(No Model.) 2 Sheets—Sheet 1.

E. I. BLOUNT.

FIRE ESCAPE.

No. 526,679. Patented Oct. 2, 1894.

FIG. 1.

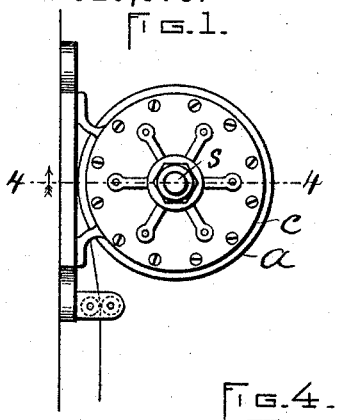


FIG. 2.

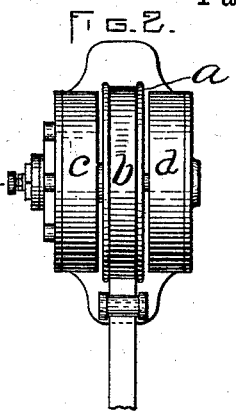


FIG. 3.

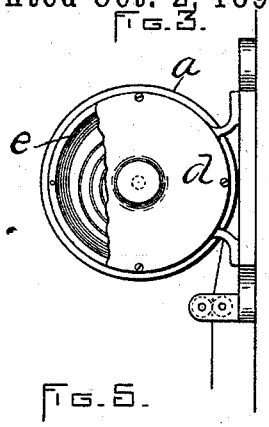


FIG. 4.

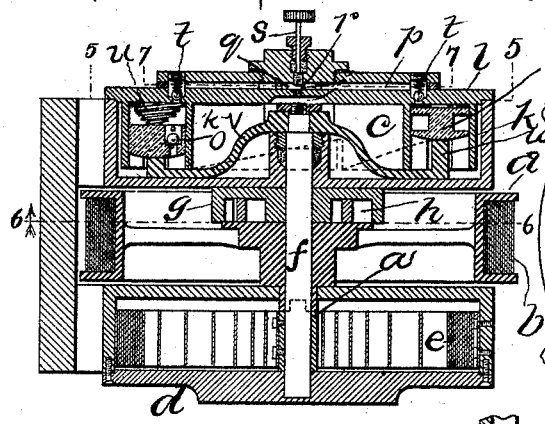


FIG. 5.

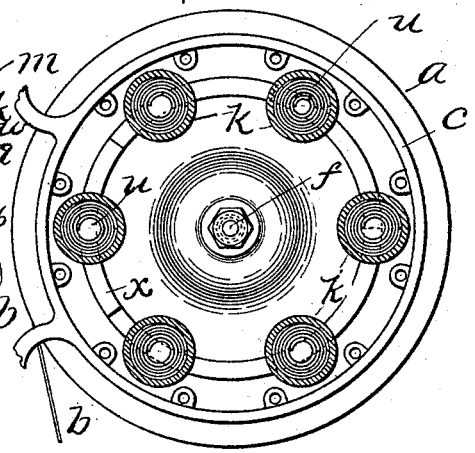


FIG. 6.

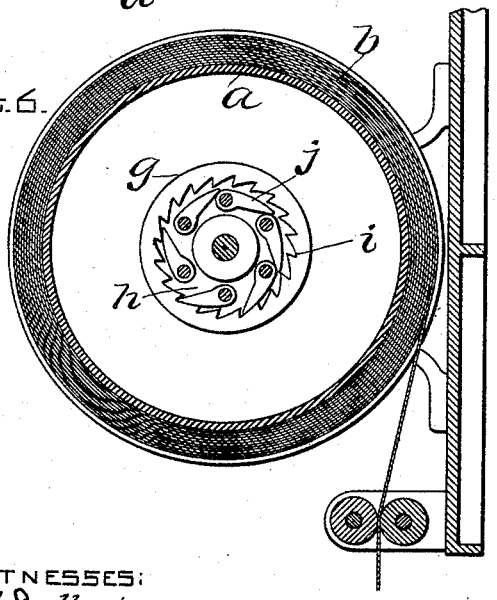
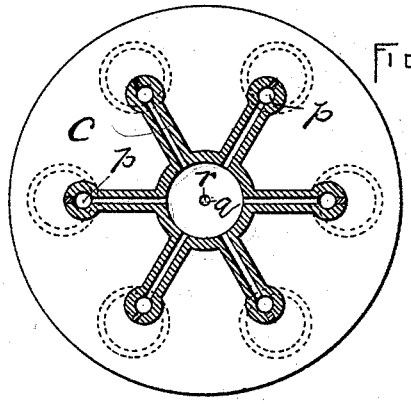


FIG. 7.



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(No Model.) 2 Sheets—Sheet 2.

E. I. BLOUNT.

FIRE ESCAPE.

No. 526,679. Patented Oct. 2, 1894.

Fig. 8.

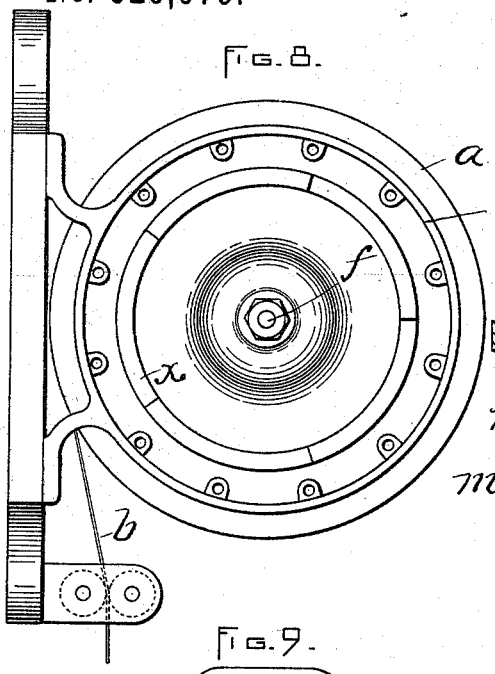


Fig. 10.

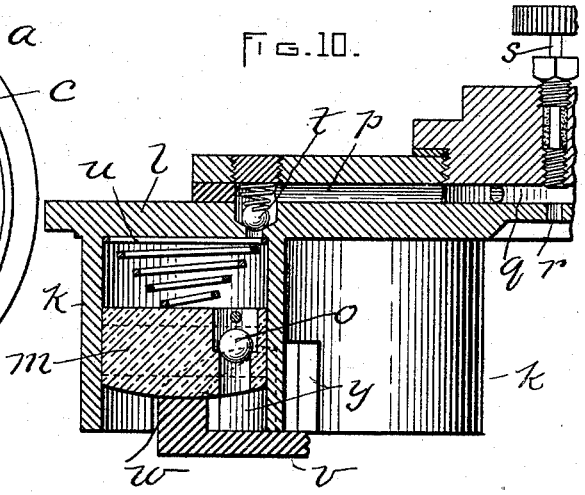


Fig. 9.

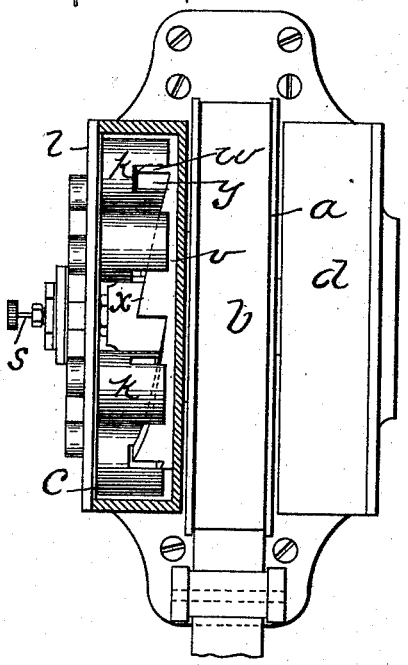


Fig. 11.

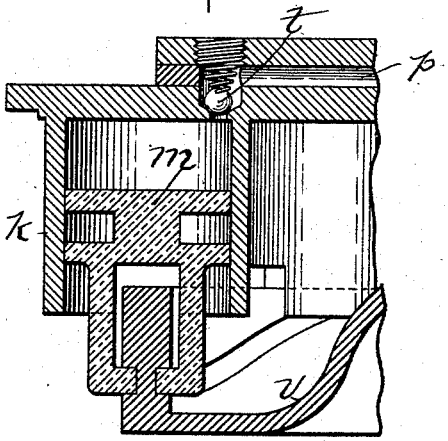
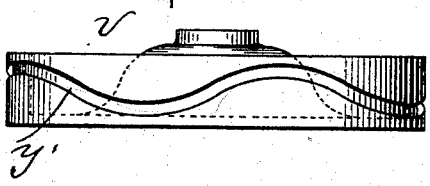


Fig. 12.



WITNESSES:
A. D. Harrison.
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INVENTOR:
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By Wright, Brown & Crosley
Attys.

UNITED STATES PATENT OFFICE.

EUGENE I. BLOUNT, OF GARDNER, MASSACHUSETTS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 526,679, dated October 2, 1894.

Application filed March 30, 1894. Serial No. 505,690. (No model.)

To all whom it may concern:

Be it known that I, EUGENE I. BLOUNT, of Gardner, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention has relation to that class or kind of fire-escapes in which a fluid, such as a liquid, air, or other gas is employed as the means for retarding the descent of the user of the device, the invention being designed to be employed either by permanently or temporarily attaching it to a building or structure of any kind.

The invention contemplates the employment of a fire-escaping contrivance, such as a tape, rope, or other equivalent device, which is adapted to be restrictedly unwound or moved to enable the user to gradually descend from a window or other place of escape from a burning building, the said tape or rope to be automatically rewound so as to return it, and in this way provide for the use of the device, if need be, again and again.

To these ends the invention consists of the improvements which I will now proceed to describe in detail and point out with particularity in the claims.

Reference is to be had to the annexed drawings and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings—Figure 1 is a side or end view of my improved fire escape in position for use. Fig. 2 is a front view of the same. Fig. 3 is a view of the side opposite to that shown in Fig. 1. Fig. 4 is a horizontal sectional view drawn to an enlarged scale. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4. Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4. Fig. 7 is a sectional view taken on the line 7—7 of Fig. 4. Fig. 8 is a view looking down on the device as represented in Fig. 4 with the cap of the casing removed. Fig. 9 is a front view, partially in section, showing the construction of the interior of the liquid chamber. Fig. 10 is a sectional detail view drawn to an enlarged scale. Figs. 11 and 12 are detail views showing a modified form of means for operating the pistons.

In the form of the invention herein shown, which I have chosen to illustrate my improvements, there are three principal members, namely, a reel or wheel, *a*, for the tape, *b;* a closed liquid chamber, *c;* and a chamber, *d*, for the rewinding spring, *e*. It will appear obvious, however, from the subsequent description, that the said parts need not be of the form and arrangement here shown, and that in some instance the rewinding spring and its chamber may be dispensed with.

The tape-reel, *a*, is arranged to turn on a shaft, *f*, and has its periphery so constructed as to receive and have wound thereon the tape, *b*, or other equivalent device. Fixed upon the shaft, *f*, is a disk, *g*, provided in one side with an annular groove, *h*, on the edge of which are ratchet teeth, *i*, adapted, as the reel, *a*, is moved in one direction, to be engaged by the free ends of the pawls, *j*, suitably pivoted on the side of the reel, *a*, and so turn the shaft.

The liquid chamber is provided with a plurality of cylinders, *k*, which may form an integral part of, or be otherwise connected with, the cap or head-piece, *l*.

m designate pistons adapted to be reciprocated in the cylinders, *k*, each of the said pistons being provided with a port, *n*, controlled by a suitable valve, herein shown to be a ball valve, *o*. The inner end of each cylinder is provided with a port, *p*, which communicates between the cylinder and the liquid chamber outside of the said cylinder. As is herein shown, each port, *p*, extends from the cylinder to the center of the chamber head, as at *q*, where all of the ports, *p*, converge and have a communication with the interior of the liquid chamber by means of a port, *r*, controlled from the exterior of the chamber by a screw valve, *s*, or other suitable means. The ports, *p*, may be controlled by a valve, *t*, as shown, but this is not essential. Between the inner end of each of the cylinders, *k*, and its piston, *m*, there is a spring, *u*, constructed and arranged to press the piston inward to normal position.

A plate or disk, *v*, is secured to the shaft,

f, in the liquid chamber and is provided on or near its edge with a flange, *w*, which is formed into a number of inclines or cams, *x*, which are arranged to move in slots, *y*, formed in the inner ends of the cylinders and to act upon the pistons to move them outward against the stress of the springs, *u*.

Various other forms of means may be provided for operating the pistons. For example, instead of employing the inclines or cams, *x*, and the springs, *u*, the flange, *w*, may be provided with an irregular groove, *y'*, and the pistons may have stems, *z*, arranged to engage the said grooves, as shown in Figs. 11 and 12, so that as the flange is revolved it will reciprocate the pistons in a positive manner.

The hub of the reel, *a*, is provided with a sleeve, *a'*, which extends into the spring chamber, *d*, where the rewinding spring, *e*, is made fast at one of its ends to the said sleeve and at the other end to the casing, *d*.

In the use of the invention the tape, *b*, will be normally wound upon the reel, *a*, and said tape may be provided at its outer or free end with any suitable contrivance to enable a person to take firm hold of it, or have it secured around or otherwise connected with the body, or it may be provided at the said end with a basket or other similar receptacle. The contrivance will be so adjusted that the weight of a person on the tape, *b*, will cause the reel, *a*, to slowly rotate, and said tape to be in like manner unwound. As the reel is rotated by the unwinding of the tape, *b*, the pawls, *j*, pivoted upon the said reel will engage the ratchet teeth, *i*, of the disk, *g*, which is attached to the shaft, *f*, and rotate the latter and consequently also the plate or disk, *v*, the flange, *w*, of which acts, as before described, on the pistons. The liquid in the cylinders will be slowly forced through the ports, *p*, and *q*, back into the liquid cylinder, and will resist the action of the flange, *w*, to the extent of the opening of the port, *q*, regulated by the valve, *s*, or it may be to the extent of the openings of the ports, *p*, all as will be readily understood without further description.

The cylinders and means for actuating the pistons are arranged so that certain of the pistons will be in course of depression while others will be under releasing action, and in this way a regular and even resistance will be offered to the revolution of the reel while the tape, *a*, is being unwound. As the tape unwinds the spring, *e*, will be wound and put under tension, so that when the tape is released it will be rewound on the reel by the unwinding of the spring, *e*, the pawls, *j*, slipping over the ratchet teeth, *i*, without turning the disk, *q*, shaft, *f*, or plate or disk, *v*.

Of course, in place of the tape a cord or rope may be used the instrumentalities being suited thereto.

I have not explained in detail the form of some of the parts and features of the invention, as this is unnecessary to a clear and perfect understanding of the same and my improvements are not limited thereto, it being within the limits of the skill of any mechanic having knowledge of the art to which the invention appertains to vary the same without departing from the nature or spirit of the improvements.

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

1. A fire escape comprising in its construction a reel, a line connected therewith, a plurality of cylinders, a centrally-located inclosed fluid-chamber having free communication with all the cylinders at one end thereof, restricted passages connecting said chamber with the cylinders, at the other end pistons in the cylinders, and means operated by the reel for moving the pistons longitudinally of the cylinders.

2. A fire escape comprising in its construction a reel, a line attached thereto, a fluid-chamber, a cylinder and piston, said cylinder having restricted communication with the fluid-chamber on one side of the piston and free communication on the other side of the piston, and the piston having a valved port extending through it, and means for reciprocating the piston under rotation of the reel.

3. A fire escape comprising in its construction a reel, a line attached thereto, a cylinder and piston with restrictive means of escape for the fluid on one side of the piston, a rotary cam engaging the piston and adapted to move the same endwise of the cylinder, means for rotatively connecting the reel and cam, and a spring acting against the piston.

4. A fire escape comprising in its construction a shaft journaled in suitable bearings and carrying affixed to it an internal ratchet wheel, a reel loosely mounted on said shaft and carrying pivotal gravity pawls engaging said ratchet wheel, a cylinder and piston with restrictive means of escape for fluid on one side of the piston, means for reciprocating the piston under rotation of the reel in one direction, and a rewinding spring connected with the reel.

5. A fire-escape comprising in its construction a liquid chamber, a series of circularly arranged cylinders and pistons adapted to operate upon liquid from the chamber, a rotary device for acting successively upon the said pistons, a shaft to which the said rotary device is secured, a reel connected to the said shaft, and a tape on the reel to rotate the same and the shaft.

6. A fire escape comprising in its construction a circular series of cylinders and pistons with restrictive means of escape for fluid on one side of the pistons, a reel, a line attached thereto, a rotary cam having sections for engagement with the pistons, respectively, to move the same endwise of the cylinders, and means for rotatively connecting the said cam and the reel.

7. A fire escape comprising in its construction a circular series of cylinders and pistons, a fluid chamber common to all the said cylinders, restricting passages connecting the chamber with the cylinders respectively, a reel, a line attached thereto, a rotary cam for acting on the pistons, and means for rotatively connecting the said cam and the reel.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of March, A. D. 1894.

EUGENE I. BLOUNT.

Witnesses:
ARTHUR W. CROSSLEY,
A. D. HARRISON.