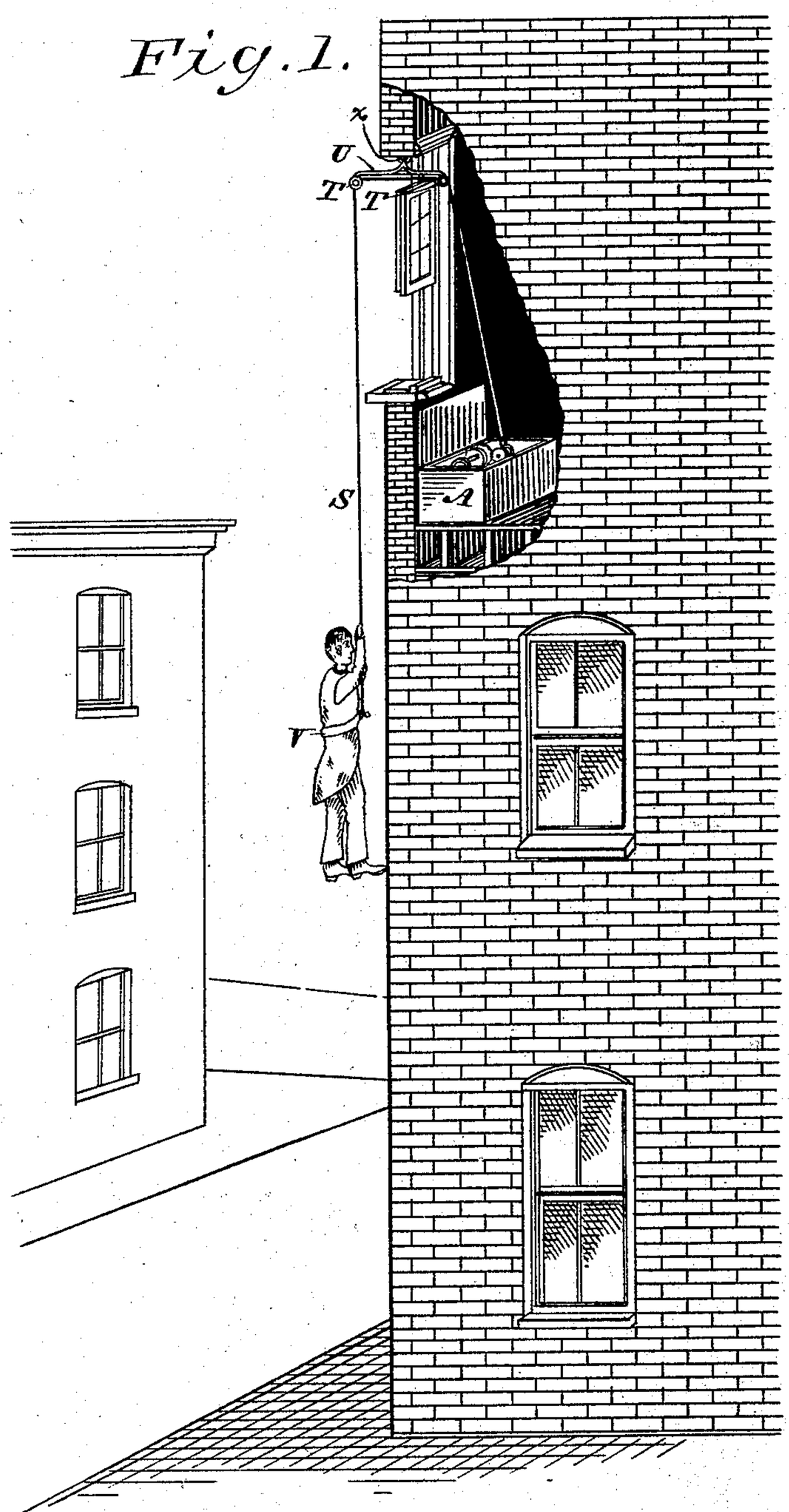
(No Model.) 3 Sheets—Sheet 1.

L. HILL.

FIRE ESCAPE.

No. 388,491. Patented Aug. 28, 1888.

Fig. 1.



WITNESSES.

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(No Model.) 3 Sheets—Sheet 2.

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FIRE ESCAPE.

No. 388,491. Patented Aug. 28, 1888.

Fig. 5.

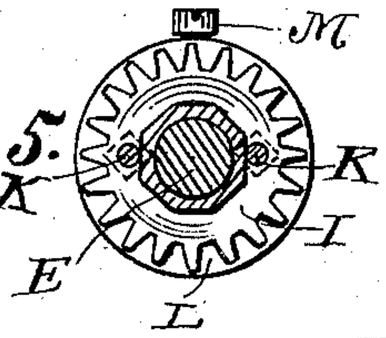
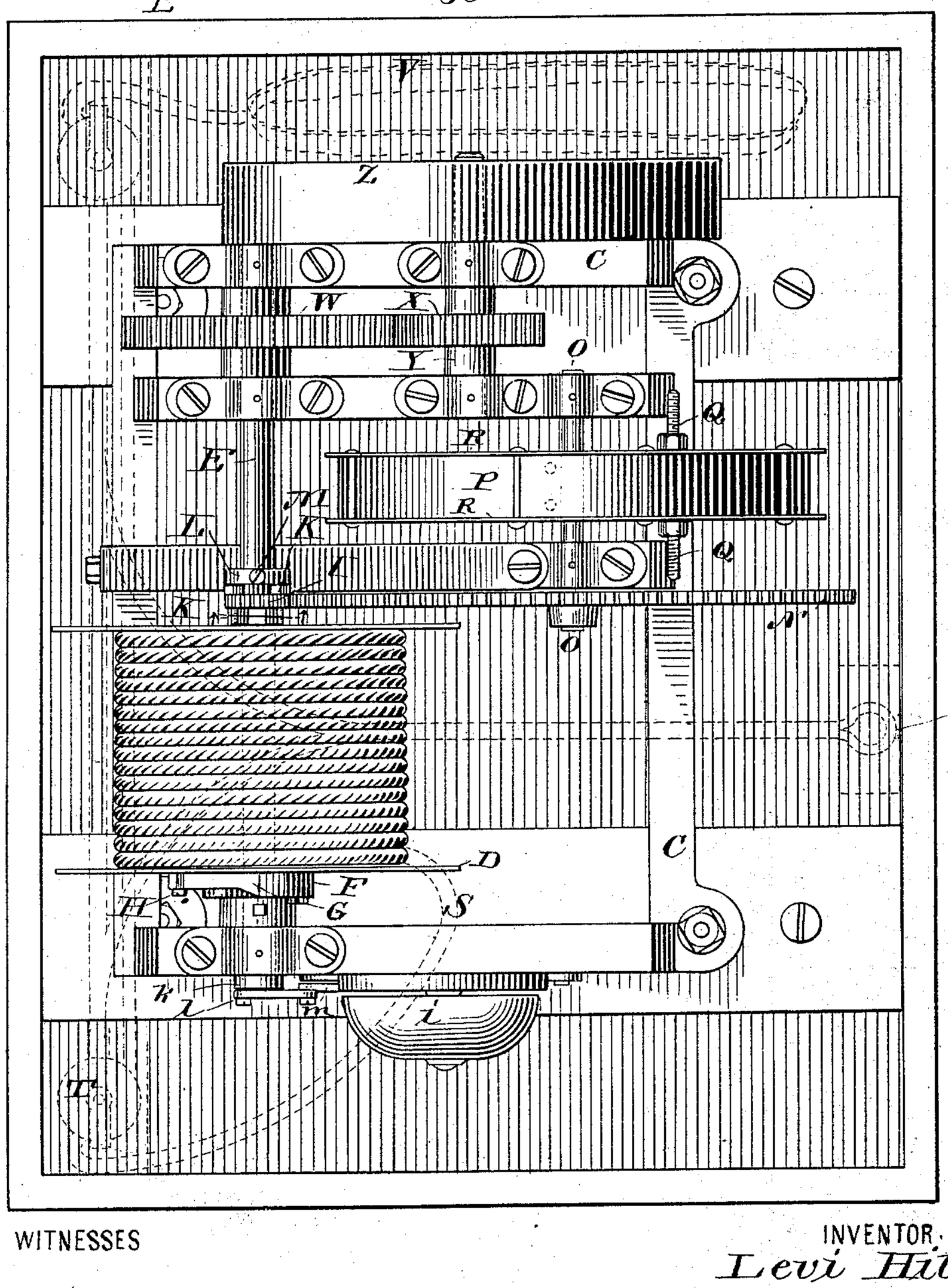


Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

L. HILL.

FIRE ESCAPE.

No. 388,491. Patented Aug. 28, 1888.

Fig. 3.

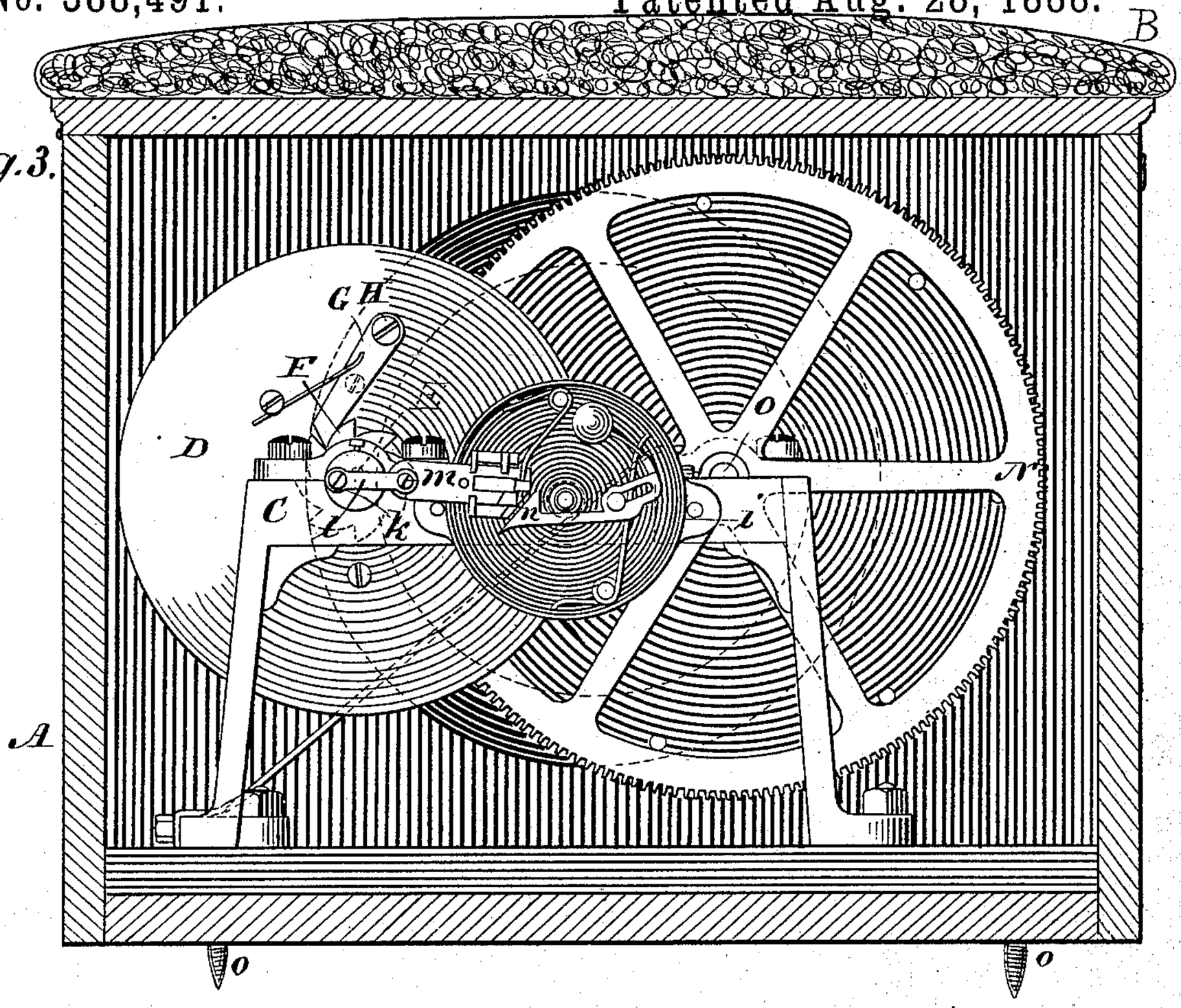
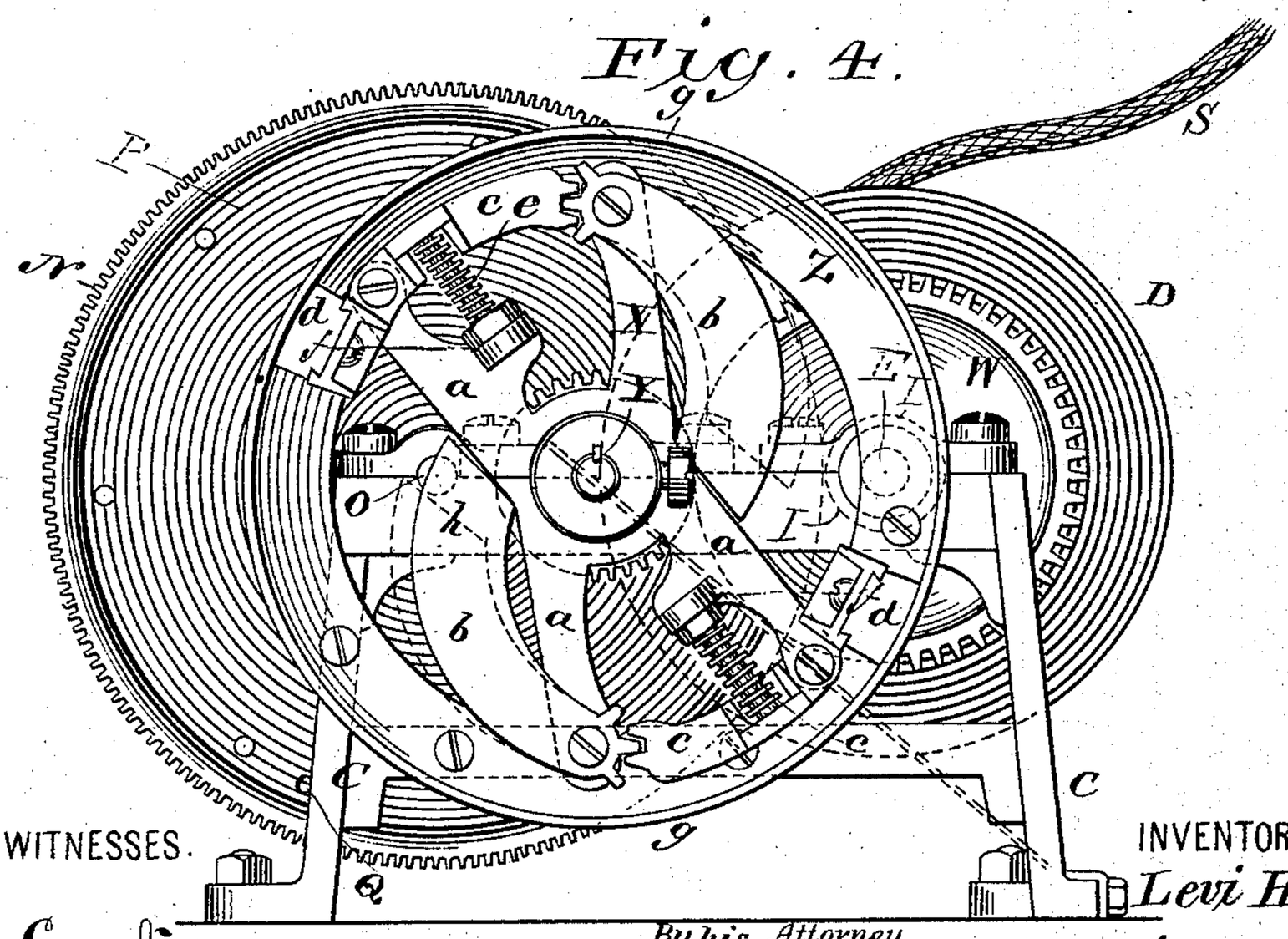


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEVI HILL, OF MUNCY, PENNSYLVANIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 388,491, dated August 28, 1888.

Application filed May 8, 1888. Serial No. 273,194. (No model.)

To all whom it may concern:

Be it known that I, LEVI HILL, of Muncy, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification, reference being had to the accompanying drawings.

My improvements relate to that class of fire-escapes in which a governor mechanism is employed for securing moderate speed and safety in lowering a person, and in which a coiled spring is also employed to automatically wind up the lowering-rope upon its drum.

My invention consists in the improved organization hereinafter described in detail, and then succinctly summed up in my appended claim.

In the accompanying drawings, illustrating my improved fire-escape apparatus, Figure 1 is a perspective view showing my improved fire-escape in operation. Fig. 2 is a top plan view. Fig. 3 is an end view of the apparatus within its box. Fig. 4 is an opposite end view of the apparatus detached. Fig. 5 is a view showing the fastening-screws securing a pinion loose on the drum-shaft to the drum, so that it will always rotate with the drum.

Referring to the letters upon the drawings, A indicates a suitable box, preferably made ornamental, with its hinged cover upholstered, as at B, to adapt it for a seat. Ordinarily this box will be set in a room under a window, as shown in Fig. 1, from which, in case of fire, it will be convenient and desirable to escape by the use of my apparatus. The box will serve as a useful piece of furniture.

C indicates a frame, preferably of light castings, adapted to be contained in the box and to sustain the other parts of the device.

D indicates a winding-drum loosely secured to the shaft E. A ratchet, F, and spring-pawl G, of ordinary construction, serve to rigidly connect the drum to its shaft, the ratchet being secured to the drum-shaft and the pawl being secured to the drum at H.

I indicates a pinion loose upon the drum-shaft E, but fixed to the drum by means of any suitable fastening—such as screws K—so that the pinion must always rotate with the drum.

L indicates a collar secured to the shaft E by means of a set-screw, M, and serving to keep the drum in its position on its shaft.

N indicates a wheel gearing with the pinion I, and fixed upon its shaft O, so that the drum, the pinion I, the wheel N, and its shaft always rotate together.

P indicates a coiled spring secured at one end to the shaft O and at the other to a bolt, Q, passing through the disks R R, which serve to inclose the spring.

S indicates a lowering-cable, preferably made of asbestus or asbestus compound, secured at one end to the drum and passing over pulleys T T upon the pendent bracket U, and secured at the other end to a body-belt, V, adapted to be strapped around a person.

From the organization and relations of the parts described it will be seen that whenever the lowering cord or cable is paid out so as to lower a person the effect will be to wind up the coiled spring P. The spring is made of such dimensions and has such resilient force as to wind up the lowering-cord swiftly as soon as it is paid out and released below.

To provide for moderately slow and safe lowering of a person from a window or elevated point of a burning building, I employ a centrifugal mechanism of a compact, simple, safe, reliable, and durable nature, which I can apply upon one end of the frame C. It consists of a spur-wheel, W, rigidly fixed to the drum-shaft E and gearing with a pinion, X, rigidly fixed to the shaft Y of the governor mechanism. This mechanism consists of a fixed disk, Z, secured to the frame and provided with an annular flange which operates as a friction-brake.

a indicates a spider fixed to the shaft Y, and rotating within the flange-disk Z. This spider carries upon it two sets of pivoted levers, *b c*, which are exactly alike and are placed opposite each other on the spider. The lever *c* is provided with a brake-shoe, *d*, and with a spring, *e*, seated upon a lug, *f*, projecting from the spider and bearing radially outward against the lever *c*, and always tending to keep the brake-shoe out of contact with the flange *g*. The long arm of the lever *b* is weighted at *h*, so that when the spider is rotated centrifugal force tends to throw it outward tangentially, the effect of which is to instantly force the brake-shoe against the inner surface of the flange *g*. These parts are so adjusted that as soon as the rotation of the winding-drum

reaches a certain moderate degree of rapidity at which it will be desirable to check the speed of lowering, the brake-shoes will then instantly be forced against the inner surface of the flange *g*, which checks the speed and secures perfect safety lowering.

In order to give an alarm of fire in case, for example, a fire should break out in a room from which a person desires to escape, and at the same time give notice of the conflagration, I provide an alarm-bell, *i*, upon the end of the frame C, opposite the governor mechanism, and connect its pivoted spring-strike *n* with the drum-shaft by means of a crank, *k*, a pivoted link, *l*, and a reciprocating slide, *m*. The reciprocating slide *m* and the spring-strike *n* are connected together in the usual way, as in door-bells, so that the reciprocations of the slide cause the bell-strike to operate, and I need not, therefore, describe these parts more in detail, as I claim nothing novel in the striking mechanism itself.

The box A and the frame C are to be firmly secured to the floor by any suitable means—such, for example, as screw-bolts. (Shown in the drawings at *o*.)

Ordinarily the entire mechanism, including the bracket U and its pulleys and the body-belt, will be contained in the box A, which is adapted to receive them compactly with the bracket U at the top, as shown in Fig. 2, so that it can be conveniently seized as soon as the box-cover is lifted and hung upon a bolt, *x*, secured in any suitable position in a window-jamb, or in a wall of a building.

This apparatus enables a person to safely and quickly jump from a window of a burning building and descend at a moderate speed in safety to the ground. Then the apparatus automatically adjusts itself by means of the coiled spring to save another person, and so on indefinitely.

What I claim to be new, and desire to secure by Letters Patent of the United States, is—

The combination of the box A, the frame C, adapted to be secured to the floor of a building, the winding-drum and lowering-cord secured thereto, the drum-shaft E, connected with the drum by ratchet-and-pawl mechanism, the pinion I loose upon the shaft E, but fixed to the winding-drum, the wheel N, geared to the pinion I and fixed upon the shaft O, the coiled spring, also secured at one end to the shaft O, a centrifugal governing mechanism upon one end of the frame and geared with the shafts E and O, and an alarm mechanism upon the opposite end of the frame connected by a crank and link with the shaft E, whereby safety lowering may be accomplished and a fire-alarm sounded and the lower cord automatically taken out, all substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

LEVI HILL.

Witnesses:
B. L. BOWMAN,
JOHN F. LEINBACH.