W. NERACHER.

AUTOMATIC HOSE-REEL.

No. 191,461. Patented May 29, 1877.

Fig. 1.

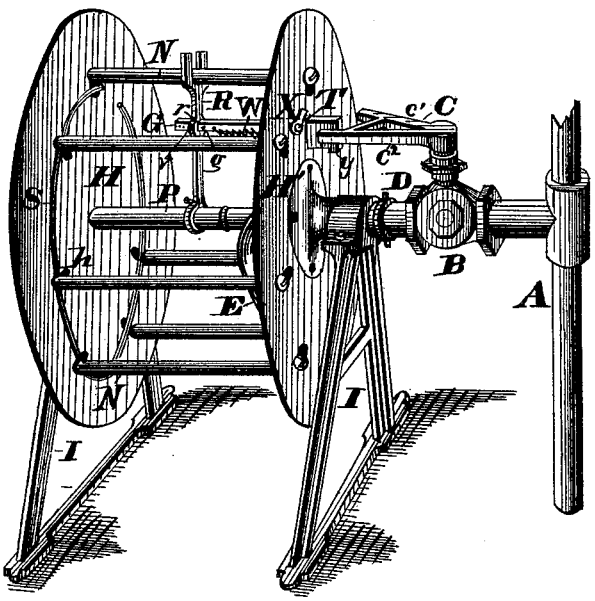


Fig. 2.

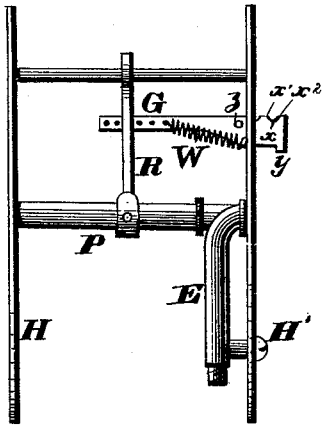


Fig. 3.

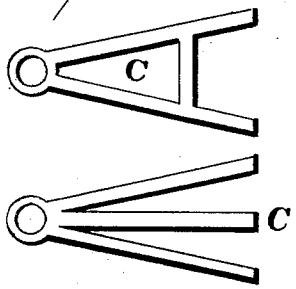
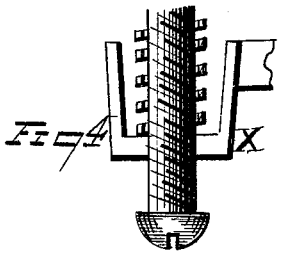


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM NERACHER, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO H. B. PIPER, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC HOSE-REELS.

Specification forming part of Letters Patent No. **191,461**, dated May 29, 1877; application filed March 7, 1877.

To all whom it may concern:

Be it known that I, WILLIAM NERACHER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Hose-Reels; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in automatic hose-reel, and consists, first, in an elastic reel in which the ends of the cross-bars move in slots, whereby said bars have a certain amount of motion to and from the center of the reel; second, in a combination of devices whereby the water may be turned on automatically, either suddenly or gradually.

In the drawing, Fig. 1 represents a perspective view of a hose-reel embodying my invention. Fig. 2 is the front view of the same. Fig. 3 shows a detached view of the lever or arm of the water-cock, and also a modification of the same. Fig. 4 shows a view of the retaining catch and spring.

The object of my invention is to furnish a suitable and efficient means for the use of dwellings, factories, and warehouses in the extinguishment of fires, which operates automatically, and almost instantly, and which is not liable to get out of order.

The reel may be mounted in any suitable manner, either as shown in the drawing, or on brackets secured to a wall. It consists of two disks or side guards, HH′, which are provided with openings or slots *h* placed at equal distance from the center, the length of the slot parallel with the radius of the disk. In these slots move the bars or rods N, which are prevented from being withdrawn or from falling out, by nuts or equivalent devices placed on the ends of the same, or by means of projections on the rods acting against the inside faces of the disks. Within the space inclosed by the bars are placed one, two, or more springs, S, which abut against the rods N, and push them outward as far as the slots *h* will permit. If desired, a spring may be applied to such rod. Any device by which the bars are pressed outward is within the spirit of my invention. These springs may be placed loosely within the bars, or their movements may be limited by suitable guards or stops.

P is a shaft or journal which revolves in suitable bearings, and turns with the reel. Part of said shaft is hollow, and from said hollow part extends the curved pipe E, to which the hose is attached. R is a lever or rod, the inner end of which is hinged or pivoted to a collar or ring keyed or secured to the shaft P, so that its upper end has a motion in the direction of the length of the bars N. Its upper end is forked, and embraces one of said bars, and extends a short distance beyond it for the purpose hereinafter shown.

G is an arm, one end of which extends through a suitable opening, T, in the disk H′. The other end of said arm is provided with a series of apertures, *g*, and passes through an opening *r* in the lever R; said lever R is also provided with an aperture, *v*, which crosses and is at right angles with aperture *r*. The arm G is fastened to the lever R by a pin or screw which passes through apertures *v* and *g*. To the arm G is attached a spring, W, the other end of which is fastened to the disk H′. The end of the arm G which passes through the disk is notched on its upper side, into which notch *x* can be placed the stop X, which will prevent said arm from moving outward. It is further provided with a projection on its under side to prevent the arm from passing inward farther than necessary, and, in order to guard against its moving outward too far, an additional pin, *z*, is placed on the arm, inside of the reel.

B is the valve or water-cock, which is opened or closed by means of the handle or lever C, which handle may have two or more arms for the purpose of gradually turning on the water.

Any desired form of coupling may be employed to connect the reel with the water-cock section.

The operation of the device is as follows: The hose attached to the pipe E is wound around the bars of the reel, the spring exercising sufficient pressure to keep the bars out-

ward. The forked end of the lever R projects between any two coils of hose, and, according as it is desired that a greater or less amount of hose shall be unwound before the water is automatically turned on, so the point of attachment of the arm G to said lever is removed nearer to or farther from the outer end of said arm G. Before the hose is wound on, however, the outer end of said arm G is pressed inward, and the catch X is pressed into the notch x. The sides x^1 x^2 of said notch x are inclined, as shown in the drawing, Fig. 4. When, now, the hose is wound on the reel, and the lever R placed between two coils of hose, the arm G is drawn inward as far as possible, which causes catch X to ride up on the inclined side, x^2. This brings said stop X into such a position that when the arm G is released by the unwinding of the hose the inclined side x^1 thereof presses against the stop X, already raised out of the notch for a short distance, and pushes it entirely out of the same. The catch at its pivoted end is made hollow, and contains a spiral spring, which presses against the inside of the catch and the outside face of the side of the reel, for the purpose of keeping the said catch in any position in which it may be placed; the tension of said spring being sufficient to prevent its accidental displacement, but not so great as to prevent the bar G, when being pressed outward by its spring, from moving the catch X.

When the winding has proceeded so far that the lever R is retained in position without the aid of catch x, the latter has been partly lifted out of the notch, and when, now, the hose is being unwound, and the coil, which held the lever R in place against the action of the spring, is lifted, the spring causes the arm G to extend outward sufficiently to strike arm c^2 of the forked handle C during the revolution of the reel, moving said handle or lever to a distance sufficient to open the water-cock partly, say one-half, or more or less. As the reel completes the next following revolution it strikes the arm c' of handle C, moving it far enough to open the water-cock entirely, so that the full flow of water will be obtained. Instead of two forks to the handle three or more may be used, and thus the water caused to be turned on more gradually.

If the water is fully turned on before the hose is unreeled, the expansion of the hose, caused by the pressure of water in the same, exercises sufficient force to press the rods inward, which is permitted through the medium of the slots, and thus is avoided any bending or breaking of the rods that would take place if the said rods were rigidly secured at their ends to the disks. This elasticity of the reel also allows the water to flow freely through the hose, and thus the water can be fully turned on, even when all of the hose is on the reel. All cause of accident, by reason of the breaking of the bars of the reel or bursting of the hose, because of the rigidity of the bars, is, therefore, effectually prevented. If desired, the water can be turned on by hand before the hose is unwound, which is preferably done when the fire is near at hand; but when it is some distance off, time is gained to allow the device to act automatically. All that it is necessary for the operator to do in such a case is to take the hose-nozzle and hasten to the threatened locality, and in the unwinding of the hose the water will be turned on automatically. If he should turn it on by hand before unwinding, he would labor under the disadvantage of carrying or dragging along a heavy filled hose.

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

1. An elastic or compressible hose-reel, substantially as and for the purpose described.

2. The combination of disks or sides provided with radial slots, cross-bars movable in said slots, and spring or springs, so located as to press said cross-bars outward, substantially as described.

3. The combination of lever R, arm G, and spring W, substantially as described.

4. The combination of lever R, arm G, spring W, and lever C, substantially as described.

5. In an automatic hose-reel, the water-cock handle or lever C, provided with two or more arms, for the purpose of gradually turning on the water, substantially as described.

6. The combination of hose-reel, hydrant-coupling at the axle, hose attachment within the reel, and yielding arms or supports, substantially as and for the purpose described.

7. The spring provided catch X, in combination with notched arm G, substantially as and for the purpose described.

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

WILLIAM NERACHER.

Witnesses:
FRANCIS TOUMEY,
W. E. DONNELLY.