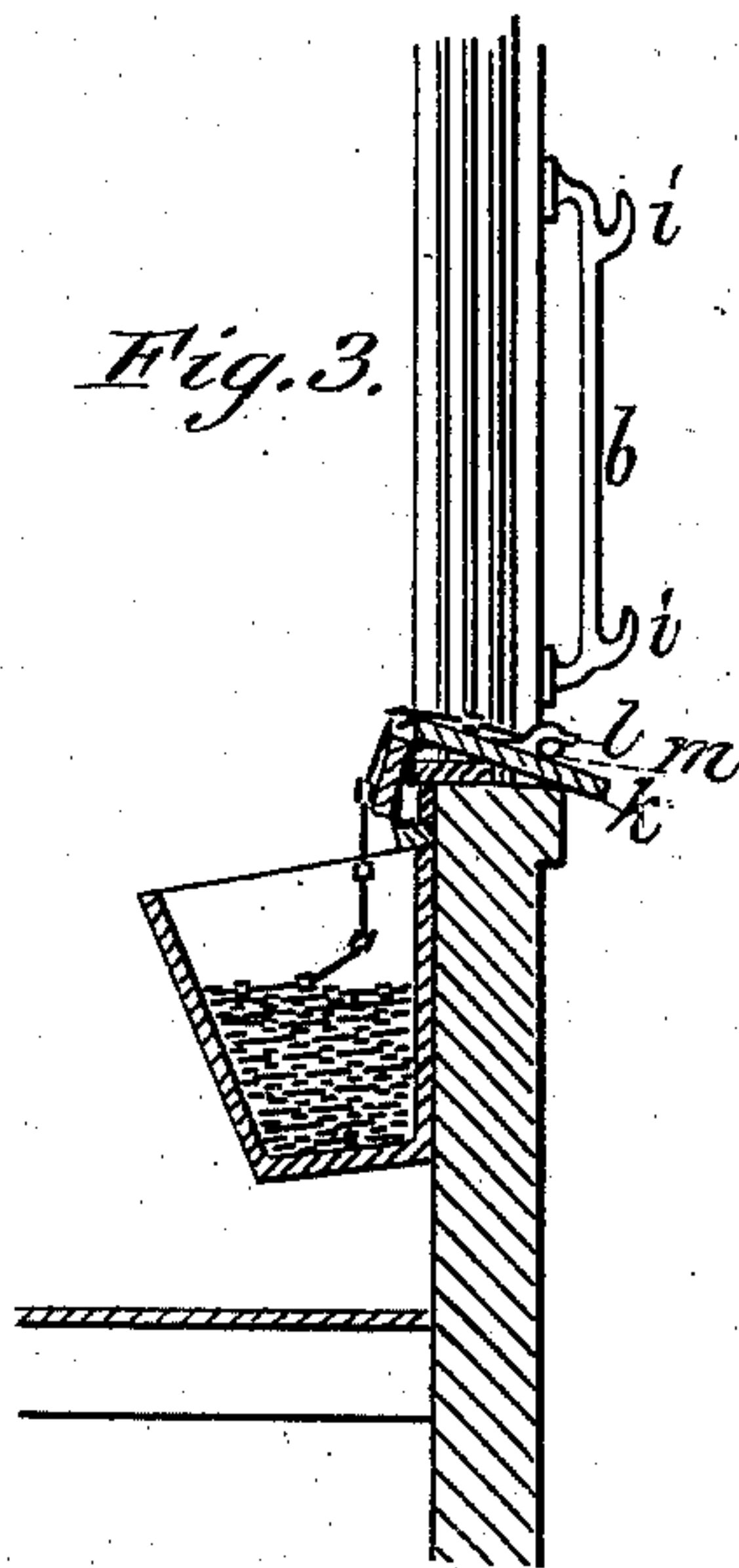
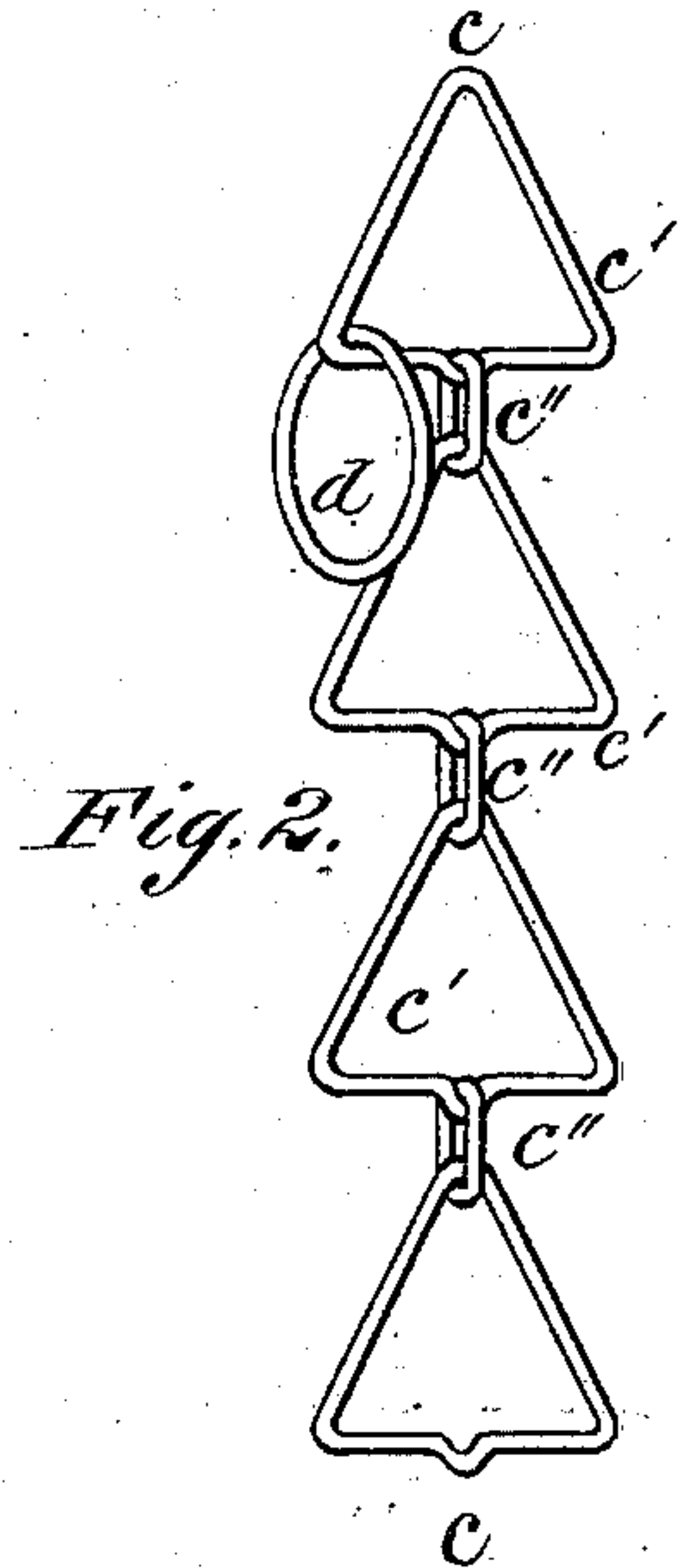
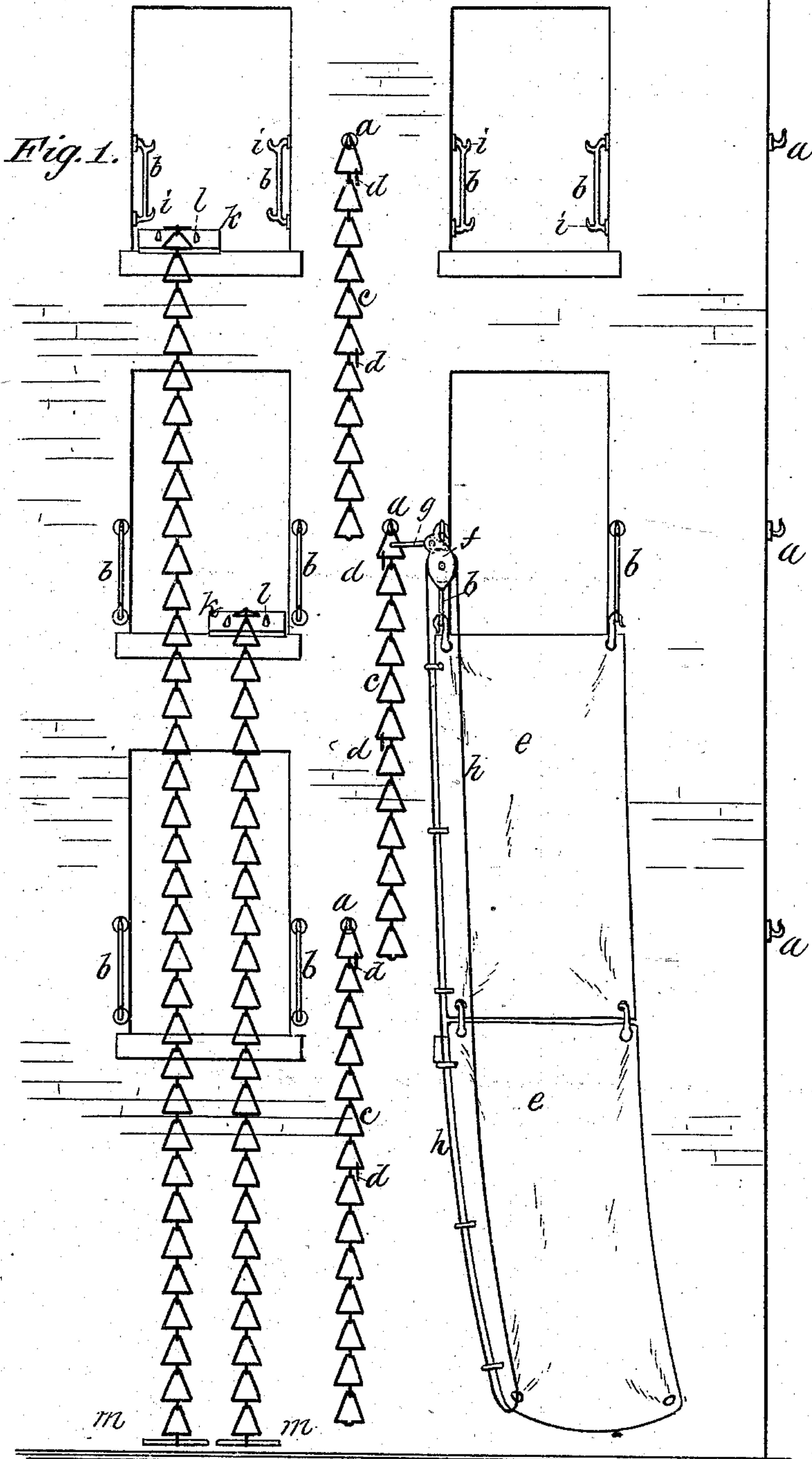


(No Model.)

H. H. CRAIGIE.  
FIRE ESCAPE.

No. 271,802.

Patented Feb. 6, 1883.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HUGH H. CRAIGIE, OF STAMFORD, CONNECTICUT, ASSIGNOR TO JULIA CRAIGIE, OF SAME PLACE.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 271,802, dated February 6, 1883.

Application filed March 15, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HUGH H. CRAIGIE, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention chiefly aims to provide a system of fire-escapes which will not mar the front of a building or be observable thereon when not in use, but which will enable firemen, in case of fire, to rapidly and easily extend a series of sectional ladders from story to story along the line of the windows, whereby the occupants can find a safe and easy escape from the windows of the upper stories, with or without the assistance of the firemen.

To this end my invention embodies a number of novel features, the chief of which consist in stationary hooks affixed upon the front of the building in relation with the windows, adapted to receive and suspend sectional ladders, which may be hooked thereupon by the firemen proceeding in successive order from the bottom to the upper stories, and which will thus enable the firemen to ascend to the highest stories and rescue people from the windows, as hereinafter fully set forth.

In the annexed drawings, Figure 1 presents a front view of a corner building equipped with my fire-escape devices shown ready for use. Fig. 2 is an enlarged perspective view of a portion of my improved chain-ladder. Fig. 3 is a fragmentary sectional elevation, illustrating the window-rail and a chain-ladder or escape-rope, which may be thrown out of the window from the interior to enable the occupant to descend thereby.

According to the leading feature of my invention I affix upon the front wall of the building a series of hooks, *a a*, which project sufficiently to enable a ladder of any suitable kind to be easily hooked over and suspended from the same. These hooks are strongly fastened to the brick-work or other material of the wall in any suitable manner, so as to be able to sustain the weight of several persons or much more than they will ever be called on to sustain in actual use. These hooks are arranged in some position convenient to the windows, preferably between two lines of windows, and each

hook on about a level with the middle of the windows, as shown in Fig. 1.

It will be readily seen that these hooks can be easily applied to the wall of a building with little trouble and expense whether the building be old or in course of construction, and that when thus affixed they will not mar the face of the building at all, but may, if desired, partake of the character of ornaments, or, on the other hand, may be made almost unobservable. It will be noted, however, that in case a rapid and dangerous fire should occur in the building the firemen, as soon as they arrive, can rapidly extend a series of sectional rope or chain ladders, *c c*, from the bottom to the top of the building by suspension from the said hooks, as seen in Fig. 1, by which the occupants can escape safely from the windows to the sidewalk.

The fireman, as will be readily understood, can be supplied with a number of the chain-ladders, which may be made both very light and strong, and which can be slung to his belt, and with a light hooked pole he can instantly slip the first section of ladder over the lower hook, and thence ascending by this to the second story he can suspend the second section from the second hook in the same way, and thus proceed to the top of the building, thereby affording a safe escape from all the windows or stories.

To facilitate the exit of the occupants by the windows and their descent by the ladders, I affix at the outside of the window, upon the wall or the window-casing, a strong hand-rail, *b*, preferably one on each side of the window, by grasping which the occupants, whether men or women, can readily brace themselves upon the window-sill without danger of falling, and from this hand-rail can easily reach the ladder and descend thereby. This hand-rail I consider a very important feature, as it renders the position of the person when on the sill perfectly safe, and, in affording a strong and convenient grasp, gives the escaping person, particularly if a woman, a feeling of confidence, and enables her to stand or sit in the otherwise very dangerous position on the sill and thence pass to the ladders without serious fright, as is very likely to occur where the



hand has nothing to take hold of, as is the case on the exterior of ordinary windows. These rails will also be of great assistance to the firemen in getting in or out by the windows, and even when ordinary ladders are placed up to the windows the rails will be of service in enabling the firemen to lash or brace the ladders in more firm position. These rails, like the hooks *a a*, will be inexpensive, and may of course be easily affixed to the building, whether new or old, and will not mar the building, but may rather be made to look ornamental, and they may be affixed to the inside of the window arch or opening, or to the outer face of the wall close to the edge of the window-opening, both of which arrangements are shown in Fig. 1. The hooks *a a* are so placed at the different stories that the ladders *c c*, when suspended therefrom, will hang a little to one side of each other at the meeting ends, and it will be readily understood that when the fireman has hung the ladders he can assist the persons at the windows to descend by the ladders, or by some other or auxiliary lowering or escape apparatus, and for this reason the chain-ladders *c c* are provided at suitable intervals with large rings *d d*, through which the fireman can pass his left arm, while his foot rests in one of the links of the ladder, thus leaving his left hand partially free, and his right hand and arm entirely free to reach persons at the windows, and thus assist them upon the ladders, or to operate some lowering device by which they may be lowered from the window to the sidewalk. For this latter purpose he may carry a coil of rope attached to his belt, by which he can lower a feeble person to the ground; but I prefer to provide a belt or slide, *e*, made of canvas or other suitable web, rendered fire-proof by suitable treatment, which may be drawn up by the firemen after having hung the ladders, which belt may be hooked to and suspended from the hand-rails *b b*, and thence trailed to the ground. A pulley, *f*, may also be drawn up and hooked over the top of one of the hand-rails, the pulley being provided with a brake-lever, *g*, pressing at one end upon the sheave and projecting at the other end for manipulation, and also provided with an endless lowering-rope, *h*, which descends to the ground, the descending side of the rope passing loosely over the belt *e*, while the ascending side passes through rings on the edge of the belt, as shown in Fig. 1. It may now be seen that one or two firemen on the sidewalk can seize the end of the belt *e* and hold it out from the building, so as to form an inclined slide from the upper window to the ground, while another fireman, standing on the ladder *c*, with his arm through one of the rings *d*, as before stated, can grasp the brake-lever *g* of the pulley. The person seeking escape at the window can now get out upon the sill onto the slide *e*, and seizing the descending side of the lowering-rope *h*, can thus slide safely down the same to the ground, the fireman on the ladder regulating the speed of

the descent by means of the brake-lever, as will be understood.

The hand-rails *b*, as may be noted, are provided with hooks *i i* at the top and bottom for the attachment of the lowering devices, as just described, or for any other auxiliary devices; but instead of hooks, eyes of course may be used, according as the parts to be attached thereto are provided with either hooks or eyes, as will be understood. Where the hand-rails are thus provided with hooks the special hooks *a a* might be dispensed with and the chain-ladders *c c* suspended from the hand-rails; but I prefer to provide both devices.

The slide-belt *e* is preferably made in sections, hooked together as shown, so that it may be readily extended to any length required, and the lowering-rope *h* is also preferably made in sections joined by snap-hooks, so that it may be similarly extended, and the block of the pulley *f* will preferably be formed with a slot on the side through which the rope may be passed over the sheave, in order to enable the apparatus to be easily and quickly rigged when required.

The chain-ladders, which I prefer to use and which I have illustrated, are of novel construction, as will now appear. As shown best in Fig. 2, the ladder consists of a series of stirrup-shaped links, *c'*, preferably of triangular form, with the apex of one joined to the base of the other in any suitable manner, preferably by a small intermediate link, *c''*, of oblong shape, which fits into a small bend in the middle of the base of each stirrup-link. Each stirrup-link is preferably of equilateral form, about eight inches on the side, and the stirrup-links *c'*, the intermediate links, *c''*, as well as the arm-rings *d*, are made of stout steel wire, so as to be able to support a great weight, and yet be very light and compact.

Ladders thus made in sections will be very simple, strong, and light, and a number of them may be carried by one fireman and may be suspended upon the front of a building in successive order from the hooks *a a*, as already described, in a very quick and safe manner, as will be readily appreciated.

I also recommend providing each window or each story with a chain-ladder of the described kind, which may be contained in a box on the inside of the building, below the window-sill, as seen best in Fig. 3, the chain being of sufficient length to reach the ground, one end being fixed in the box or to the wall, while the other is free to be thrown out of the window, as seen in Fig. 1, by which the occupant can instantly and safely descend in case of necessity. This form of fire-escape I do not of course claim as novel; but my improved form of chain-ladder is very well adapted for this form of escape, and I prefer to provide the box which holds the chain with a lid, *k*, hinged in two sections, as seen in Fig. 2, so that when thrown open it will bend over and clear the window-sill and incline out of the window, as shown.



Upon the under side of the lid is fixed two outwardly-pointing hooks, *l*, under which a bar, *m*, on the free end of the chain, is passed, so that the mere act of opening the lid brings out the end of the chain and allows it to freely run out of the box to the ground, as will be understood, thus avoiding all entanglement and loss of time in shipping the ladder.

It will be readily understood that it is not at all essential that the points of support *a a* for the sectional ladders be formed as regular hooks, such as they have been through preference described and illustrated, for eyes or other suitable sockets or supports would be the precise equivalents of the hooks and would serve the same purpose, provided that, in case eyes were used on the building, hooks were used on the ends of the ladders to engage therewith; but a regular form of hook is preferable, as illustrated.

I do not broadly claim a hook affixed to the external wall of a building with a chain-ladder suspended therefrom, as this is old and well-known; but the chief novelty of my invention lies in the series of hooks or other points of support arranged in relation with the windows at the several stories with a corresponding series of sectional ladders, each section being equal in length to the respective stories, or nearly so, and with a hand pole or hook for hanging said ladders onto the hooks, whereby the firemen, from the ground, may, in an easy and rapid manner, extend a series of rescue or escape ladders over the entire front of a building, no matter how large or high, by thus proceeding in a successive manner from point to point, which has not been heretofore proposed, and which is believed to form an important improvement in fire-escape systems or apparatus.

What I claim is—

1. A fire-escape system or apparatus con-

sisting in the combination, with a series of hooks or points of support on the external wall of a building, arranged in relation with the windows at the several stories, of a corresponding series of sectional ladders or ladder-sections equal in length to the respective stories, or nearly so, and a hand pole or hook, whereby the fireman or other person proceeding from the ground may, by the aid of the pole, hang the first section of ladder from the first-story hook and thence proceed thereby to the second story, and continue in the same manner to the upper stories, as far as required, substantially as herein shown and described.

2. In a fire-escape system for the exterior of buildings, the combination, with a series of sectional chain-ladders, of a series of elongated hand-rails affixed to the exterior of the windows, adapted for the attachment of the chain-ladders thereto, and to assist in ingress and egress thereby, substantially as herein shown and described.

3. The hand-rails *b*, provided with hooks or eyes *i i*, affixed on the front of a building at the exterior of the window, substantially as and for the purpose set forth.

4. A fire-escape ladder provided with one or more arm-rings; *d d*, at intervals thereon, substantially as and for the purpose set forth.

5. A fire-escape apparatus consisting in the combination, with a ladder or support for the firemen at the side of or adjacent to the window, of a pulley and lowering-rope hung near the same and trailing to the ground, and a braking device, whereby the fireman is enabled to regulate the descent of the rope through the pulley, substantially as and for the purpose set forth.

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Witnesses:

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