No. 721,488. PATENTED FEB. 24, 1903.

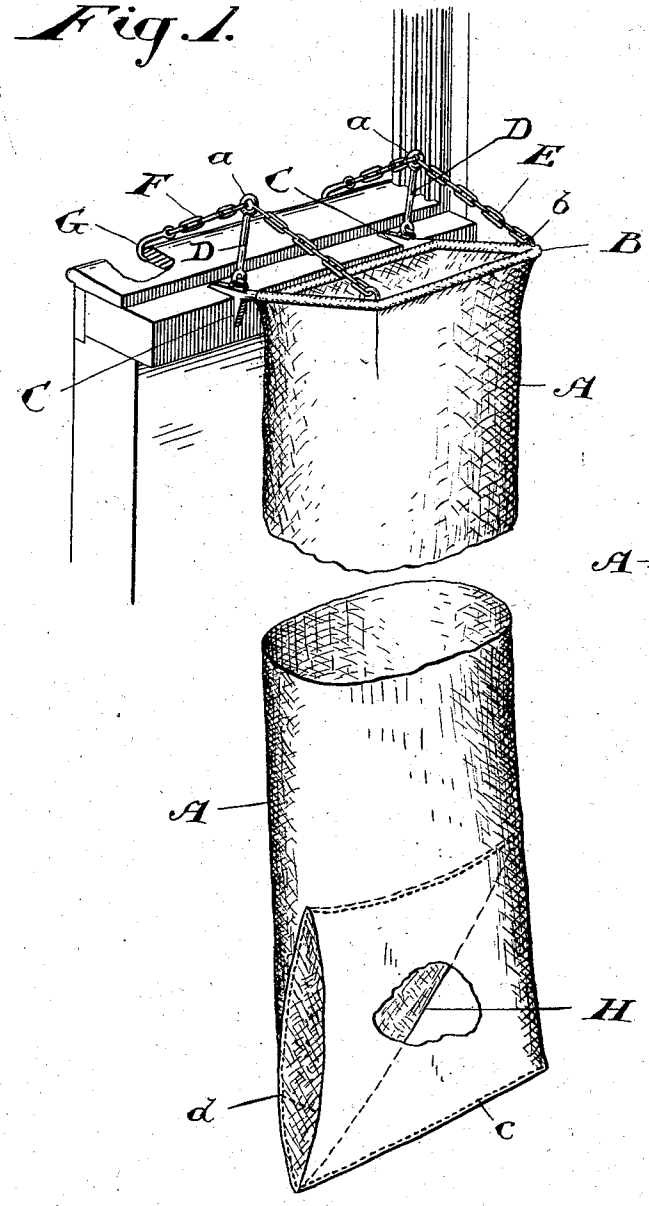
W. J. WITHAM & J. H. BYRNE.

FIRE ESCAPE.

APPLICATION FILED APR. 24, 1901.

NO MODEL.

Fig. 1.



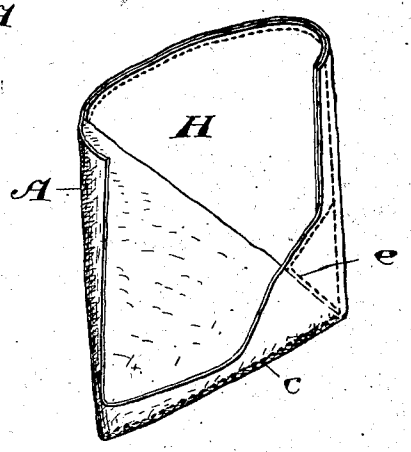


Fig. 2.

Witnesses

G. J. Colbourne

J. A. Webster

Inventors

Walter J. Witham

and James H. Byrne

by Ridout & Maybee

Attys

UNITED STATES PATENT OFFICE.

WALTER J. WITHAM AND JAMES HENRY BYRNE, OF TORONTO, CANADA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 721,488, dated February 24, 1903.

Application filed April 24, 1901. Serial No. 57,340. (No model.)

To all whom it may concern:

Be it known that we, WALTER JAMES WITHAM and JAMES HENRY BYRNE, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

Our invention relates to that class of fire-escapes in which a canvas tube is secured at one end to a frame suspended outside a window-sill, and has for its object the construction of the device so that all the weight of the escape may be supported by the window-sill without the use of any fixtures and so that the frame of the escape is not liable to wabble or twist when the device is in use.

A further object of our invention is to devise means for so closing the lower end of the canvas tube that persons using the escape cannot fall out upon the ground and are yet able to make their exit after reaching the bottom.

With these objects in view our invention consists, essentially, of the parts hereinafter more specifically described and then definitely claimed.

Figure 1 is a perspective view of our invention partly broken away and showing it secured in position on a window-sill. Fig. 2 is a perspective detail, partly broken away, showing the exit end of the tube.

In the drawings like letters of reference indicate corresponding parts in both figures.

A is a canvas tube of suitable dimensions secured at its upper end to a suitable metal frame B. The rear side of this frame is provided with the jaws C, so shaped as to engage the top and outer side of the window-sill.

D D are two vertical struts pivotally secured to the frame B, adjacent to the jaws C. The pivotal connections are preferably formed by engaging an eye on the lower end of each strut with a similar eye formed on the frame, so that the struts are free to swing in any direction. An eye *a* is also formed at the upper end of each strut. Secured to these eyes are chains E, which are also secured to eyes *b* at or near the outer side of the frame B. The eyes *a* are also secured to the chains F, the other ends of which are connected with the grappling-hooks G, adapted to engage the inner side of a window-sill.

When the apparatus is in position, as shown in Fig. 1, the vertical struts D form the struts of the truss, of which the chains E and F are the ties. The inner side of the frame B being securely engaged with the window-sill by means of the jaws C and the outer side of the frame supported in the manner indicated, a very strong connection is formed between the frame and the window-sill and one which is not liable to wabble or twist.

If the grappling-hooks are not accurately placed in line with the sides of the frame, the vertical struts will swing a little to accommodate themselves to the position of the grappling-hooks and the apparatus would still be securely supported. Although the sidewise swing of the struts is most important in securing these adjustments according to the position of the grappling-hooks, yet their freedom to swing forwardly or rearwardly is also important, as by shortening or lengthening the chains F the outer edge of the frame B may be tilted to any angle desirable, the struts adjusting themselves accordingly.

Various changes may also be made in the position in which the frame is held by shortening or lengthening the chains E, connecting the struts with the grappling-hooks.

The lower end of the tube A is closed by being sewed across, as shown at *c*. A vertical opening *d* is also formed at one side of the tube of sufficient size to permit of an adult person passing through it. The closed bottom prevents a person in an unconscious condition from falling violently out of the end of the escape. They might, however, after reaching the bottom fall out of the opening *d* and sustain some injury. We therefore provide the escape with a canvas flap H, substantially of the shape of a right-angled triangle. One edge of the flap is sewed to the back of the tube adjacent to the opening *d*. The upper edge is sewed to the front of the tube. The flap is so proportioned and placed that the third side runs in a diagonal manner from the edge of the opening *d* near the bottom to a point at or near the other side of the tube. A person sliding down the escape passes behind the flap H and is arrested by

the closed bottom of the bag. To escape, it is necessary for him to pull back the diagonal edge of the flap and escape through the opening *d*. So that in getting out his feet shall not be caught between the lower corner of the flap H and the back of the tube, we prefer to run a line of stitching *e* across the corner to secure the flap to the back of the tube. The diagonal edge of the flap between this line of stitching and the corner may also be secured to the back of the tube. While the effective portion of the flap is triangular, yet it need not necessarily be cut of this shape, as it could be left square or any other shape, the essential feature being that one edge of the flap be secured to one side of the tube adjacent to the opening and the upper edge of the flap to the opposite side of the tube above the opening.

When the exit end of the escape is constructed as we have described, the escape is made very safe for the use of children and unconscious persons, particularly in cases where no one is in attendance on the ground at the bottom of the escape.

What we claim as our invention is—

1. A supporting device for tubular fire-escapes comprising a frame for the mouth of the tube; and jaws connected to the rear of the frame and adapted to engage the top and the outer side of a window-sill, in combination with a vertical strut secured to the said frame adjacent to the said jaws; a chain secured to the top of the strut and to the frame at or near its forward edge; a grappling-hook and a chain connecting the grappling-hook with the top of the strut, substantially as described.

2. A supporting device for tubular fire-escapes comprising a frame for the mouth of the tube; and jaws connected to the rear of the frame and adapted to engage the top and the outer side of a window-sill, in combination with a vertical strut pivoted on the said frame adjacent to the said jaws so that it may swing sidewise; a chain secured to the top of the strut and to the frame at or near its forward edge; a grappling-hook and a chain connecting the grappling-hook with the top of the strut, substantially as described.

3. A supporting device for tubular fire-escapes comprising a frame for the mouth of the tube; and jaws connected to the rear of the frame and adapted to engage the top and the outer side of a window-sill, in combination with a vertical strut pivoted on the said frame adjacent to the said jaws so that it may swing in any direction; a chain secured to the top of the strut and to the frame at or near its forward edge; a grappling-hook and a chain connecting the grappling-hook with the top of the strut, substantially as described.

4. A supporting device for a tubular fire-escape comprising a frame for the mouth of the tube, and jaws connected to the rear of the frame and adapted to engage the top and outer side of a window-sill, in combination with a vertical strut placed above the jaw that engages the top of the sill and coacting with the said frame, a chain connecting the top of the strut with the frame near its forward edge, and means extending rearward from the strut for securing it to the building, substantially as described.

5. A supporting device for tubular fire-escapes comprising a frame for the mouth of the tube, and means connected to the rear of the frame to engage the window-sill to support the frame; in combination with a vertical strut pivoted on the said frame adjacent to the said jaws so that it may swing sidewise; a chain secured to the top of the strut and to the frame at or near its forward edge; a grappling-hook and a chain connecting the grappling-hook with the top of the strut, substantially as described.

6. In a tubular fire-escape the flexible tube closed at the bottom and provided with an opening in one side adjacent to the bottom, in combination with a triangular flap having one side sewed to the back of the tube adjacent to the opening, and the upper side sewed to the front of the tube, the flap being so proportioned that the third side extends diagonally in a line from the lower edge of the opening in the side of the tube to a point at or near the other side, substantially as described.

7. In a tubular fire-escape the flexible tube closed at the bottom and provided with an opening in one side adjacent to the bottom, in combination with a triangular flap having one side sewed to the back of the tube adjacent to the opening, and the upper side sewed to the front of the tube, the flap being so proportioned that the third side extends diagonally in a line from the lower edge of the opening in the side of the tube to a point at or near the other side, the flap also being secured to the back of the tube by a line of stitching running from the edge of the opening near the bottom to the diagonal side of the flap also near the bottom, substantially as described.

8. In a tubular fire-escape the flexible tube closed at the bottom and provided with an opening in one side adjacent to the bottom, in combination with a flap having one side sewed to the back of the tube adjacent to the opening and the upper side sewed to the front of the tube above the opening, substantially as described.

Toronto, April 15, 1901.

WALTER J. WITHAM.
JAMES HENRY BYRNE.

In presence of—
JOHN G. RIDOUT,
A. J. COLBOURNE.