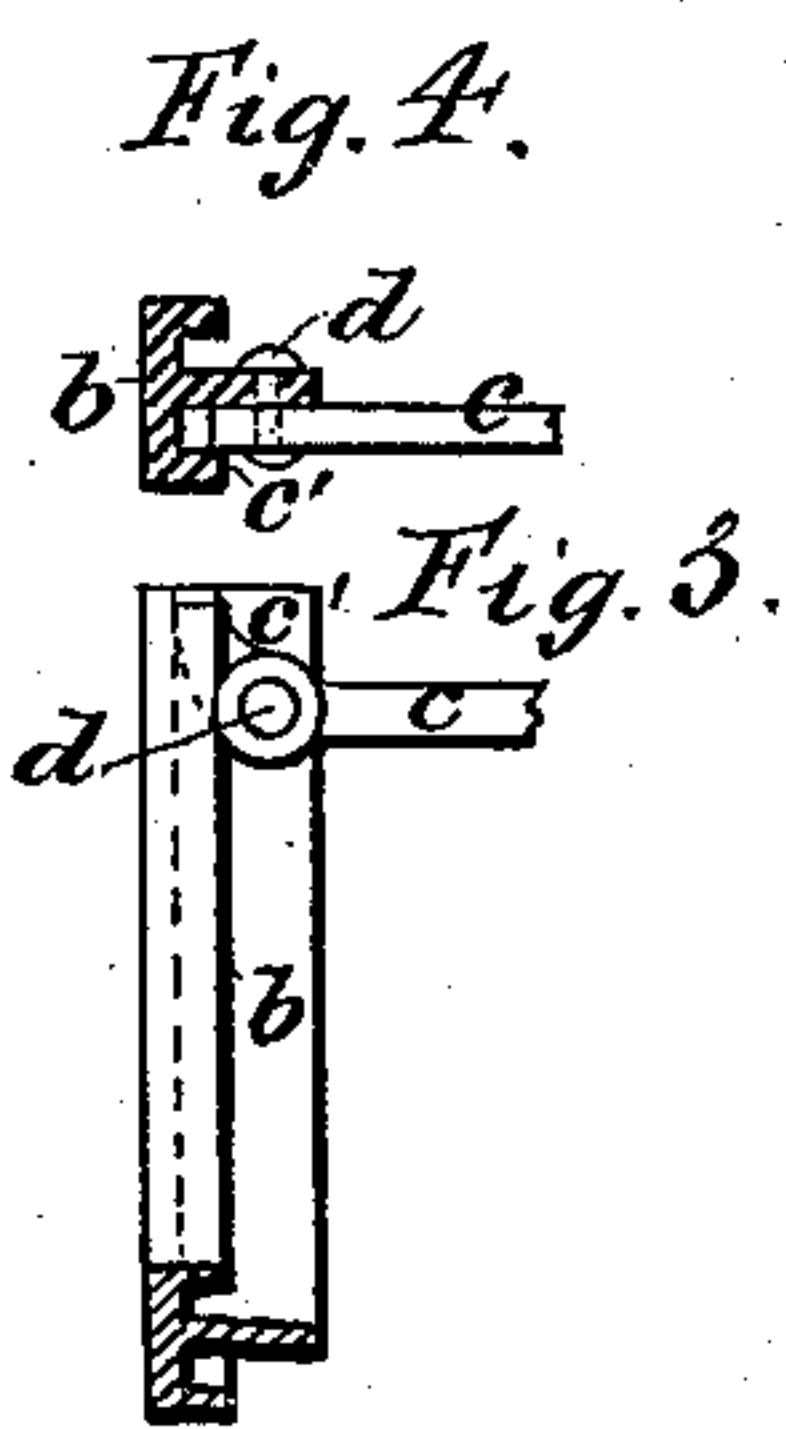
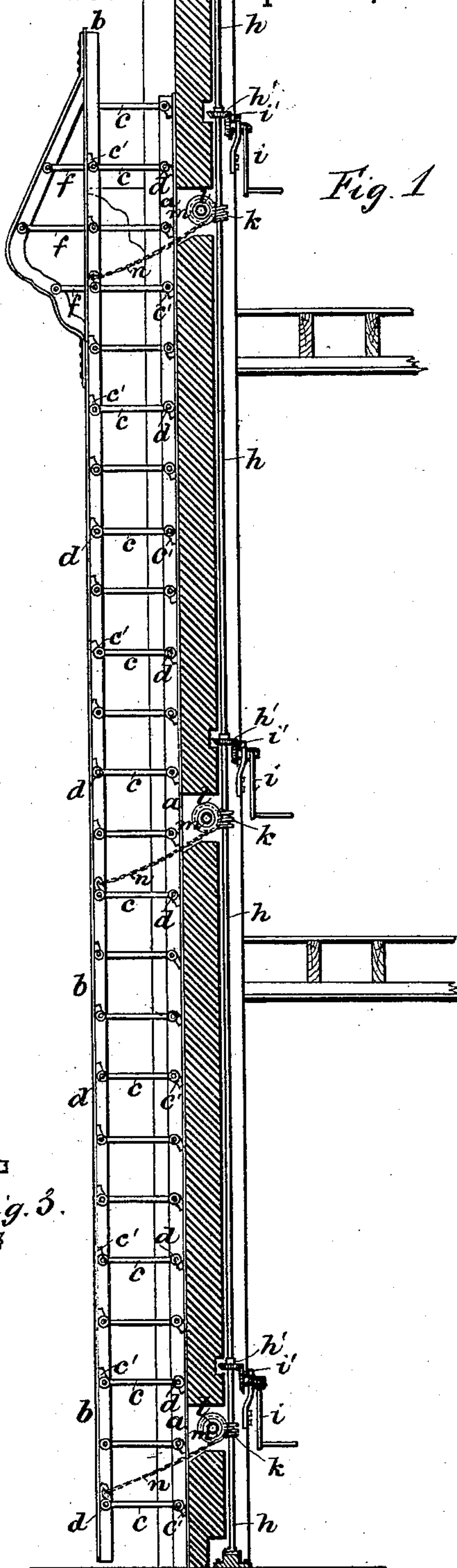
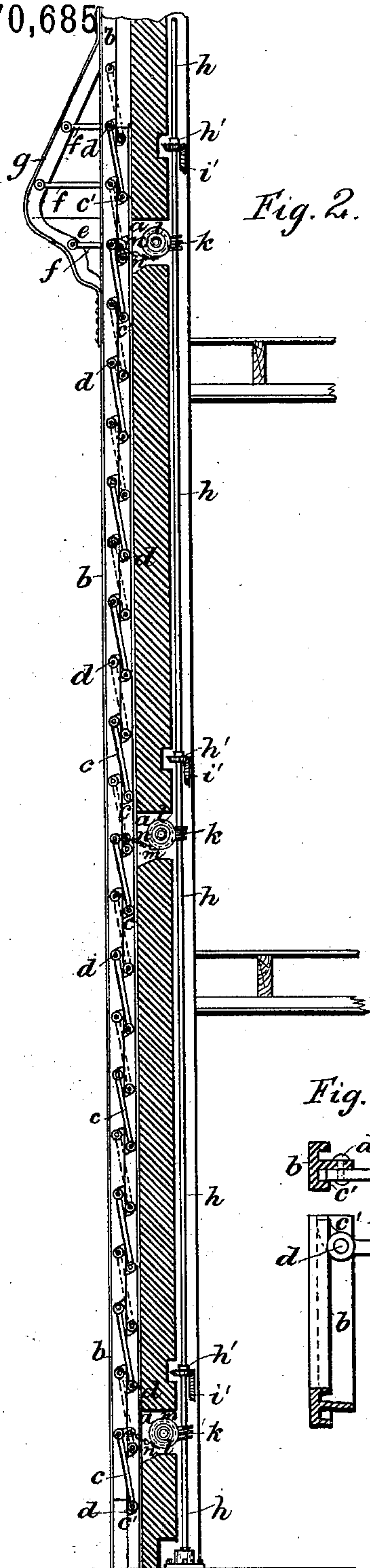


(No Model.)

W. CLUSE.  
FIRE ESCAPE.

No. 370,685

Patented Sept. 27, 1887.



Witnesses.

J. A. Rutherford  
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att'y.



# UNITED STATES PATENT OFFICE.

WILLIAM CLUSE, OF TOTTENHAM COURT ROAD, COUNTY OF MIDDLESEX,  
ENGLAND.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 370,685, dated September 27, 1887.

Application filed June 30, 1887. Serial No. 242,983. (No model.) Patented in England September 11, 1885, No. 10,789.

*To all whom it may concern:*

Be it known that I, WILLIAM CLUSE, a subject of the Queen of Great Britain, residing at Tottenham Court Road, county of Middlesex, England, have invented new and useful Improvements in Fire-Escapes, (for which I have obtained a patent in Great Britain, No. 10,789, bearing date September 11, 1885,) of which the following is a specification.

This invention has for its object to provide novel means for actuating a folding-ladder fire-escape; and to such end it consists in the combination of devices, hereinafter described, and specifically pointed out in the claim, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of a fire-escape constructed in accordance with my invention. A portion of the building also is shown. Fig. 2 is a front view of the same apparatus folded. Fig. 3 shows, on a larger scale, a portion of the outer T-iron forming the movable upright of the ladder and one of the rounds or spokes attached to it. Fig. 4 is a horizontal section of the same.

*a* is the T-iron, which is fixed at the bottom of the vertical groove or recess in the face of the building. *b* is the corresponding movable T-iron, which, when the escape is folded, comes flush with the outer face of the wall.

*c c* are the steps or rounds. These parts may be of wrought-iron, tinned or galvanized. The steps or rounds *c c* are secured to the flange of the T-irons alternately on the two faces of the flange to admit of the ladder folding, as seen in Fig. 2.

*d d* are rivets, which form the connections between the T-iron uprights and the steps or rounds. They are inserted in such manner as to form freely-moving joints, and gun-metal or other suitable washers are included between the parts.

*c' c'* are horns at the ends of the steps or rounds *c*. When these are horizontal, they abut upon the heads of the uprights *a* and *b*, and the upright *b* is thus sustained, and it cannot descend between below the position in which the steps or rounds are horizontal.

It will be observed that the horns at the outer ends of the steps or rounds are directed upward, while those at the inner ends are directed downward. They all simultaneously come against the uprights *a* and *b*, housing themselves in the interval between the stem of

the T-iron and the returned ends of the head, so that the ladder, when opened, is very rigid.

It is unnecessary that the upright *b* should reach the ground to be supported thereby.

At *e* there is shown a molding projecting from the face of the house or building, and *ff* are the additional steps or rounds which I provide upon the ladder to facilitate passing this molding in descending or ascending. These additional steps or rounds are fixed to the outer upright, *b*, and also to an iron, *g*, which is fixed to *b* by its ends. The iron *g* is so shaped that it conforms to the molding when the ladder is folded, as seen in Fig. 2.

The gear which I provide for lowering and raising the movable upright *b* of the ladder from the interior of the house or building consists of a vertical axis, *h*, which can be rotated by means of a crank-handle, *i*, on an axis carrying a beveled wheel, *i'*, which gears with a corresponding wheel, *h'*, on the vertical axis *h*. Provision may, if desired, be made for thus rotating the axis *h* from every floor of the building. The axis *h* carries a worm, *k*, which engages with a worm-wheel, *l*, on the axis of a barrel *m*. A chain, *n*, is wound upon the barrel *m*, and it also passes obliquely to the movable upright *b* of the ladder. When the barrel is turned in a direction to unwind the chain, the ladder by its own weight descends to the position in which it is shown in Fig. 1, and when the barrel is turned in the contrary direction and the chain wound up the ladder is folded to the position represented in Fig. 2.

I connect alarms with the axis *h*, which sound on every floor of the building when the axis is turned to lower the escape-ladder.

What I claim is—

The combination, in a fire-escape, of the folding upright *b* and pivoted rounds *c* with the vertical shaft *h*, having the bevel-gear *h'* and worm *k*, the crank-handle *i*, carrying the bevel-gear *i'*, and the barrel *m*, having the worm *l*, and the chain *n*, connecting the barrel with the folding upright, substantially as and for the purposes described.

In witness whereof I have hereto signed my name in the presence of two subscribing witnesses.

WILLIAM CLUSE.

Witnesses:

HENRY GARDNER,

RICHARD CORE GARDNER,

Both of 166 Fleet Street, London, England.