(No Model.)

5 Sheets—Sheet 1.

E. M. BIRDSALL.

HOSE REEL.

No. 495,720.

Patented Apr. 18, 1893.

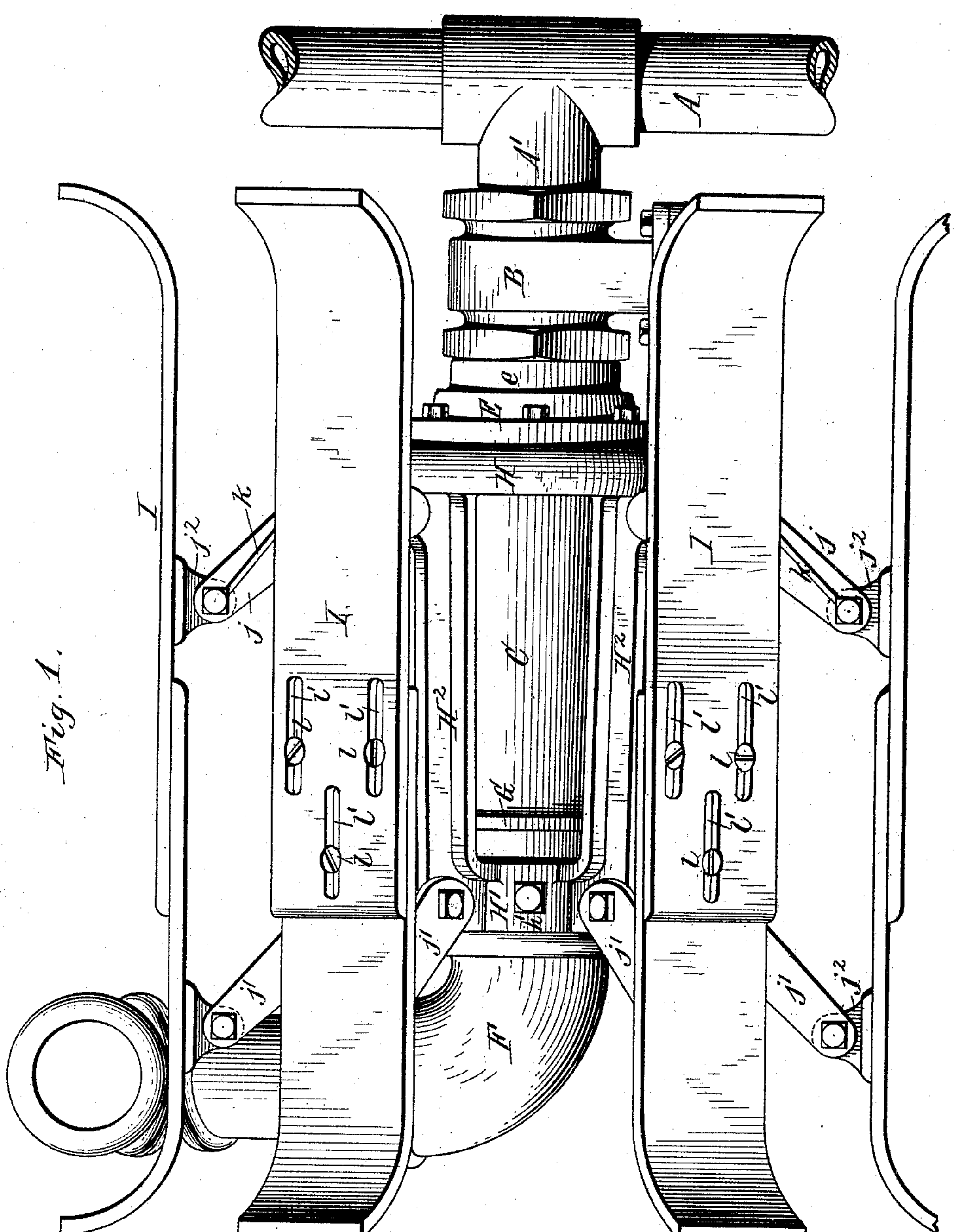


Fig. 1.

Witnesses:
Emil Neuhart
Theo. L. Popp.

E. M. Birdsall Inventor.
By Wilhelm Bonner
Attorneys.

(No Model.)

5 Sheets—Sheet 2.

E. M. BIRDSALL.

HOSE REEL.

No. 495,720.

Patented Apr. 18, 1893.

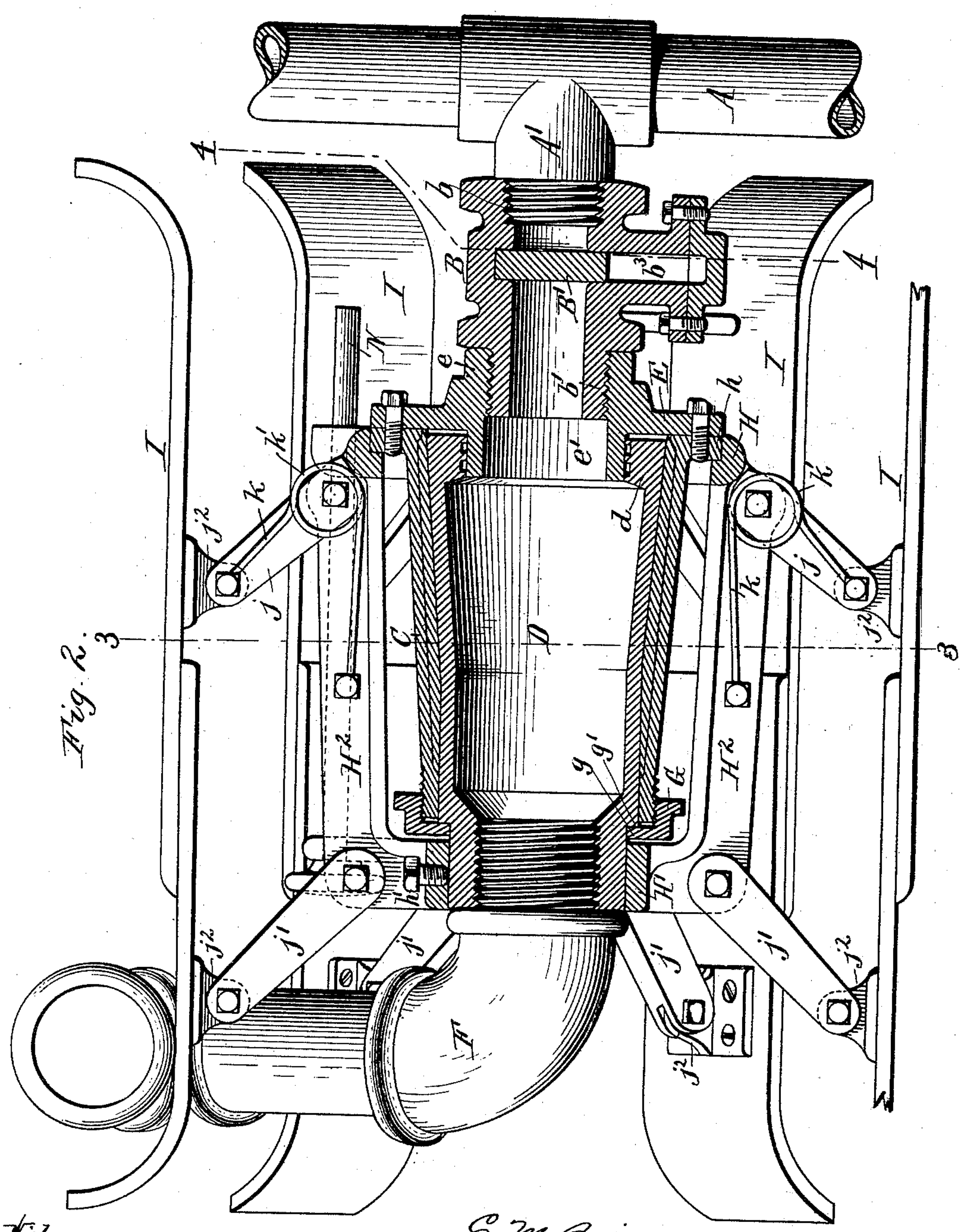


Fig. 2.

Witnesses:
Emil Neuhart.
Theo. L. Popp.

E. M. Birdsall Inventor.
By Wilhelm & Bonner
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

5 Sheets—Sheet 3.

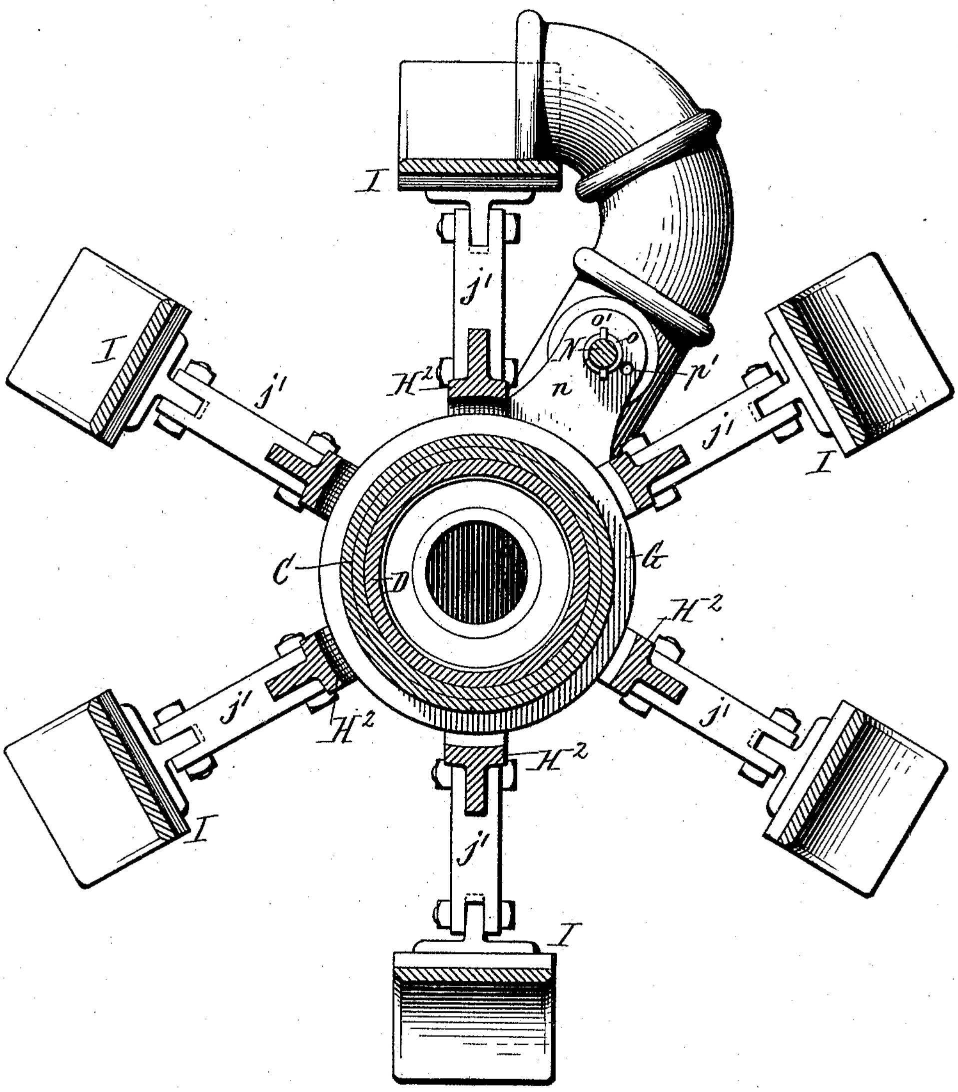
E. M. BIRDSALL.

HOSE REEL.

No. 495,720.

Patented Apr. 18, 1893.

Fig. 3.



Witnesses:
Emil Neuhart.
Chas. F. Burkhardt.

E. M. Birdsall Inventor.
By Wilhelm Bonner.
Attorneys.

(No Model.)

5 Sheets—Sheet 4.

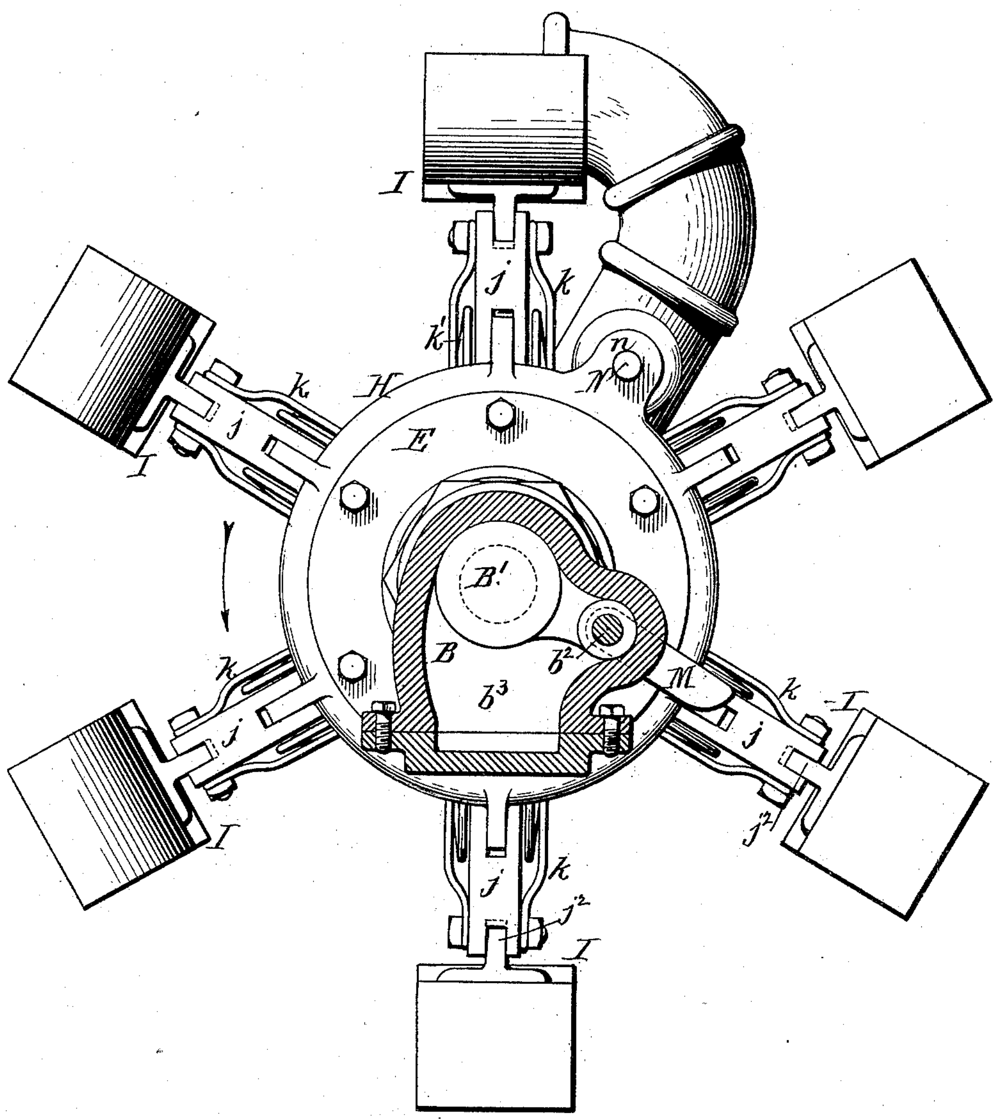
E. M. BIRDSALL.

HOSE REEL.

No. 495,720.

Patented Apr. 18, 1893.

Fig. 4.



Witnesses:
Emil Neuhart.
Theo. L. Popp.

E. M. Birdsall Inventor.
By Wilhelm & Bonner
Attorneys.

(No Model.)

5 Sheets—Sheet 5.

E. M. BIRDSALL.

HOSE REEL.

No. 495,720.

Patented Apr. 18, 1893.

Fig. 5.

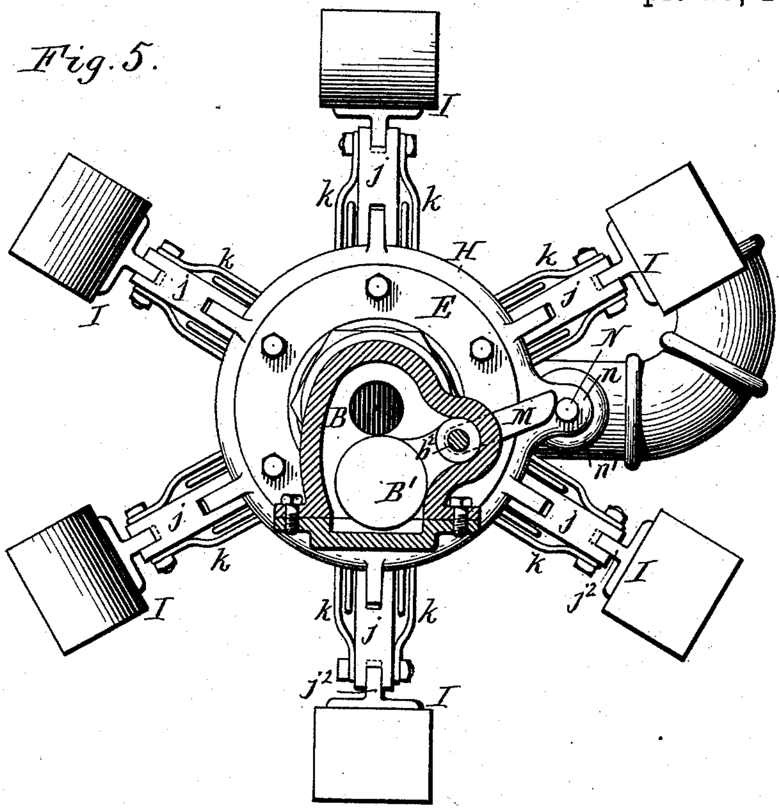


Fig. 6.

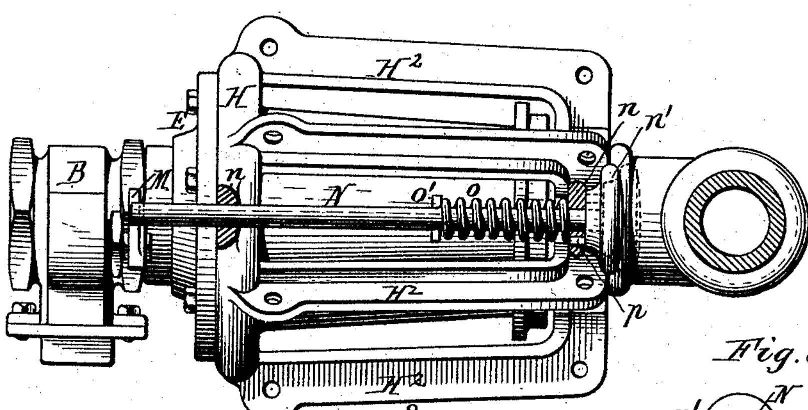


Fig. 7.

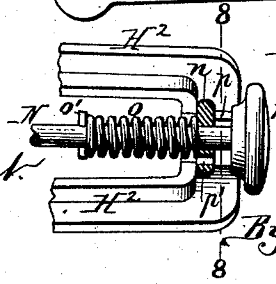
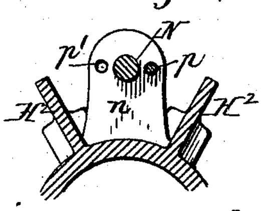


Fig. 8.



Witnesses:
Emil Neuhart.
Theo. L. Popp

E. M. Birdsall Inventor
By Wilhelm & Bonner
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDGAR M. BIRDSALL, OF BUFFALO, NEW YORK, ASSIGNOR TO MARY BIRDSALL, OF SAME PLACE.

HOSE-REEL.

SPECIFICATION forming part of Letters Patent No. 495,720, dated April 18, 1893.

Application filed October 31, 1892. Serial No. 450,499. (No model.)

To all whom it may concern:

Be it known that I, EDGAR M. BIRDSALL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Hose-Reels, of which the following is a specification.

This invention relates to that class of hose reels which are permanently connected with a supply or stand pipe and in which the water is automatically turned on by the rotation of the reel in unwinding the hose.

My invention has more especial reference to hose reels of this kind in which the reel bars are capable of yielding toward the axis of the reel, so as to permit the hose to expand and allow the water to pass freely through it while the same is on the reel.

One of the objects of my invention is to provide simple means for causing both ends of the reel bars to move inward uniformly and simultaneously under the expansion of the hose, so as to facilitate the passage of the water through the hose.

The invention has the further objects to render the reel adjustable so that it may be extended or contracted to accommodate any length of hose; to render its hollow journal self-packing to prevent leakage; to provide simple means for automatically operating the valve that controls the flow of water to the hose reel, and finally to improve the construction of the reel frame.

In the accompanying drawings consisting of five sheets:—Figure 1 is a side elevation of my improved hose reel. Fig. 2 is a longitudinal sectional elevation thereof. Fig. 3 is a cross section of the same in line 3—3, Fig. 2, looking toward the left. Fig. 4 is a similar view in line 4—4, Fig. 2, showing the cut-off valve closed. Fig. 5 is a cross section similar to Fig. 4, on a reduced scale, showing the cut-off valve open. Fig. 6 is a top plan view of the reel partly in section, with the reel bars and connecting links omitted, and showing the trip rod projected to its operative position. Fig. 7 is a similar view of the outer portion of the reel, showing the trip rod retracted to its inoperative position. Fig. 8 is a vertical cross section in line 8—8, Fig. 7.

Like letters of reference refer to like parts in the several figures.

A represents the usual supply or stand pipe having a branch A′.

B is a valve casing attached to this branch and B′ is a cut-off valve or gate arranged in said casing and controlling the passage of the water to the hose reel. As shown in Fig. 2, this valve case is provided at its inner end with an internally screw threaded opening b in which the threaded end of the branch A′ engages, and at its outer end with an externally threaded hollow nipple b' the bore of which forms a continuation of the outlet passage of the valve case. The cut-off valve B′ swings vertically upon a horizontal pivot b^2, supported in the valve casing, as shown in Figs. 4 and 5, the casing being provided in its lower side with a chamber or recess b^3 which receives the valve when it is swung down to its open position, as shown in Fig. 5. This cut-off valve may be of any other common construction.

C represents a tapering horizontal shell, case or bearing secured at inner portion to the valve case B, and D is a correspondingly tapered plug or journal arranged to turn in the stationary case C and carrying the reel frame. The inner or large end of the tapering case is closed by a head E which is formed with a central opening whereby the hollow journal is placed in communication with the valve case B and provided on its outer side with an internally threaded collar e which engages with the threaded nipple b' of the valve case. The hollow journal is provided at its inner end with an inwardly extending annular flange or bearing d which turns upon a hollow arbor or collar e' formed on the inner side of the head E. The inner face of the annular journal-flange is preferably grooved, as shown in Fig. 2, to receive a suitable packing for forming a tight joint at this point. The hollow journal extends outwardly beyond the small open end of the casing C, and to the projecting end of the journal is attached the customary outwardly-extending elbow pipe F with which the hose is connected.

G is an adjustable stop or collar arranged at the outer end of the tapering casing C and whereby the outward movement of the journal is limited, so as to prevent binding of the same in the casing. This collar is provided with an internal screw thread which engages with an external thread formed at the outer end of the casing, and at its outer end with an inwardly extending annular flange g which bears against an annular shoulder g' formed on the adjacent portion or the journal. The water, in passing through the tapering journal from its large toward its small end, by its pressure forces the journal outwardly and causes the outer surface of the journal to impinge firmly against the surrounding inner surface of the tapering casing, forming a reliable self-tightening joint, which effectually prevents leakage. In order to prevent the hollow journal from being wedged so tightly into its casing as to bind, the adjusting collar G is employed, which receives the end pressure of the journal and permits the same to be moved inward sufficiently to allow it to turn without excessive friction.

The main reel frame which turns with the hollow journal consists of an inner large ring H which turns upon the annular flange h at the inner end of the stationary casing C, an outer ring H' of smaller diameter which embraces the contracted outer end of the tapering plug D and is secured thereto by a set screw h', or other means, and longitudinal arms or bars H^2 which connect the rings H and H'.

I represents the yielding reel bars or slats upon which the hose is supported. Each of these bars is connected with the main reel frame by a pair of parallel links $j\,j'$ arranged near opposite ends of the bar and inclined to an angle of about forty-five degrees in the extended position of the reel bars. Each link is pivoted at its inner end to one of the longitudinal arms H^2 of the main reel frame and at its outer end to a lug j^2 arranged on the adjacent under side of the reel bar, the several link-pivots being arranged transversely and those connected with the same bar being parallel with each other, so that the bars can move radially toward and from the axis of the reel.

k represents springs whereby the reel bars are extended to their outward position and which resist the tendency of the bars to move inward under the weight of the hose coiled around the same. Each of these springs preferably consists of a piece of wire bent to form two arms or branches which are secured respectively to the outer pivot bolt of one of the links of the reel bar and the adjacent arm H^2 of the main reel frame, and a coil k' which connects the inner portions of the two spring arms. As soon as the water enters the collapsed hose, the reel bars yield inwardly to the expanding hose in a well known manner, and allow the water to pass through it. By supporting the reel bars by means of parallel links, both ends of the bars are caused to yield or recede uniformly and simultaneously as soon as the expanding hose presses against any portion of the bars, so that all the coils of hose resting upon a given bar are free to expand at once as soon as the first or receiving coil is expanded by the entering water, thus enabling the water to pass through the reeled hose much more quickly, and the hose to be brought into action with correspondingly greater promptness than when the reel bars are arranged to move independently at opposite ends, as heretofore proposed, by which latter arrangement only that end of a reel bar yields, against which the filling coil or coils bear, so that each individual coil must press the bars inward as it becomes filled, which considerably retards the passage of the water through the several coils.

In the construction of the reel frame shown in the drawings, the frame bars H^2 to which the links of the reel bars are pivoted, converge outward slightly, so that the outer ends of these bars are nearer the axis of the reel than their inner ends and in order to compensate for this inequality and insure a parallel movement of the reel bars, the outer link of each reel bar is correspondingly longer than its inner link, as shown.

Each of the reel bars is preferably composed of two slats or sections which are adjustably secured together at their inner overlapping portions by transverse clamping screws or bolts l which pass through longitudinal slots l' formed in the slat sections, so that upon loosening these screws or bolts, the sections may be adjusted lengthwise upon each other to lengthen or shorten the reel bars. The size of the hose reel may thus be readily varied in accordance with the length of hose to be wound upon it.

M is the actuating arm of the cut-off valve B' which arm is secured to the projecting end of the valve pivot, and N is a longitudinally movable trip rod carried by the rotary reel and adapted to shift the valve arm M and open the valve when moved to a position in which the valve arm stands in its path. This trip rod slides in perforated lugs or bearings n arranged on the reel frame and is provided at its outer end with a knob n' for manipulating it.

o is a spiral spring surrounding the trip rod between its outer bearing and a pin or collar o' secured to the rod and which tends to press the rod to its inward or operative position in which it strikes the valve arm M upon rotating the hose reel.

p is a pin or projection secured to the inner portion of the trip rod knob and adapted to engage in an opening or recess p' formed in the outer bearing of the trip rod, when the latter is in its operative position, as shown in Fig. 6. Upon pulling the trip rod outward and turning it sufficiently to bring the pin p out of register with its recess p', the pin upon releasing the trip rod bears against a solid portion of the outer trip-rod bearing and thereby holds the rod in its retracted position, in which it clears the arm of the cut-off valve. Upon turning the trip rod so as to bring the pin p into coincedence with the recess p' and releasing the rod, the pin enters the recess and permits the spring o to press the rod inward. Upon turning the reel in this position of the trip rod, the latter strikes and rides over the projecting arm of the cut-off valve shifting it to its open position and admitting the water to the hollow journal D whence it passes through the radial pipe F and into the hose.

Before winding the unreeled hose upon the reel, the trip rod is retracted, so as not to strike the arm of the cut-off valve.

I claim as my invention—

1. In a hose reel, the combination with a stationary tapering shell or case provided at its large end with an inlet for the water, of a hollow tapering journal arranged to turn in said tapering case and communicating at its large end with the inlet thereof and having at its small end a connection for the hose, and a reel frame turning with said hollow journal, substantially as set forth.

2. In a hose reel, the combination with a stationary tapering shell or case provided with an inlet at its large end, of a hollow tapering journal fitted within said case and communicating at its large end with the inlet thereof and provided at its small end with a connection for the hose, and an adjustable stop which limits the outward movement of the hollow journal in the case, substantially as set forth.

3. In a hose reel, the combination with a stationary tapering shell or case provided with an inlet at its large end, of a hollow tapering journal fitted within said case and communicating at its large end with the inlet thereof and provided at its small end with a connection for the hose, and an adjustable stop-collar applied to the outer screw threaded end of the case and bearing against a stop or shoulder on the hollow journal, substantially as set forth.

4. The combination with the stand pipe and a valve case having a screw threaded nipple, of a stationary shell or case provided at its inner end with a head having a hollow arbor on its inner side and on its outer side an internally screw threaded collar engaging with the nipple of the valve case, and a hollow reel supporting journal arranged to turn in said stationary shell or case and turning with its inner end upon said hollow arbor, substantially as set forth.

5. In a hose reel, the combination with the hollow journal and the stationary case or bearing in which the journal turns, of a reel frame composed of a ring turning upon said stationary case or bearing, a ring secured to the hollow journal and arms or bars connecting said rings, substantially as set forth.

6. In a hose reel, the combination with the main reel frame, of longitudinal reel bars for supporting the hose, and connections between the reel bars and the main reel frame, whereby both ends of the reel bars are caused to recede simultaneously when the bar is pressed inward by the expanding hose, substantially as set forth.

7. In a hose reel, the combination with the main reel frame, of longitudinal reel bars for supporting the hose and pivoted links connecting the reel bars with the reel frame whereby both ends of the bars are simultaneously moved toward or from the axis of the reel, substantially as set forth.

8. In a hose reel, the combination with the main reel frame, of longitudinal reel bars for supporting the hose, pivoted links connecting the reel bars with the reel frame, whereby both ends of the bars are simultaneously moved toward or from the axis of the reel, and springs whereby the reel bars are held in their extended position, substantially as set forth.

9. In a hose reel, reel bars each composed of longitudinally-slotted sections and a clamping screw passing through the slotted sections, substantially as set forth.

Witness my hand this 20th day of October, 1892.

EDGAR M. BIRDSALL.

Witnesses:
JNO. J. BONNER,
FRED. C. GEYER.