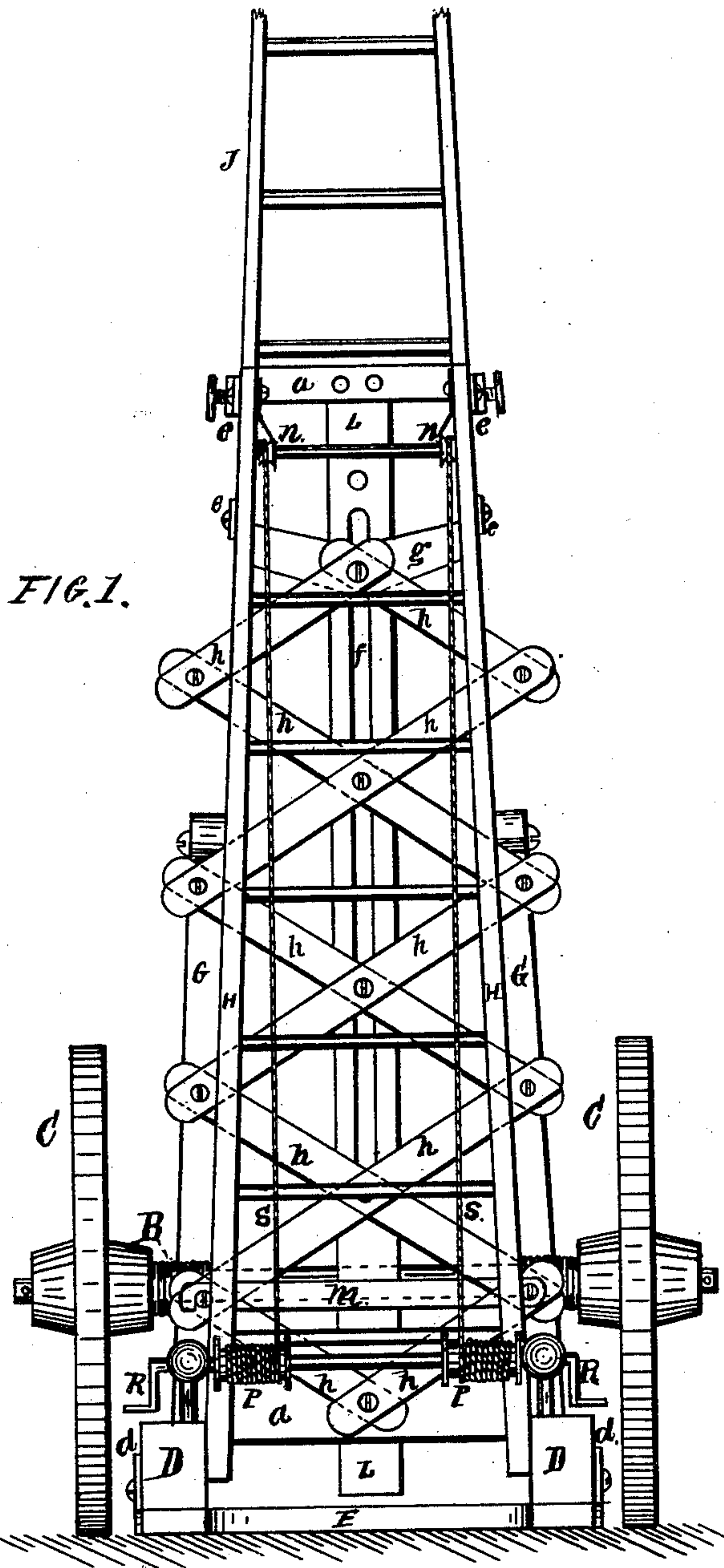


**P. CASEY.**  
**Fire-Escape Ladders.**

No. 156,055.

Patented Oct. 20, 1874.



**WITNESSES**

*C. H. Sherburne*  
*Thomas J. Burke.*

**INVENTOR.**

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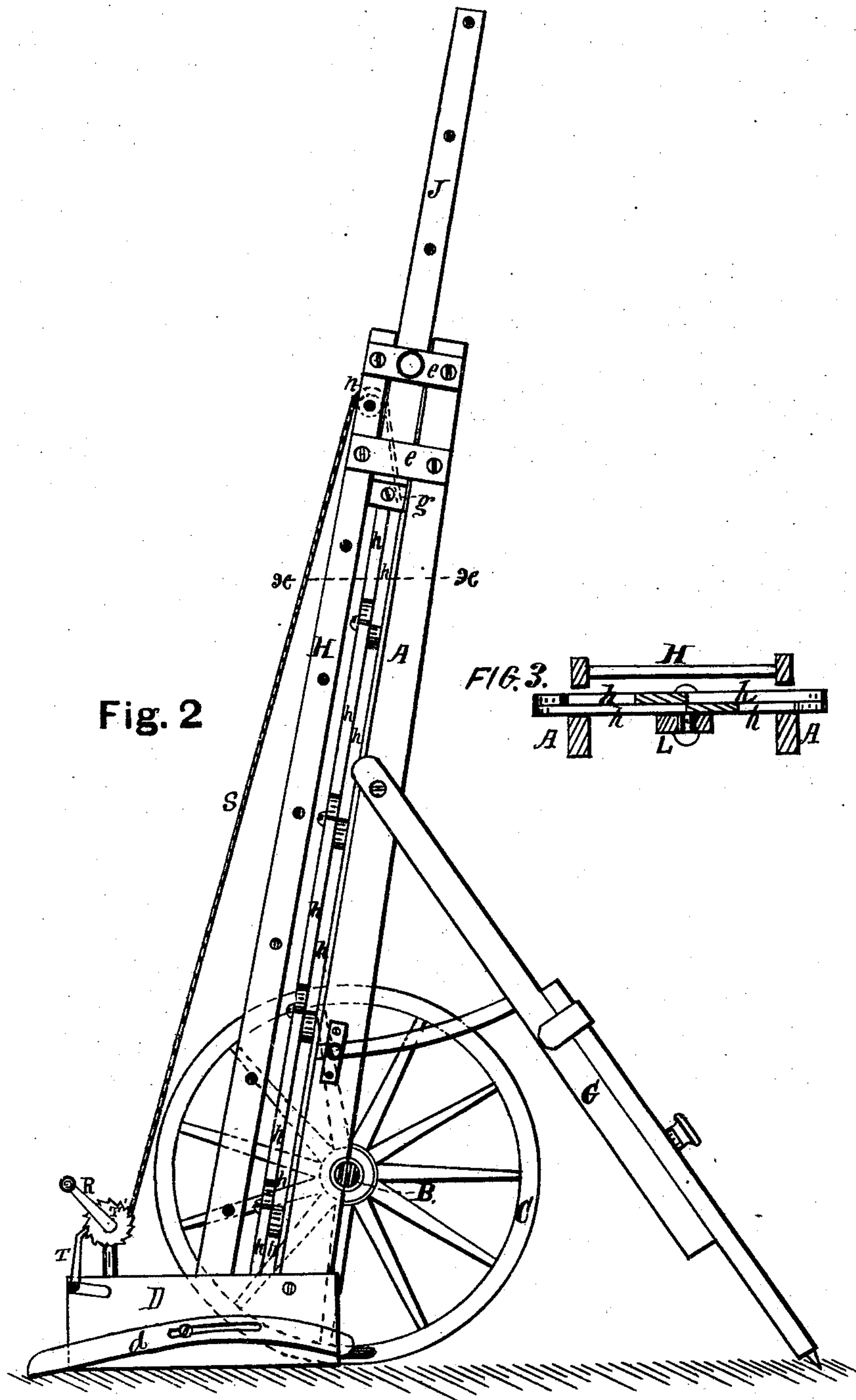


Fig. 2

FIG. 3.

**WITNESSES**

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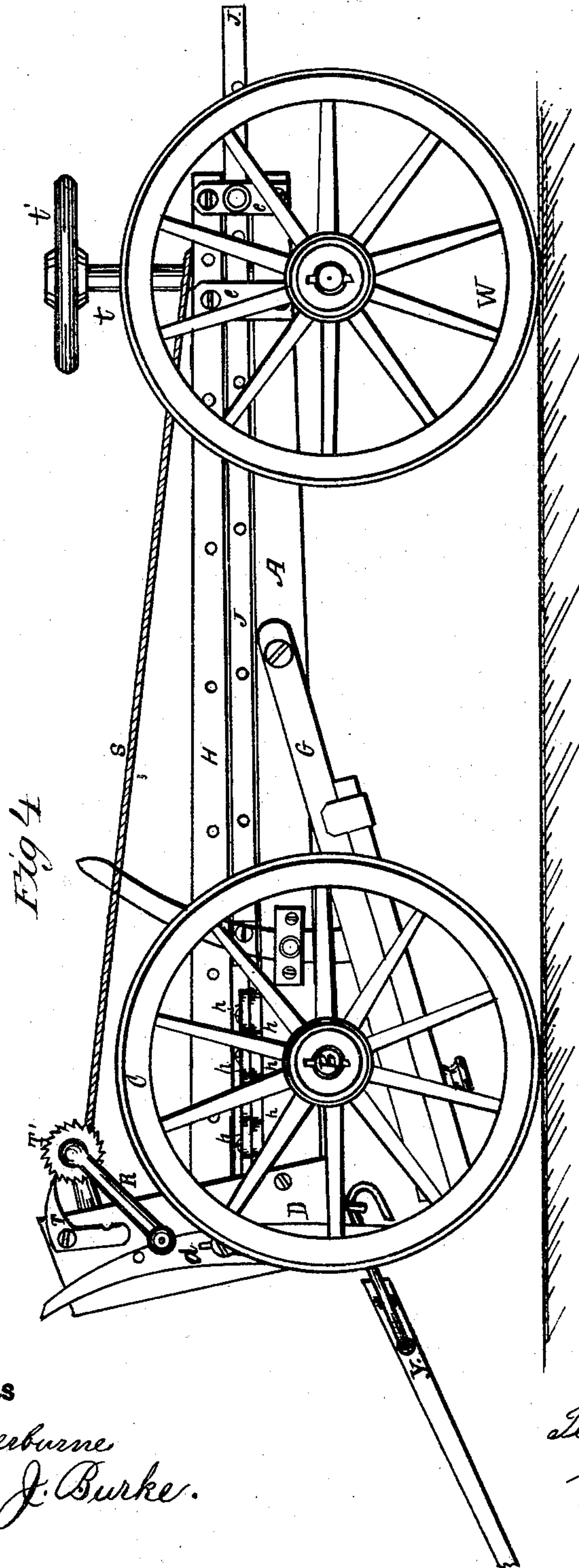
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# UNITED STATES PATENT OFFICE.

PETER CASEY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO CHARLES M. COOK, OF SAME PLACE.

## IMPROVEMENT IN FIRE-ESCAPE LADDERS.

Specification forming part of Letters Patent No. **156,055**, dated October 20, 1874; application filed  
June 22, 1874.

*To all whom it may concern:*

Be it known that I, PETER CASEY, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Fire-Escape Ladders; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1, Sheet 1, is a front elevation of a fire-escape ladder embodying my said invention. Fig. 2, Sheet 2, is a side elevation of the same. Fig. 3, Sheet 2, is a horizontal section on the line *x x* drawn across Fig. 2; and Fig. 4, Sheet 3, is a side elevation of the same when folded for transportation.

Similar letters of reference indicate like parts in the several figures of the drawings.

My invention relates to an improvement in that class of ladders used to elevate hose to the upper stories of buildings, or to enable people to escape therefrom in the event of fire; and its objects are to render the same capable of being more readily adjusted, and more convenient and secure, than those now in use; and to that end it consists in the several combinations of the parts, as will be more fully understood by the following description and claims.

In the accompanying drawings, A A represent the side timbers of the frame-work, which are usually from forty to fifty feet in length, and of the requisite size to insure the proper strength. These timbers are connected at the upper and lower ends laterally by cross-bars *a a*, and are mounted at the lower end upon a fixed axle, B, which extends transversely across the same. Mounted on the ends of this axle are wheels C C, upon which the lower end of the frame is supported. The arrangement of this axle and wheels is such as to allow the timbers A A to rest in a horizontal position, when desired, or to be elevated to or near a vertical position, as shown in Fig. 2. Permanently attached to the lower end of the timbers A A are bed-timbers D D, which are also connected laterally by a platform, E,

(shown in Fig. 1,) which forms the foundation upon which the frame is supported when the latter is elevated to a vertical position. Attached to the outer sides of the bed-timbers D D are weighted levers *d d*, which are so arranged as to admit of being moved in the direction of their length, the object of which is to facilitate the elevating of the frame. The gravity of the foundation, together with the levers, is such as to nearly balance the portion of the mechanism above the axle, by which means the same is readily elevated. Pivoted to each side timbers A A, at a point near the center, is an adjustable brace, G, which is so arranged as to admit of being lengthened or shortened, as may be desired. The object of these braces is to secure the frame in the proper position, and by the longitudinal adjustment of the braces the frame is made to rest firmly in position, irrespective of any unevenness in the ground. H represents the lower ladder, which is made in the usual manner, as shown in Figs. 1 and 2. This ladder is loosely fitted at its lower end between the bed-timbers D D, and extends upward to the upper end of the side timbers, as shown in Fig. 2, and is attached at its upper end to the timbers by means of flat metal plates *e e*, which are firmly bolted to the side timbers, and so pivoted to the ladder as to allow the latter a slight oscillating movement. The position of this ladder when attached, as described, is such as to bring the side rails immediately forward of the side timbers, and a slight distance therefrom; the object of which is to allow the upper ladder to be freely moved upward or downward, as may be necessary, and at the same time prevent the ladder from tipping forward or backward. Permanently attached to the cross-bars *a a*, at the center between the timbers A A, is a guide-bar, L, which is provided at its center with a longitudinal groove or mortise, *f*. (Shown in Fig. 1.) Firmly bolted to the lower end of the upper ladder is a cross-bar, *g*, which extends transversely across from side to side of the same. Pivoted to the center of this cross-bar, and to the lower end of the guide-bar L, is a series of levers, *h*, which cross and are pivoted one



to the other, as shown in Fig. 1, forming what is known as lazy-tongs. The arrangement of said tongs is such that the bolts connecting the centers of the levers pass loosely through the groove or mortise in the guide-bar, by which means the upper ladder is prevented from lateral movement while being elevated. Pivoted to the end of the levers forming the lazy-tongs, near the lower extremity of the same, is a tie-bar, *m*, which extends transversely across the same, and is so arranged as to admit of a free and easy tilting movement. This bar is provided on its lower edge, and at the end opposite to its pivot, with a notch or hook, which takes around the bolt connecting the ends of the two levers, by which means the tongs are prevented from folding. The arrangement of the lower ladder is such as to admit of being moved forward at the lower end, by which means it is removed from contact with the upper ladder, allowing the latter a free ascending or descending movement; but when moved back to its normal position, it bears against the lower end of the upper ladder and front of the lazy-tongs, thus holding the same in a fixed position. The object of this adjustment is to increase the space between the lower ladder and side timbers, for the free adjustment of the upper ladder should the same be covered with ice, and, when readjusted, hold the upper ladder and lazy-tongs firmly between the lower ladder and side timbers. Pivoted to the inner sides of the lower ladder, near its upper end, are sheave-wheels *n n*, which are so arranged as to freely revolve. Permanently attached to the cross-bar *g* of the upper ladder are ropes or chains *s s*, which extend upward and over the sheave-wheels *n n*; thence downward to and around a transverse shaft or drum, *P*, which is journaled to the upper surface of the bed-timbers of the frame. Mounted on the end of this shaft or drum is a crank, *R*, by which a rotary motion is imparted to the said shaft. Pivoted to one of the bed timbers is a pawl, *T*, which engages a ratchet-wheel, *T'*, on shaft *P*, by which the shaft is prevented from moving backward. In Fig. 4, *W* represents

the wheels employed to support the upper ends of the ladders and frame while in transit. Permanently attached to the center of the axle of these wheels is a vertical shaft, *t*, which passes loosely through an aperture in the upper cross-bar *a* of the frame, by which means the latter is connected to the axle when desired. Mounted on the upper end of this shaft is a lever or hand-wheel, *t'*, by which the axle is turned to guide the forward wheels when in transit. *Y* is the tongue, which is used in moving the machine. This tongue is so attached in the bed-timbers as to admit of being readily removed when desired.

My invention is operated as follows: The machine is placed in the proper place. Power is then applied to the levers *d d*, tilting the timbers *A A* on their axle until the bed-timbers *D D* rest upon the ground, which elevates the timbers to or near a vertical position. The braces *G G* are then swung outward, and so adjusted as to bear upon the ground. Power is then applied to crank *R*, imparting a rotary motion to the shaft or drum *P*, winding the ropes or chains *s s* around the drum, which moves the upper ladder upward until the upper end of the same is at the desired point. Tie-brace *m* is then hooked over the bolt on the opposite side of the tongs, thus preventing the same from yielding, and the ladders are ready for use.

Having thus described my invention, I claim—

1. In combination with the side timbers *A A*, journaled to the axle, and provided with the bed-timbers *D D*, as described, the weighted adjustable levers *D D*, extensible braces *G G*, and ladders *H*, all as specified.

2. In combination with the side timbers *A A* and ladder *H*, as specified, the guide-bar *L* and ladder *J*, provided with the lazy-tongs, as described.

The above specification of my invention signed by me this 16th day of June, A. D. 1874.  
PETER CASEY.

Witnesses:

N. H. SHERBURNE,  
THOMAS J. BURKE.