

(No Model.)

3 Sheets—Sheet 1.

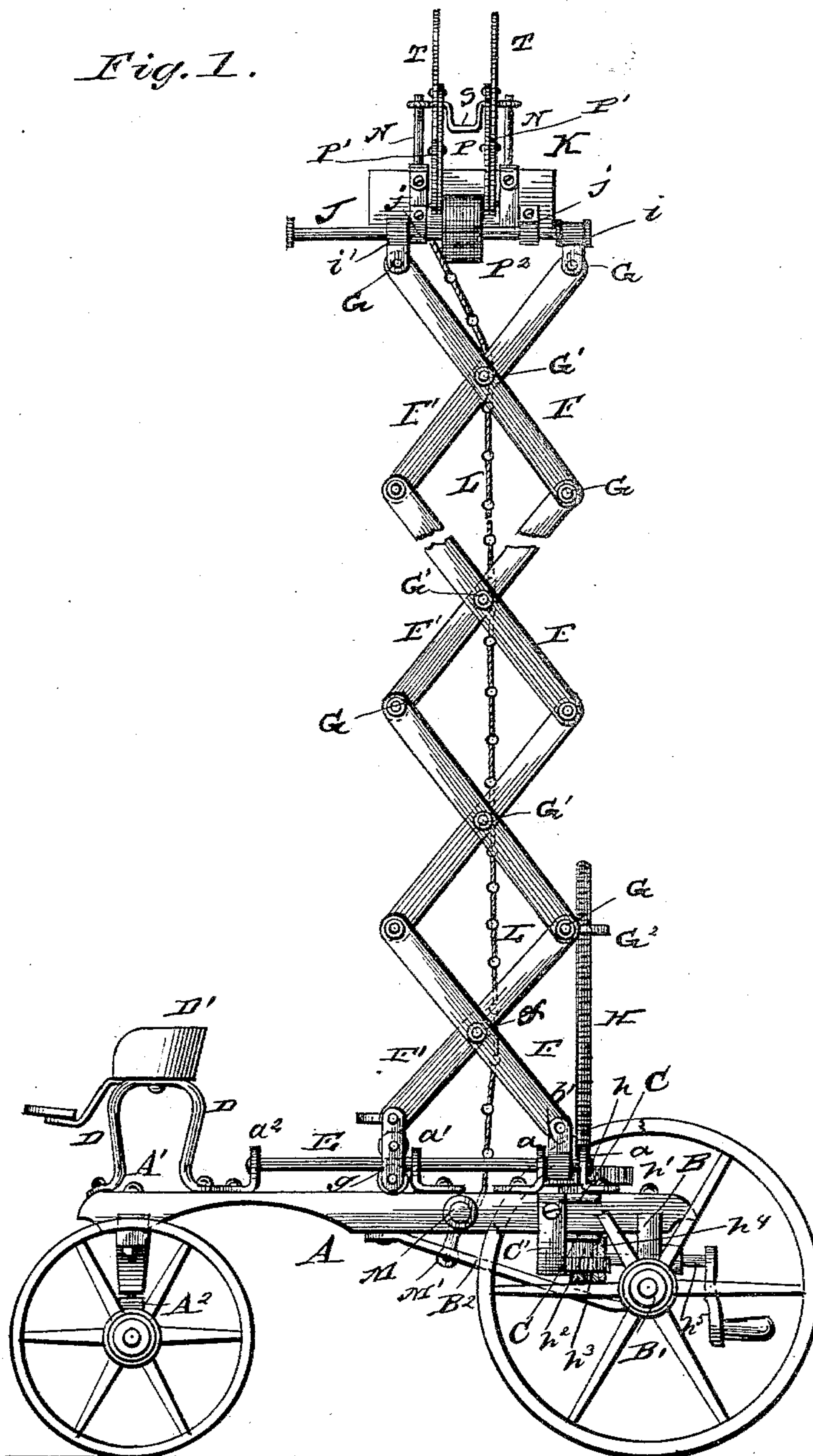
J. A. CRANDALL.

FIRE ESCAPE.

No. 300,308.

Patented June 10, 1884.

Fig. 1.



WITNESSES

Phil C. Dieterich
W. R. Keyworth.

INVENTOR

Jesse A. Brandall
by:
W. H. Alexander
Attorney

(No Model.)

3 Sheets—Sheet 2.

J. A. CRANDALL.

FIRE ESCAPE.

No. 300,308.

Patented June 10. 1884.

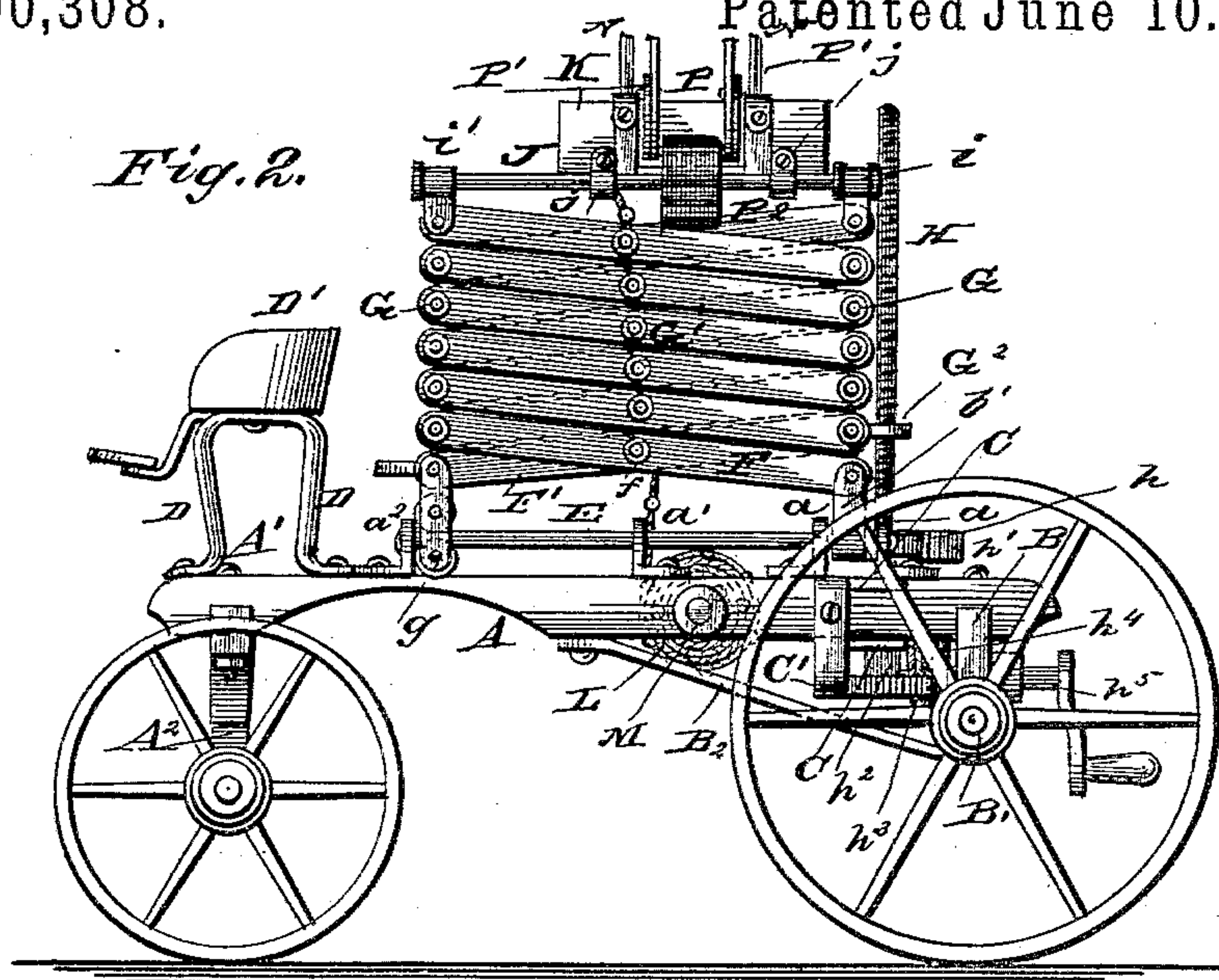
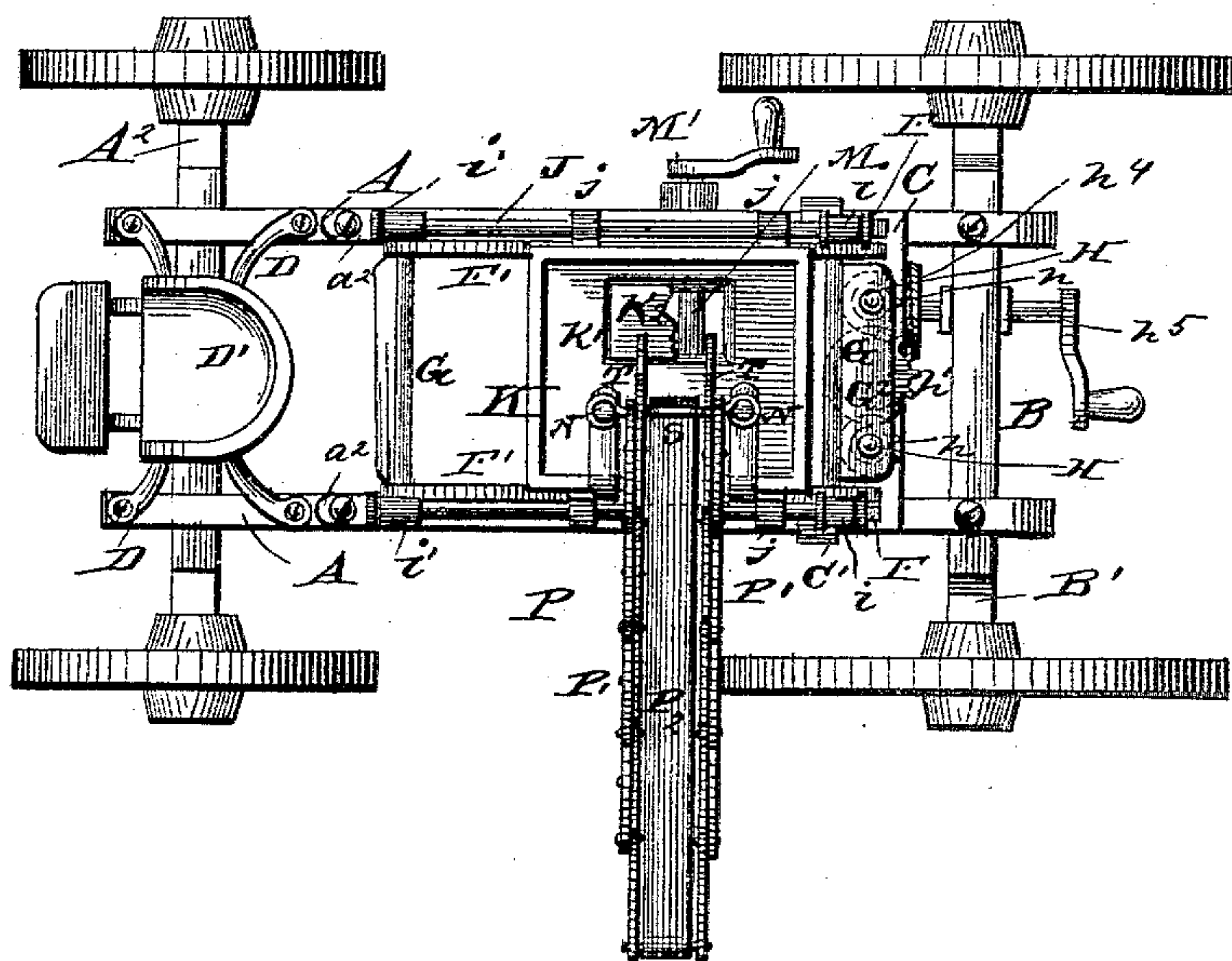


Fig. 3.



WITNESSES

Phil C. Dietrich.
W. R. Keyworth.

INVENTOR

INVENTOR
Jesse A. Brandall
By: W. H. Alexander
Attorney

(No Model.)

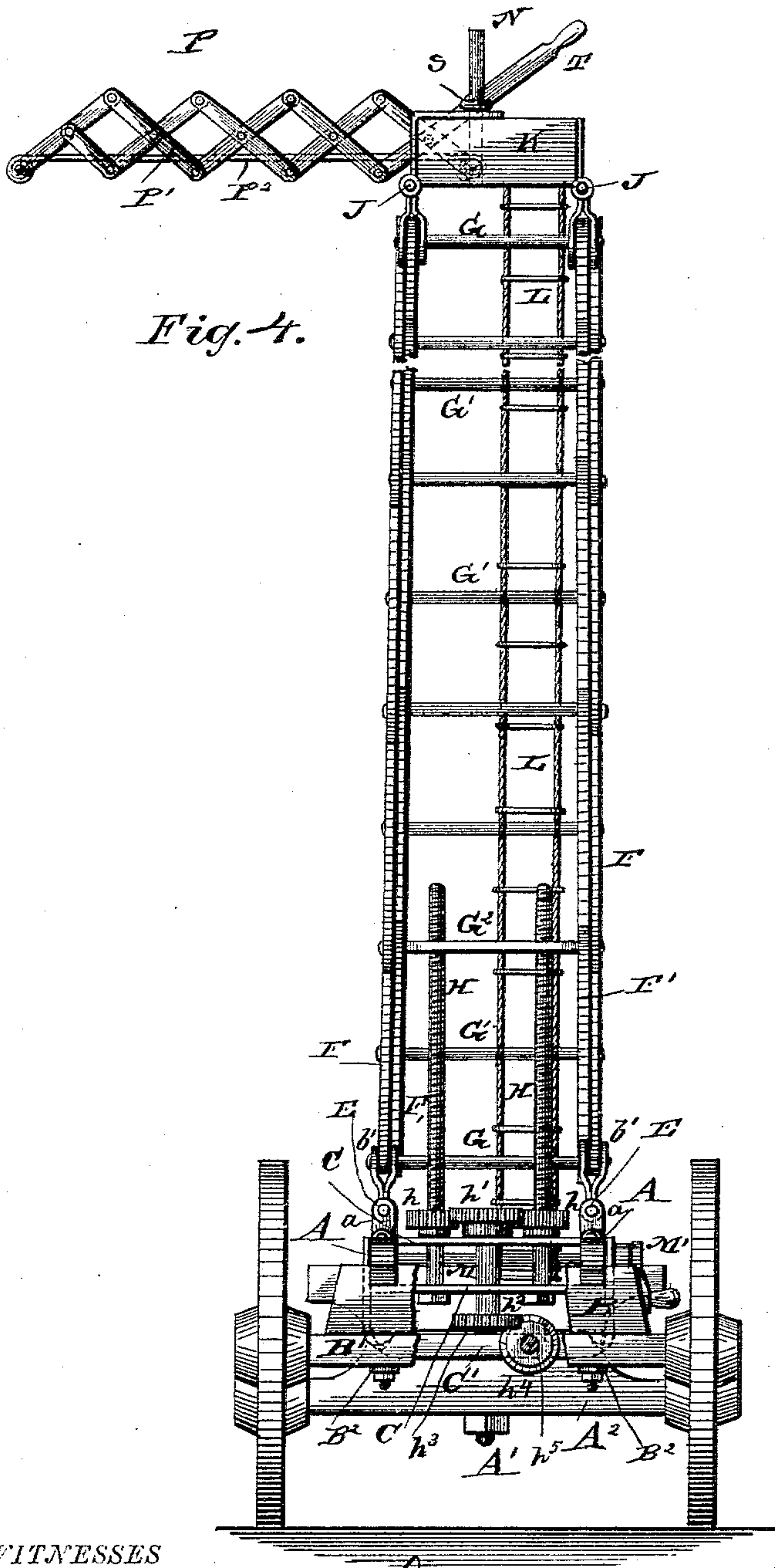
3 Sheets—Sheet 3.

J. A. CRANDALL.

FIRE ESCAPE.

No. 300,308.

Patented June 10, 1884.



WITNESSES

Phil C Dietrich
W R Keyworth

INVENTOR

INVENTOR
Jesse A. Brandall
By:
W. H. Alexander
Attorney

UNITED STATES PATENT OFFICE.

JESSE A. CRANDALL, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF,
JOHN WOOD, AND WM. H. FLANDROW, ALL OF SAME PLACE.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 300,308, dated June 10, 1884.

Application filed February 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, JESSE A. CRANDALL, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side elevation of the fire-escape, showing the same raised. Fig. 2 is a similar view with the ladder in a folded position. Fig. 3 is a plan view showing the bridge extended. Fig. 4 is an end elevation showing the ladder raised.

The object of my invention is to apply an extensible fire-escape mounted on a wheel-carriage, with means whereby one person may easily and rapidly reach a window in the upper portion of a building; and the nature of my invention consists in certain novel devices, hereinafter explained, by means of which I accomplish the above-named results.

Before describing my invention I will state that it is well known that extension-levers or lazy-tongs have been used, and also extension-levers applied to carriages have also been used, in fire-escapes. These devices I broadly disclaim.

I will now describe my invention, reference being had to the annexed drawings.

A A designate two horizontal reaches, the front transverse bar of which is provided with a king-bolt, A'. This bar is rigidly connected to the front ends of the reaches, and it affords the pivotal connection of the said front transverse bar with the axle A² of the front wheels. The rear ends of the reaches A A are rigidly connected to the rear elevated portion, B, of the axle B' of the rear wheels. This constitutes the carriage-support of my improved fire-escape. The rear axle is rigidly braced by bars B² B² to the reaches, and the reaches are rigidly connected by transverse bars C C, near the rear axle, and also by a transverse bearing-bar, C', located in front of and below the said bars C C, and rigidly secured to the reaches. On top of each one of the reaches I

rigidly secure eye-brackets or ears *a a*, *a' a'*, and in front of the eye-brackets *a'*, I secure to the reaches the standards D D of a driver's seat, D'. The brackets or ears, above described, on the reaches afford bearings for two line bars or pintles, E E. Between the ears *a a*, on each one of the reaches, is received on a line bar or pintle, E, a strap, *b'*, which is pivoted to the rear end of a lever or arm, F. This arm is pivoted at *f* to another arm, F', the front end of which is pivoted to an eye-piece, *g*, adapted to slide back and forward on the bars or pintles E. Now, it will be observed that I have one lever, F, on each side of the carriage, at its rear end, which is pivoted to a pintle-strap, *b'*, connected by a fulcrum-pin at *f*, and that I have another lever which is pivoted at its front end to a slide, *g*. It will also be observed that the extremities of these levers are pivoted to other levers by means of transverse rods G, and so on do I build up a combination of cross-head levers, known as "lazy-tongs" or "extension-levers," which are all laterally braced, as shown in the drawings, at their several joints. The transverse rods G', at the intermediate points between the transverse rods G, serve a twofold purpose, which will be fully hereinafter explained. The transverse bar G² is screw-tapped, and through it passes two threaded vertical screw-shafts, H H, which have their bearings in the transverse bars C, and on these screw-shafts are keyed pinion spur-wheels *h h*, which engage with a large spur-wheel, *h'*, on a shaft, *h'*, having a perimeter-spur, *h'*, on its lower end, which engages with a worm, *h'*, on a hand-wheel shaft, *h'*.

At the upper termini of the levers or arms of the extension-levers above described are pivoted ears *i i* and *i' i'*, to which are connected rods J J. These rods are pintles, and they are joined by ears *j* to a platform or cab, K, which may be braced and strapped, as shown in the annexed drawings. The floor *k'* of this platform or cab K has an opening or hatchway through its floor which is provided with a cover, *k'*, and from the base of the floor at *k* is hung a flexible ladder, L, which bears against and is guided by the intermediate transverse rods, G', of the extension-levers,

and it therefore not only steadies the ladder, but affords many hand-holds for persons ascending or descending the inside of the extensible frame. The lower end of this flexible ladder L is attached to a windlass, M, which has its bearings in the reaches of the carriage, and which bears against said reaches, and on one end a crank-arm, M', having a handle. It is obvious that this ladder may be made up of a material which will not readily burn when subjected to ordinary heat; and I also contemplate constructing all of these parts of my fire-escape which may be subjected to intense heat of a material and in such manner that they will not injuriously be impaired.

At the upper end of my vertically-extensible and portable fire-escape I have a horizontally-extensible fire-proof bridge, P. This bridge is composed of two rails or walls, P' P', which are extensible and provided with a flexible fire-proof floor, P²—as, for instance, canvas—(saturated in alum-water) or other flexible refractory material which will extend and contract with the frame of the bridge. To practically construct such a bridge I prefer to employ what are known as "lazy-tongs" or "extension-levers," and to connect the inner ends of the lower series of levers to standards N N, rising from said platform-floor, and to allow the upper ends of the upper series of said levers to be guided by a stirrup, S, using long handles T T for the purpose of extending and contracting the bridge.

It will be seen from the above description that I am able to extend and to contract the frame which composes my platform with great facility and without the expenditure of much manual power; also, that I am able to move my extensible fire-escape on ways with very little friction; also, that I have combined with a vertically-extensible fire-escape a horizontally-extensible ladder, which can be moved into any window of a building; also, that said ladder and its floor are fire-proof; also, that I provide a ladder inside of my flexible fire-escape, which is sustained against undue vibration by the internal bracing-bars thereof, which bars afford, in addition to the rounds of the ladder, a safe means of descent and escape from a burning structure.

It is obvious that the natural elasticity or yielding qualities of the ladder, when erected, will allow the platform to be moved toward a window.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A vertically-extensible portable frame, in combination with a horizontally-extensible bridge provided with a flexible fire-proof canvas floor and means for extending the same, all substantially as described.

2. The combination, with the reaches of a carriage, of an extensible lazy-tongs frame, an extensible platform at the upper end thereof provided with a fire-proof fabric; applied as described, with a ladder arranged inside of said frame and adapted to bear on the internal fulcrum-bars of the levers thereof, substantially as described.

3. The combination of vertically-movable lazy-tongs or levers, the platform at the upper end thereof, the horizontally-extensible bridge provided with a flexible floor, the internal bracing-bars, G', a windlass and a lever, T, all constructed and adapted to operate substantially in the manner and for the purposes described.

4. The combination of a vertically-extensible lazy-tongs frame, with a cage or platform at the upper end thereof, a horizontally-extensible frame applied to the said platform, and flexible fire-proof canvas floor therefor, substantially as described.

5. In a fire-escape, the combination of a horizontally-extensible fire-proof bridge, a flexible fire-proof floor therefor, a vertically-extensible frame, a flexible ladder inside thereof, and a carriage on which the whole is mounted, substantially as described.

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

JESSE A. CRANDALL.

Witnesses:

W. R. KEYWORTH,
F. O. McCLEARY.