J. Heuermann. Sheet 1-2 Sheets.

Fire Escape.

No. 96,698. Patented Nov. 9, 1869.

Fig. 1.

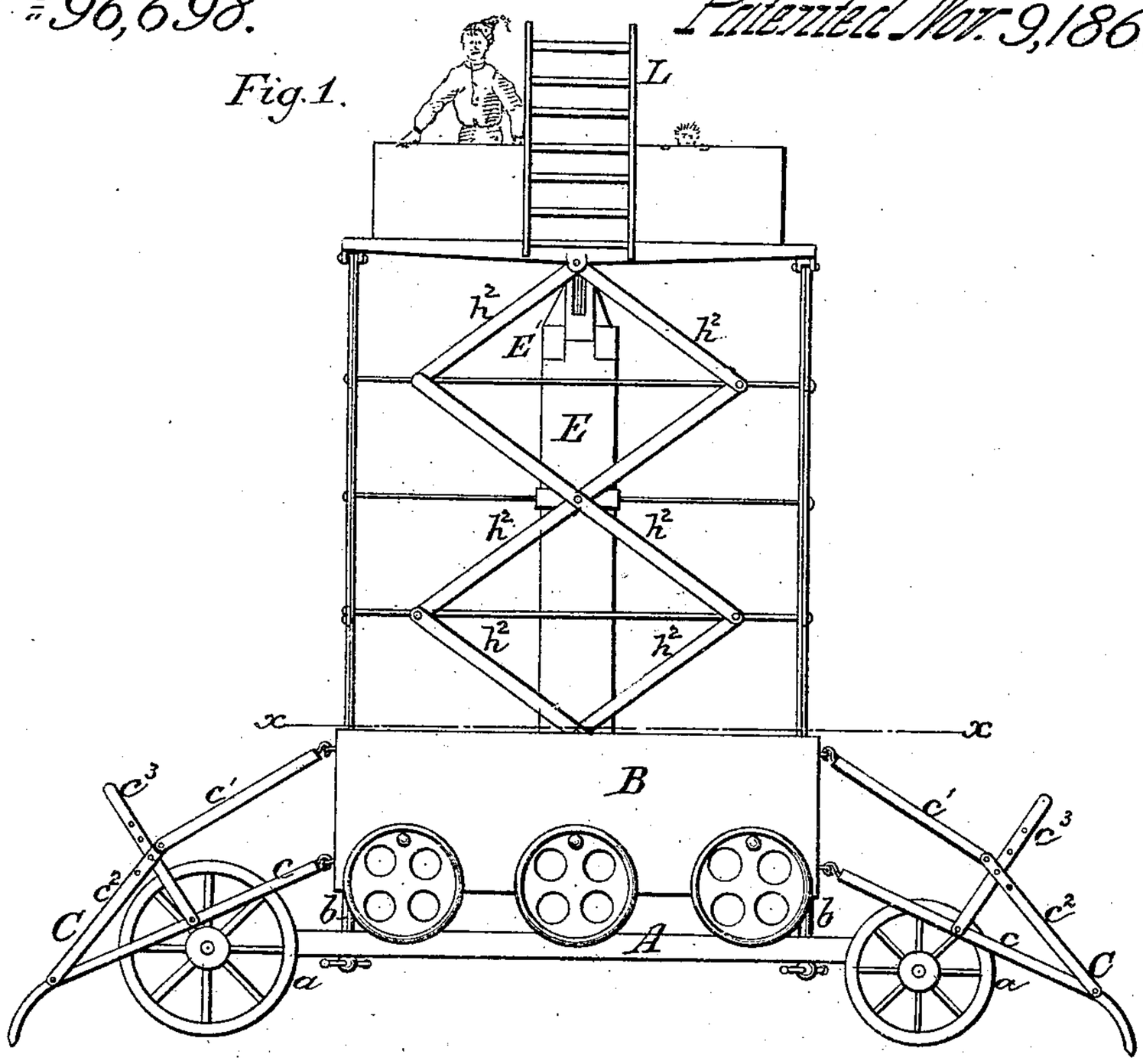
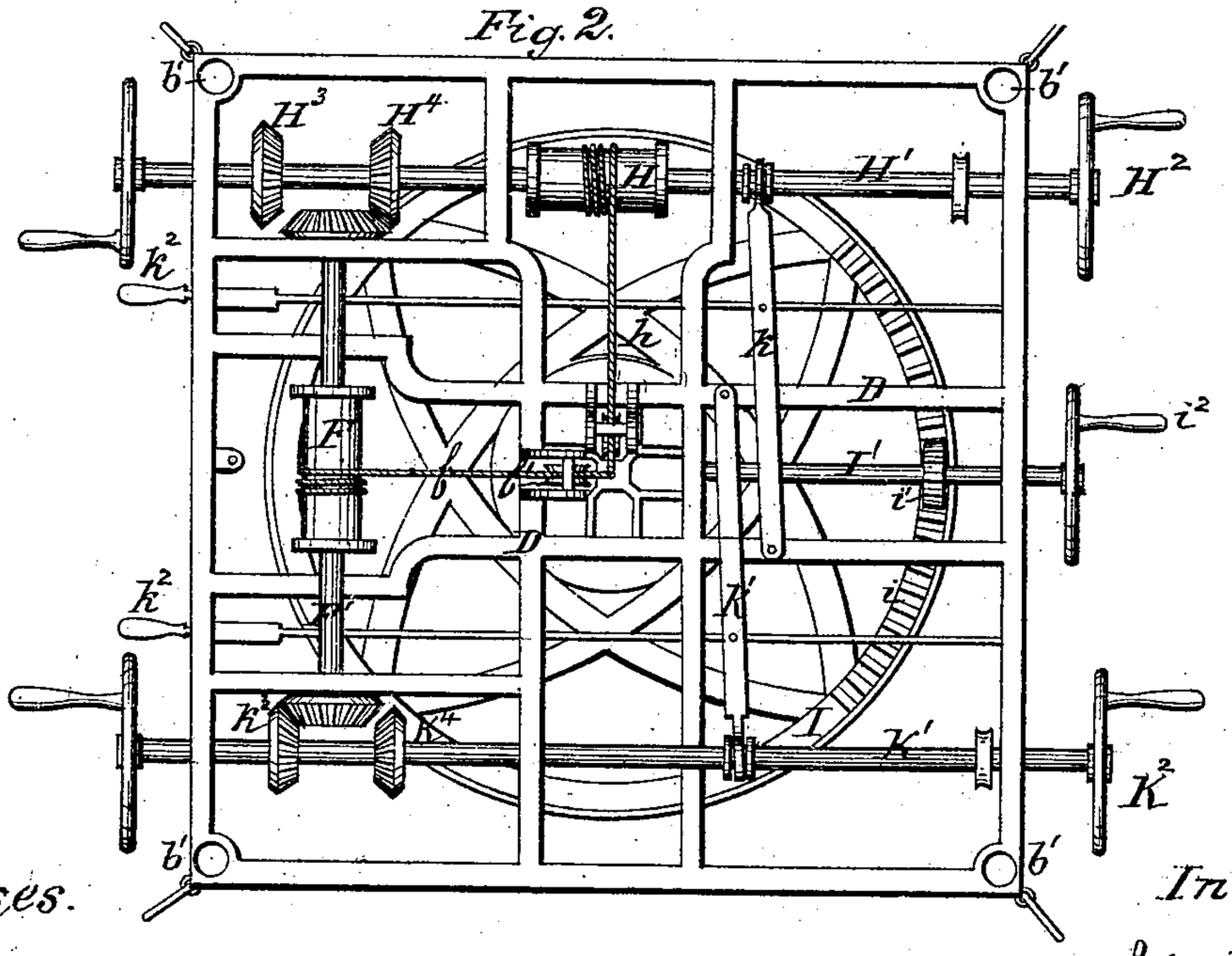


Fig. 2.



Witnesses.
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E. A. Clarkson.

Inventor.
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by
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J. Heuermann. Sheet 2-2 Sheets.

Fire Escape.

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Fig. 3.

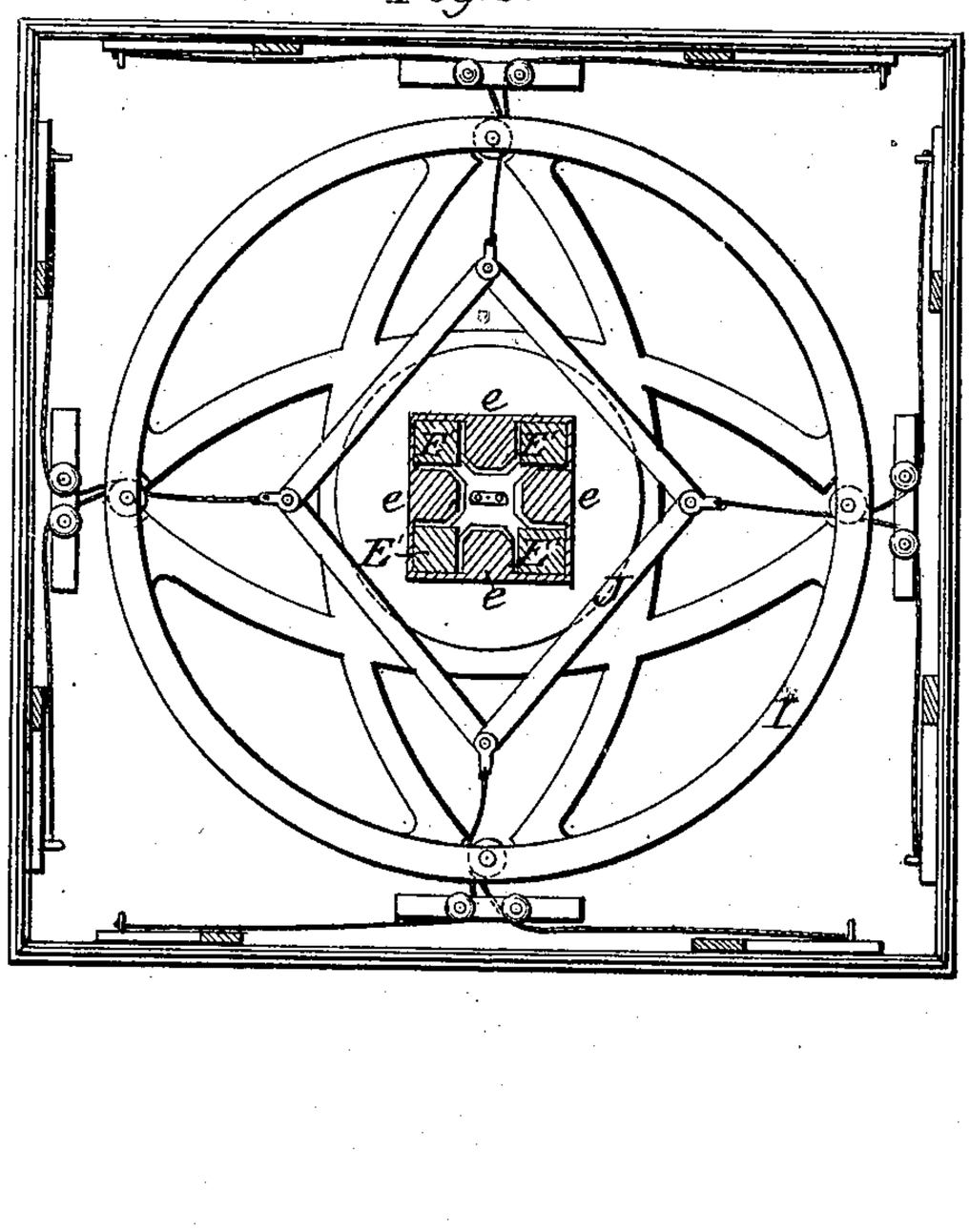


Fig. 5.

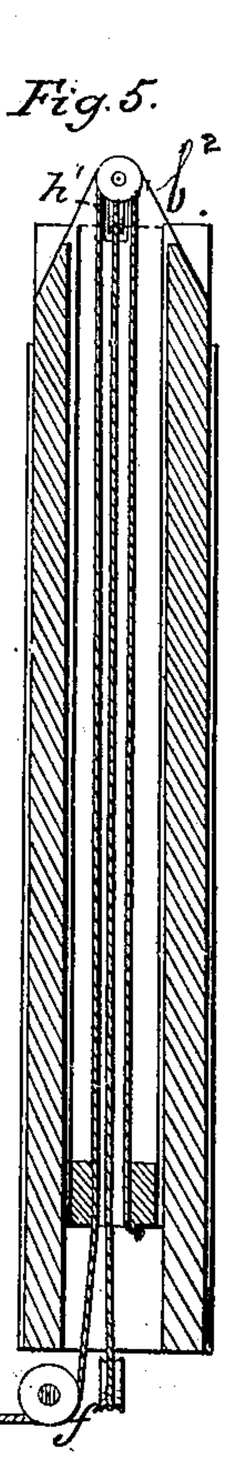
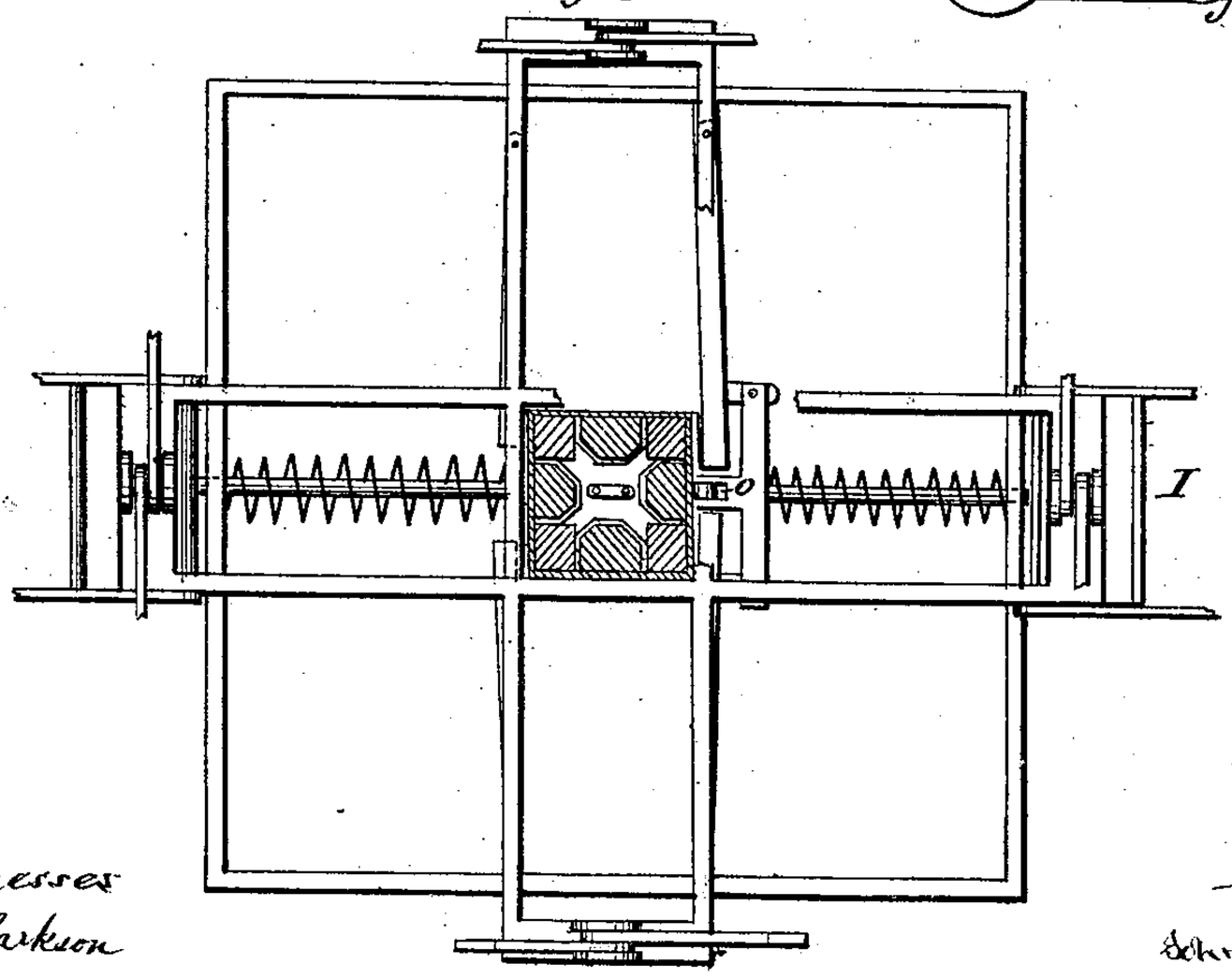


Fig. 4



Witnesses
E. A. Clarkson

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United States Patent Office.

JOHN HEUERMANN, OF DAVENPORT, IOWA.

Letters Patent No. 96,698, *dated November* 9, 1869.

IMPROVED FIRE-ESCAPE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN HEUERMANN, of Davenport, in the county of Scott, and State of Iowa, have invented a new and useful Improvement in Fire-Escape; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to an improved fire-escape; and consists, first, in the devices for steadying the machine and making it stand plumb; and, second, in the devices for raising the basket or car.

The details of construction and manner of operation will be fully described hereinafter.

In the drawings—

Figure 1 represents a side elevation of my improved machine;

Figure 2, a plan view of the body of the machine inverted;

Figure 3 represents a cross-section through the line *x–x*, fig. 1;

Figure 4 represents an inverted view of the car; and

Figure 5 represents a sectional view of the mast.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and operation.

A represents the frame-work of the machine, which rests upon the wheels *a a*, as shown in fig. 1.

B represents the body of the machine, which rests upon the adjustable screw-standards *b b*, rising from the frame-work A, the heads fitting into suitable sockets, *b′ b′*, in the body of the machine.

C C represent steady-braces, which consist of the lower bar *c*, and upper jointed bar c^1 c^2.

c^3 represents a stay-bar, the lower end of which is pivoted to the bar *c*, as shown in fig. 1. It passes through the bar c^2, which is slotted for that purpose, (if desired, a double bar may be used,) and its free end is used as a handle.

The bar c^2 and stay c^3 are both provided with suitable holes, in which a pin is inserted when the brace is properly placed.

Within the body B are placed the devices for raising the car, as will now be described.

The body itself is made of great strength, and is provided also with the beams D D, fig. 2, which form the foundation of the elevating-devices.

E represents a hollow mast of peculiar construction. It has within itself four masts, E′ E′, fig. 3, which rise together, when desired, for the purpose of increasing the elevation of the car.

The mast E is provided with bars, *e e*, extending its entire length upon its inside, by which arrangement sockets are formed for each division of the masts E′. These bars *e* are united at the top of the mast, and the supplemental masts E′ are united at their lower ends, so that it is made impossible for the masts E′ to be raised out of their sockets.

The masts E′ are raised as follows:

f, fig. 2, represents a rope, one end of which is attached to the drum F, as clearly shown in the drawing.

The other end, after having been passed over the pulley f^1 in the frame-work up through the mast E, and over the pulley f^2, fig. 5, on the mast E, and brought down through the mast again, is attached to the masts E′ at the point of their union.

The drum F is operated by means of suitable gears and wheels, as will be more fully described hereinafter.

The car G is raised by two separate movements, as will now be described.

h, fig. 2, represents a rope, one end of which is attached to the drum H, and the other, after passing up through the mast E, in a similar manner to the rope *f*, and over pulley h^1, fig. 5, is attached to the car in any suitable manner.

It will be at once perceived that by this means the car can be raised no higher than the mast E, as the upper pulley is located at the top of this mast.

To elevate the car still more, I employ upon each side the bars h^2 h^2 h^2 h^2, which form the system of levers commonly known as the "lazy-tongs."

The lower ends of the lower bars of these systems are provided with flanged friction-wheels, which run under suitable ways within the body, as shown in fig. 3. By this arrangement the levers are firmly held in place.

Each lower end also of these lower bars is provided with an eye, to which is attached one end of a rope. These ropes pass about pulleys in the centre of each side, as shown in fig. 3, and, being united, pass about the pulley in the wheel I, and are fastened to the equalizer J.

From this arrangement of ropes and pulleys, it will be evident that if the wheel I be partially rotated, the lower ends of the bars must be drawn together, and that by drawing the lower ends of the bars together, the whole system of levers is extended, and the car elevated.

In order to rotate the wheel I, it is provided, upon its lower side, with the cogs *i*, as shown in fig. 2.

Engaging with these cogs is the pinion i^1, upon the shaft I′.

The shaft is revolved, when desired, by means of the hand-wheel i^2.

H^1 and K^1, fig. 2, represent shafts of similar construction, which are provided with hand-wheels H^2 and K^2 at each end, as shown.

They are also provided with the gear-wheels H^3 H^4 K^3 K^4, by means of which motion is communicated, when desired, to the shaft F′.

In order that the latter shaft may be revolved in either direction, the shafts have a sliding movement in their bearings, said movement being effected by means of the levers k k^1, which are operated by means of the hand-rods k^2 k^2. By moving these rods, either one of the gear-wheels upon the shaft may be brought into contact with the gear-wheels of shaft F'.

In order that the car may run easily upon the mast, I provide it with friction-rollers, *o o*, as shown in fig. 4, and in order that the car may have a firm hold upon the masts E', which are of course smaller in their combined area than the mast E, I place these rollers upon spring bars, which are held in position by pivoted arms. By this arrangement, the car is firmly held upon the mast E, and also upon the extensions E', the spring enabling the roller-bar to accommodate itself to the different sizes of the mast.

L L represent short ladders, hinged to the car, which are intended to be turned over on to a window-sill, to enable the occupants to escape from a burning house.

The operation of my invention will be easily understood from the foregoing description.

At an alarm of fire, my machine can be drawn through the streets as easily and rapidly as a steam-engine. Having arrived upon the ground, if its services are needed, it is run to the proper point, and securely fixed in position, by means of the braces C. The lower end of the bar *c* being sharp, is thrust into the ground as far as possible, by means of the stay c^3, or by pressure upon the bar c^1, and locked in position by pinning the stay c^3.

While this is being done, the body of the machine may be levelled to suit the unevenness of the street, by means of the screw-standards *b*. This being accomplished, the car may be elevated to the top of the mast E, by turning the hand-wheel of shaft H^1.

If desired, by connecting the shaft H^1 with the shaft F, the hand-wheel of each shaft may be turned, and the car and the divisions E' of the mast will be elevated at the same time, the car, however, rising of course no higher than the mast E.

To still further elevate the car, the wheel I is rotated by means of the hand-wheel, by which means the levers h^2 are extended, and the car is raised, if necessary, to the limit of the machine. The ladders L are then thrown out, and communication is established with the windows of the house.

When the persons in danger have been rescued, the car is lowered by reversing the operation described.

The machine described possesses peculiar merits. It is compact when not in use, but is capable of being quickly extended to a great height. It is also so strongly braced as to make an accident almost impossible.

Having thus fully described my invention,

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

1. The brace C, constructed, as described, of parts c c^1 c^2 c^3, as and for the purpose set forth.

2. The arrangement of the wheel I, pulleys, equalizer J, and levers h^2, as and for the purpose described

3. The spring roller-bar *o*, when constructed and arranged as described, for the purpose set forth.

4. The machine described, consisting essentially of the frame A, body B, mast E, extensions E', system of levers h^2, car G, wheel I, and equalizer J, when combined and operated as described, for the purpose set forth.

This specification signed and witnessed, this 5th day of July, 1869.

JOHN HEUERMANN.

Witnesses:

C. JOHANNSEN,

JOHN WUNDERLICH.