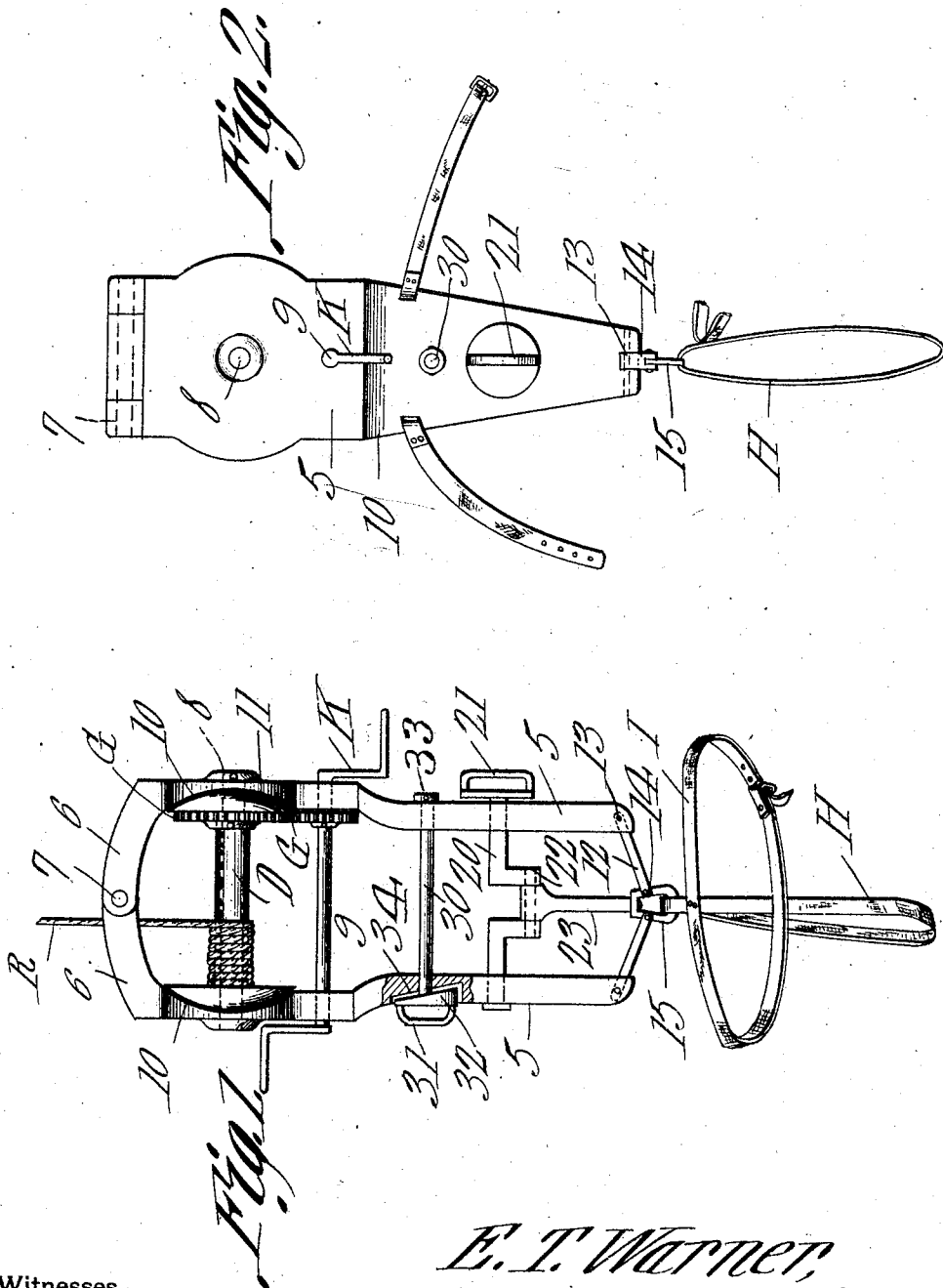


E. T. WARNER
FIRE ESCAPE.
APPLICATION FILED APR. 10, 1911.

1,010,544.

Patented Dec. 5, 1911.



Witnesses

J. P. Smith
L. H. McKay

E. T. Warner,

Inventor

by

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE

EGBERT T. WARNER, OF PETERSBURG, INDIANA.

FIRE-ESCAPE.

1,010,544.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed April 10, 1911. Serial No. 620,047.

To all whom it may concern:

Be it known that I, EGBERT T. WARNER, a citizen of the United States, residing at Petersburg, in the county of Pike and State of Indiana, have invented a new and useful Fire-Escape, of which the following is a specification.

This invention relates to fire escapes, and more especially to those employing a reel against whose end a brake is applied; and the object of the same is to apply this brake automatically by means of the load acting on a toggle lever and to provide manually-operated means for acting on the toggle lever to release or decrease the force of the brake. This object is accomplished by the construction described and claimed below, and shown in the drawings wherein—

Figure 1 is a front elevation of this device complete, and Fig. 2 is an end view thereof looking from the right in Fig. 1.

In the drawings I have illustrated a rope R as winding on a windlass, drum, or reel D, the latter geared as at G to a shaft having crank handles K and the whole mounted within a frame which carries at its lower end a sling composed of a belt I adapted to surround the waist and a stirrup H in which the limb of the operator is placed. No novelty is claimed for the parts thus far described.

Coming now more particularly to the details of the present invention and the novel features thereof, the frame is composed of two like arms 5 standing in a single plane and each turned inward toward the other at its upper end as at 6, their extremities being pivoted together as at 7. Through these arms the ends 8 of the drum shaft are journaled, as well as the shaft 9 which carries the crank handles K. Said arms 5 are curved outwardly as at 10 to form concaved or dished shoes in which turn the convex heads 11 forming the ends of the drum D; and it follows that when said arms are drawn toward each other the shoes 10 will be pressed against the outer faces of the heads 11 and will impart friction thereto as to retard the rotation of the drum D.

My means for accomplishing the approximation of the arms 5 consists in a toggle

lever whose links 12 are pivoted at their outer extremities at 13 to the lower extremities of the arms 5 and at their inner extremities 14 to a loop 15 in which is hung the sling composed, as herein shown, of a belt I and a stirrup H although any suitable sling might be employed. When the device is used in the position shown in Fig. 1 the operator enters or is secured within the sling and the upper end of the rope is attached to a high point in the burning building, and as the rope unwinds from the drum the operator and the fire escape descend to the ground; but it will be understood, as is usual with most devices of this kind, that it might be inverted and the loop 15 fastened to an overhead support and the sling fastened to the rope, and then some assistant at a high point within the burning building could manipulate the fire escape to lower away on the sling and let down some person who was in danger.

The construction thus far described would throw so much weight on the toggle lever that its links would draw the lower ends of the arms 5 inward and the shoes 10 would be pressed against the heads 11 of the drum so that the latter would not rotate, unless the person escaping were extremely light. In order, therefore, to distend the toggle lever and decrease the braking action of the shoes 10, I provide a shaft 20 journaled through the arms 5 and having a handle 21 at one extremity, and within the shaft between said arms is formed a crank 22 which is connected by a link 23 with the loop 15 at the center of the toggle lever. It will be clear that by turning the handle 21 more or less, the link 23 draws upward on the loop 15 and the links of the toggle lever cause the lower extremities of the arms 5 to distend or spread apart. This results in the shoes 10 decreasing their braking action upon the heads 11, and permits the drum D to rotate more or less rapidly as the operator may desire. If the device were inverted and used at a high point in the manner described above, the firemen within the building would have to control this brake-governor according to the weight of the person escaping and the speed with which it was desired to

permit him to descend, because as soon as the drum began to unwind and let out the rope the escaping person would pass down out of reach of the handle 21 and could not control the mechanism himself.

In addition to the brake-controlling mechanism just above described, the shaft 9 and its crank handles K afford means for retarding the rotation of the drum as will often be sufficient. In Fig. 2 I have shown the belt I as led from the side of one of the arms 5 at a point higher up than in Fig. 1, so that the person escaping may pass his limb through the stirrup H and have the belt I passed around his body in such way that his hands will be within easy reach of the crank handles K, and by holding them tightly and causing them to rotate rather slowly he can manually control the rotation of the drum D.

Owing to excitement, fright, or possibly to injury, it is quite possible that the person escaping may lose control of the crank handles K; and if his weight is not sufficient to cause the links of the toggle lever to operate the brake upon the drum heads 11, he might descend at a dangerous rate of speed. I have therefore provided an emergency brake which consists of a shaft 30 having a handle 31 at one extremity (preferably at the opposite side of the device from the handle 21 above described) and a cam 32 adjacent said handle coacting with a cam face 34 on the outer side of this arm 5 of the frame; the other end of the shaft 30 extending through the opposite arm of the frame and having a head 33 on its extremity as seen in Fig. 1. It is obvious that by grasping the handle 31 and giving a partial rotation to this shaft, its cam 32 may be set more tightly against the cam face 34 so as to draw the two arms 5 together and apply the brakes to the drum heads in the manner above described.

Thus it will be seen that I have produced an improved fire escape wherein the paying out of the rope from its drum and the descent of the person escaping may be retarded first by manually controlling the speed of rotation of the crank handles K, next by turning the handle 21 so as to open or close the toggle lever and increase or decrease the braking action of the shoes 10 upon the drum heads 11 (although the weight of the person escaping will assist in producing this braking action if the parts are properly proportioned), and finally in cases of emergency by turning the handle 31 so that the cam 32 engaging the face 34 increases the braking action of the shoes 10 upon the heads 11. All parts of this device must of course be of metal in order to be fire-proof, and even the rope may be a flexible metal cable. The propor-

tions and sizes of parts are not essential to the successful operation of this improved fire escape.

What is claimed is:

1. In a fire escape, the combination with a drum whose heads are convex on their outer faces, a frame composed of two arms having convex shoes disposed opposite said heads and their upper ends turned inward above said drum and pivotally connected with each other, and a toggle lever connecting the lower ends of said arms; of a sling carried by the intermediate pivot of said toggle lever, brake-controlling mechanism carried by said arms and connected with said pivot, and a handle for manipulating said mechanism.

2. In a fire escape, the combination with a drum whose heads are at the ends of its body; a frame composed of two arms having shoes disposed opposite said heads and their upper ends turned inward above said drum and pivotally connected with each other, and a toggle lever connecting the lower ends of said arms; of a sling carried by the intermediate pivot of said toggle lever, a shaft journaled through said arms and having a handle at one extremity and a crank in its body, and a link connecting said crank with said intermediate pivot of the toggle lever.

3. In a fire escape, the combination with a drum, a frame comprising two upright arms passing outside the heads of said drum and in which arms the drum-shaft is journaled, a flexible connection between the upper extremities of said arms, and a stirrup; of a loop to which said stirrup is attached, two links each pivoted at its inner end to said loop and at its outer end to the lower extremity of one of said arms, a rotary crank shaft journaled in said arms and having a handle, and a link connecting its crank with said loop.

4. In a fire escape, the combination with a drum, a frame comprising two upright arms passing outside the heads of said drum and in which arms the drum-shaft is journaled, a flexible connection between the upper extremities of said arms, and a stirrup; of connections between said stirrup and the lower ends of said arms, one of the latter having a cam face in its outer edge, a shaft journaled through said arms and having a head at one end and a cam at the other opposite said face, and a handle on said shaft.

5. In a fire escape, the combination with two arms pivotally connected at their upper ends, a drum whose shaft is journaled in said arms and whose heads stand between them, a toggle connecting the lower ends of said arms, and a sling carried by the intermediate pivot of said toggle; of brake-controlling mechanism mounted in said arms and connected with said intermediate

pivot, a handle on this mechanism whose rotation decreases the braking action of the arms on the drum heads, independent brake mechanism connecting said arms, and a handle thereon whose rotation draws the arms together and applies said brake.

In testimony that I claim the foregoing

as my own, I have hereto affixed my signature in the presence of two witnesses.

EGBERT T. WARNER.

Witnesses:

FRANK BATTLE,
JOHN T. KEENE.