

No. 614,855.

Patented Nov. 29, 1898.

J. M. FRANKLIN.

FIRE ESCAPE.

(Application filed Apr. 2, 1898.)

(No Model.)

Fig. 1.

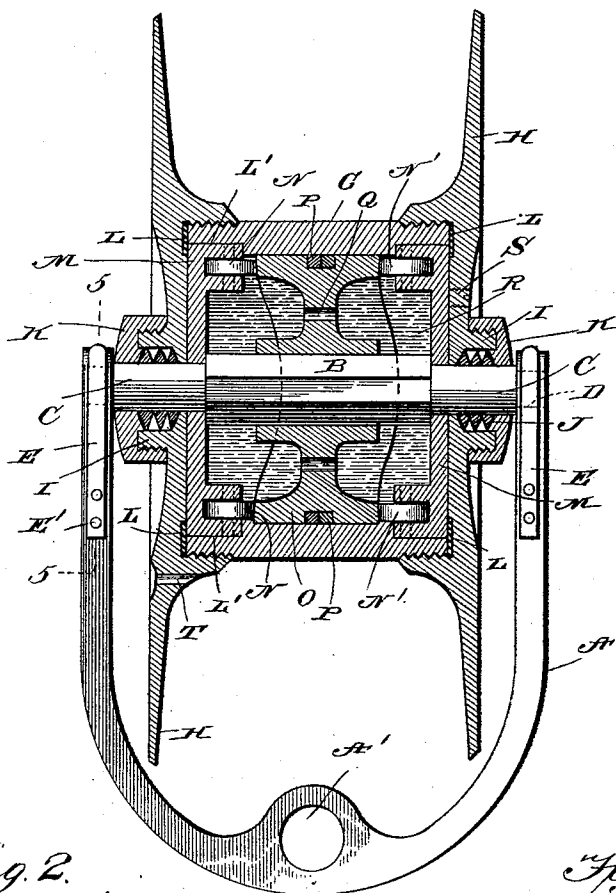


Fig. 2.

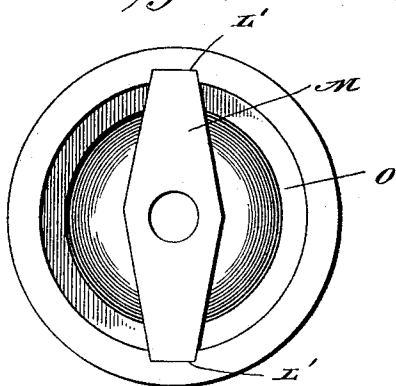


Fig. 3.

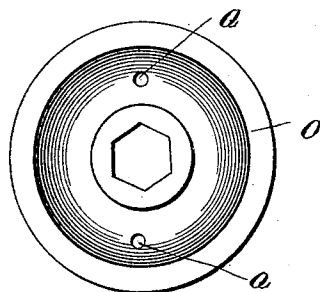


Fig. 4.

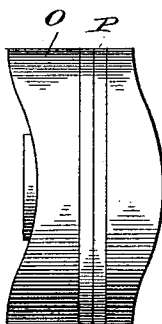


Fig. 5.

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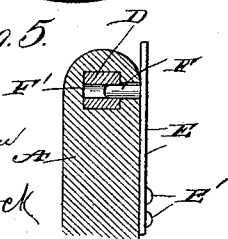
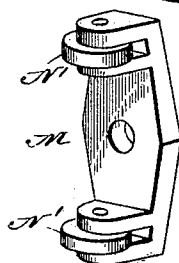


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 614,855, dated November 29, 1898.

Application filed April 2, 1898. Serial No. 676,209. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FRANKLIN, residing at Mount Braddock, in the county of Fayette and State of Pennsylvania, have invented a new and useful Fire-Escape, of which the following is a specification.

My invention relates to that class of fire-escapes by means of which an article or person is lowered by the unwinding of a line from a reel or drum.

The object of my invention is to provide a fire-escape of this class in which the rotation of the reel in unwinding the drum is retarded by the passage of liquid through a constricted opening between two chambers.

With this object in view my invention consists in the combination, with a reel or drum, made hollow and mounted to rotate upon a shaft, of a piston mounted upon the shaft within the cylinder, with the capacity of sliding on the shaft, but prevented from turning thereon, and improved means whereby during the rotation of the reel the piston is reciprocated endwise on the shaft, a fluid contained within the cylinder around the shaft is caused to pass through restricted openings in the piston during its reciprocation.

My invention further consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view of the reel and its retarding mechanism in section and the carrier in which the reel is mounted in side elevation. Fig. 2 is an end view of the cylinder, the piston and the roller-brackets secured together in their relative positions, the other parts being removed. Fig. 3 is a view in end elevation of the piston. Fig. 4 is a view in side elevation of the piston. Fig. 5 is a detail sectional view taken on the line 5 5 of Fig. 1. Fig. 6 is a detail perspective view of one

of the roller-brackets removed from the cylinder.

Like letters of reference mark the same parts wherever they occur throughout the various figures of the drawings.

Referring to the drawings by letters, A indicates the carrier, in which the reel is mounted, which is formed of metal in U shape and is provided with an opening A' at its center and angular openings in its upper ends. The shaft of the reel consists of a central angular portion B, in this instance shown as hexagonal, although any other angular form might be used, cylindrical journals C C, and angular outer ends D to fit in the angular openings of the carrier before referred to.

E E indicate springs secured by rivets E' to the ends of the carrier, from which springs project pins F through the ends of the carrier and into transverse openings F' in the angular ends of the shafts, whereby accidental spreading of the carrier and consequent slipping of the shaft therefrom are prevented.

G indicates the body or cylinder of the reel, upon each end of which is threaded a cylindrical flange H, said flanges being mounted upon the journals C of the shaft and provided with endwise annular threaded flanges I at a short distance from the shaft to provide room for triangular-shaped lead packing-rings J, which are held in place by nuts K, threaded on the flanges I, forming a stuffing-box at each end of the cylinder.

L L indicate lead gaskets located between the ends of the cylinder and the flanges H.

M M indicate brackets mounted upon the journals C C of the shafts inside of the flanges H and projecting into grooves L' in the interior of the cylinder G, whereby they are forced to turn with the cylinder. These brackets at their inner edges carry rollers N N', which face inward and bear against the outer edges of a piston O, mounted upon the central angular portion B of the shaft. This piston is cam-shaped, as most clearly shown in Fig. 4, whereby the contact of the rollers N N' with its opposite sides causes it to reciprocate longitudinally on the shaft. Lead or other soft-metal packing-rings P are lo-

cated in a groove in the periphery of the piston O, and constricted openings Q are provided through the piston to permit a liquid R to pass slowly from one side of the piston to the other as it is reciprocated.

A screw-block S closes an opening in one of the flanges; whereby a liquid may be introduced or removed, and an opening T in the other flange serves as a point of attachment for the end of the rope which is to be wound about the cylinder of the reel.

The construction of my invention will be readily understood from the foregoing description, and its operation may be described as follows: The parts being assembled as indicated in Fig. 1 of the drawings, a rope having one end secured in the opening T may be wound around the reel and its free end secured in a window or other opening of the house from which a person is to descend, the support for the person being secured in the opening A' in the carrier. The weight of the person or article to be lowered being suspended from the carrier, the carrier will be held rigid, so far as turning it is concerned, and the unwinding of the rope from the drum will cause the cylinder, with its flanges and the roller-brackets, to turn on the cylindrical journals C of the shaft. As this turning progresses the rollers N N' will be in close contact with the outer edges of the cam-shaped piston, and this piston, being held against turning, will be reciprocated endwise on the angular portion of the shaft. This will necessitate the displacement of the liquid from one side of the piston to the other, and the only means of passage for the liquid are the constricted openings Q. Therefore the rollers will only be permitted to move around the cam-shaped edges of the piston as fast as the piston is permitted to move lengthwise on the shaft, and this motion will be governed and retarded by the passage of the liquid through the piston. By this means the unwinding of the rope from the reel and the lowering of the person or article will be sufficiently retarded to prevent any injury by coming too suddenly in contact with the earth.

The manner of operating the device, as hereinbefore described—that is to say, by suspending the weight from the opening A' in the carrier and securing the end of the rope on the reel in the window or other elevated location—may be reversed, and the line for securing the reel may be passed through the opening A' and the weight or person lowered on the end of the rope as it unwinds from the reel.

The liquid with which the cylinder is filled may be any well-known liquid; but glycerin or oil would probably be preferred.

While I have illustrated and described what I consider to be efficient means for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown and described, but hold that any slight changes or variations, such as might suggest themselves to the ordinary mechanic, would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A fire-escape comprising a stationary carrier, a shaft rigidly fixed therein, a rotatable hollow reel journaled on cylindrical portions of the shaft, a piston mounted to slide, but held from turning on the shaft within the hollow reel and provided with constricted openings, said piston having the ends of its periphery formed in cam shape, and rollers rotating with the reel in contact with said cam-shaped ends of the piston, substantially as described.

2. The combination with the U-shaped carrier, having angular openings in its ends, of the shaft consisting of the central angular portion, the cylindrical journals, and the angular ends fitted in the angular openings of the carrier, the reel consisting of the flanges H and cylinder G, mounted on the journals of the shaft, the brackets also mounted on the journals of the shaft and engaging in grooves in the inside of cylinder, the piston mounted upon the central angular portion of the shaft, provided with constricted openings and cam-shaped periphery, and the rollers carried by the roller-brackets in contact with the cam-shaped periphery of the piston, substantially as described.

3. The combination with the shaft, fixed against turning and provided with the central angular portion and cylindrical journals, the cylinder G, the flanges H threaded upon the cylinder and mounted on the journals of the shaft, the roller-brackets mounted upon the journals of the shaft and fitted in grooves in the inside of the cylinder of each end, the cam-shaped piston with openings there-through, mounted upon the central angular portion of the shaft, the rollers carried by the brackets in contact with the cam-shaped piston, the screw-threaded plug in one of the flanges, the opening T in the other flange, the gaskets L serving as packing for the joints between the cylinder and flanges, and the stuffing-boxes outside of the flanges around the shaft, substantially as described.

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Witnesses:

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