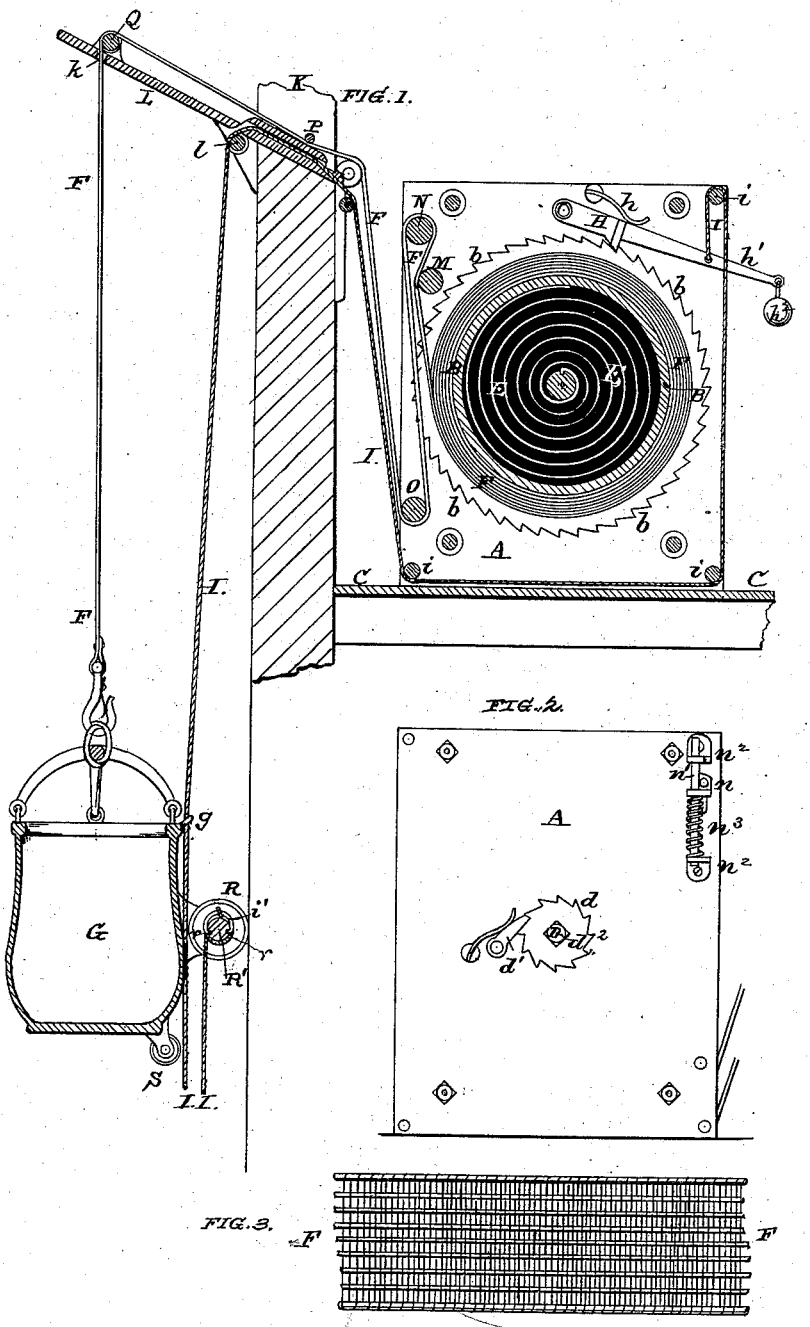
J. EICHLER.
FIRE-ESCAPES.

No. 194,228. Patented Aug. 14, 1877.



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JOSEPH EICHLER, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **194,228**, dated August 14, 1877; application filed June 21, 1877.

To all whom it may concern:

Be it known that I, JOSEPH EICHLER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification:

My invention relates to a fire-escape in which the descent of a basket is regulated by a brake and the basket is returned to its starting-place by a coiled spring.

My improvement consists in providing, at one edge of the periphery of the drum upon which the basket-belt is wound, a ratchet engaged by a detent or pawl, which allows the drum to turn in a direction to admit the descent of the basket; but the pawl does not permit the drum to turn in the opposite direction unless it (the pawl) is lifted from the ratchet. The pawl may be lifted at any time by a cord or rope, which extends to the basket, and may extend also to the ground. The basket is provided with guide-rollers, whose shaft forms a windlass for winding up the brake-cord.

In the drawings, Figure 1 is a vertical section. Fig. 2 is a side view of the spring-drum mechanism. Fig. 3 is a detail view of the band.

A is the frame or housing, in which the hoisting drum B has bearing. This frame A may be secured to the floor C of the room. D is the winding-shaft, to which the central coil of the coil-spring E is attached. The outer coil of spring E is attached to the drum B, upon whose periphery the band F is coiled. Upon the winding-shaft D is a ratchet-wheel, *d*, which is engaged by a pawl, d^1. The shaft has an angular end, d^2, for the engagement of the key. The spring E tends (when wound up) to turn the drum in the direction to coil up the band upon it, and thus raise the basket G, which is attached to its end.

At one edge of the periphery of the drum is a ratchet, *b*, which is engaged by a pawl, H, whose office is to prevent the rotation of the drum as impelled by the spring E, and thus, to enable the spring E to act upon the drum, the pawl H must be raised to disengage it from the ratchet *b*.

This pawl H is raised by a cord or wire rope, I, whose end is attached to the pawl, and which extends upward around a pulley, *i*, and from said pulley out through the window K and over a pulley, *l*, having bearing in a jointed bracket, L, and so through an eye, *g*, at the inner side of the basket G, and from this eye the rope may extend to the ground, or be attached to the basket. The pawl H is forced downward by a spring, *h*, and has an extended arm, h^1, from which a weight, h^2, may be suspended, the spring and weight both acting to force the pawl down on the ratchet *b*, so as to act as a brake to prevent the too fast unwinding of the band from the drum consequent on the descent of the basket. The band F is preferably made of a fabric composed of annealed wire, so as to have proper flexibility, and not to be liable to destruction by fire. The basket G should also be made of wire-work or plate metal, and the rope I should be made of wire for a like purpose. The band extends from the drum B upward, and outside a roller, M, over a roller, N, under a roller, O, and through a staple, P, then over a roller, Q, near the end of the hinged bracket L, and through an orifice, *k*, in the same, and from thence to the basket. The basket is furnished with (at the inner side) anti-friction rollers R, composed of or covered with india-rubber, to run against the wall of the building in the ascent or descent of the basket. S S are anti-friction rollers of rubber, to run against the wall of the building, and to prevent the violent concussion of the basket against the pavement.

The operation is as follows: The jointed bracket L is first turned out of the window, as shown, the basket is placed outside the window, and the person or object to be lowered is put therein, and the basket, being released, will descend by the weight contained in it. When it has reached the street, and the load has been removed, it may be again drawn up by the force of spring E as soon as the pawl H has been lifted to disengage it from the ratchet *b*, and this is done by pulling down the rope I, the spring having abundant power to raise the basket, but not sufficient to sustain it when it contains a load. When a fireman or person wishes to ascend in the basket, he pulls himself up by the rope I, the spring assisting him to rise.

It will be observed that the basket, when ascending empty, may be stopped at any part of the ascent by discontinuing the downward pull on rope I, so as to allow the pawl H to engage the ratchet *b*. The drum will be of a size to suit the situation where used, and the coil-spring will also be adapted to allow the necessary movement of the band in its descent for the basket to reach the ground, and will possess sufficient reactionary movement to draw the basket again to the top. The end of the rope is shown with a spring-claw, *i'*, whose ends may be snapped into the cavities *r* of the shaft R' of rollers R, so as to attach the end of the rope to said shaft.

The friction of the pawl H against the ratchet-teeth when the basket G is descending, and the running of metallic band F over the rollers, will give sufficient friction to prevent a dangerously rapid descent of the basket, even should the spring become broken. The descent of the basket may also be checked by holding the rope I either above or below the basket-eye *g*.

The journal-boxes *n* of the roller N are fixed to vertical guide-rods n^1 working in brackets n^2, and said boxes rest on springs n^3 at the outside of the case, so as to preserve an even tension on the band F.

I claim as my invention—

1. The combination of spring-drum B E, rope or band F, ratchet *b*, pawl H, and rope I, adapted to disengage said pawl from said ratchet, substantially as and for the purpose set forth.

2. The combination, with the basket G and rope I of the guide-rollers R, having shaft R' for winding up the cord, substantially as and for the purpose set forth.

JOSEPH EICHLER.

Witnesses:
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CHAS. HALL.