

J. C. CHRISTINGER.  
Folding-Ladder for Firemen.

No. 168,875.

Patented Oct, 19, 1875.

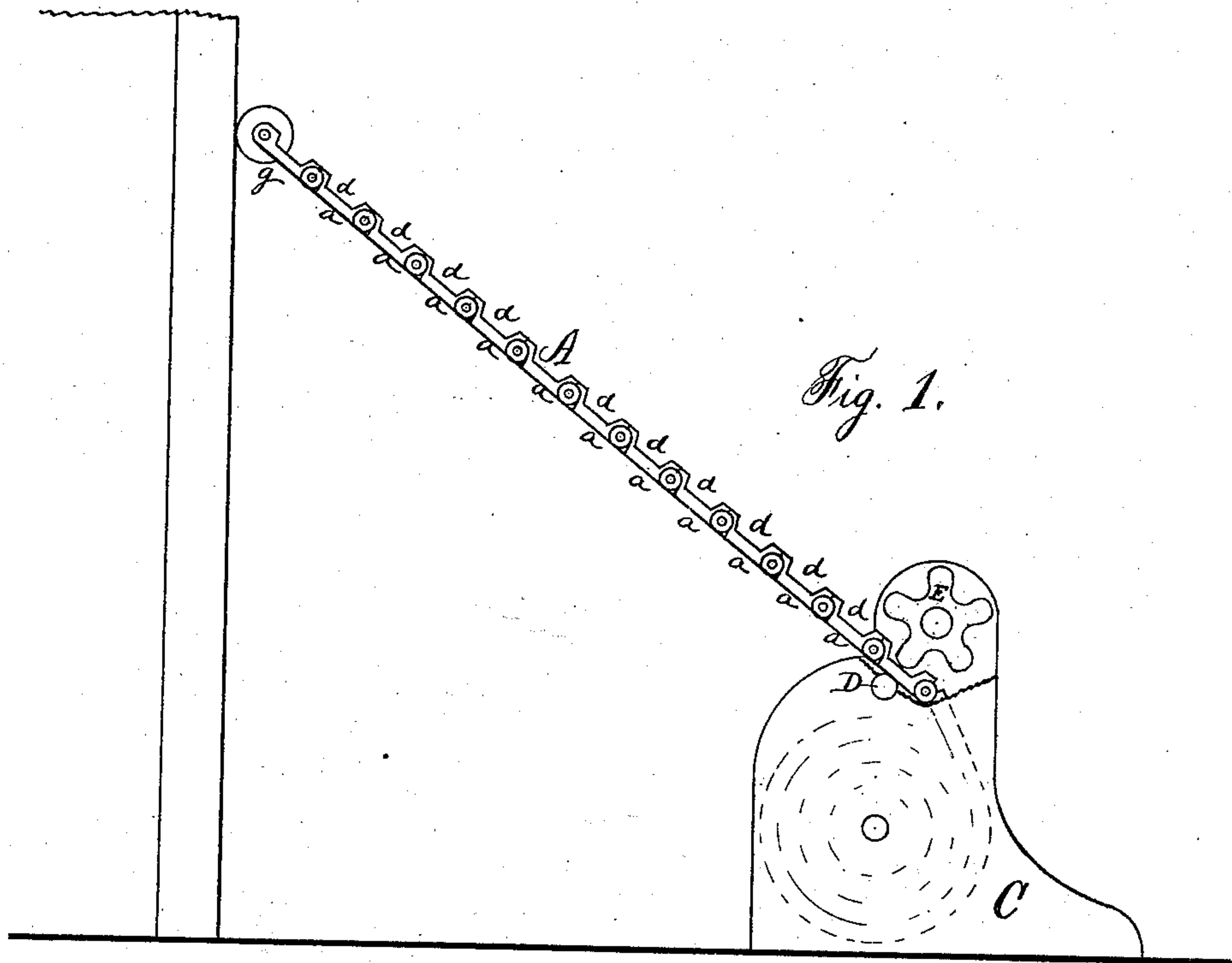


Fig. 1.

Fig. 2.

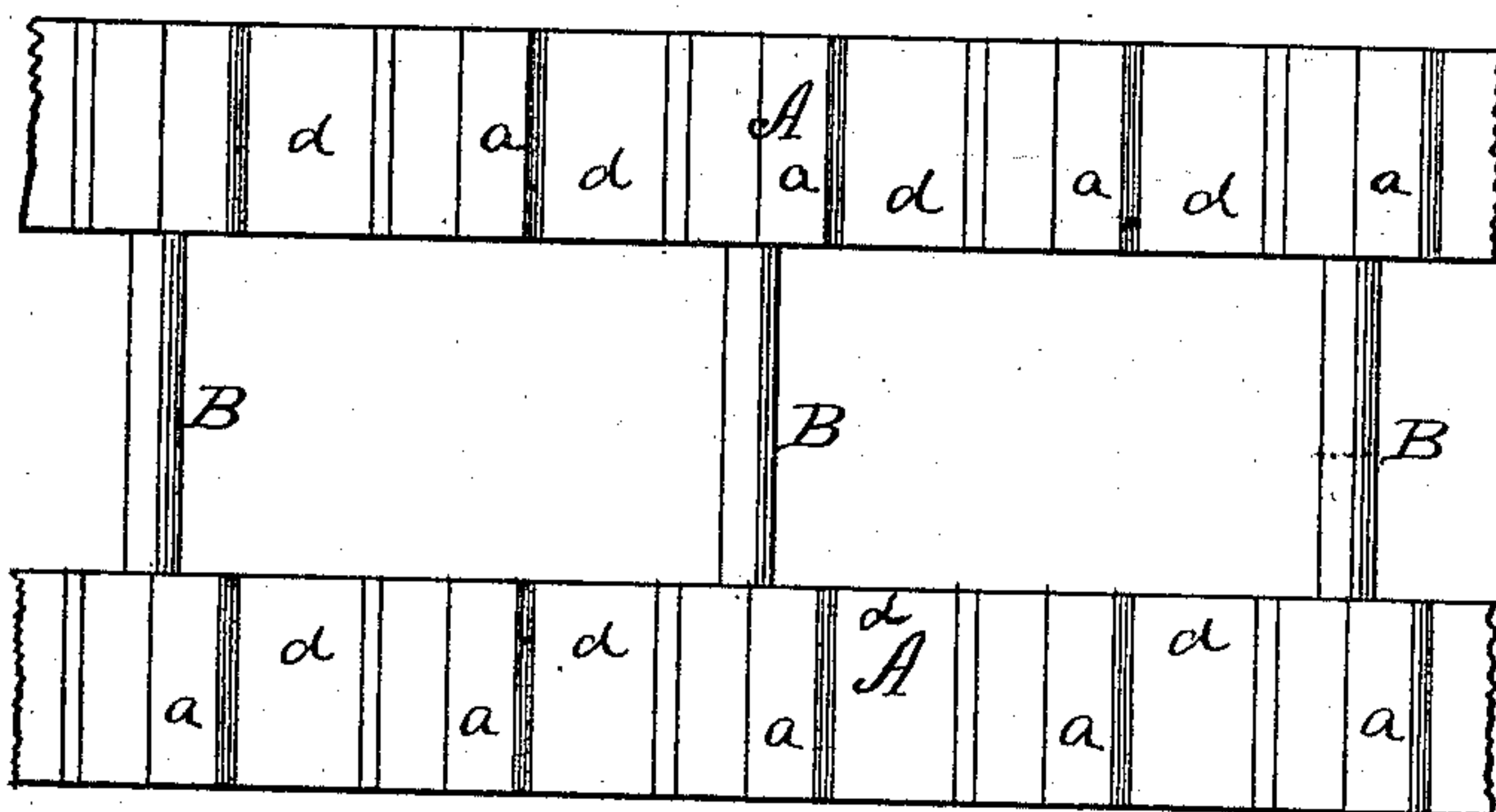
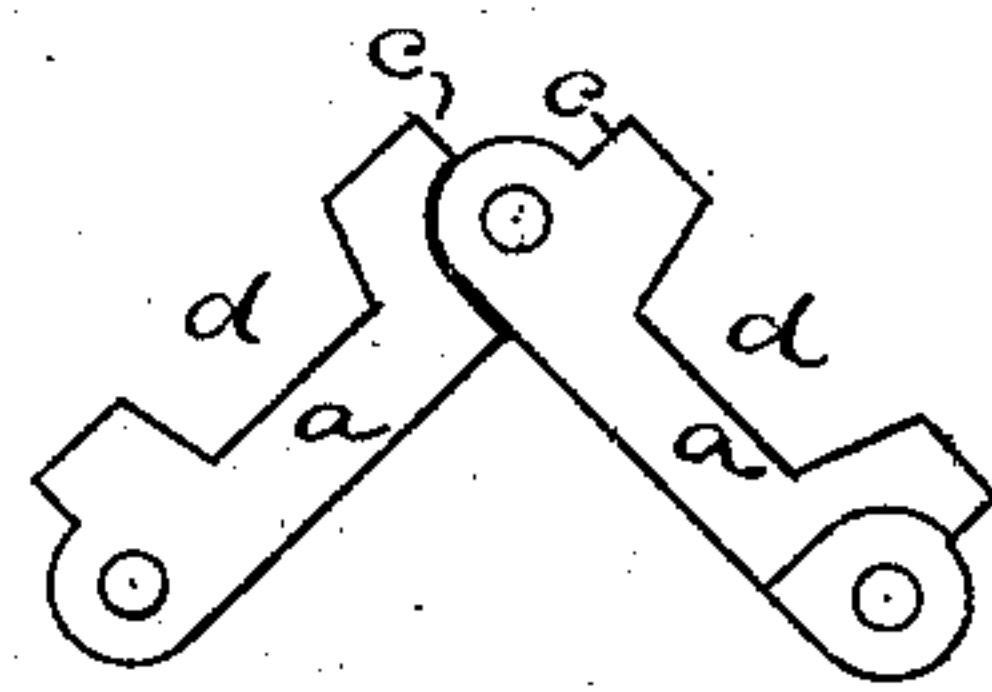


Fig. 3.



Witnesses.  
John Pollitt  
Geo. J. Gowdy

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By James Shepard. Atty.

# UNITED STATES PATENT OFFICE.

JOHN C. CHRISTINGER, OF BRISTOL, CONNECTICUT.

## IMPROVEMENT IN FOLDING LADDERS FOR FIREMEN.

Specification forming part of Letters Patent No. **168,875**, dated October 19, 1875; application filed April 8, 1875.

*To all whom it may concern:*

Be it known that I, JOHN C. CHRISTINGER, of Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Ladders, of which the following is a specification:

My invention is designed as an improvement on the patented folding ladder hereinafter disclaimed; and consists, mainly, of the peculiar construction of the joints and rounds, which rounds also serve the purpose of hinge-pintles for a part or a whole of the joints, as hereinafter fully described.

In the accompanying drawing, Figure 1 is a side elevation of a ladder which embodies my invention. Fig. 2 is a plan view of a portion of said ladder; and Fig. 3 is a detached view thereof.

I form my improved ladder of two jointed rails, A A, and rounds or steps B. The rails are made of cast malleable metal, or other suitable material, cast in short sections *a*, an edge view of two sections being shown in Fig. 3. These sections *a* are jointed together in a regular hinge-joint, and that style of joint known as the stop-hinge—that is to say, so that the joint will freely yield and allow the rails to fold in one direction; but when the sections are brought into line with each other the projecting shoulders *c c*, Fig. 3, will strike each other and prevent the sections from folding farther in the opposite direction.

The sections may be made of any length desired; but short sections are preferable. If short sections are used I make a part of the pintles of the hinge-joint to extend from rail to rail, which pintles form the usual rounds or steps B of the ladder. In case, however, that long sections are employed, then all of the pintles should extend from rail to rail.

By making so many of the pintles as it is desired to have rounds extend from joint to joint, I form the rounds at a small cost, and produce a very strong folding ladder.

This ladder is well adapted to be used as a fire-escape, and may be kept rolled or wound up, and in case of fire one end can be let out of an upper window to the ground, and then the upper end fastened by hooks, or other

means, to the window-sill, or other object near the window, when the occupants of the story from which the ladder is suspended can readily descend upon it. I also design it for the use of firemen, in which case it can be made of any desired length, and much longer than ladders in ordinary use, and kept wound on a reel or roller fixed in a frame, C, made expressly for the purpose, and a side view of which is shown in Fig. 1.

I form a notch, *d*, in each section *a* of the rails A A. I provide the upper ends of the rails A A with rollers *g g*; and at the upper part of the frame C I place a friction-roller, D, and near said roller a shaft carrying a pinion, E, or two pinions; and between said roller and pinion the rails A A are placed, the teeth of the pinion being such as to mesh properly into the notches *d* of the rails A A, and the roller D being so placed as to come in contact with the under side of the rails A A, and hold them in gear with the pinion E.

In order to run up the ladder on the side of a building the frame C is placed at the point designed for the foot of the ladder, and, by means of a crank provided for that purpose, the pinion E is turned so as to unwind the ladder and throw it toward the building, when its end is raised and placed against the building at a point higher than the pinion E, after which the farther turning of the pinion forces the ladder up the side of the building (the rollers preventing the end of the rails being caught by any projection) to any desired height, when the pinion-shaft may be secured from rotating by means of a ratchet and pawl, or other suitable fastening.

I am aware of the patent to Wm. Bretenstein October 9, 1860, and hereby disclaim the invention therein shown.

I claim as my invention—

The hinge-joint rails A A, having pintles of the joints, extending from rail to rail, to form the rounds B, in the particular manner shown and described, and for the purpose set forth.

JOHN C. CHRISTINGER.

Witnesses:

JAMES SHEPARD,  
CHARLES E. NOTT.