No. 696,931. Patented Apr. 8, 1902.

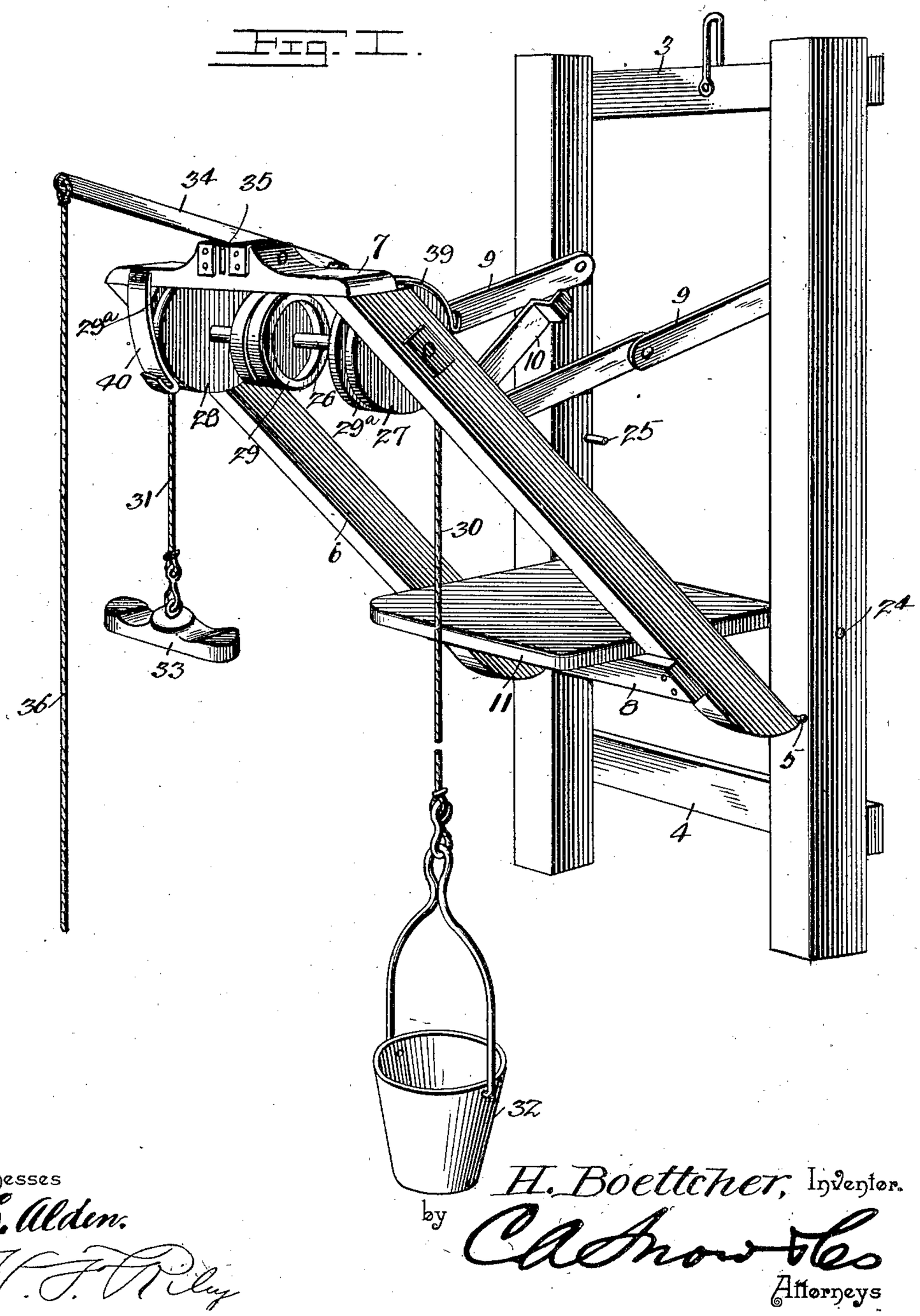
H. BOETTCHER.

FIRE ESCAPE.

(Application filed Aug. 14, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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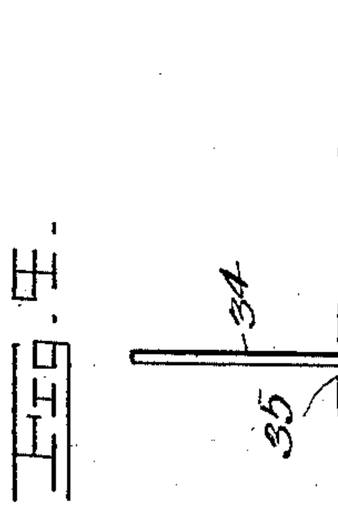

FIG. 4.

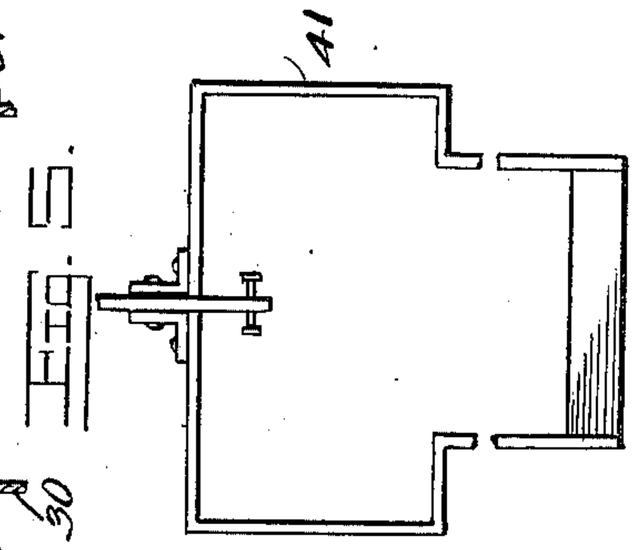

FIG. 5.

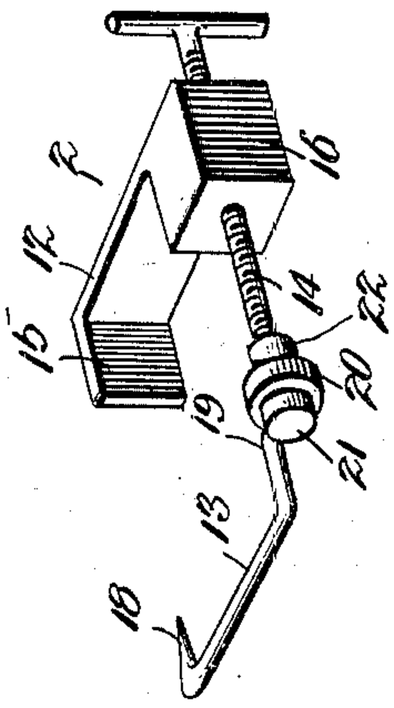

FIG. 6.

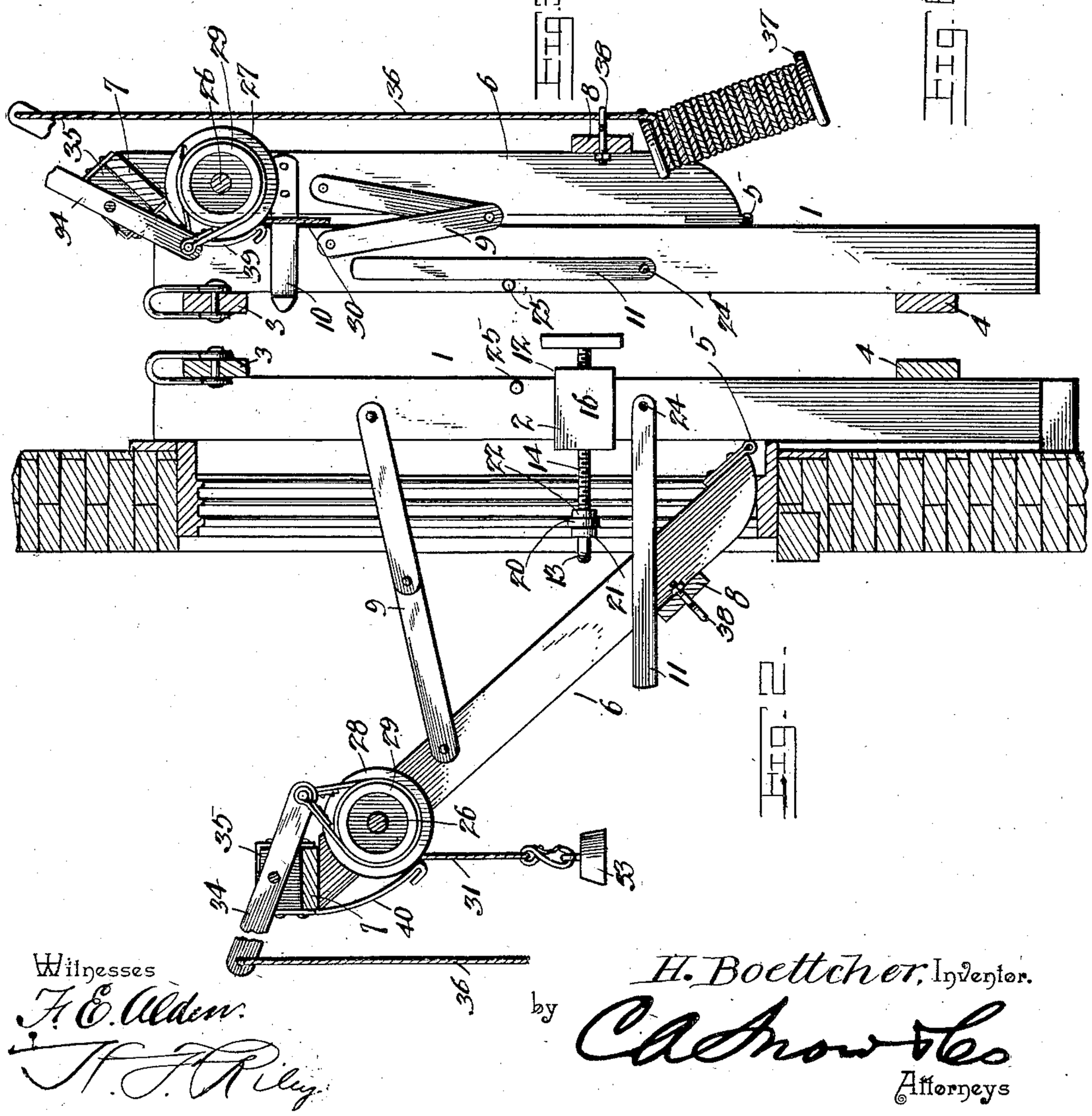

FIG. 2.

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UNITED STATES PATENT OFFICE.

HERMANN BOETTCHER, OF HAWCREEK, TEXAS, ASSIGNOR OF ONE-HALF TO FRITZ PRESUN, OF LAGRANGE, TEXAS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 696,931, dated April 8, 1902.

Application filed August 14, 1901. Serial No. 72,066. (No model.)

To all whom it may concern:

Be it known that I, HERMANN BOETTCHER, a citizen of the United States, residing at Hawcreek, in the county of Fayette and State of Texas, have invented a new and useful Fire-Escape, of which the following is a specification.

The invention relates to improvements in fire-escapes.

The object of the present invention is to improve the construction of fire-escapes and to provide a simple and comparatively inexpensive one of great strength and durability adapted when not in use to be compactly folded and arranged within a house or other building and capable of being quickly placed in position for use and of enabling persons and goods to be rapidly lowered to the ground with perfect safety.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a fire-escape constructed in accordance with this invention. Fig. 2 is a vertical sectional view showing the fire-escape arranged within a window. Fig. 3 is a similar view, the fire-escape being folded. Fig. 4 is a detail view illustrating the arrangement of the brake and the grooved wheels or drums. Fig. 5 is a detail view illustrating a modification of the hinged frame designed for use in narrow windows. Fig. 6 is a detail view of one of the clamps.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates an inner oblong frame designed to be secured to a window on the interior of a house or other building by clamps 2, as illustrated in Fig. 2 of the accompanying drawings, and this frame, which is composed of side bars and upper and lower cross-pieces 3 and 4, has secured to it by hinges 5 a frame 6, which is adapted to fold against the inner frame 1 when the fire-escape is not in use and which is adapted to extend outward through a window to arrange the devices for lowering persons and goods on the exterior in position for use. The hinged frame 6 is composed of side bars and upper and lower cross-pieces 7 and 8, as clearly shown in Fig. 1, and these frames 1 and 6 may be constructed either of wood or metal, but in practice will be preferably manufactured of fireproof material. The sides of the folding frame are connected with the sides of the inner frame by folding braces 9, composed of inner and outer sections pivoted together at their adjacent ends and similarly connected at their other ends to the inner faces of the sides of the frames. The sections of the braces are adapted to swing downward from the position shown in Fig. 2 to that illustrated in Fig. 3 to permit the outer hinged frame to fold against the inner frame. The inner frame is designed to rest upon the floor or upon any other suitable support, and the folding frame when in operative position is arranged at an inclination and extends upward from the sill of the window, being connected at its bottom with the inner frame at the lower portion thereof. When the frames are folded, as illustrated in Fig. 3 of the accompanying drawings, they are secured in such position by means of a resilient catch 10, secured to the inner face of one of the sides of the hinged frame and arranged to engage the adjacent side of the inner frame. This catch 10, which is constructed of a single piece of spring metal, is secured at one end to the hinged frame, and its other end is bent to form an approximately L-shaped engaging portion or head, the outer arm or portion of which is tapered and slightly curved to enable it to automatically engage the inner frame when the fire-escape is folded.

The clamps 2, which are designed to be located at the sides of the window, are arranged directly above a folding platform 11, and each clamp is composed of inner and outer jaws 12 and 13 and a connecting-screw 14, arranged in a threaded perforation of one of the jaws and swiveled to the other jaw. The inner jaw 12, which is constructed of heavy metal, is provided with a recess 15 to receive the adjacent side of the inner frame, and its end 16 is enlarged and provided with a threaded perforation for the reception of the adjusting-screw. The outer jaw consists of a rod

provided at its outer end with an inwardly-extending spur or projection 18 for engaging the wall at the side of the window, and the inner end of the outer jaw is provided with an L-shaped arm 19, terminating in an eye 20, which is arranged on the outer end of the screw between a head 21 and a collar 22. The collar 22 is arranged at the inner side of the eye 20, and the screw is provided at its inner end with a suitable head or grip to enable it to be readily grasped for rotating it.

The platform 11, which is hinged at its inner edge between the sides of the inner frame by suitable pintles 24, is adapted to swing upward against stops 25 to fold it within the said inner frame, as clearly illustrated in Fig. 3 of the accompanying drawings. When the platform is in position for use, it is arranged horizontally, and it is supported by the lower cross-piece 8 of the hinged frame. This platform is designed for the accommodation of persons, and it enables them to stand with safety in a window while they are being placed on the fire-escape.

The sides of the folding frame are provided near their upper ends with suitable bearings for the reception of the horizontal shaft 26, which receives a pair of grooved wheels or drums 27 and 28 and a brake-wheel 29. The grooved wheels are arranged adjacent to the inner faces of the sides of the folding frame, and the grooves 29ª are designed to be slightly rounded at the edges to prevent wire ropes or cables 30 and 31 from catching during the operation of the fire-escape. The grooves, which are of a width substantially the same as the thickness of the ropes or cables, may be of any desirable depth, and the disks or wheels 27 and 28 may be of any desired size to provide drums of the proper capacity. The wire ropes or cables are reversely arranged on the drums or wheels, and when the shaft is rotated one of the ropes or cables will be unwound and the other will be rewound. The outer ends of the ropes or cables are provided with snap-hooks or other suitable devices for connecting a bucket 32 and a seat 33 to them. The bucket is designed to accommodate women and children, and the seat, which is centrally connected to the wire rope or cable 31, is designed for the accommodation of men and has its upper face grooved or hollowed out at opposite sides of the center to form a convenient seat and to conform to the configuration of the legs of a person. Any other suitable devices may be employed for accommodating persons and goods, and while the bucket or receptacle is ascending the seat will be descending, and vice versa. The descent of the bucket or seat is controlled by a brake consisting of the said brake-wheel 29, a lever 34, and a strap or band 35, of steel or other suitable material, coiled around the brake-wheel 29, as clearly shown in Fig. 4, and connected with one end of the lever. The lever is fulcrumed between its ends in a slot or bifurcation 35 of the top cross-piece 7, which is enlarged at the center. Connected with the outer end of the lever is a wire 36, designed to extend to the ground and adapted to enable the brake to be operated either from the ground or the fire-escape or by a person descending in the bucket or on the seat. The brake is adapted to create sufficient friction to enable persons and goods to be lowered with safety at the desired speed, and the brake-wheel, which may be constructed in any suitable manner, is preferably provided with a metal periphery to receive the metal strap or band, and it is of sufficient length to prevent the strap or band from becoming disengaged from it. The ends of the strap or band are connected with the lever at opposite sides thereof, and there is no tendency when the brake is operated to move the strap or band longitudinally of the brake-wheel.

When the fire-escape is not in use, the wire or other flexible connection 36 is wound upon a suitable spool 37 and is preferably engaged with a notch at one end thereof, and the lower cross-piece of the folding frame is provided with a hook 38 to receive the wire 36 to hold the same close to the frames when the latter are folded and arranged as shown in Fig. 3. Any other suitable means may be employed for preventing the wire from unwinding from the spool when the fire-escape is not in use.

In order to prevent the wire ropes or cables 31 and 32 from leaving the grooves of the drums or wheels 27 and 28, resilient guards 39 and 40 are provided. These guards consist of curved springs secured at their upper ends to the top cross-bar 7 of the hinged frame 6 and located at opposite sides thereof. The lower ends of the resilient guards engage the peripheries of the grooved wheels or drums and are bent outward, as shown, to provide smooth faces to avoid wearing or otherwise injuring the cables.

When the fire-escape is not in use, it is designed to be arranged within a house or other building in convenient position, and when it is desired to place the fire-escape in position the sashes of the window are removed. When the device is used in houses having narrow windows, a frame 41 may be employed. This frame 41, as illustrated in Fig. 5 of the accompanying drawings, is designed to be hinged to the inner frame similar to the frame 6, and it is provided with a narrow lower portion preferably formed by bending the sides, as shown, and preferably constructed of metal.

It will be seen that the fire-escape is exceedingly simple and inexpensive in construction, that it is adapted when not in use to be compactly folded, and that it may be quickly mounted in position for use. It will also be apparent that persons and goods may be safely lowered to the ground and that the descent of the same may be controlled from the ground or from the fire-escape or by a person while descending.

What I claim is—

1. A fire-escape comprising an inner frame designed to be arranged within a room and being of a length to extend from a point adjacent to the floor to a point above the top of a window, said frame being composed of side bars and suitable connecting-bars, an outer frame composed of side bars and suitable connecting-bars and hinged at its lower end to the inner frame at the lower portion thereof and arranged to swing outward to an inclined position to extend through a window, and capable of folding against the inner frame, folding braces connecting the frames and adapted to support the outer frame when the latter is in an inclined position, the platform hinged between the sides of the inner frame and arranged to swing between the same and adapted to swing outward and downward to a horizontal position and supported in such position by one of the connecting-bars of the outer frame, and means mounted on the outer frame for lowering persons or goods to the ground, substantially as described.

2. A fire-escape comprising inner and outer frames hinged together at the bottom and adapted to fold, the inner frame fitting against the inner face of a wall and provided with upright side bars and the outer frame being of a size to extend through a window, means mounted on the outer frame for lowering persons or goods to the ground, and a vertically-adjustable clamp composed of an inner jaw having a recess to receive the adjacent side of the inner frame and provided with a threaded opening, an outer jaw for engaging the exterior of the wall, and a screw passing through the threaded opening of the inner frame and connected with the outer jaw, substantially as described.

3. In a fire-escape, the combination of a frame, a shaft mounted thereon, grooved disks fixed to the shaft, ropes or cables reversely arranged on the grooved disks and coiled in the said grooves, the latter being of substantially the same width as the ropes or cables, whereby the coils will be arranged in the same vertical plane, the reversely-arranged resilient guards covering a portion of the periphery of each disk and retaining the ropes or cables in the grooves, and a brake, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HERMANN BOETTCHER.

Witnesses:
JOSEPH COTTAM,
C. H. STEINMANN.