(No Model.) 2 Sheets—Sheet 1.

W. F. EVANS.

PORTABLE FIRE ESCAPE.

No. 576,780. Patented Feb. 9, 1897.

Fig. 1.

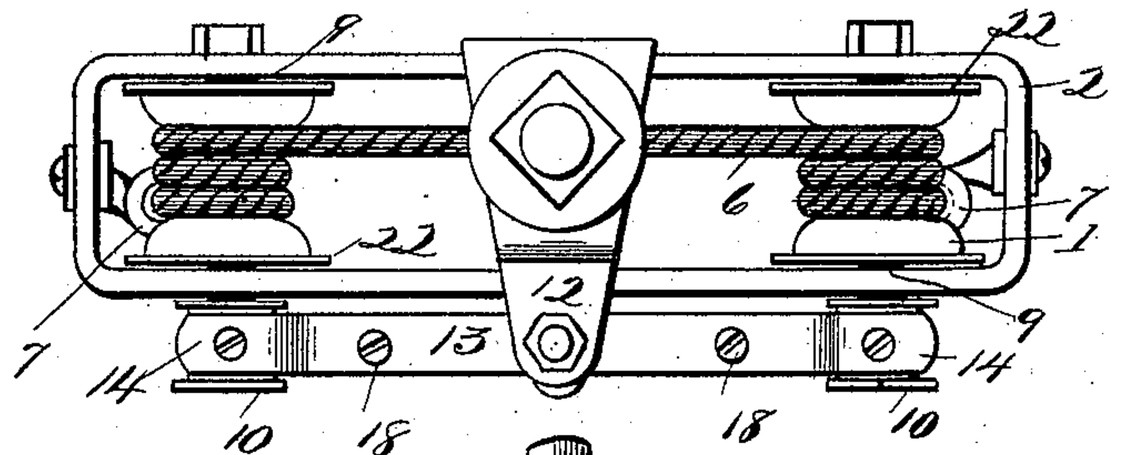


Fig. 2.

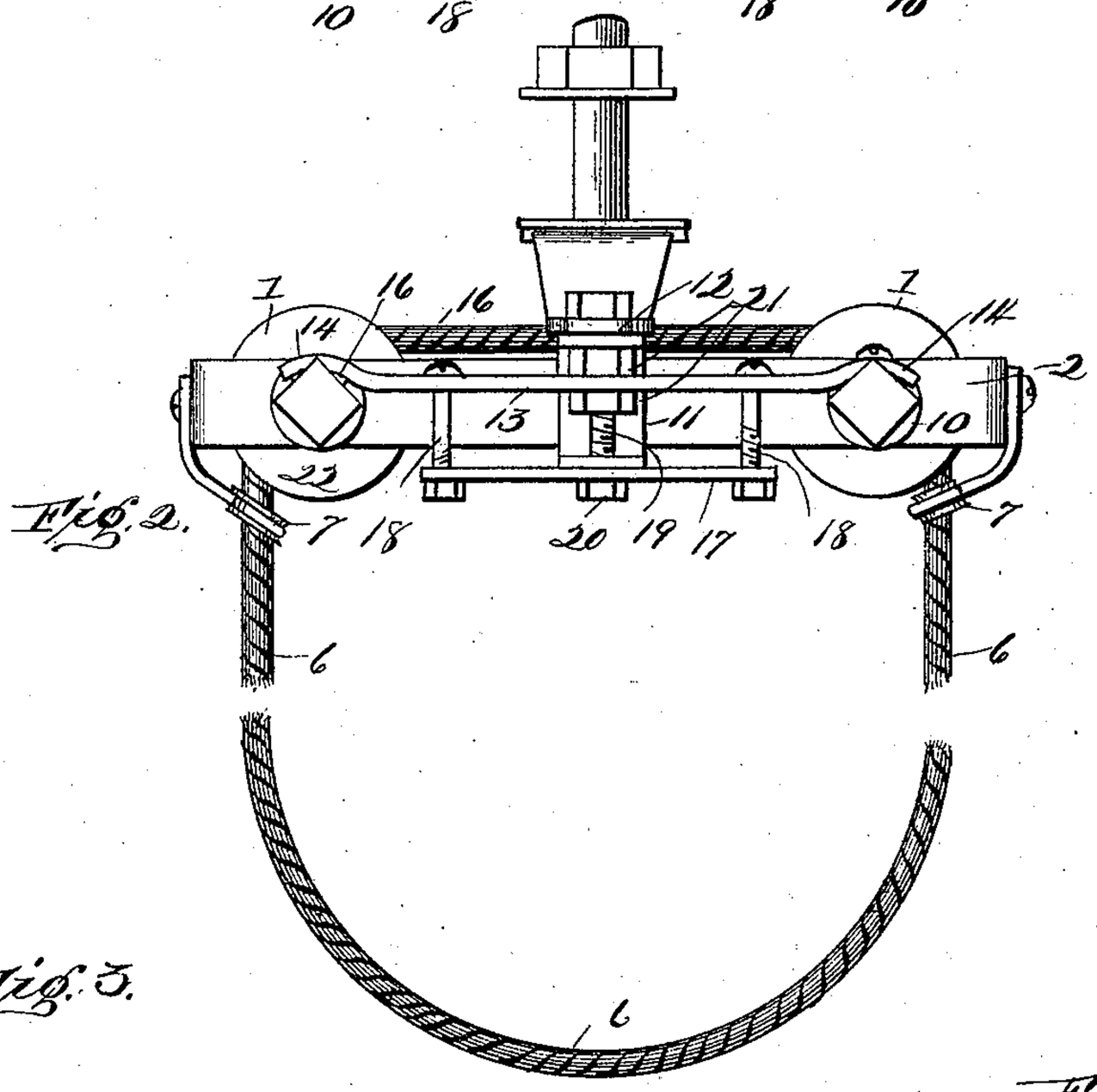


Fig. 3.

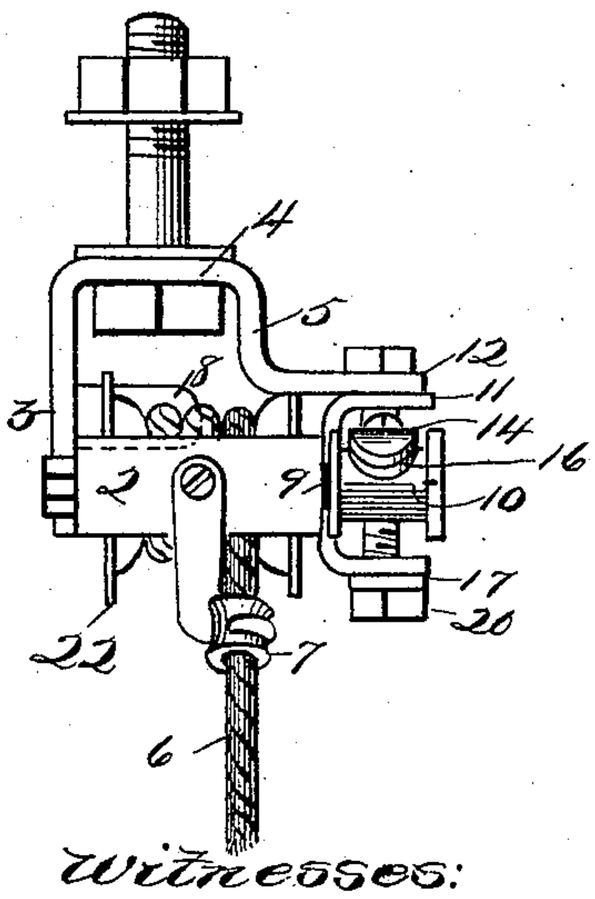


Fig. 4.

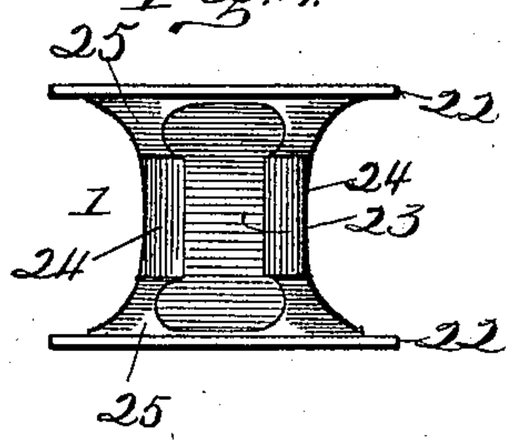
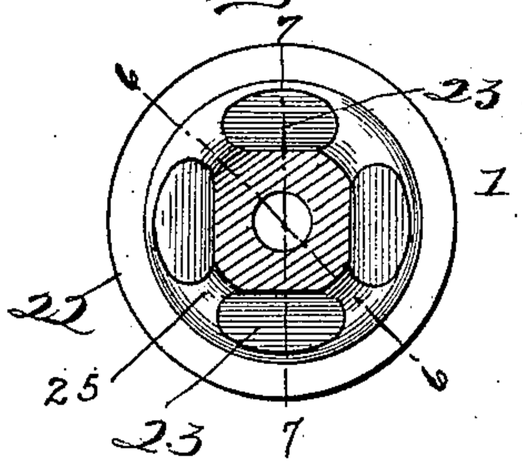


Fig. 5



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(No Model.) 2 Sheets—Sheet 2.

W. F. EVANS.

PORTABLE FIRE ESCAPE.

No. 576,780. Patented Feb. 9, 1897.

Fig. 6.

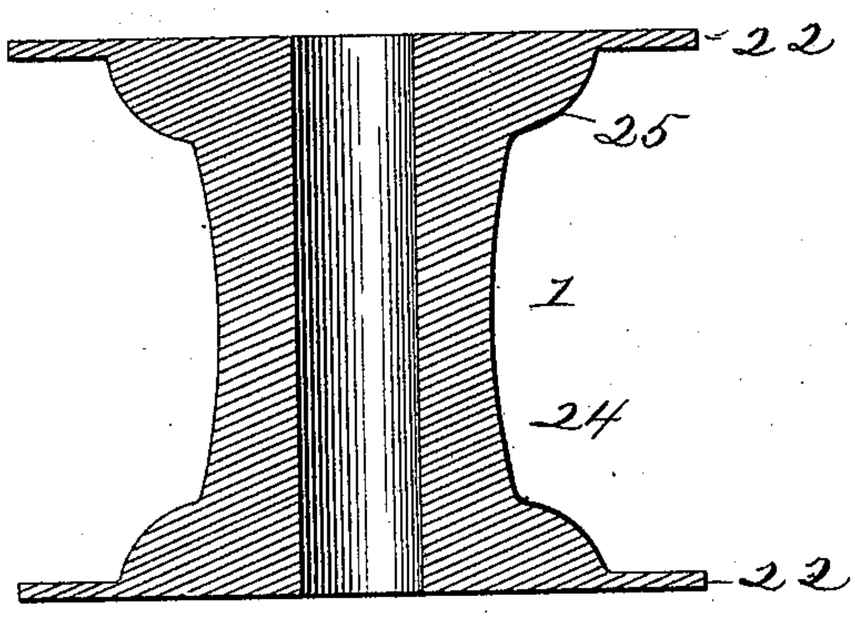
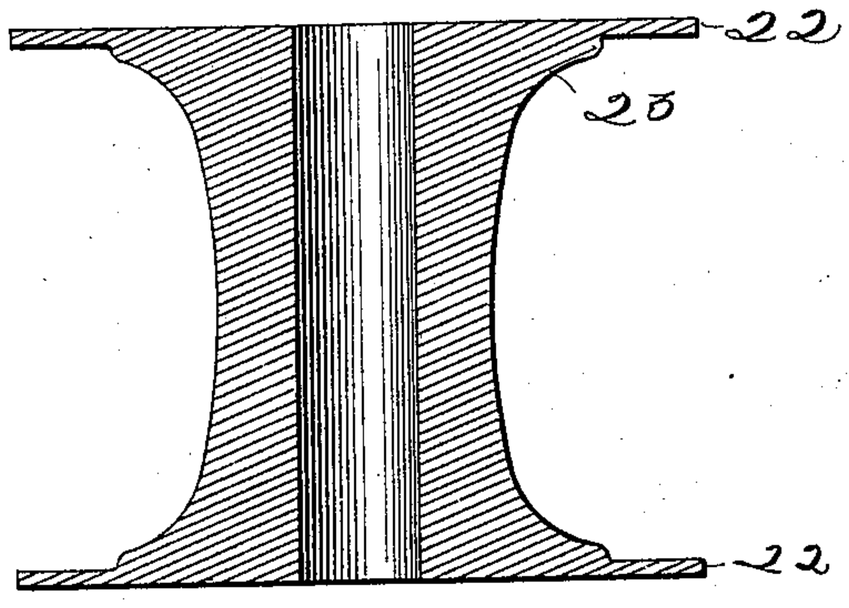


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM FRANKLIN EVANS, OF BRISTOL, RHODE ISLAND.

PORTABLE FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 576,780, dated February 9, 1897.

Application filed May 11, 1896. Serial No. 591,140. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FRANKLIN EVANS, of Bristol, in the county of Bristol, State of Rhode Island, have invented certain new and useful Improvements in Portable Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.

My invention relates to fire-escapes of that class in which the escaping person is lowered by means of an endless rope passing around drums journaled in suitable bearings attached to the building near the window; and the object of my invention is to improve devices of this character, whereby they are rendered more efficient in use.

To this end my invention consists in the several details of construction and combination of parts hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top view of my improved fire-escape. Fig. 2 is a side elevation; Fig. 3, an end view; Fig. 4, an elevation of one of the drums detached; Fig. 5, a sectional view of the drum on the line *x x*, Fig. 4; Fig. 6 is a cross-section of the drum on line 6 6, and Fig. 7 is a cross-section of the same on line 7 7.

Similar reference-numerals indicate similar parts in the several figures.

1 1 indicate the drums, suitably journaled in the frame 2. The frame is rigidly secured by any suitable means to one arm 3 of an inverted-U-shaped supporting-plate 4, the other arm 5 of which is bent outwardly at a right angle about midway of its length for a purpose hereinafter described. The plate 4 is secured in any suitable manner to the building convenient to the window.

The rope is indicated by 6 and is endless. As shown in the drawings, it passes through an eyelet 7, depending from one end of the frame 2 to one of the drums 1, around which two or three coils are made, thence through a guide 8, projecting from the arm 3 to the other drum 1, around which two or three coils are also made, thence through another eyelet 7 on the other end of the frame 2. The eyelets 7 7 serve as guides for the rope onto or off the drums 1 1.

The journals 9 9 of the drums project beyond the front side of the frame 2, and on the projecting ends are secured the spools 10 10 to turn with the drums 1 1.

11 represents a U-shaped bracket firmly secured to the front side of the frame 2, its upper horizontal arm abutting against the under surface of the horizontal portion 12 of the arm 5 of the supporting-plate 4.

13 represents a spring-bar having its ends curved, as indicated at 14, to conform to the spools 10 10 and provided with frictional material, such as leather or other suitable substance, (indicated by 16.) The function of the spring-bar 13 is to act as a brake for the drums.

17 is a stiffening-bar supported at each end from the spring-bar 13 by the bolts 18 18, with its middle portion bearing against the under surface of the lower horizontal arm of the bracket 11. The part 12, the horizontal arms of the bracket 11, the spring-bar 13, and the stiffening-bar 17 are all provided with openings for the passage of the threaded bolt 19, which is held in position by the end nut 20, bearing against the part 12.

21 21 represent nuts working on the threaded bolt 19, one above and the other below the spring-bar 13, and it is obvious that by lowering the nuts on the bolt the central portion of the spring-bar 13 will be bent downwardly, thereby increasing the pressure of its ends upon the spools 10, and that the more this pressure is increased the greater will be the resistance to the rotation of the drums. It is also evident that the spring brake-bar 13 may be so adjusted that the drums will not permit the rope to wind on or off until a certain weight is suspended on the rope, and in this manner the device may be adjusted, as described, for any weight.

Referring now to Figs. 4 and 5, it will be observed that the surface of the drum is irregular in form. The object of this irregularity is to prevent the rope from riding up toward the flanges 22 and then suddenly slipping toward the center and thereby letting out a considerable length of rope which ends in a jerk and is liable to cause an accident. In

order, therefore, to prevent this defect, I make certain portions of the winding-surface concave from flange to flange, as indicated at 23, and alternating with these concave portions I make the middle portion of the drum concave, as indicated at 24, and from each end of this concave portion the surface rises somewhat abruptly and is convex to the flanges, as indicated by 25. When the entire winding-surface of the drum is concave, as at 23, and this is the usual form, the rope will gradually ride up toward one of the flanges and then suddenly slip to the middle of the drum, and as the middle is of less diameter than the outer portions there will be a certain amount of slack rope let out suddenly with a jerk. With my construction, however, the convex portions 25 will keep throwing the rope, which naturally rides up the concave portions 24, back toward the center.

It is to be understood that the lower portion of the endless rope will extend to within about six feet of the ground and will therefore be easily accessible for persons to assist others to safely descend in the event a greater weight should be on one side of the rope than could be safely regulated in descent by the brakes; for it is evident that with the several coils around the drums one person could by holding one side of the rope easily regulate the descent of five or six on the other side of the rope.

Having thus described my invention, what I claim as new is—

1. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a spring-bar supported from the frame and having curved ends engaging the spools, and means to adjust the middle portion of said spring-bar whereby the pressure of its ends on the spools may be increased or diminished, substantially as described.

2. A drum for a fire-escape having parts of its winding-surface concave from flange to flange, and alternating parts concave in their middle portions and convex from each end of the concaved portions to the flanges, substantially as described.

3. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a U-shaped bracket secured to the frame between the spools, a threaded bolt supported in the horizontal arms of the bracket, a spring-bar centrally mounted on the bolt and having curved ends to engage the spools, and nuts on the bolt engaging the opposite faces of the spring-bar to adjust the pressure of the bar upon the spools, substantially as described.

4. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a U-shaped bracket secured to the frame between the spools, a threaded bolt supported in the horizontal arms of the bracket, a spring-bar centrally mounted on the bolt and having curved ends to engage the spools, a stiffening-bar supported centrally by the said bolt and bearing against the under face of the lower arm of the bracket, bolts connecting the ends of the stiffening-bar with the spring-bar, and nuts on the first-mentioned bolt engaging the opposite faces of the spring-bar to adjust the pressure of the bar upon the spools, substantially as described.

WM. FRANKLIN EVANS.

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