so that upon the hose being unwound for use the water is automatically turned on and is within the hose as soon as the latter can be used. When fully unwound, the hose is entirely free of the reel, and is simply left connected with the exposed water-supply apparatus. After the use of the hose in extinguishing a fire the reverse motion of the reel without regard to the hose will close the valve in the water-supply pipe, and thereafter at any convenient time by unkeying the reel from the valve-stem, but leaving it to turn freely on said stem or on a sleeve around said stem, the hose may be readily rewound upon the reel without affecting the valve. The hub of the reel is of novel formation, as hereinafter pointed out, and the means intermediate said hub and the valve, in addition to the special construction of said hub, constitute a part of the present invention, which 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, of a hose-reel constructed in accordance with and embodying the invention. Fig. 2 is a vertical section of same on the dotted line 2 2 of Fig. 1, the hose

being omitted from the reel. Fig. 3 is an edge elevation of same, the hose being in position. Fig. 4 is an enlarged vertical section, partly broken away, of same on the dotted line 4 4 of Fig. 2; and Fig. 5 is a central vertical section through a modified form of the invention, this section corresponding to the line on which the section of Fig. 2 is taken.

In the drawings, A designates the reel, which is composed of the hub B and plates C C, the latter being secured to said hub B by means of the bolts D.

The hub B illustrated in Figs. 1 to 4, inclusive, is formed of cast metal and is hollow, the exterior of the hub being in the form of the cylinder E, as more clearly illustrated in Fig. 4, while at the interior of the hub is formed the sleeve F. The hub B at one edge is formed with the recess G, of proper size to freely receive the cylinder or cylindrical piece of wood H, which, as shown in Figs. 1 to 4, forms a core to receive the bight formed at about the center of the hose I, as hereinafter more fully explained. The hub B shown in Fig. 5 corresponds substantially with the hub B illustrated in Figs. 1 to 4, inclusive, except that it is made of wood and is solid instead of hollow. The hub B shown in Fig. 5 is also formed on one edge with a recess corresponding with the recess G, (shown in Figs. 1 and 4,) for the purpose of receiving the cylinder H for the hose.

The hose I is at one end provided with the usual nozzle J, and at its other end is coupled to the nozzle K, forming a part of the permanent water-supply apparatus, at present indicated by the pipe L and valve-casing M. The parts K L M are of well-known form and construction and form a part of the fixed water-supply apparatus to be found in buildings. The end of the hose I which is coupled to the nozzle K, as illustrated in Fig. 3, while removable is not intended to be removed from said nozzle except on some special occasions in which it might be desired to examine the valve.

In winding the hose upon the reel, one end of the hose being coupled to the nozzle K, the hose at about its center will be folded over the cylinder or core H and the latter will be placed within the recess G of the hub B, and thereupon the hose will be wound around

the hub B in double layers, as more clearly illustrated in Fig. 4. The core H is free in the recess G, and hence it will be manually held within said recess until after the hose has made one complete turn around the hub B, and thereafter the said core may be released from the hand, since the layers of the hose passing around said hub will firmly retain the core H in the recess G. The core H is simply a cylindrical piece of wood and is unsecured in the recess G except by the pressure of the hose thereon, and hence when the hose is unwound from the reel the cylinder H will simply fall from said recess on the unwinding of the inner turn of the hose. The cylinder H will preferably be of substantial dimensions, as illustrated, in order that the bight of the hose thereon will be relieved from being creased, and this is a feature of considerable importance, since, as is well known, the creasing of the hose is liable to injure the fiber thereof, especially when it is remembered that the hose is likely to remain upon the reel for a very considerable length of time prior to any necessity arising for its use.

The lower surface of the hub B has a different curvature from the upper surface of said hub in order that the lower edge N of the recess G may set inward beyond the upper edge O of said recess a distance equal to the thickness of a double layer of the hose in order that, as illustrated in Fig. 4, the hose when wound upon the reel will form accurate convolutions and not be caused to protrude on a line with the lower edge N of said recess G. The edges N O formed at the lower and upper parts of the recess G are rounded, as shown, in order not to bind with a sharp or angular edge upon any part of the hose, and the fact that the lower edge N of the recess G is set inward, as above explained, prevents the outer layers of the hose from exerting any undue pressure against that portion of the hose directly impinging said edge N.

The form of the hub B just above referred to results, as above mentioned, in the hose forming accurate convolutions in its winding upon the hub B, and this results in the hose having a uniform pressure throughout the various layers and in the avoidance of any one part of the hose being strained or subjected to undue pressure. The apertures P P in Fig. 4 denote simply the means provided for withdrawing the inner parts of the core from the hollow hub B after the latter has been cast.

It is intended to cast the hub B of Figs. 1 to 4, inclusive, in one integral piece and hollow, while the hub B of Fig. 5 will correspond in outline with the hub B of Fig. 4, but, as above described, is intended to be of wood.

The plates C C have central apertures in line with the bore through the hub B and cover the entire surface of the sides of said hub. The bolts D pass entirely through the plates C C and hub B and at one end have

the polygonal sections Q, which, as shown in Figs. 2 and 3, are within the plate C and a portion of the hub B and operate in connection with the surfaces contacting with them to prevent the said bolts from working loose. The hub B in width is slightly greater than the width of the hose when pressed flat, as shown.

Referring to Figs. 1 to 4, inclusive, it will be observed that the valve R has a threaded stem S, which extends outward through the bore of the hub B and is polygonal at its outer end, as at T, to engage the outer contracted bore of the hub B, as more clearly shown in Fig. 2, the outer extremity of the threaded valve-stem S being threaded to receive the nut V, by which the reel A is retained in position upon said valve-stem. The polygonal portion T of the valve-stem S operates in connection with the surfaces of the hub B surrounding it to key the reel A upon the valve-stem, so that the reel and valve-stem may revolve together for opening and closing the valve R. The valve-casing M of Figs. 1 to 4, inclusive, has connected with it the internally-threaded sleeve W, which engages the said valve-stem S and extends within the bore of the hub B, but is normally free of said hub, as illustrated in Fig. 2. If it is assumed that the hose is upon the reel and that the valve R is closed, as shown in Fig. 2, it will be seen that the pulling off of the hose to reach a fire and the consequent rotation of the reel A will turn the threaded valve-stem S and cause the valve R to recede from its seat, thus permitting the water from the pipe L to reach the nozzle K and enter the hose. The water is thus automatically turned into the hose by the unwinding of the latter at its nozzle end from the reel. The hose will in every case be fully unwound from the reel, leaving the latter disconnected therefrom, but still connected with the valve-stem S. After the fire shall have been extinguished it will be found desirable to close the valve R before rewinding the hose I, and the reel being then entirely free it may be by hand given a reverse motion, so as to rotate the valve-stem S in its reverse direction until the valve R has become seated and the water thus cut off from the hose hanging from the nozzle K. The water having been run out of the hose I, the latter may be promptly returned to the reel A in its previous condition, and to more readily accomplish this result the nut V will be loosened from the end of the valve-spindle S and the reel A will be slipped outward just far enough for the hub B to escape from the polygonal portion T of the valve-stem and fall upon the sleeve W, upon which it will rest as upon an axle. The hose will thereupon at about its middle be folded around the cylinder or core H and inserted within the recess G of the hub B, whereupon the reel A will by hand be rotated upon the sleeve W until the hose has been entirely wound upon the reel. Thereafter the reel A will be pressed inward toward the valve until

the polygonal portion T of the valve-stem S again enters its recess within the outer side of the hub B, and thereupon the nut V will be restored to its position for the purpose of securing the reel. The reel will then be in proper condition to be left for future use. Thus the reel is utilized upon the unwinding of the hose to open the valve R, and by a reverse motion, the hose being absent, to close the valve R, and thereafter, in order not to affect the valve, the reel is slipped from the parts keying it to the valve-stem and revolved to receive and rewind the hose into its original condition, the reel being thereafter secured in its connection with the valve-stem by means of the nut V.

In the modified form of the invention illustrated in Fig. 5 the sleeve W does not extend outward into the bore of the hub B, but terminates in a gland X, and the valve-stem S at its outer end supports the reel at all times. In Fig. 5 the valve-stem S at its outer end is provided with the polygonal surface T, by which it is keyed to the reel, and farther inward is provided with the additional polygonal surface a, by which it is keyed to the inner side of the hub B. Thus in Fig. 5 the valve-stem is normally keyed to the reel A at the inner and outer sides of the latter. Between the polygonal surfaces T a the valve-stem S of Fig. 5 is left cylindrical, as indicated at b. The rotation of the reel A shown in Fig. 5 by the unwinding of the hose therefrom operates to revolve the valve-stem S and thereby withdraw the valve R from its seat. After the hose has been freed from the reel A and the fire has been extinguished, the operator will, as with respect to the reel shown in Fig. 2, reverse the motion of the reel A for the purpose of seating the valve R and cutting off the water from the hose hanging from the nozzle K, and thereafter the nut V and washer d will be moved outward sufficiently to permit the reel A to be withdrawn from off the polygonal portions T a of the valve-stem S and rest entirely upon the smooth or cylindrical portion b of said valve-stem. The hose may then be immediately placed upon the reel and the latter revolved upon the portion b of the valve-stem as an axis until the hose has been completely restored to its position upon the hub B. Thereafter the reel A will be moved inward upon the valve-stem S until the polygonal portions T a are restored to their sockets, and the reel will then be secured in this position by the nut V and washer d. During the opening and closing of the valve R in Fig. 5 the valve-stem S is operated upon by the reel A in the same manner as the valve-stem of Fig. 2 is operated upon by its reel A, but upon the rewinding of the hose upon the empty reel the reel of Fig. 2 rests upon the sleeve W, while the reel of Fig. 5 rests directly upon the cylindrical portion b of the valve-stem. I prefer the construction illustrated in Fig. 2 because of its compactness, the fact that the reel may be placed

nearer to the valve-casing, and the valve-stem shortened. In the principle of operation, however, the construction presented in Fig. 5 is substantially the same as the construction shown in Fig. 2, although the latter figure shows a construction which in mechanical detail differs from the construction illustrated in Fig. 5.

In both forms of construction presented the outer portion of the reel is directly keyed to the valve-stem and the reel directly and without the use of any intermediate mechanism operates said stem to open and close the valve automatically and with absolute certainty; and in both constructions presented provision is made for the slipping of the reel from the means locking it to the valve-stem without detaching it, however, from the apparatus for the purpose of permitting it to be freely revolved and rewind the hose without having any effect upon the valve.

In the drawings I have illustrated the valve-stem in a horizontal position, but the invention is not limited in every instance to the position in which said valve-stem is placed, since if it were arranged in a vertical position the apparatus would still be within the scope of my invention.

The invention is not limited to any special form of valve R nor to any special means of connecting said valve to its stem S. In the present instance the valve R and stem S are in one integral piece.

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

1. The water-supply apparatus having the valve, the valve-casing, the hose-attaching nozzle directly on one side of and stationary with said valve-casing, and the valve-stem projecting from another side of said casing, combined with the reel mounted upon and connected with said valve-stem and adapted on being revolved to open and close said valve, and the hose at one end connected with said stationary nozzle and thence wound upon said reel; substantially as set forth.

2. The water-supply apparatus having the valve, the valve-casing, the projecting valve-stem, and the hose-attaching nozzle directly on and stationary with said valve-casing, combined with the reel mounted upon and connected with said stem, means permitting the revolving of said reel around said stem to rewind the hose without acting on said valve, and the hose at one end connected with said stationary nozzle and thence wound upon said reel; substantially as set forth.

3. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the reel receiving within its bore said stem and being keyed thereto, and means permitting said reel to be manually shifted in line with said stem to unkey itself therefrom and then be revolved around said stem to rewind the hose without acting on said valve; substantially as set forth.

4. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the said stem having the polygonal portion, the reel receiving within its bore said stem and having a conforming recess to receive said polygonal portion of said stem; substantially as set forth.

5. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the said stem having the polygonal portion at its outer end, the reel receiving within its bore said stem and having at its outer side a conforming recess to receive said polygonal portion of said stem; substantially as set forth.

6. The water-supply apparatus having the pipe L, the valve-casing M connected with said pipe and having as a permanent part thereof and stationary therewith the outlet-nozzle K, the valve within said casing, and the valve-stem projecting from said casing at right angles to said nozzle K, combined with the reel mounted on and adapted to operate said stem, and the hose at one end connected to said stationary nozzle K and thence wound upon said reel; substantially as shown and described.

7. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the reel mounted on and adapted to operate said stem, and the hose at one end connected with said nozzle and thence while doubled at about its center wound upon said reel; substantially as set forth.

8. The water-supply apparatus having the pipe, the valve-casing M connected with said pipe, the outlet-nozzle K on and stationary with one side of the said valve-casing, the valve, the valve-stem projecting from another side of said casing, and the sleeve surrounding said stem and connected with said casing, combined with the reel having the central bore and receiving therein said sleeve and being keyed to said stem, and the hose at one end connected with said stationary nozzle K and thence wound upon said reel; substantially as and for the purposes set forth.

9. The water-supply apparatus having the pipe, the valve-casing M connected with said pipe, the outlet-nozzle K on and stationary with one side of the said valve-casing, the valve, the valve-stem projecting from another side of said casing, and the sleeve surrounding said stem and connected with said casing, combined with the reel having the hub and plates and the bore in said hub to receive said sleeve and stem, means locking the outer side of said reel to the projecting end of said stem and capable of manual removal to permit the revolving of said reel on said sleeve without affecting said stem, and the hose at one end connected with said stationary nozzle K and thence wound upon said reel; substantially as and for the purposes set forth.

10. The water-supply apparatus having the valve-casing, hose-attaching nozzle, threaded sleeve, valve and valve-stem, the latter extending through and beyond said sleeve and having the polygonal outer portion and threaded extremity, combined with the reel having the central bore and provided with the recess conforming to said polygonal portion of said stem, and the nut securing said reel on said stem; substantially as set forth.

11. In combination with water-supply apparatus, the reel and hose connected with said apparatus, said reel having within the periphery of its hub the recess to receive the folded part of the hose and the core within said fold, substantially as set forth.

12. In combination with water-supply apparatus, the reel and hose connected therewith, said reel having within the periphery of its hub the recess to receive the folded part of the hose and the core within said fold, the surface of said periphery below said recess being set inward from the circle of said periphery above said recess; substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD CLIFF.

Witnesses:

CHAS. C. GILL,
E. JAS. BELKNAP.