

E. V. BRIDGE.
FLEXIBLE LADDER.
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1,044,010.

Patented Nov. 12, 1912.

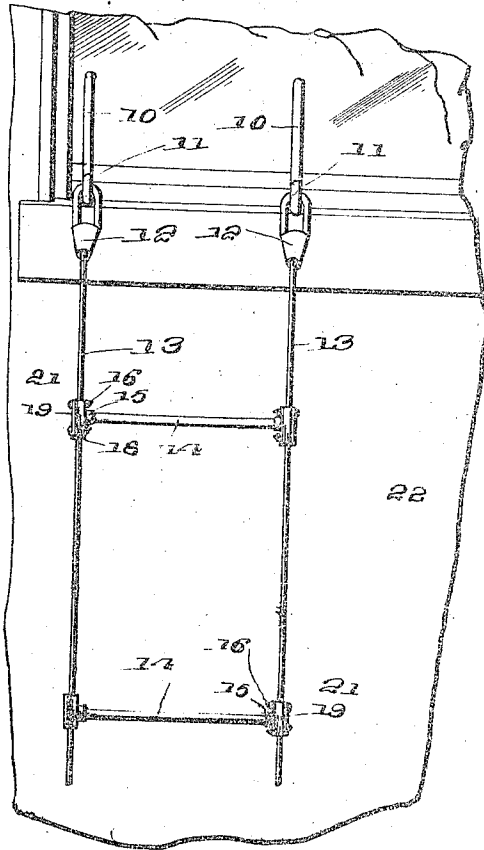


Fig. 1.

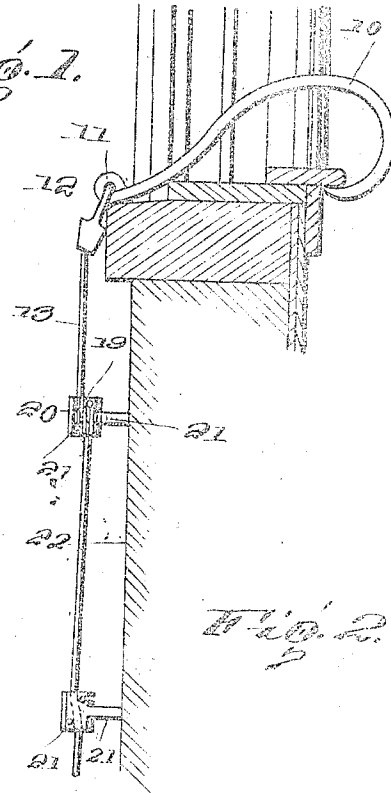


Fig. 2.

Fig. 3.

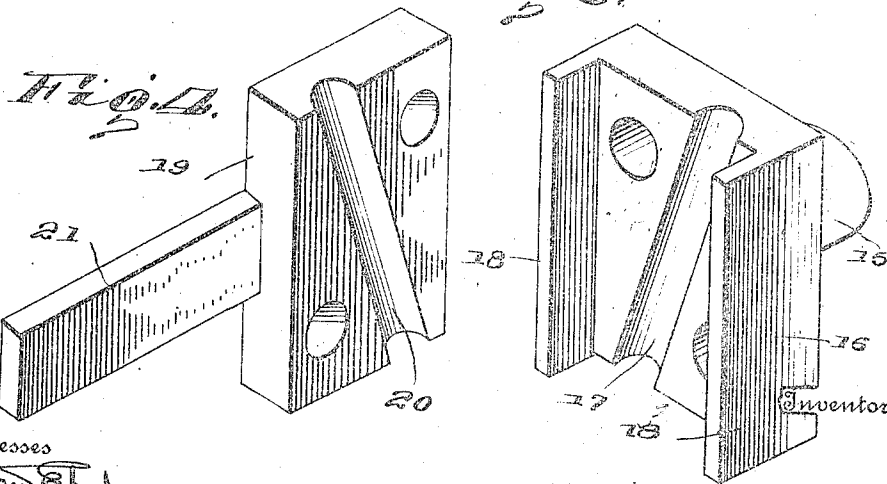


Fig. 4.

Witnesses
[Signature]
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By

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UNITED STATES PATENT OFFICE.

EDWARD V. BRIDGE, OF DERRY, PENNSYLVANIA.

FLEXIBLE LADDER.

1,044,010.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD V. BRIDGE, citizen of the United States, residing at Derry, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful improvements in Flexible Ladders, of which the following is a specification.

This invention relates to improvements in flexible ladders, more particularly to devices of this class employed as fire escape ladders, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a simply constructed device which may be increased in length without material structural change except increasing the numbers and lengths of the parts.

Another object of the invention is to provide a simply constructed device which may be rolled into relatively small space when not in use or for transportation or storage, and readily and quickly arranged for use by any person without previous skill or knowledge.

With these and other objects in view, the invention consists in certain novel features of construction as hereafter shown and described, and then specifically pointed out in the claims.

The improved device may be constructed of any required length to conform to the building or other structure to which it is applied; but will generally be constructed of a sufficient length to reach from the highest window or the roof of a building to the ground, and it is not desired therefore to limit the invention in this respect, but for the purpose of illustration a section of the improved ladder is shown, and in the drawings thus employed: Figure 1 is a front elevation of a portion of the improved ladder applied to a conventional window sill; Fig. 2 is a side elevation of the same with the window structure in section; Fig. 3 is an enlarged perspective view of one of the outer combined clamping and spacing members; Fig. 4 is a detached perspective view of one of the inner combined clamping and round supporting members.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved device comprises in general a pair of coacting hooks adapted to engage over the cornice of a building, a window sill, or like structure, a flexible member such as a wire cable depending from each hook and spaced apart to correspond to the side members of an ordinary ladder, and a plurality of rounds clamped to the cables at spaced intervals and adapted to be adjusted to increase or decrease the distance apart of the rounds, each clamping device being likewise provided with a spacer member to hold the ladder spaced from the wall against which the device is located.

The hooks above referred to, are represented at 10 and may be of any required form or size to correspond to the building to which they are applied, and will preferably be provided with eyes 11 at one end to receive a cable-engaging loop 12. The cables are represented conventionally at 13, and are connected at one end in the loops 12. By this means the cables are flexibly united to the hooks and suspended therefrom when in use, as shown.

The rounds of the improved ladder are preferably formed of gas piping and represented at 14. The rounds are connected, preferably by threading, in sleeves 15 upon inner clamp plates 16, the latter being provided on one face with an oblique cavity 17 to bear over the cables 13 at one side and with guide ribs 18 at its side edges. Bearing upon the cable at the opposite side and likewise opposite to the plates 16, are other similar and opposing plates 19 likewise obliquely channeled as shown at 20 to bear over the cable and to fit between the ribs 18. The plates 16—19 are coupled by clamp bolts 21 whereby the requisite clamping strain is applied to the cables. By this simple means it will be noted that the rounds 14 are rigidly coupled to the cables and are likewise adjustable thereon longitudinally so that the distance apart between the rounds may be adjusted as required.

The obliquely directed cable engaging channels 17—20 register when the plates 16—19 are united, and thus deflect the cables laterally in each of the clamp devices, and materially increase the grip thereon, as will be obvious.

Each of the outer clamp plates 19 is provided with lateral projecting arm 21 which bears against the adjacent wall 22 of the

building upon which the ladder is located, and thus spaces the rounds away from the building so that the toes of the person using the ladder will not be liable to be displaced from the rounds by contact with the building.

The parts of the improved device are constructed of any required size and will be as light as possible consistent with the strains to which they will be subjected.

It will be noted that all of the parts are of metal, and will not therefore be affected by the weather or by the heat or smoke in event of a fire.

The members 13 being flexible and the hooks 10 being swingingly coupled to the cables, the whole device may be rolled into a relatively small space for transportation or storage.

The improved device is designed more particularly for use as a fire escape, and when thus employed will be deposited in the building adjacent to a window, and in event of a fire the hooks 10 are connected over the sill of a window or otherwise suitably disposed, and the ladder permitted to be unrolled and dropped to the ground outside the building. The ladder may thus be quickly disposed in position for use.

The improved device is simple in construction, can be inexpensively manufac-

tured and shipped "knocked down" by detaching the rounds 14 from the clamp plates.

Having thus described the invention, what is claimed as new is:

1. A fire escape ladder comprising flexible side members having suspending means at one end, co-acting clamp devices engaging said sides at spaced intervals and having obliquely directed channels to receive the side members, means for forcibly uniting said clamp members, a round connected to each opposite pair of clamp devices, and a wall engaging arm extending from each clamp device.

2. A fire escape ladder comprising flexible side members having suspending means at one end, co-acting clamp devices engaging said sides at spaced intervals, one member of said clamp devices having guard ribs to receive the other clamp members and with obliquely directed channels to receive the side members, means for forcibly uniting said clamp members, and a wall engaging arm extending from each clamp device.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD V. BRIDGE. [L.S.]

Witnesses:

JAMES L. TOWN,
PRESTON F. BROWN.