

(No Model.)

C. F. SHAIN.  
FIRE ESCAPE.

No. 452,924.

Patented May 26, 1891.

Fig. 2.

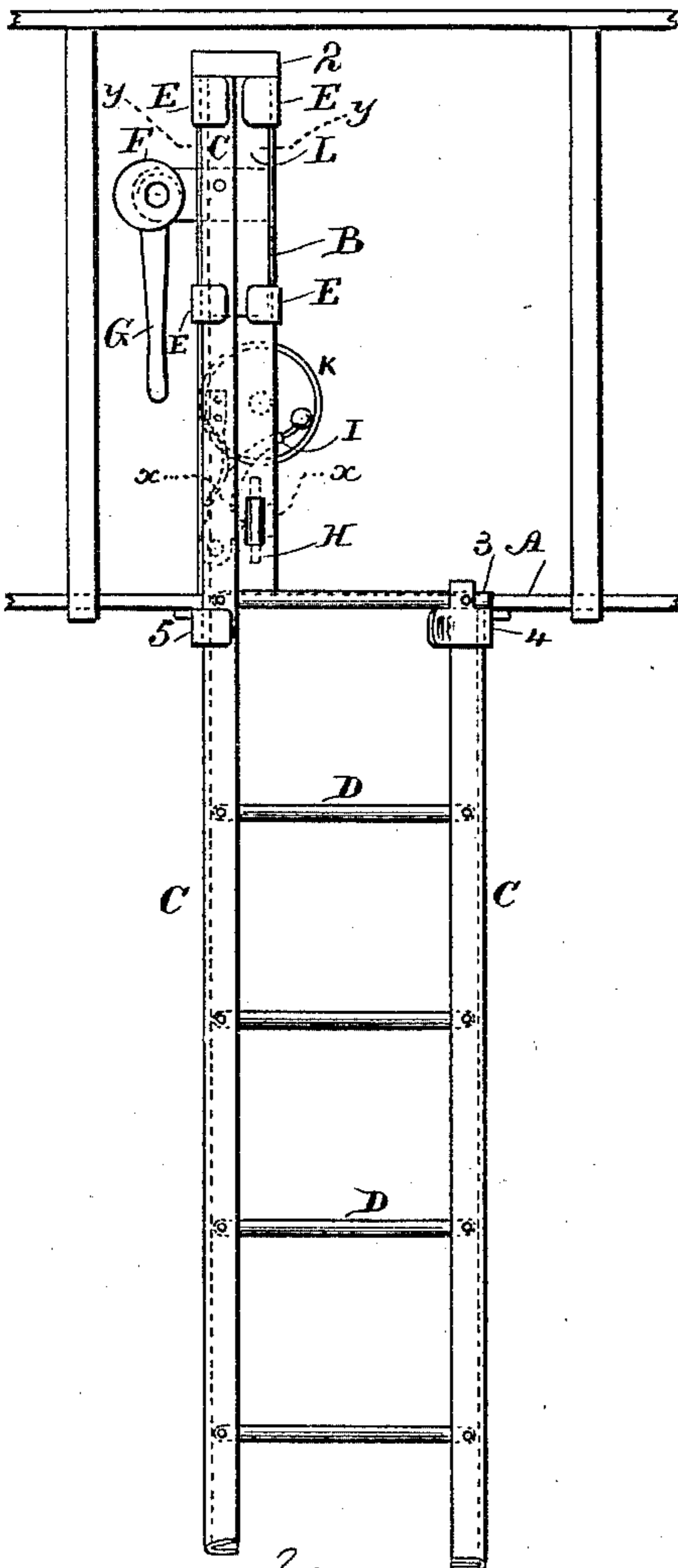
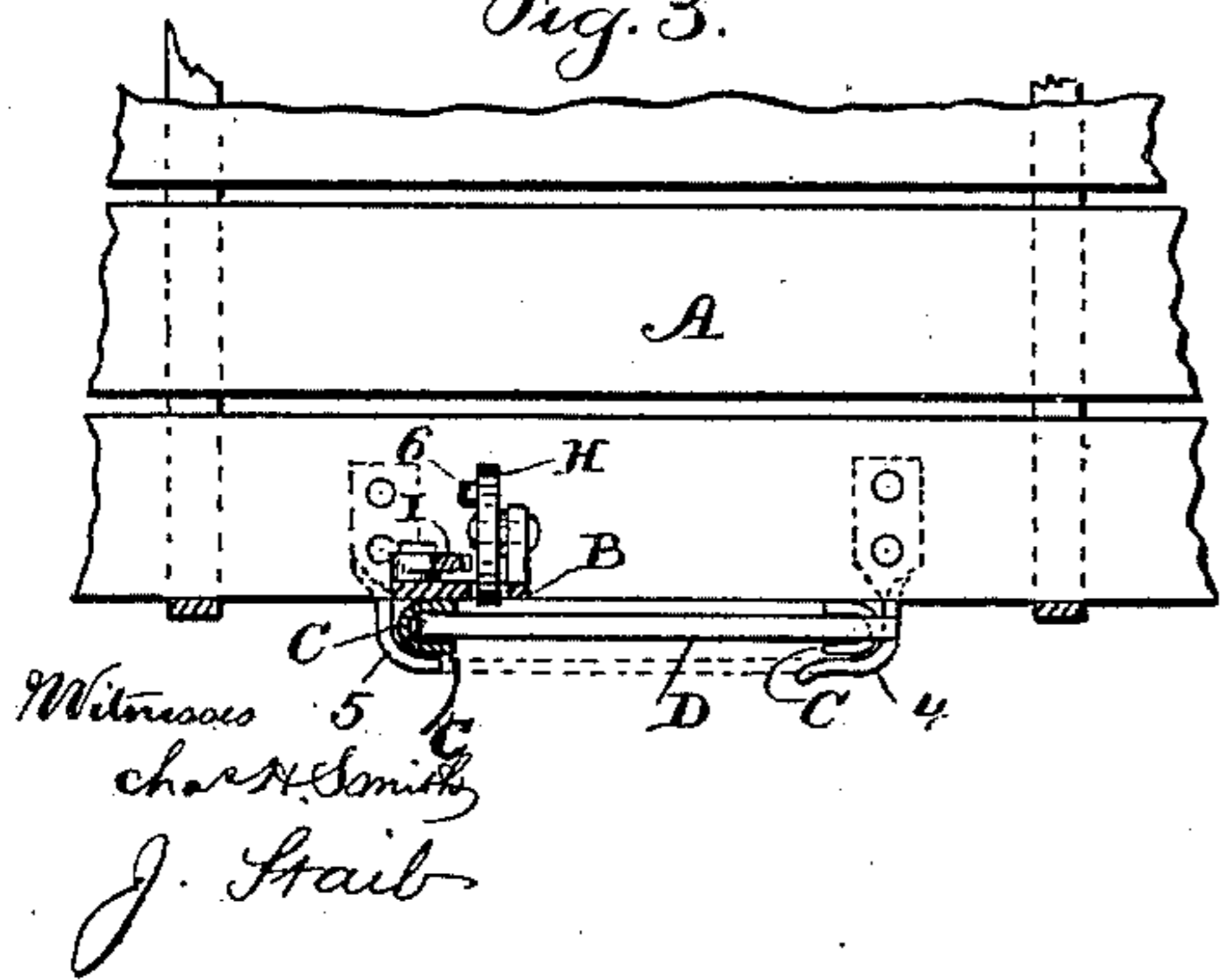


Fig. 3.



Witnesses  
char H. Smith  
J. Straub

Fig. 1.

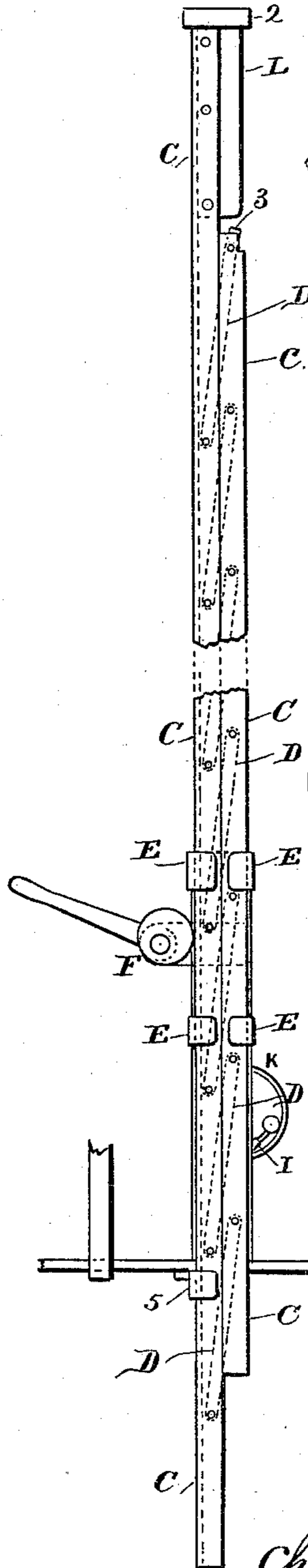
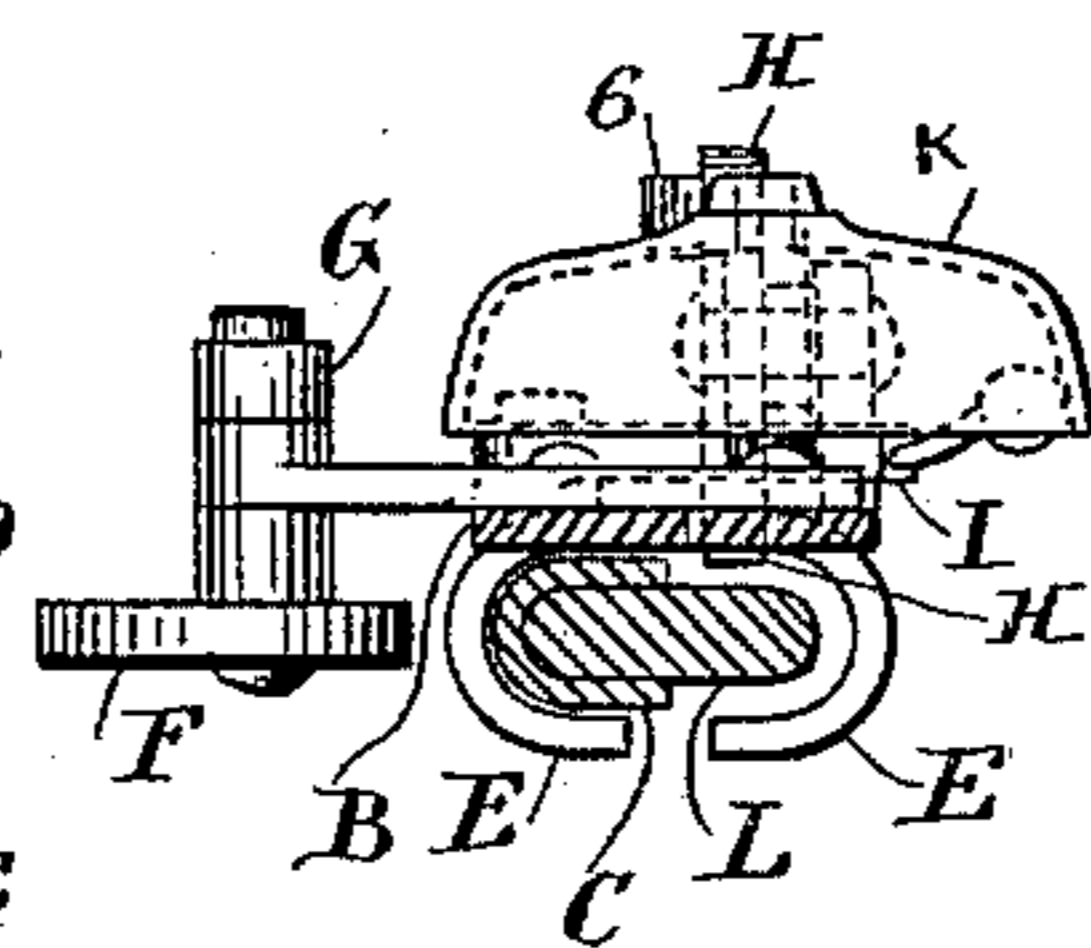


Fig. 4.



Inventor

Charles F. Shain

per Lemuel W. Serrell

Att

# UNITED STATES PATENT OFFICE.

CHARLES F. SHAIN, OF NEW YORK, N. Y.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 452,924, dated May 26, 1891.

Application filed October 6, 1890. Serial No. 367,196. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. SHAIN, a citizen of the United States, residing in the city and State of New York, have invented an Improvement in Fire-Escapes, of which the following is a specification.

Ladders have heretofore been made of two U-shaped bars, with pivoted cross-rungs, so as to fold into a narrow compass; and in some instances such fire-escape ladders have been more or less elevated upon the building, so as to run down into position when needed for use.

In my present improvements the folding ladder is combined with stationary guides in such a manner that when it is allowed to descend it opens out automatically into the position for use, and when drawn up out of use it may be sustained at any desired point, and each ladder can be operated independently of any other one of the fire-escape ladders, and all of the ladders are controlled upon the outside of the building and from the balcony or platform at or near the upper end of such ladder.

In the drawings, Figure 1 is an elevation of the ladder, as closed and out of use. Fig. 2 represents the upper end of the ladder as opened out and ready for use. Fig. 3 is a sectional plan view at the line  $x\ x$ , and Fig. 4 is a similar view in larger size at the line  $y\ y$  of Fig. 2.

The platform A is of any desired character, usually in the form of a balcony, projecting from the front of the building, and upon this platform is a standard B, to which the fire-escape is connected. The fire-escape ladder is made of the U-shaped vertical bars C and the cross-rung D, which are pivoted at their ends within the vertical bars C, so that the ladder can be closed by swinging one vertical bar up against the other, and the rungs will be contained within and between the vertical U-shaped bars.

Upon the standard B are the guide-slides E E, that are adapted to receive the ladder when folded, and such ladder can slide freely through these guides E E when liberated; and to hold such ladder in an elevated position an eccentric or cam F is placed upon the

standard B between the guides E E, and such eccentric is provided with an axis or shaft and a lever G, by which the eccentric or cam is caused to press against the side of the folded ladder, and by the friction thereby produced the ladder will be held in its elevated position with reliability, because the weight of the ladder tends to tighten the eccentric or cam against its edge, and when this eccentric or cam is turned aside the ladder is free to descend by gravity, and its downward movement is arrested by the head 2 on the upper end of one of the vertical bars C, which head rests upon the upper guide-slide E upon the standard B. The other vertical bar of the ladder at this time is below the lower guide-slide E, and the momentum of the parts causes this vertical bar of the ladder and the rung to swing away from the other vertical bar of the ladder, so that the ladder opens automatically, and the projecting end 3 of the upper rung of the ladder rests upon a support 4 at the edge of the balcony or platform A, so that this side of the ladder hangs from this support 4, while the other side of the ladder is supported by the head 2 resting upon the upper end of the standard B; and it is advantageous to provide a guide 5 at the edge of the platform opposite to the support 4, and the support 4 and guide 5 may be formed in one, as indicated by dotted lines in Fig. 3, so that the ladder always remains within the slot between the edge of the platform and the bar forming the support 4 and guide 5. If desired, the projecting end 3 may be upon the second rung of the ladder and pass out through a mortise in the vertical U-shaped guide-bar, so that there will be a rung above the surface of the platform A, to furnish hand-hold to the party stepping off the platform and upon the ladder.

Upon the standard B a roller H is provided, the periphery of which is in contact with one of the vertical bars C of the ladder, so that this roller is rotated by the ladder as it descends, and upon this roller H is a projection 6 or pin, coming into contact with the hammer I of the bell K, so that such bell is rung violently by the ladder as it descends. The object of this is twofold: to act as an alarm

in case of fire and also to indicate to the occupants of the building any attempt to open the fire-escape ladder by burglars.

It is advantageous to employ a filling-piece  
5 L at the upper end of one of the vertical bars C and beneath the head 2 to prevent lateral motion in the guides E when the ladder is lowered, the edge of such filling-piece being in line with the edge of the opposite vertical  
10 bar C and above the upper end thereof when the ladder is folded.

I claim as my invention—

1. The combination, with the platform A and standard B, of the guide-slides E upon  
15 the standard, the fire-escape ladder formed of the U-shaped bars and pivoted rungs, such ladder passing through the guide-slides E, and an eccentric or cam adjacent to the guide-slides and acting to hold the fire-escape ladder in its elevated position, substantially as  
20 set forth.

2. The combination, with the standard B and the guide-slides E, of the fire-escape ladder having U-shaped side bars and pivoted  
25 rungs, one of which rungs projects beyond

the side bar of the ladder when unfolded, and the support 4, upon which such projecting end rests, substantially as set forth.

3. The combination, with the fire-escape ladder having U-shaped side bars and piv- 30  
oted rungs, of the standard B, having guide-slides E, an eccentric or cam for sustaining the ladder when elevated, a head upon the ladder for supporting the same at the upper  
end of the standard, and the guide 5 and sup- 35  
port 4 for the ladder when unfolded, substantially as set forth.

4. The combination, with a fire-escape ladder having vertical side bars and pivoted  
rungs, of a bell and roller in contact with the 40  
ladder and rotated by the same as the ladder descends, and a hammer acted upon by the roller and striking the bell, substantially as  
set forth.

Signed by me this 1st day of October, 1890. 45

CHARLES F. SHAIN.

Witnesses:

GEO. T. PINCKNEY,

WILLIAM G. MOTT.