(No Model.)

C. F. MARSKEY.

FIRE ESCAPE.

No. 278,807. Patented June 5, 1883.

Fig 1.

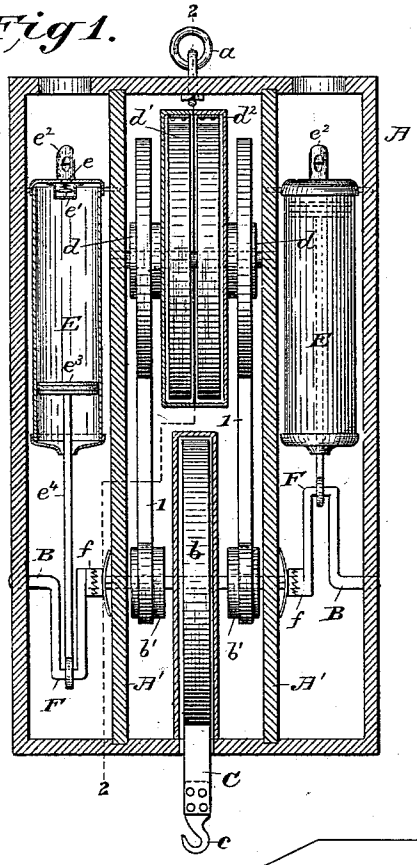


Fig 2.

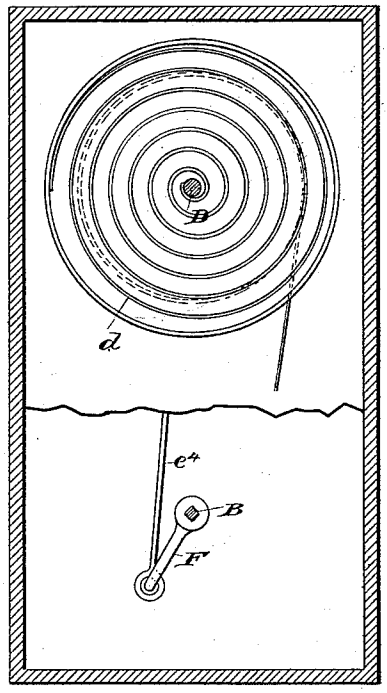


Fig 4.

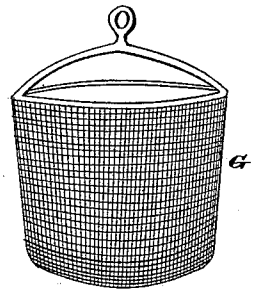
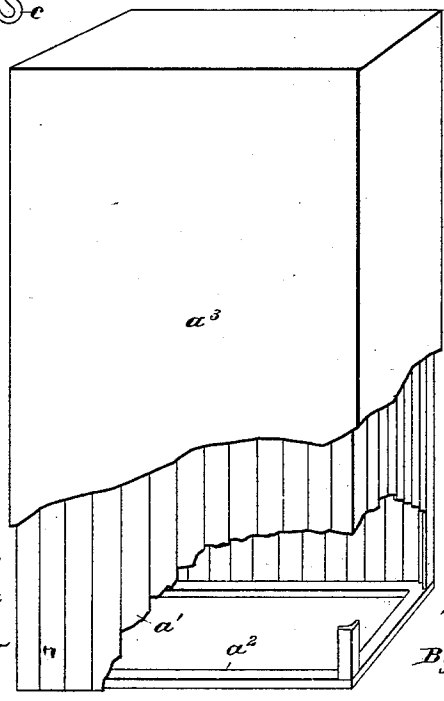


Fig 3



Attest:
Geo. T. Smallwood Jr.
Chas A. Cooper

Inventor:
Chas. F. Marskey
By Jno. L. Condron
atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES F. MARSKEY, OF EAST SAGINAW, MICHIGAN.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 278,807, dated June 5, 1883.

Application filed March 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. MARSKEY, a citizen of the United States, residing at East Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to that class of fire-escapes in which the operating mechanism is located in a suitable position and contains an attachment for lowering persons and goods from upper stories of buildings and other elevated points.

The object of my invention is the provision of an apparatus whereby persons and goods may be lowered safely from elevated places, and which shall so operate that upon the removal of the load the lowering medium shall return automatically to its starting-point in readiness for a renewed descent.

To these ends my invention consists in an apparatus provided with a lowering medium, a pneumatic governor, and a spring-winding mechanism, such devices being so connected that when the load is descending the pneumatic governor is acting and the spring winding mechanism is being prepared for action, and when the load is removed the pneumatic governor ceases to act and the spring winding mechanism commences to act and returns the lowering medium to its starting-point, in readiness for a renewed descent, all such functions being performed automatically in consequence of the attachment or detachment of the load.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, illustrating an embodiment of my invention, in which—

Figure 1 is a front elevation of my improved apparatus, one side of the case thereof being removed to expose the inclosed mechanism. Fig. 2 is a vertical section of said apparatus on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the containing shell or housing, it being broken away and partly sectioned to show its structure. Fig. 4 is a perspective view of the receptacle or bag.

In the said drawings, A designates the case or housing of my apparatus, which is of rectangular or other suitable shape, and which is provided at its upper end with a ring, *a*, or any other suitable means of suspension. The case or housing A is formed preferably of metal—iron or steel—which is in strips or bars *a'*, secured to a skeleton frame, a^2, as shown. This metal shell is inclosed in a boxing of wood, a^3, as shown in Fig. 3. The housing A is divided into three vertical compartments by two vertical partition-walls, A', as shown in Fig. 1, suitable apertures being provided for the admission of air to the regulator, described below.

In the lower part of the central compartment, and extending transversely thereof in a horizontal plane, is a shaft, B, the ends of which are journaled in the partition-walls A' A'. Midway of the length of this shaft is a band-pulley, *b*, which is rigidly attached to said shaft, so as to turn with it. To the circumference of the pulley *b* is attached one end of a metallic band or cable, C, said band being coiled upon the pulley and extending downward through an aperture in the bottom of the casing A, as shown, and at its lower end being provided with a ring, *c*, or with any other suitable device for attaching the load.

On the pulley-shaft B, at each side of the central pulley, *b*, are two drums, *b'*, each of which is rigidly secured to said shaft, so as to turn with it. To the periphery of each of these drums is attached the lower end of a metallic band or strap, 1, the upper termini of which straps are described below, which are wound upon said drum in an opposite direction to the band C. In the upper part of the central compartment is a horizontal shaft, D, the ends of which are journaled in the partition-walls A', so that the shaft shall turn freely. Mounted rigidly upon this shaft D, so as to turn therewith, are two drum-pulleys, *d d*, each of which is situated in vertical alignment with the corresponding drum, *b'*, on the lower shaft, B. The shaft D also carries two springs, *d' d'*, one end of each of which is fixed to the shaft, while its other (outer) end is attached to the housing d^2 of the spring, which housing is attached to the outside drum-pulley, *d*; or the said end of the spring may be secured directly to the walls of the housing A. The upper ends of the bands 1, before mentioned, are attached to the peripheries of the drum-pulleys *d*, upon which they are coiled in a direction contrary to that in which they are coiled upon

the lower drums, b' b', and in the opposite direction as the coiling of the springs d' d'. The pulley-drums d d are each preferably formed with a deep peripheral groove, and the drums b' b' and pulley b are also so formed, the purpose of which is evident.

In the upper part of each of the side compartments is placed vertically an air-cylinder, E, the upper end of which is closed by a head, which is provided with an exhaust-port, e, closed by a self-acting valve, e', which freely admits the ingress, but obstructs more or less the exit, of air. Each exhaust-port communicates by a suitable air-duct with a pneumatic alarm, e^2, as shown in Fig. 1.

Within each of the cylinders E works a tight piston, e^3, carried upon the upper end of a piston-rod, e^4, which extends downwardly through the open lower end of the cylinder E, and which at its lower end is journaled to one of two cranks, F.

Each of the cranks F is journaled in the outer wall of the casing A, and also in the contiguous partition A′, said cranks being set oppositely to each other, so as to impart opposite movements to the pistons e^3 at their inner ends. Each crank F engages with the contiguous end of the shaft B through the medium of a one-way ratchet-clutch, f, as seen in Fig. 2. These clutches are so arranged that when the shaft B is rotated by the descending band or cable C they are thrown into action, causing the cranks F to revolve with the shaft B, and hence actuate the pneumatic regulator; but when the descent of the band is completed and its load is removed the shaft B immediately begins to rotate in the opposite direction, under the action of the springs d', and as soon as this reversal of rotation occurs the clutches f cease to act, throwing the cranks F out of gear with the shaft B and causing the regulator to remain inactive.

G designates an asbestus-lined wire cage or car for the reception of the person or persons or goods to be lowered, said cage or bag being attached to the lower end of the band C, either as shown or in any other suitable manner.

The operation of the device need not be described, as it is believed to have been made apparent by the illustration and description.

Apparatus made in accordance with this invention are capable of a great variety of uses simply determined by the proportions of each machine. They may be made of very large size, so as to be placed as fixtures in large buildings—such as hotels, factories, schools, &c.—and capable of carrying several persons at a time, or they may be of such size as to constitute a personal appurtenance, and in this event the user may first suspend the device near a window and let down his effects by the lowering-cord, and finally attach the end of the lowering-cord to the point near the window, take hold of the machine, and descend with it, thus losing only a portion of the lowering-cord.

It is to be understood that I do not confine myself exclusively to the construction here shown, as I contemplate various modifications; but,

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A fire-escape apparatus consisting of a lowering medium, an apparatus for hoisting said lowering medium, and a pneumatic regulator for controlling the rapidity of descent of the lowering medium, the said regulator being arranged to act automatically during the descent of the lowering medium and to be thrown automatically out of action upon the ascent of said lowering medium, and the said hoisting medium being so arranged as to receive and retain its energy by and during the descent of the lowering medium and to act automatically upon the removal of the load from said lowering medium.

2. In an automatic fire-escape apparatus, a winding-shaft carrying a lowering-line, and a spring-winding apparatus connected with said winding-shaft in such manner as to receive and retain its energy by and during the descent of the lowering-line, and to exert its acquired energy in hoisting said line, in combination with a pneumatic regulator operated by the said winding-shaft during the descent of the lowering-line through the medium of a clutch interposed between the winding-shaft and the pneumatic regulator, said clutch being so arranged as to automatically disengage the regulator from the winding-shaft upon and during the ascent of the lowering-line.

3. The winding-shaft B, provided with a band-pulley, b, and with drums b' b', the shaft D, provided with drums d and coiled springs d', the lowering-line C, attached to and coiled upon the pulley b, and the bands 1, attached each at one end to one of the drums b', upon which it is coiled in a direction opposite to that of the line C, and attached at its opposite end to the corresponding drum-pulley, d', upon which it is coiled in a direction opposite to its coiling upon the drum b' and coincidently with the springs d', in combination with the air-cylinders E, provided each with an exhaust-opening covered by a self-acting valve, the plungers e^3 e^4 working in said cylinders, and the cranks F, to which said plungers are connected, provided each with a one-way clutch-connection, f, with the winding-shaft B, said shafts, cranks, and cylinders being mounted in a suitable housing or frame, substantially as and for the purposes set forth.

4. The case or housing herein described, consisting of a suitable backing-frame or skeleton, an inner metallic shell composed of metal bars or strips secured to said backing-frame, and a wooden boxing surrounding said metallic shell.

5. The case or housing, constructed substantially as described, and divided into vertical compartments by suitable vertical partition-walls, A′, for the purposes set forth.

6. In a fire-escape apparatus, the combination, with a lowering medium and a mechanism for automatically raising said lowering medium, of a pneumatic regulator arranged to act during the descent of the lowering medium, the said pneumatic regulator being provided with one or more pneumatic alarms placed in communication with the exhaust-ports of the air-cylinders of said regulator, substantially as and for the purposes set forth.

7. The bag or cage G, formed of metallic netting and lined with asbestus.

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

CHARLES F. MARSKEY.

Witnesses:
CHAS. H. CAMP,
S. G. HIGGINS.