(No Model.)

A. W. LEWIN.

AUTOMATIC ROPE CATCHER, FIRE ESCAPE, AND CLIMBING APPARATUS.

No. 512,977. Patented Jan. 16, 1894.

Fig. 4.

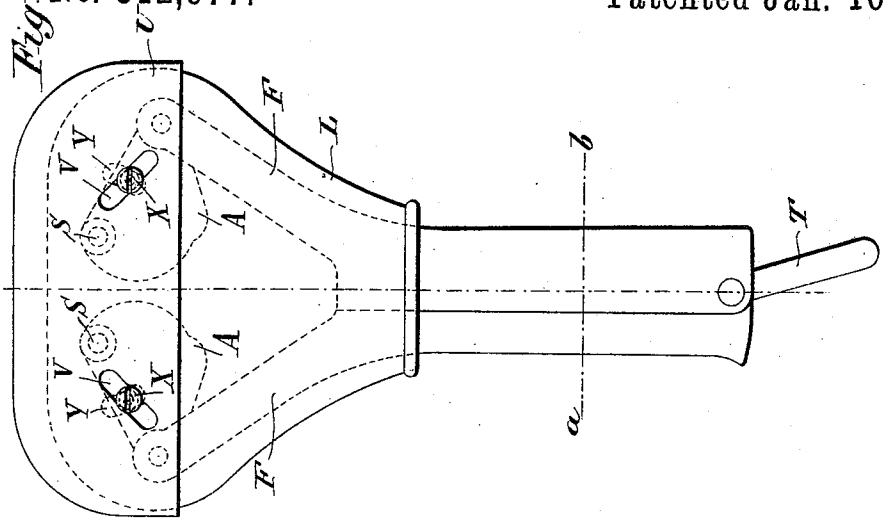


Fig. 5.

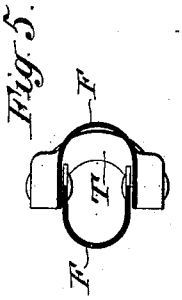


Fig. 2.

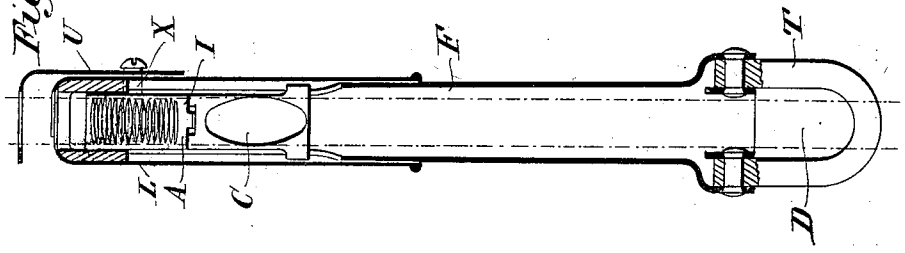


Fig. 1.

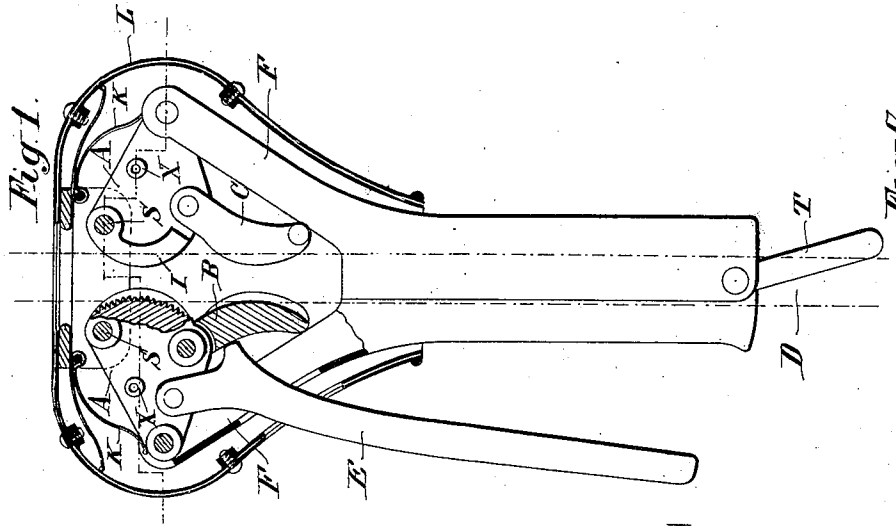
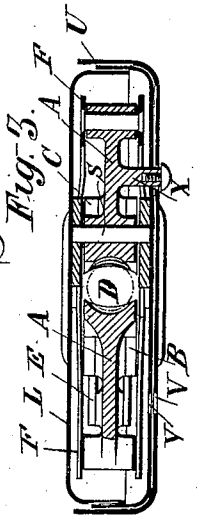


Fig. 3.



Witnesses:
E. B. Bolton
E. K. Stuntevant

Inventor:
Anders Wilhelm Lewin
By Richards & Co
his Attorneys

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ANDERS WILHELM LEWIN, OF STOCKHOLM, SWEDEN.

AUTOMATIC ROPE-CATCHER, FIRE-ESCAPE, AND CLIMBING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 512,977, dated January 16, 1894.

Application filed February 27, 1893. Serial No. 463,828. (No model.) Patented in Sweden February 29, 1892, No. 3,947.

To all whom it may concern:

Be it known that I, ANDERS WILHELM LEWIN, commercial agent, a subject of the King of Sweden and Norway, and a resident of Stockholm, in the Kingdom of Sweden, have invented a certain new and useful Improvement in Automatic Rope-Catchers, also capable of being used as a safety life-saving and climbing apparatus, (for which I have obtained a patent in Sweden, No. 3,947, bearing date of February 29, 1892,) of which the following is a specification.

The object of my invention is an apparatus so constructed, that when the same is applied upon a rope and actuated in a given direction along the same, it clutches the rope automatically, so that it cannot, without special intervention, be brought farther in the same direction. Owing to that property the apparatus may be used with advantage in the different instances already indicated in the above title of the invention. Thus, for instance, it will constitute a sure protection to a person being on some height or in any other dangerous place, if the person has the apparatus attached to himself and the same traversed by a rope, which is secured to a point situated higher up than the person himself. In the event that the person happens to fall, the apparatus will clutch the rope, thus preventing the fall of the person, who will be suspended in the rope, the apparatus being, however, besides so constructed that it can at any time be brought out of action and is also combined with a suitable brake. It may be used as a climbing apparatus, when a person wants to ascend or descend a rope as well as a sure saving apparatus, when a person wants to lower himself along a rope.

Referring to the drawings which form a part of this specification, Figure 1 is a side view of the apparatus showing the mechanism partly in section. Fig. 2 represents the apparatus in vertical section viewed from the edge, and Fig. 3 is a top view of the apparatus in horizontal section. Fig. 4 is a side view of the exterior of the apparatus, and Fig. 5 is a horizontal section on line *a*—*b*, Fig. 4, of the same.

The apparatus consists of two clutching clamps A situated opposite one another at either side of the rope D and acting as eccentrics and having the pivots S fixed in the casing L of the apparatus. From the clamps project two bars or legs F pivoted to the clamps and having their other ends pivotally connected to each other. The pivots of the bars F in the clamps A are at a greater distance from the rope D than the pivots S of the clamps and in consequence thereof, if the bars F are pulled, the clamps A will evidently be turned in against the rope D thus pinching the latter between themselves, and the pinching will evidently be surer in proportion as the pulling force in the bars F increases. In order that the clamps A may surely clutch the rope D, they are hollowed to the rounding of the rope and also provided with teeth, which however are not sharp enough to wear the rope. It is evident that the said turning of the clamps A against the rope D also takes place when pulling the rope in the direction opposite to the force which acts pulling on the bars F, always provided, however, that the clamps A are resting against the rope so as to be ready to clutch the same. To this end there are placed, in the way shown on the drawings, between the wall of the casing L and the outer ends of the clamps A the springs K, which, as easily understood, keep the clamps pressed to the rope D. As further shown on the drawings, the bars F reach so far below the lower edge of the casing L that they easily may be seized by the hand and they are besides gutter-shaped, and the edges of the one overlapping the other having the rope between them and thus constituting together almost a pipe which may conveniently be seized by the hand. Further, the bow T is fixed to the connected ends of bars F, intended to carry the load supported by the rope catcher.

In order that the rope catcher now described may be used as a saving apparatus on a rope hanging down from a height, it is combined with the brake device, described below by means of which the clutching clamps A may be caused to release the rope so that the rope catcher may be moved downward, but by means of which brake device the speed along the rope of the downward gliding loaded rope catcher may at the same time be regulated at will.

The brake device consists of two clamps B

and C pivoted in such a way to the clutching clamps A of the rope catcher, that their points of contact on the rope D are below the corresponding points of the clutching clamps. At the one clutching clamp A is further pivoted the lever E, by means of which the brake clamp B can be actuated toward the rope D. The lever might also consist of an extension of the brake clamp. The other brake clamp C has its lower end resting against one of the bars F. When by seizing with one hand the bars F and the lever E the latter presses the brake clamp B against the rope, the brake clamp C resting against the opposite side of the same. The latter clamp thereby turns outward the clutching clamp A, to which it is united so that the clutching clamps are released from the rope. In the same moment the whole weight is brought over to the brake clamps, which now evidently act in the same way as a knee-joint and by this action the clutching clamps A are entirely removed from the rope D. In order however that the clamps hereby may not tilt over, they are provided with shoulders I, which, when they have turned sufficiently far, will rest against the opposite edges of the brake clamps. This will be easily understood by the drawings. If now the said action of the brake clamps is suitably adjusted, the loaded rope catcher can, as already stated, glide down the rope and by actuating the lever E still more, the gliding of the rope catcher will be stopped. This latter is also effected by releasing the grasp on the lever E and the bars F, when the clutching clamps A will instantaneously clutch the rope, owing to the action of the springs K.

The rope catcher now described is further provided with a safety device consisting of a plate U movable in the exterior of the casing L and bent in angle over its top edge. The plate is provided with slots V traversed by the ends of the pins or pivots X projecting from the clutching clamps, for which pivots also are provided slots Y in the casing. As will be understood it might happen that the person supported by the rope catcher under any of the above circumstances, may accidentally seize the top edge of the casing L, so as to pull this downward, which will act upon the clutching clamps so as to be turned outward thus causing the rope catcher to be released. This action would take place provided the user exerted such a pressure on the bars F and the casing L as would amount to lifting the bars in relation to the casing L. This releasing action of the clamps is however prevented by the said plate U. Owing to the oblique position of the pivots X the latter and also the clutching clamps A will evidently, if the plate is pulled downward, be approached to the rope D, so that the rope catcher will clutch the rope still stronger.

Arranged as now described the rope catcher constitutes obviously a reliable life-saving apparatus as it may at will be stopped or put in motion on the rope and besides automatically clutch the same if the person supported by the rope catcher should accidentally loose his hold of the lever of the brake device. Besides it may speedily and with the greatest facility be applied on ropes of rather varying thickness.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination, the casing adapted to receive the rope, the clutching clamps pivoted therein on opposite sides of the rope, the brake clamps B, C, pivoted to the clutching clamps on opposite sides of the rope and depending from the clutching clamps and the means for operating the brake clamps whereby the clutching clamps may be operated and the braking action on the rope controlled, substantially as described.

2. In combination, the casing, the clutching clamps therein, the brake clamps pivoted to the clutching clamps on opposite sides of the rope and the lever E arranged to operate one of the brake clamps, substantially as described.

3. In combination, the casing the clutching clamps pivoted therein to clamp the rope, the link bars F connected to the clutching clamps and having means for attaching the support for the uses, and the plate U extending over the casing and having inclined slots to receive pins X on the clutching clamps whereby downward pressure on the plate U will tend to move the clamps to clutch the rope, substantially as described.

4. In combination, the casing, the clutching clamps pivoted therein, and the link bars pivoted to the clutching clamps and having their lower ends pivoted together, said links encircling the rope, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ANDERS WILHELM LEWIN.

Witnesses:
CARL CERELL,
L. ENGLUM.