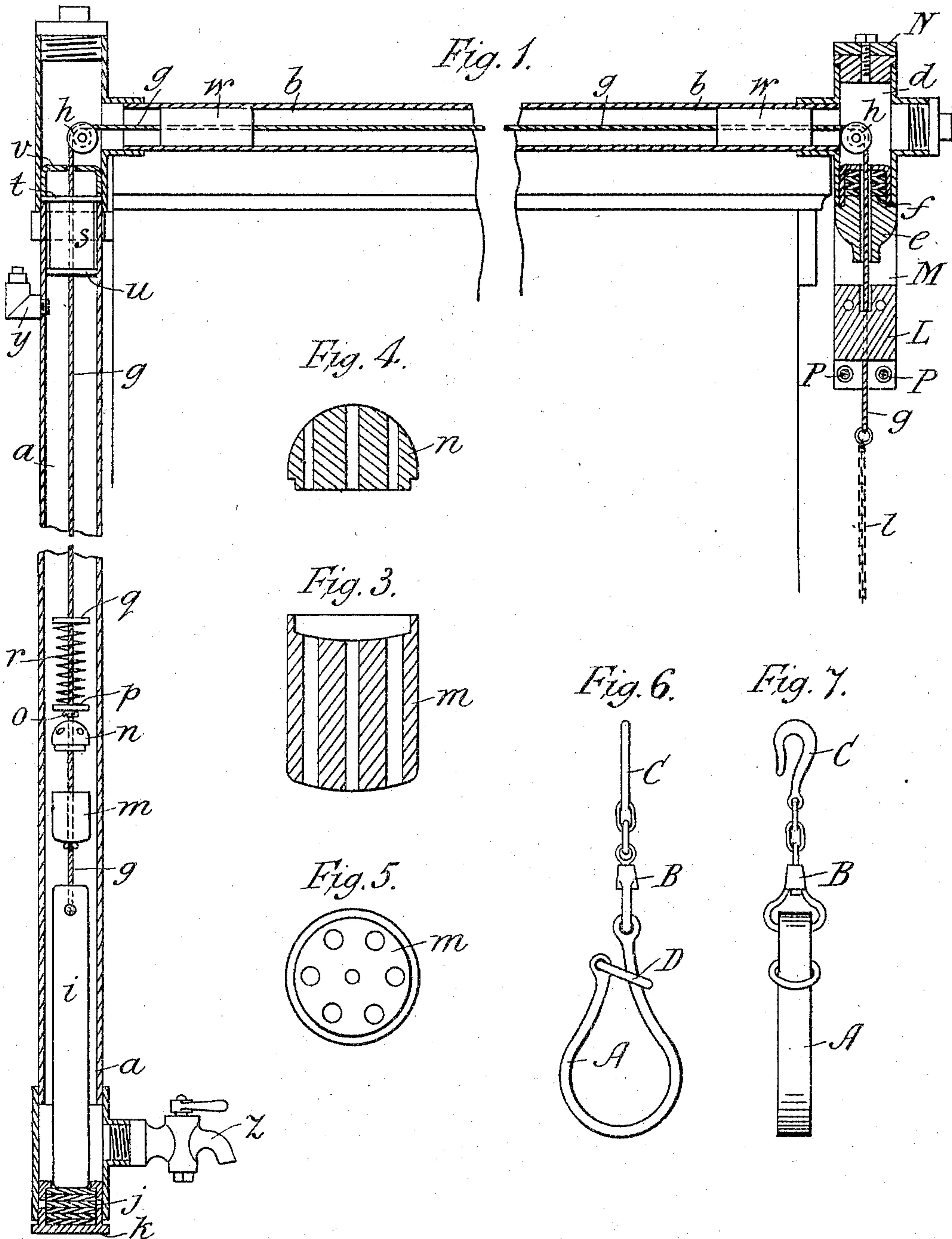


T. WITHEY.  
FIRE ESCAPE.

APPLICATION FILED JULY 3, 1903.

2 SHEETS—SHEET 1.



Witnesses

J. J. Rowley.

J. M. Mellor

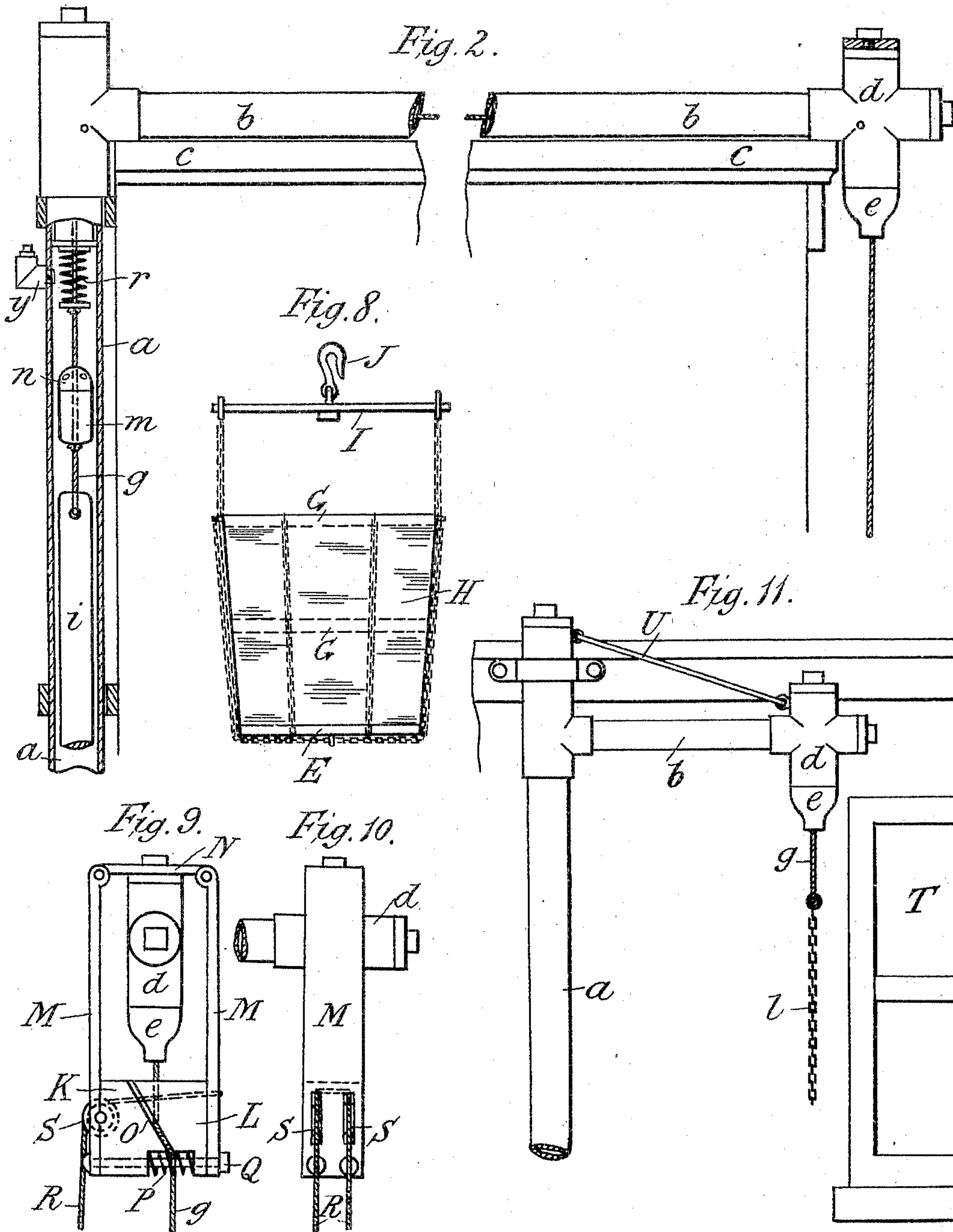
Inventor

Thomas Withey  
per J. B. Hewitt  
attorney.

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## UNITED STATES PATENT OFFICE.

THOMAS WITHEY, OF LONDON, ENGLAND.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 780,249, dated January 17, 1905.

Application filed July 3, 1903. Serial No. 164,177.

*To all whom it may concern:*

Be it known that I, THOMAS WITHEY, carman and contractor, a subject of the King of Great Britain and Ireland, residing at 41 Scruton street, Finsbury, E. C., in the city of London, England, have invented certain new and useful Improvements in Fire - Escapes, of which the following is a specification.

This invention relates to an improved fire-escape; and it consists of apparatus fixed to a building so that it may be always ready for immediate use from any window near which it may be placed.

The apparatus consists of a tube fixed to and extending from the bottom to the top of the building to which it is applied. The upper end of the tube is provided with a horizontal branch tube, the outer end of which is fitted with a downwardly-extending nipple. Through the said tubes is passed a twisted wire cord, guided over pulleys at the bends and attached at one end to a weight, which in its normal position rests upon the lower end of the vertical tube. The other end of the cord is passed through the said nipple, below which it is provided with a chain extending down to the first floor of the building. The vertical tube is filled nearly to the top with rape-oil or other liquid not easily affected by weather conditions. I also provide a sling for passing around the body of the person using the escape, the said sling being fitted with a hook for attaching it to the vertically-suspended chain.

In the accompanying drawings, Figure 1 is a section of the tubes forming the apparatus fixed to a building, and Fig. 2 is an elevation, partly in section, of the upper portion of the apparatus with the operating-weight in its raised position. Fig. 3 is a section of the metal block or cup. Fig. 4 is a section of its cover, and Fig. 5 is a plan of the block. Figs. 6 and 7 are two views, at right angles to each other, of the suspension-sling. Fig. 8 is a side view of the cage or cradle in extended position. Figs. 9 and 10 are views, at right angles to each other, of the brake; and Fig. 11 is an elevation of the apparatus when fixed to the front of a house.

$a$  is the vertical tube, which may be fixed, as

shown, to the back of a building, its lower end extending down into the cellar, area, or other convenient position.

$b$  is the horizontal tube which extends from the tube  $a$  across and resting upon the coping of the roof  $c$ .

$d$  is a cross fitted to the end of the tube  $b$  and overhanging the front part of the roof.

$e$  is the nipple screwed to the lower branch of the cross  $d$ , and  $f$  represents packing-washers.

$g$  is the twisted wire cord passing through the tubes, and  $h$  represents the pulleys for guiding said cord around the angles or bends.

$i$  is the weight attached to one end of the cord and resting in its normal state upon the washer  $j$ , which, with the screw-cap  $k$ , forms a liquid-tight joint at the lower end of the tube. The other end of the cord passes through and extends a little below the nipple  $e$ , where it is connected to a chain  $l$ , which extends down to the first floor of the building, the said chain being kept within reaching distance of a vertical line of windows, at the side of same, by means of hooks or staples fixed to the wall.

$m$  is a metal block or cup formed with vertical passages, as shown in Figs. 3 and 5, and through the center of which is threaded the cord  $g$ , which is formed with a knot below the block  $m$  to hold the latter in place above the weight  $i$ . The block  $m$  is dish-shaped at its top to receive the cover  $n$ , also formed with vertical passages, but of a less diameter than those of the block, and threaded centrally upon the cord  $g$ . The latter is provided with another knot,  $o$ , a short distance above the block, so as to limit the upward movement of the cover  $n$  and to support a disk  $p$ , between which and another disk,  $q$ , is arranged a coiled spring  $r$ .

$s$  is a wooden plug or block held in the tube by a metal washer  $t$  and provided with a leather washer  $u$ , through which and the plug and a screw-nut  $v$  the cord passes and is guided. The cord is also further guided by wood plugs or blocks  $w$ , fixed in the tube  $b$  and through which it passes.

$g$  is an angle-joint fixed to the upper end of tube  $a$  and fitted with a screw-plug for feeding the oil into the said tube, and  $z$  is a cock



at the bottom of the tube for letting out the oil.

The suspension-sling A is preferably formed of leather, with a wire passing centrally there-  
 5 through and coiled at the end to form a loop for the swivel-link B to strengthen the sling. To the link B is attached a hook C for engagement with the chain *l*, and D is a tightening-link attached to the other end of the  
 10 sling. Instead of the said sling the cage or cradle shown in Fig. 8 may be used, the same consisting of a board or plate E, to the bottom of which are fixed chains F, connected together by two or more hoops G and sur-  
 15 rounded by a canvas covering H, the whole being slung by chains from a cross-bar I, provided with a hook J for attaching it to the suspension-chain.

The cord *g* may be regulated in its travel  
 20 by means of a brake, consisting of two wooden blocks K L, Figs. 9 and 10, carried by the arms M, pivoted to a cross-bar N, screwed to the plug in the top of the cross *z*. The cord passes between the inclined meeting edges O  
 25 of the blocks, and the latter are kept apart by springs P, carried on bolts Q.

R represents double wires passing over pulleys S and connected to one of the blocks for drawing the latter together when the wires  
 30 are pulled.

When using the apparatus, the person wishing to escape from any of the windows contiguous to the suspension-chain *l* draws the latter toward him after having passed the sling  
 35 A around his body, so as to support him under the armpits, with the hook C in front. He then attaches the said hook to one of the links of the chain and lowers himself from the window, at the same time holding onto the wires  
 40 R, which descend as far as the chain, thus drawing the blocks K L together, so as to grip the cord *g* for breaking or regulating the descent. The weight *i* rising through the oil in the tube *a* and the oil passing down through  
 45 the small passages in the cover *n* tends also to balance and regulate the descent. As soon as the person reaches the ground he detaches the sling from the chain, allowing the latter to be drawn up to the top-floor window by the de-  
 50 scent of the weight *i*, the larger passages of the block *m* permitting of the quicker passage

of the oil through the same and the consequent quicker rise of the chain *l* than in descending. The apparatus is then ready for the descent of another person from the top-  
 55 floor window or from any other window within reach of the chain *l*. Fig. 2 shows the weight *i* in its raised position and the spring *r* compressed, so as to prevent any sudden shock on reaching the ground. 60

In Fig. 11, which shows the apparatus fixed to the front of a house, the tube *b* projects only a short distance from the tube *a* toward the window T and is supported by the rod or  
 65 chain U, acting as a stay. The sling A or the cage or cradle may then be easily attached to the chain *l* for descent of any person or persons from the said window or windows beneath the same.

The apparatus may be fixed either outside  
 70 or inside a building contiguous to any of the windows, and several slings or cages should be kept ready for use at each window.

Having now fully described the nature of my said invention, what I claim, and desire to  
 75 secure by Letters Patent, is—

In a fire-escape the combination of a vertical tube extending from the top to the bottom of a building, a horizontal branch tube at the upper end of the same, a viscid fluid partly  
 80 filling the vertical tube, a wire cord passing over guide-pulleys through said tubes, a balance-weight suspended loosely in the vertical-tube from one end of said cord, a sling or cradle suspended from the other end of the cord,  
 85 a perforated block fixed to the cord, a perforated cap sliding on the cord above the block, a coiled spring fitted to the cord for preventing shocks, and a brake comprising two blocks pivoted to the end of the horizontal branch  
 90 tube and formed with inclined meeting edges, springs for keeping said blocks apart, and double wires acting upon the blocks to draw them together when pulled for gripping the  
 95 cord between the blocks, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

THOMAS WITHEY.

Witnesses:

FREDERICK MICAH MELLOR,  
 JOHN JAMES ROWLEY.