May 25, 1954

R. J. HERRMANN

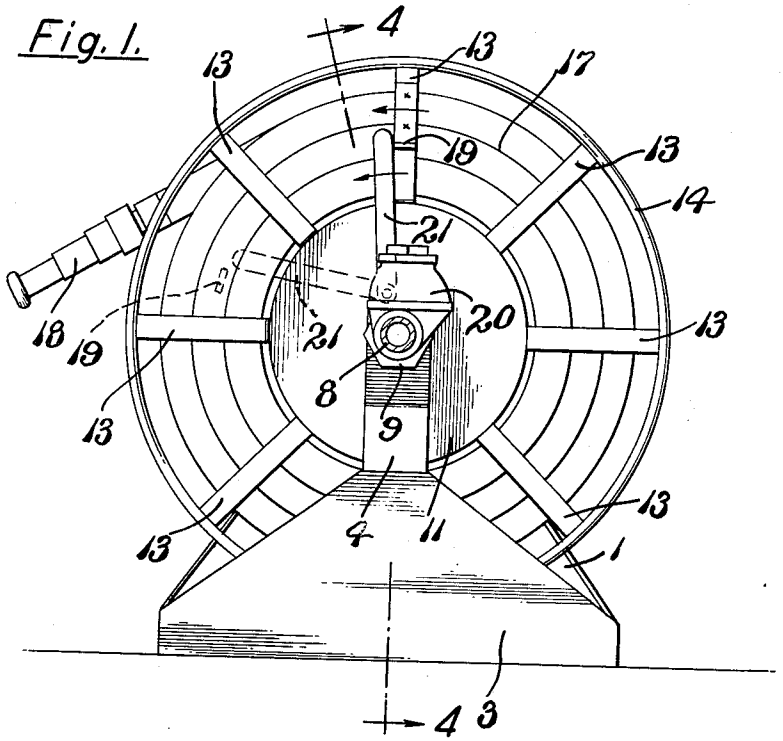
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SAFETY REEL WITH AUTOMATIC VALVE

Filed May 31, 1951

2 Sheets-Sheet 1

Fig. 1.



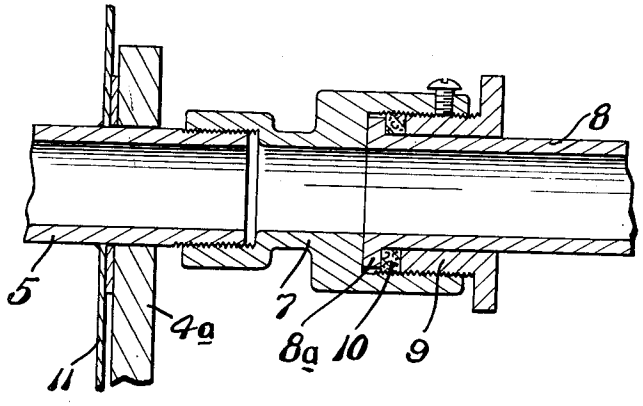


Fig. 2.

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Fig. 3.

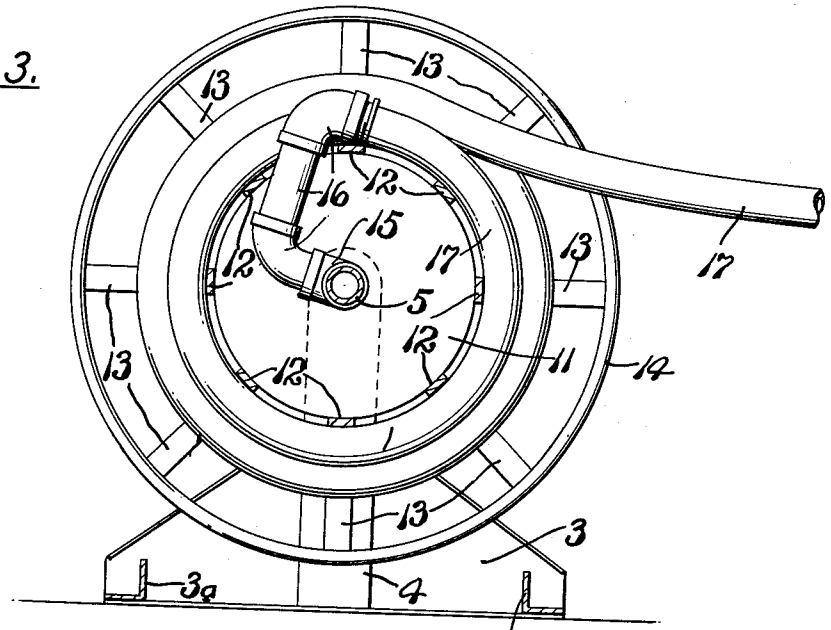
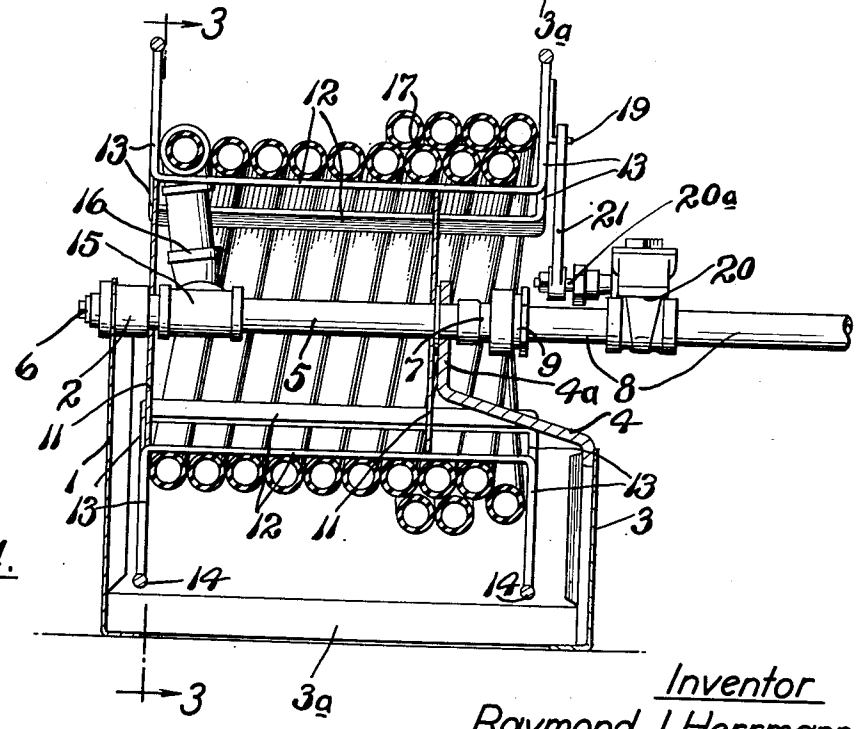


Fig. 4.



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SAFETY REEL WITH AUTOMATIC VALVE

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2 Claims. (Cl. 299—79)

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This invention relates to a reel for water carrying hose in which, substantially as soon as the hose is started in its unwinding from the reel with a simultaneous rotation of the reel, a valve is automatically opened by operation of the reel so that water is instantly available and will continue to flow until it is shut off manually, irrespective of how much of the hose is unwound from the reel.

The hose at its outer end will preferably be equipped with a well-known type of nozzle which, by manual operation, may be moved to prevent flow of water from the hose, irrespective of the pressure of water that there may be in such hose, and may be opened for greater or less flow of water at any time during or after the unwinding of the hose. In this manner there is always a supply of water when needed, and at any length of the hose from the reel and the water may be closed off at the end of the hose before the valve is manually closed, which manual closing of the valve, automatically opened by rotation of the reel when the hose is unwound, can take place either before or after the hose is rewound.

An understanding of the invention, and of the novel structure which embodies it, may be had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is an end elevation of the reel made in accordance with my invention.

Fig. 2 is an enlarged longitudinal section through the union between the fixed water supply pipe and the hollow tubular axis of the reel, rotatable with the reel, and near one end of which the hose is connected.

Fig. 3 is a transverse vertical section and elevation substantially on the plane of line 3—3 of Fig. 4, looking in the direction indicated, the hose being partly unwound and,

Fig. 4 is a longitudinal vertical section substantially on the plane of line 4—4 of Fig. 1.

Like reference characters refer to like parts in the different figures of the drawings.

In the structure disclosed, a supporting frame structure is provided including an end plate 1 of flat metal, of a generally triangular form, which at the apex of the triangle is equipped with a bearing 2. Spaced from the end 1 is a second generally triangular end 3 also of flat metal and of less height. Both of said ends 1 and 2 are suitably flanged for strength and reinforcement and, between the bottom flanges, spaced connecting bars 3a, preferably of angle form, are located and welded to the bottom flanges of the ends.

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The end 3 carries a bracket 4 of flat bar stock welded centrally of the end and extending substantially its full height, then bent to extend upwardly and inwardly toward the other end 3, terminating in a vertical bearing section 4a (Fig. 4).

The reel includes a hollow tubular axis 5 one end portion of which is rotatably mounted in and extends through the bearing 2 and is closed at its adjacent end by a screw plug 6. The tube 5 passes through an opening in the section 4a of bracket 4 and is rotatable therein. A short distance outwardly from said bracket section 4a one end of a coupling 7 is screw connected. The coupling 7, at its end where it is screw connected with the tube 5, has a cup-like enlargement, and at its other end has a cup-like enlargement of greater diameter, both being interiorly threaded. A fixed tube or pipe 8 having a disc-like enlarged head 8a at one end is inserted in the larger end of the coupling 7, into which a packing nut or gland 9 is threaded, compressing between it and such head 8a suitable packing 10 to prevent water leakage. The pipe 8 is a supply pipe connected with a source of water supply so that from it, when the pipe 8 is unobstructed, water flows freely into the tubular axis 5 of the reel. Such tube 5 is rotatable about its longitudinal axis.

On the tubular axis member 5 of the reel, two spaced apart plates 11 are mounted and are welded or otherwise secured to the tube 5 turning therewith. Such plates are of circular form (Figs. 1 and 3). At, preferably, equally spaced distances around the outer edges of the plates 11, cross bars 12, terminating at each end in outwardly extending legs 13, are permanently secured by welding or equivalent permanent connection; and around the outer ends of the legs 12 circular rims 14 made from metal rods are welded to complete the reel. The cross bars 12 terminate closely adjacent the plane of one of the reel plates 11 (Fig. 1) but at the other end extend outwardly beyond them. And the coupling 7 located adjacent the section 4a of bracket 4 is within the adjacent end of the reel as shown in Fig. 4.

In the length of the tube 5, a T-coupling 15 is interposed near the bearing 2, to which suitable elbow couplings and a short length of pipe between them, indicated at 16, are secured, to the outer elbow of which one end of a water carrying hose 17 is connected. Such hose may be wound upon the reel by rotating it in the proper direction until its outer end of the hose is brought close to the reel. At the outer end of the hose

(Fig. 1) a suitable nozzle 18 is connected which, preferably, will be of the manually closable well-known type, and which when turned in one direction will close off all flow of water, and when rotated in the other direction will open so that water may freely flow to a greater or less extent, in accordance with the extent that the nozzle is opened.

In the supply pipe 8, a short distance beyond the coupling 7 and the packing nut 9, a valve housing 20 containing a shut-off valve is located. When the valve is opened there is a free flow of water through the pipe 8 to the tubular reel axis 5, through the parts 16 and to the hose, but when it is closed the flow of water from the pipe 8 is stopped. The control valve within the valve housing 20 is off-set from the axis of the pipe 8 and is actuated by turning or rocking a shaft 20a extending from valve housing 20. At the end of the shaft 20a an arm 21 is secured. Such arm is located adjacent an end of the reel, on one leg 13 of which at such end of the reel, a projection 19 is mounted in the form of an L-shaped bracket preferably, the end of the arm 21, when the valve in the housing 20 is closed, extending into the rotary path of movement of such projection 19.

With the hose fully wound upon the reel, as in Fig. 1, upon unwinding the hose by grasping its outer end and pulling thereon the reel turns and the projection 19 comes to the arm 21 to move it from its full line position in Fig. 1 to the dash line position shown therein. The axis of turning of the arm 20, not being coincident with the axis of the pipe 8, the projection 19, when the arm 21 has been moved to valve opening position, passes beyond the outer end of said arm 21 and the reel may then continue to be rotated in the same direction to unwind the hose to any desired extent. It is apparent, therefore, that substantially in the beginning of the hose unwinding, and in any event as soon as the projection 19 actuates the arm 21, which will occur in practice during the early part of the first complete rotation of the reel, the shut-off valve is opened and water is supplied under pressure to the hose. Therefore, by operating the nozzle 18, if it should be closed, water may be available substantially at once, and there is no necessity of unwinding the hose the desired length and thereafter operating a valve to supply the hose with water.

After the hose has been used for watering purposes and is to be rewound, the nozzle 18 is preferably closed and the arm 21 manually returned to its valve shut-off position after the hose has been rewound to the position shown in Fig. 1. In rewinding the projection 19 will pass beyond the outer end of the arm 21, when in its dash line position shown in Fig. 1.

While the supporting frame for the reel in the drawing is shown as mounted upon a horizontal base, such reel may be mounted upon a vertical wall, as it frequently is mounted, the operation of the reel being the same in either position.

The structure described is very practical and useful. It is particularly useful in the case of fires where all that is required is to grasp the end of the hose and pull it out toward the fire as much or as little as may be needed, turning

and releasing the outlet nozzle 18, with an assurance that a supply of water under pressure will flow from the hose as soon as the nozzle is released. There will be no loss of time pulling the hose out the required amount and then returning to the reel mounting and operating the lever 21 as it is automatically operated to open the shut-off valve substantially at the beginning of unwinding the hose.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a structure as described, a support including a base, an end connected at one end of the base extending at right angles thereto, a second end connected at the other end of the base extending at right angles thereto to a lesser distance than the first end, a bracket secured to the second mentioned end, said bracket being laterally off-set toward the first end and terminating in a vertical section, said vertical section having an opening therethrough, a bearing mounted at the outer end of the first end in alignment with said opening, a tube passing through said section and through said bearing, means closing the end of the tube adjacent said bearing, a coupling secured to the opposite end of the tube beyond said section of the bracket through which the tube passes, a pipe in alignment with said tube, means for connecting said pipe to said coupling and means connected with said coupling and tube for permitting rotation of the tube about its axis with the pipe remaining fixed and preventing leakage of liquid carried from the pipe to said tube, a reel mounted on said tube having longitudinal members spaced radially from the tube, a hose adapted to be wound around said members, connection means between one end of the hose and said tube for carrying liquid from the tube to said hose, an opening and closing shut-off valve interposed in said pipe located adjacent one end of the reel, a projection extending outwardly from said end of the reel, and means connected with said valve interposed in the path of movement of said projection, when the reel is rotated in the direction to unwind the hose, for moving said valve to open position and for permitting continued turning of the reel thereafter in either direction for unwinding the hose any part of its length or for rewinding it without operating said shut-off valve.

2. A structure as defined in claim 1, said shut-off valve including a housing projecting to one side of said pipe, a valve actuating horizontal shaft extending outwardly from the outwardly projecting portion of said housing, said shaft lying parallel to the pipe, and an arm connected to said shaft said arm extending into the path of movement of said projection when the reel is turned in one direction.

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