(No Model.)

V. LEBER.

FIRE ESCAPE.

No. 484,536. Patented Oct. 18, 1892.

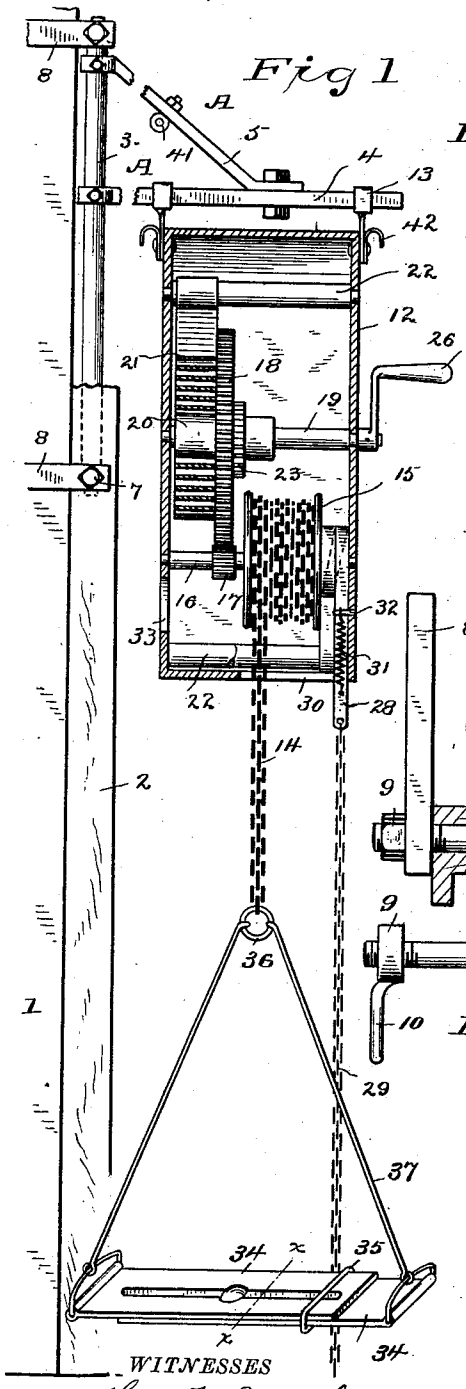

Fig 1

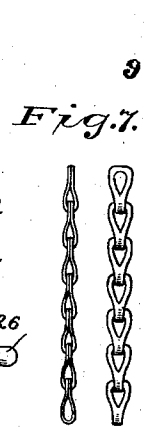

Fig. 7.

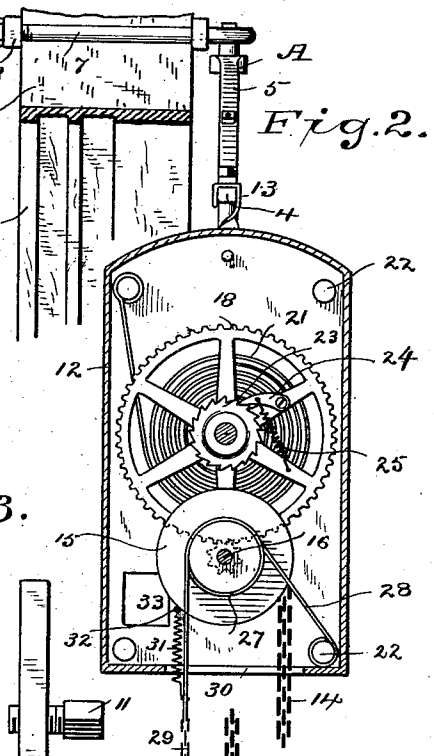

Fig. 2.

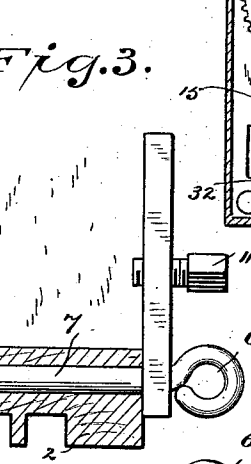

Fig. 3.

Fig. 4.

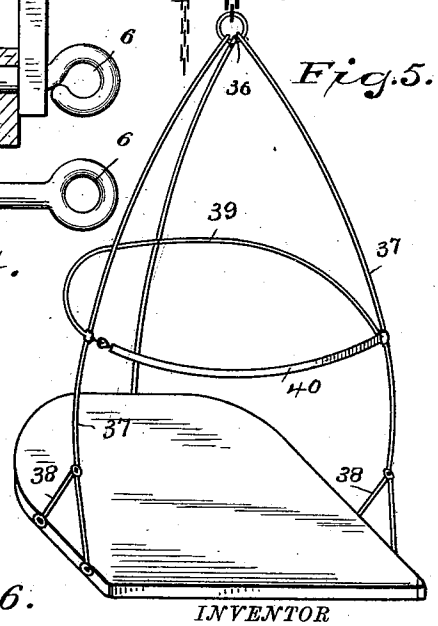

Fig. 5.

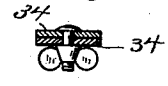

Fig. 6.

WITNESSES

H. A. Lamb

Mattie R. Davis

INVENTOR

Victor Leber

By A. M. Wooster Atty.

UNITED STATES PATENT OFFICE.

VICTOR LEBER, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF TO FREDERICK J. WEICHERT, OF SAME PLACE.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 484,536, dated October 18, 1892.

Application filed May 31, 1892. Serial No. 434,875. (No model.)

To all whom it may concern:

Be it known that I, VICTOR LEBER, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to produce a simple, inexpensive, and easily-operated fire-escape, which may be readily attached in place or transported from one place to another.

With these ends in view I have devised the simple and novel construction which I will now describe, referring by numbers to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation, partly in section, of my novel fire-escape, showing the case and carrier partly swung out of a window; Fig. 2, a similar elevation, as seen from the right in Fig. 1, the case being in section on a plane at right angles to the plane of the section in Fig. 1; Figs. 3 and 4, detail views, on an enlarged scale, illustrating means by which I secure the swinging carrier in place; Fig. 5, a view on an enlarged scale of one form of chair which I use; Fig. 6, a section on the line x x in Fig. 1; and Fig. 7 is a detail view illustrating a well-known form of chair which I contemplate using.

1 denotes the wall of a building, and 2 the casing of a window.

A denotes a swinging carrier, which consists, essentially, of a vertical rod 3 and a horizontal arm 4 and braces 5, rigidly secured thereto. The ends of the vertical rod are pivoted and turn freely in eyes 6, which are rigidly secured to the casing or to the building on the inner side, so as to permit the carrier to lie close against the wall on the inner side or to be swung out through the window. Eyes 6 are preferably formed upon bolts 7, which may be passed through the casing and through stay-pieces 8, as in Figs. 1, 2, and 3, or, if preferred, a longer bolt may be used, as in Fig. 4, and the bolt passed through the side of the building, the bolt and carrier being held in position by nuts 9, which may or may not be provided with hand-pieces 10 for convenience in tightening up. Where the stay-pieces are used, I also use set-screws 11 to assist in locking them in place, the set-screws being turned into the wall of the building on the inner or outer sides, or both.

The mechanism of my novel fire-escape is inclosed in a case 12, having hooks 13, by which it is firmly but detachably secured to the horizontal arm of the swinging carrier. (See Figs. 1 and 2.) The chair by which the descent is made is attached to a chain 14, which is wound on a drum 15 on a shaft 16, journaled in the case. Shaft 16 is provided with a pinion 17, which engages a gear-wheel 18, journaled on a shaft 19, which is itself journaled in the case, said gear-wheel turning independently of the shaft.

20 is a drum on shaft 19, which is rigidly secured to the gear-wheel, so as to turn with it.

21 is a spring, one end of which is connected to one of the cross-pieces 22, by which the case is held together, the other end being connected to the drum.

23 is a ratchet rigidly secured to shaft 19, and 24 a pawl pivoted to the gear-wheel and engaging the ratchet, the pawl being held in engagement with the teeth of the ratchet by a spring 25.

26 is a crank which may or may not be rigidly attached to one end of shaft 19, by which said shaft may be rotated should it be necessary at any time to wind the spring in order to increase its power. When the shaft is rotated by the crank, the ratchet is turned with it and the pawl acts to hold it against backward movement.

27 (see Fig. 2) is a drum formed integral with drum 15.

28 is a metallic brake-strap, one end of which is connected to one of the cross-pieces 22, said strap being passed once and a half times (more or less) about drum 27, and having a chain 29 attached to its lower end, the free end of the brake-strap and the chain to which the chair is connected passing through an opening 30 in the bottom of the case.

31 is a spring, one end of which is connected

to a pin or eye 32 within the case, the other end being connected to the lower end of the brake-strap, the object being to overcome the weight of the chain, so that in use the brake strap and chain will not retard the rotation of the chain-drum until the brake-chain is pulled down.

33 is an opening in one side of the case to permit the operator to insert his hand in oiling the mechanism. Any suitable form of chair may be used in connection with chain 14.

In Fig. 1 I have shown a form of chair in which the seat consists of two parts 34, one of which is provided with a slot, the other with a bolt passing through the slot, so as to permit said parts to slide over each other, said parts being additionally secured together by a loop or strap 35. At the lower end of chain 14 is a ring 36, the chair being connected to said ring by means of rods 37.

In Fig. 5 I have illustrated another form of chair, which is specially adapted for use in taking down ladies or children, as the person placed in it cannot fall out. The seat is connected to the ring by rods 37, the same as in the other form. The side rods are braced, as at 38, to the seat and are connected at suitable heights to form a support for the back by a rod 39.

40 is a rod or strap at the front, one end of which is provided with a snap-hook adapted to engage an eye on one of the side rods, the other end being loosely connected to the other side rod. This front strap or rod may be disconnected at one end to permit a person to be placed in the chair and when connected will hold the person securely and prevent him from falling out.

In practice I contemplate providing the different windows of buildings with swinging carriers, but do not necessarily place a case and chair in every room. I provide eyes 41 in braces 5, through which a rope may be passed for the purpose of drawing up a case and chair, and provide the case with hooks 42 for the convenient attachment of the rope, it being contemplated that the rope be passed through eye 41 and a case and chair drawn up, if necessary, and then attached to the swinging carrier, the weight of the case and the mechanism contained herein being so little that it might be drawn up and attached in place by any person not necessarily an adult.

In practice any light form of chain or wire ropes may be used to support the chair and operate the brake. I find in practice that what is commonly known as "flat chain"—*i. e.*, chain formed from links of sheet metal (see Fig. 6)—is admirably adapted for this purpose.

In use the swinging carrier, case, and chair are swung out of the window and the person to descend places himself in the chair, the brake-chain being held by the person in the chair or by a person in the window or on the ground. The descent may be made more or less rapidly, depending on the management of the brake-chain. As the chair descends, the chain-drum is rotated, which, through the pinion and gear-wheel, turns drum 20 on shaft 19 and winds up the spring. As soon as the descent is made and the brake-chain is released slightly the spring will act to draw the chair up to the case again.

It will of course be understood that the details of construction may be greatly varied without departing from the principle of my invention.

I claim—

1. In a fire-escape, the combination, with a suitable chair, a chain connected thereto, and a drum 15, upon which said chain is wound, of a drum 27, made solid with drum 15, a brake-strap, one end of which is secured to a fixed portion of the device and which is passed about the drum, a brake-chain attached to the other end of the strap, and a spring one end of which is connected to the free end of the strap, the other end being connected to a fixed portion of the device so as to counteract the weight of the chain and relieve the friction of the strap on drum 27.

2. The combination, with the chair, chain 14, shaft 16, having pinion 17, and drums 15 and 27, of the brake-strap, shaft 19, having gear-wheel 18 and drum 20, loosely mounted thereon, and a spring, one end of which is connected to drum 20 and which is wound when the chair descends, a ratchet rigidly secured to the shaft, and a pawl carried by the gear-wheel which engages the ratchet, so that the tension of the spring may be increased by turning the shaft, the latter being held against backward movement by the pawl and ratchet.

3. The combination, with bolts 7, having eyes 6 and stay-pieces 8, of a swinging carrier journaled in said eyes and swinging in a horizontal plane, case 12, having hooks for attachment to the carrier, the chair, a chain connected thereto, and mechanism within the case whereby the descent of the chair is controlled and it is drawn back to the case after the load is removed.

4. The combination, with bolts 7, having eyes 6 and nuts 9, and a stay-piece having a set-screw 11, of a swinging carrier journaled in said eyes, a case having hooks for attachment to the carrier, a suitable chair, and winding and brake mechanism within the case, whereby the chair is drawn up and its descent controlled.

5. The combination, with the case, shaft 19, gear-wheel 18, a ratchet secured to the shaft, a pawl pivoted to the gear-wheel and engaging the ratchet, drum 20, turning on the shaft, and a spring one end of which is fixed and the other end connected to the drum, of a shaft 16, having a pinion engaging the gear-wheel, drums 15 and 27, a chair having a chain 14 connected to drum 15, a brake-strap passing around drum 27, and a chain 29, connected to the other end of the brake-strap.

6. The combination, with the case, shaft 19,

gear-wheel 18, and drum 20, turning thereon, and a spring one end of which is fixed and the other connected to the drum, of shaft 16, having a pinion engaging the gear-wheel, drums 15 and 27, a chair having a chain 14 connected to drum 15, a brake-strap one end of which is fixed, the other passing around drum 27, a chain 29, connected to the lower end of said strap, and a spring 31, one end of which is connected to the strap and the other to the case, whereby the friction of the strap on drum 27 is relieved until chain 29 is pulled downward.

7. The combination, with shaft 19, having gear-wheel 18 and drum 20, mounted and turning freely thereon, spring 21, acting to wind said drum, and shaft 16, carrying a pinion engaging the gear-wheel and drums 15 and 27, of a brake-strap engaging drum 27, a chain 14, connected to drum 15, and a chair consisting of sliding parts 34, having a slot and bolt connection, and a loop 35, by which they are additionally secured.

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

VICTOR LEBER.

Witnesses:
GEORGE WAKEMAN,
JOHN R. BOOTH.