

(No Model.)

2 Sheets—Sheet 1.

A. FERGUSON.  
FIRE ESCAPE.

No. 482,345.

Patented Sept. 13, 1892.

FIG. 1.

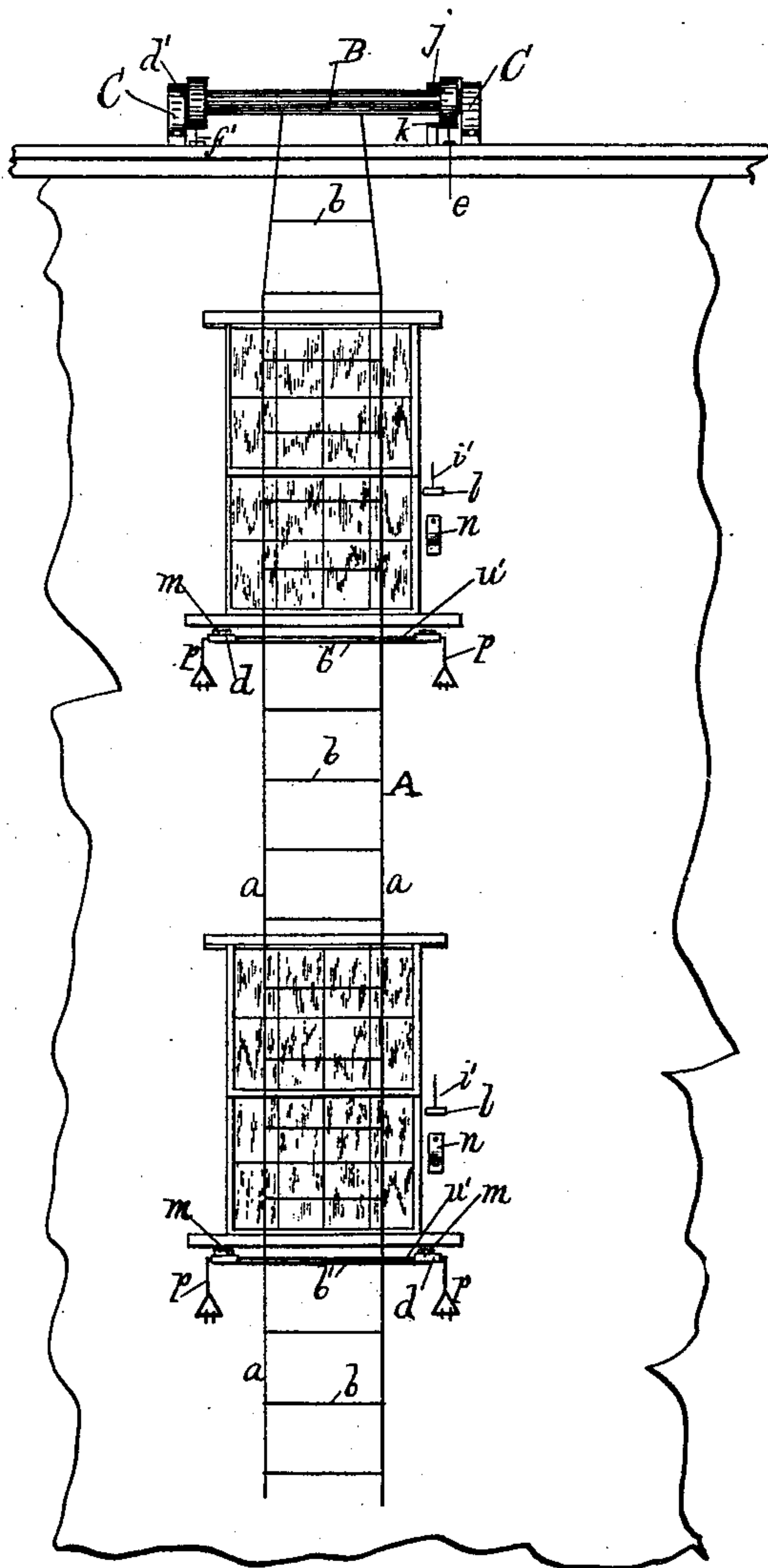
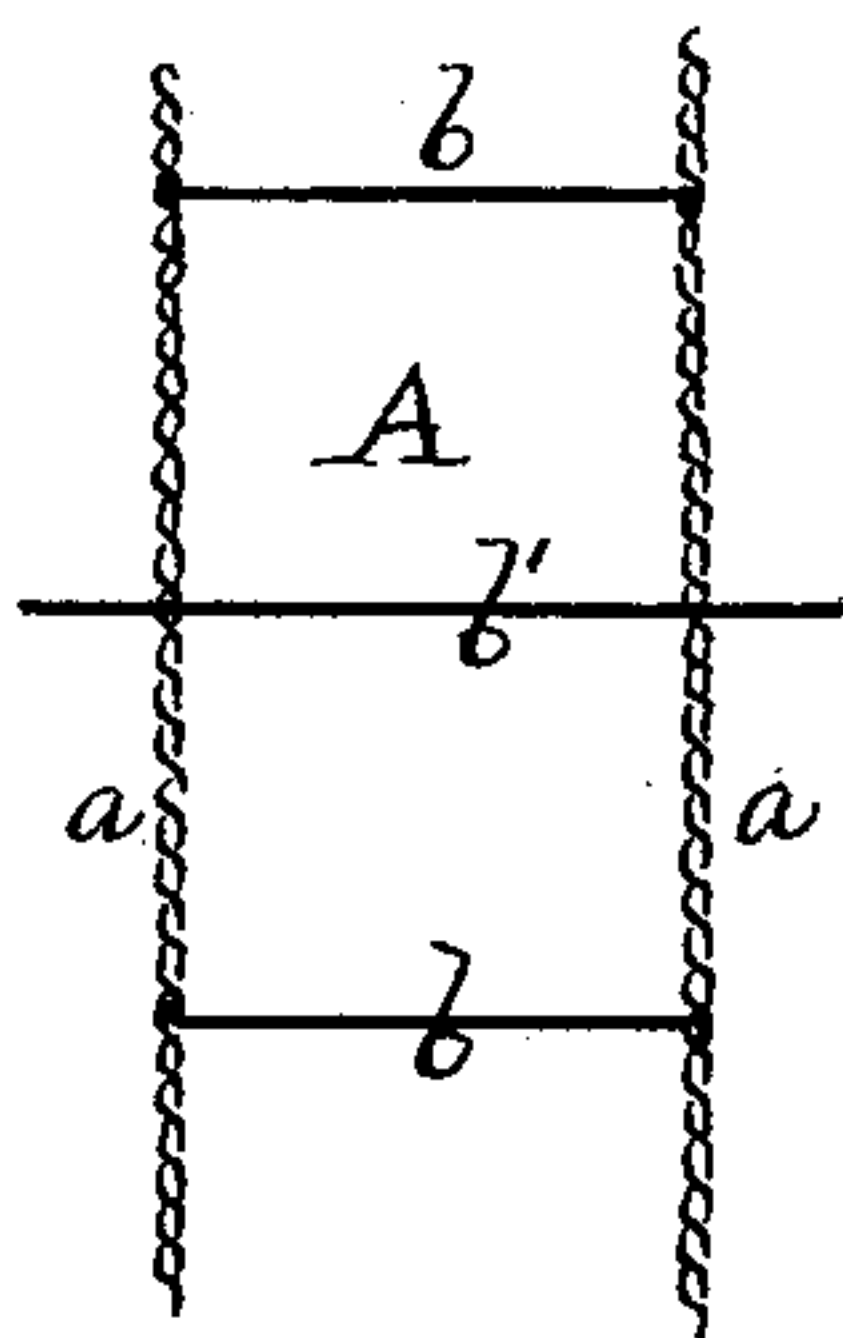


FIG. 2.



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ATTORNEY.

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FIG. 3.

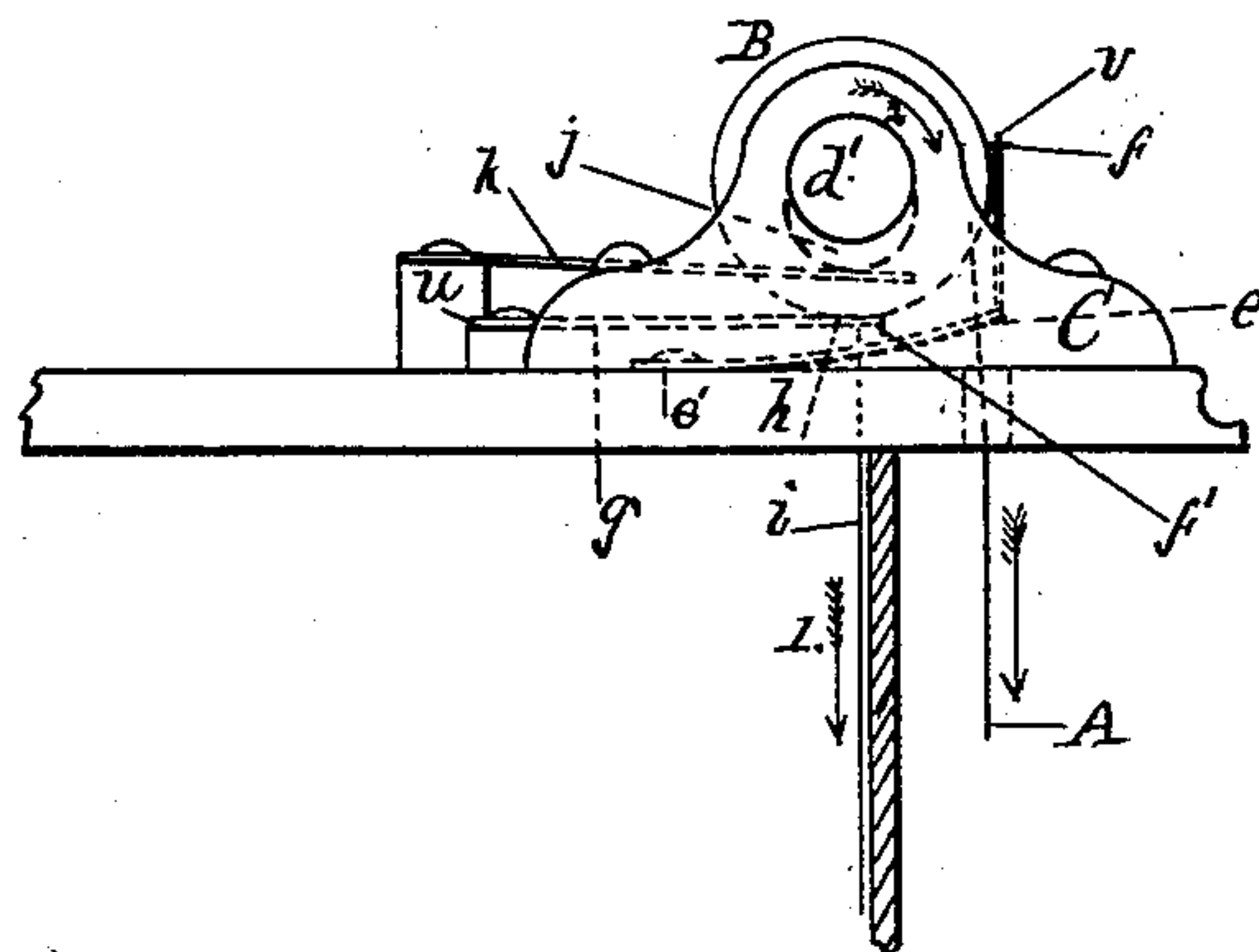
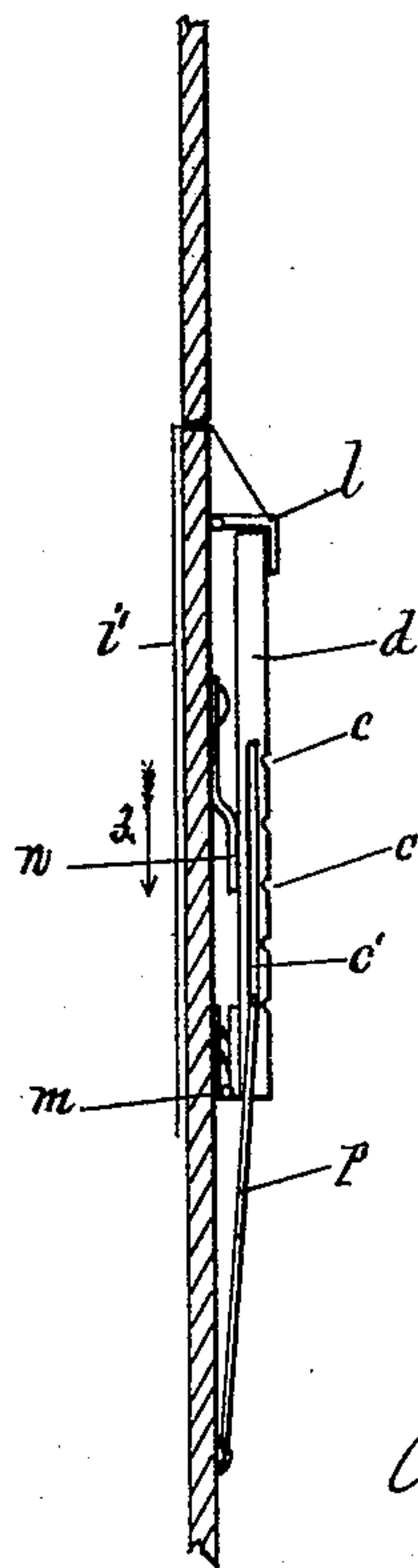


FIG. 4.



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# UNITED STATES PATENT OFFICE.

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## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 482,345, dated September 13, 1892.

Application filed November 23, 1891. Serial No. 412,831. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER FERGUSON, a citizen of the United States, residing at Lewiston, in the county of Androscoggin, State of Maine, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification.

This invention relates to fire-escapes and to that class of fire-escapes which are designed to be attached to the outside of a building, and which when not in use is so situated that it does not disfigure or mar the looks of the building and is not exposed to wind and weather, and yet can be quickly and readily operated and put in position for use from any desired place inside of the building at a moment's warning.

My improved fire-escape consists in its essential parts of a pliable metallic ladder designed to hang from a point on top of the building to the ground opposite the windows or doors. This flexible metallic ladder is attached at the top to a reel adapted to wind up the ladder and hold it when not in use. This reel is so made and held in position that with the aid of a "starter," so called, and a wire attached to the same and running through the different rooms of the building it when operated unwinds and permits the ladder to descend to the ground. Attached to the building under each window or other place of easy exit in case of fire is a hinged bracket, also designed to be operated by springs and wires, which after the ladder has descended swings down one arm of the bracket on either side of the ladder. This arrangement not only serves to hold the ladder steady and in place, but forms a foothold for persons using the ladder.

Figure 1 of the accompanying drawings represents a view of a building in elevation with my improved fire-escape attached thereto and ready for use. Fig. 2 represents an enlarged view of a portion of the pliable metallic ladder. Fig. 3 represents a side elevation of the reel and its operating mechanism as situated on the top of a building. Fig. 4 represents a side elevation of the bracket ready for operation with the building wall in section.

The flexible ladder is shown at A and is made of metal, this substance being obviously preferable for a ladder which is to be used as a fire-escape. The chain part of the ladder is shown

at *a* and the steps at *b b'*. The steps shown at *b'*, it will be noticed, are longer than the steps shown at *b* and project a short distance on either side beyond the chain—say six or eight inches. These steps *b' b'* when the ladder is in position for use are fitted or locked into grooves *c c*, which latter are cut in the under side of the bracket-arms *d d* hereinafter described. The reel to which the ladder is attached and upon which it is wound when not in use is shown at B. The reel is placed on stands C C at either end, into which the reel is journaled at *d' d'*. Over this reel can be built a box or house to protect it from view and the action of weather. This reel is so located with reference to the building that when the wires hereinafter explained are pulled the chain ladder will descend clear of the building and about a foot away therefrom.

In Fig. 3 of the drawings, *e* represents a "spring-starter," so called, one end of the spring being fastened to the building at *e'* and the other end being connected with a wire *v*, which latter is looped at its end and is hung on a projection *f*, fastened to the periphery of the reel at its end.

At *g* is shown another spring, one end of which is attached to the building at *u*, the other end of which rests on the periphery of the reel at its end at *h*, and against *x'* a projection *f'*, similar to the one shown at *f*. Attached to this spring is a wire, (shown at *i*), which passes through the roof of the building and through the different rooms to any desirable place where it could be reached easily in case of fire. When the ladder is wound upon the reel and the springs are in position, as shown in Fig. 3, the fire-escape is then in its normal position and ready for immediate use.

The operator in case of fire pulls a handle (one or more handles are to be attached to the wire wherever desired) attached to the wire *i*. The wire then moves in direction shown by arrow 1, which movement of the wire releases the spring *g* from contact with the projection *f'*. The moment the spring *g* is released the downward tendency of the spring *e* starts the reel in the direction shown by arrow 2 and the reel unwinds, aided by the weight of the chain ladder, until the ladder is entirely unwound.

At *k* is shown a spring which presses against



a cam *j* on the reel near one end and operates as a brake to regulate the speed of the reel and the descent of the ladder. The tension of this spring can be regulated according as the ladder by its own weight descends fast or slow. The bracket is made with two arms *d*, as above set forth, which extend out at right angles from the building, the arms being connected by means of a rod *u'*. (See Fig. 1.) After the ladder descends the operator then pulls the wire *i'*, this being provided with handles, also, whenever desired, in direction shown by arrow 3, which lifts the catch *l*, and the bracket, the arms being hinged at *m*, is thrown out by the action of the spring *n* and falls down in place. The rods *p* operate in groove *c'*, made in the outer side of either arm of the bracket. This construction makes the bracket steady and prevents it from getting out of place. Cut in the under side of the arms of the bracket are notches *c*, hereinbefore mentioned, into any two of which the ends of the long rounds *b' b'* of the ladder are placed, thus securing the ladder and keeping it in place or from swinging away from the building. From this description it will be seen that the operator first pulls the wire connected with the reel and ladder in order to make

the ladder descend, and then he pulls the wire which operates the bracket. After use the brackets under each window are put in position, as shown in Fig. 4. The ladder is then wound upon the reel and the wires adjusted, when it is again ready for use.

I claim—

1. In a fire-escape, the combination of a pliable metallic ladder having some of its rounds *b'* extended beyond its sides, with a bracket having arms *d d*, which are provided with grooves *c c* to receive the extended ends of the said rounds, substantially as set forth.

2. An improved fire-escape consisting of a pliable metallic ladder, reel *B*, spring *g'*, spring-starter *e*, wires *i i'*, cam *j*, and spring *k* to regulate the descent of the ladder, all substantially as herein described.

3. An improved fire-escape consisting of a pliable metallic ladder with rounds *b' b'*, reel *B*, with its operating mechanism, hinged bracket with its arms *d d*, grooves *c c*, spring *n*, catch *l*, and wire *i'*, all constructed and operating substantially as described.

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Witnesses:

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