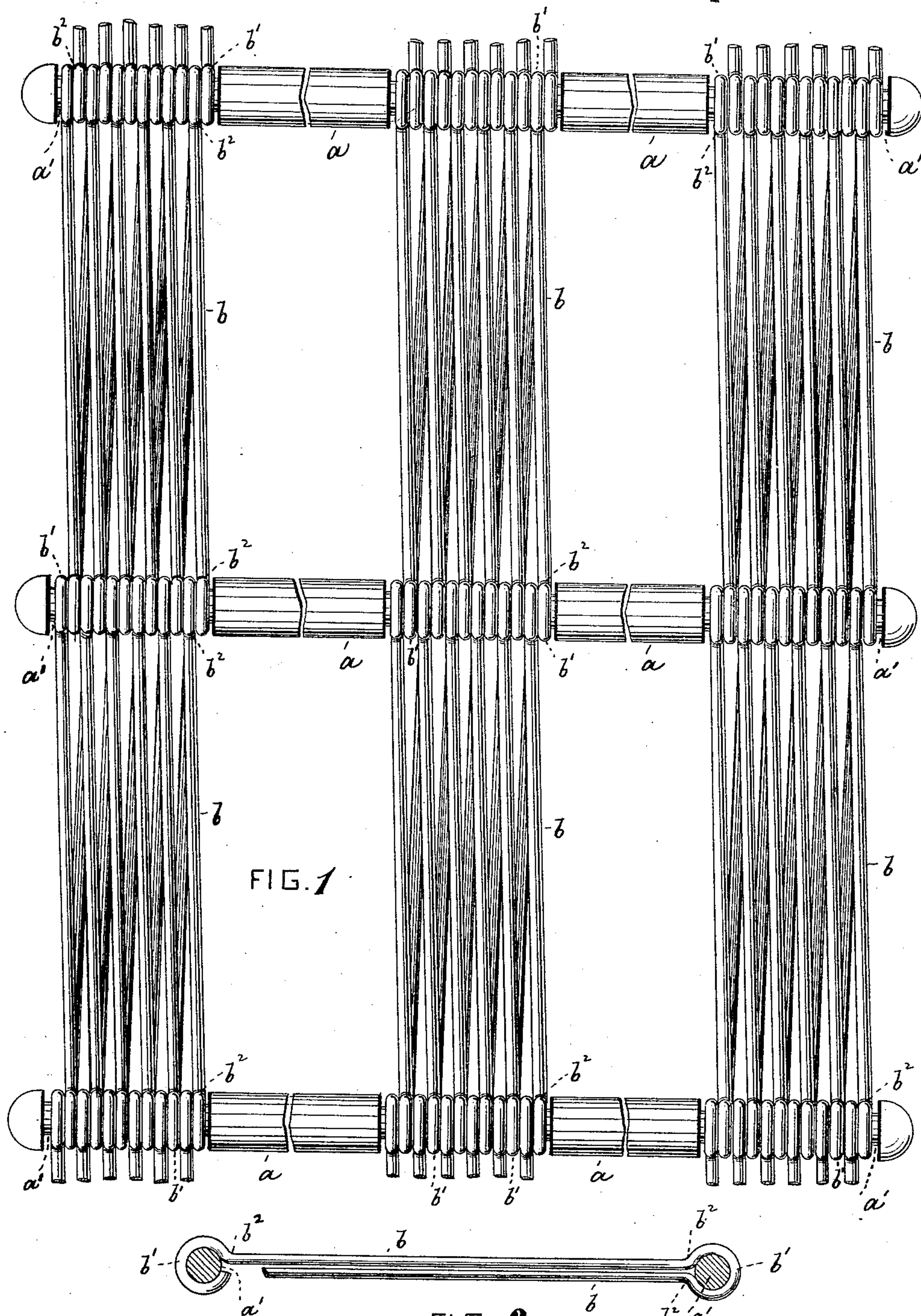


J. A. DALUMI.
FOLDING LADDER.

No. 437,174.

Patented Sept. 30, 1890.



WITNESSES

Wm. A. Lowe
Wm. Wagner

INVENTOR

J. A. Dalumi
by his attorneys
Roeder & Bilen

(No Model.)

2 Sheets—Sheet 2.

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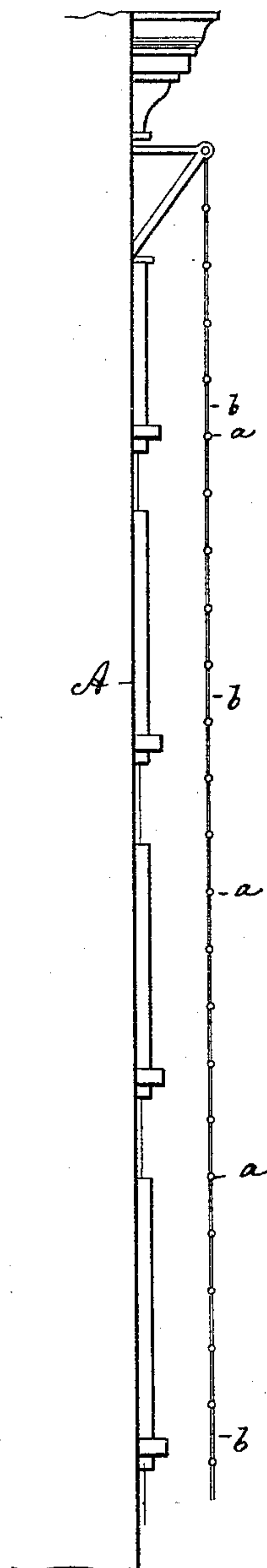
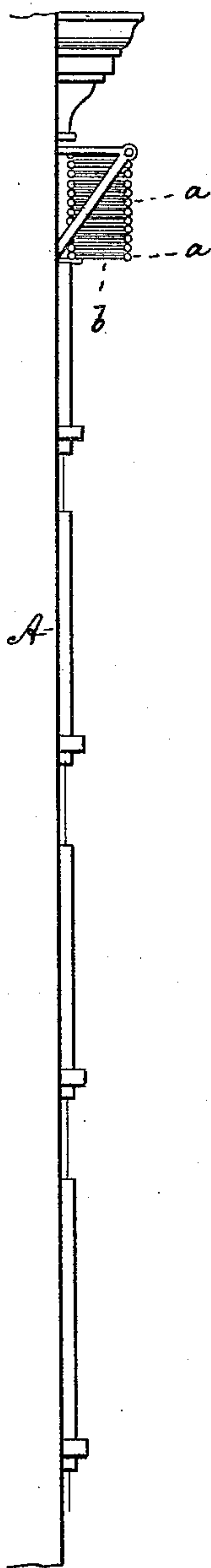
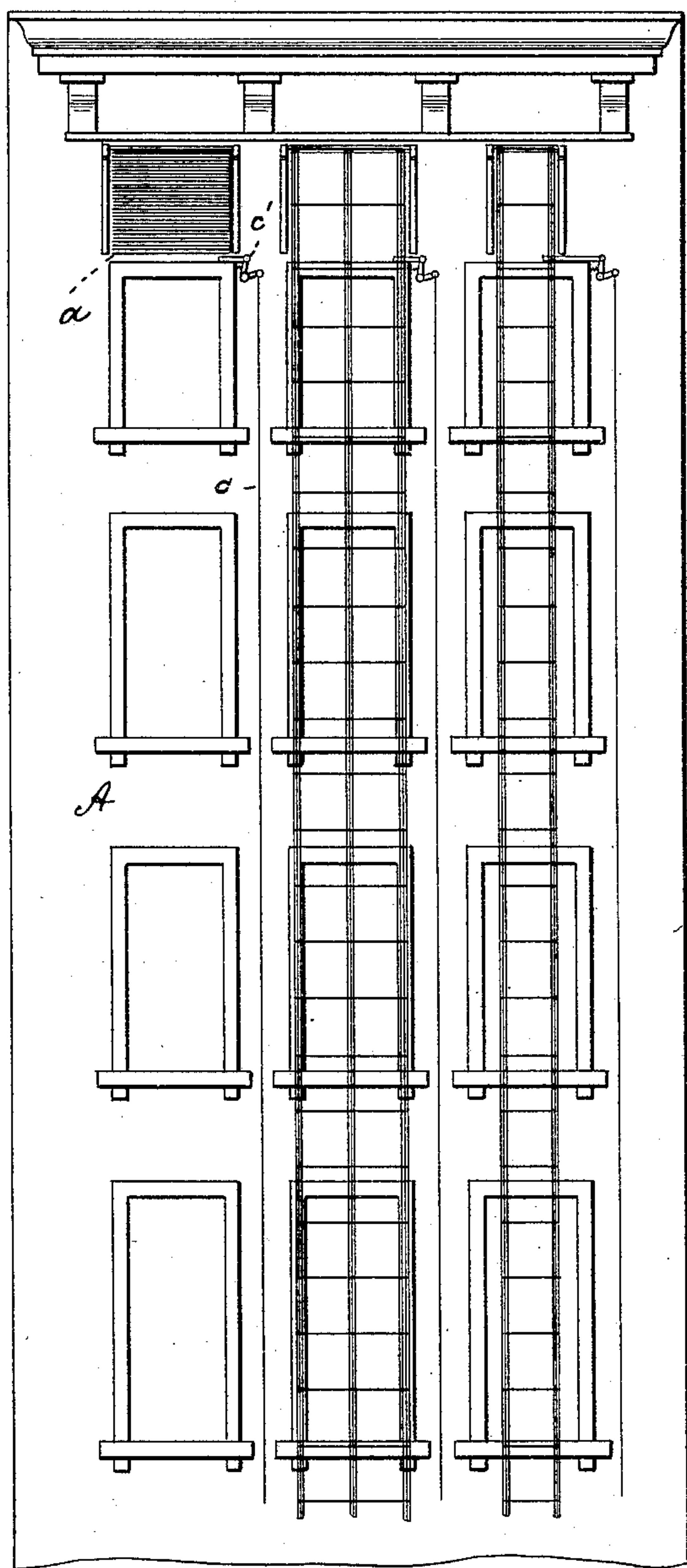
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FIG. 3

FIG. 4

FIG. 5



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UNITED STATES PATENT OFFICE.

JULIUS A. DALUMI, OF NEW YORK, N. Y.

FOLDING LADDER.

SPECIFICATION forming part of Letters Patent No. 437,174, dated September 30, 1890.

Application filed February 13, 1890. Serial No. 340,283. (No model.)

To all whom it may concern:

Be it known that I, JULIUS A. DALUMI, of New York city, New York, have invented an Improved Folding Ladder, of which the following is a specification.

This invention relates to a folding ladder in which the side rails or uprights are made sectional and are composed of coils of wire encircling the rungs.

It consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a part of a ladder constructed according to my invention. Fig. 2 is a vertical cross-section through a portion thereof. Fig. 3 is an elevation of a building in which my improved ladder is employed as a fire-escape. Figs. 4 and 5 are end views thereof, showing the ladder respectively folded and distended.

The letters *a a* represent the rungs of a ladder having reduced ends *a'*, around which the links of the sectional uprights are coiled. If desired, an additional central upright may be employed, as shown, to form a double ladder, in which case the central portion of each rung is likewise reduced. The uprights are made in sections, of which every one section connects two consecutive rungs. Each section is composed of a coiled spiral wire *b*, having enlarged heads or eyes *b'* to surround the rung. At the junction of the heads and shanks of each section shoulders *b²* are formed, leaving an opening between them insufficient for the reduced end of the rung to pass through. In this way the heads *b'* constitute

bearings that properly retain the rungs in place and still permit the uprights to be folded. The coils of each two superposed sections *b* are so arranged that the coils of one section enter between the coils of the neighboring sections, as shown. Thus the sections form continuous vertical side rails firmly supporting the rungs and adapted to be folded one upon another.

If the ladder is folded, the first, third, fifth, &c., rungs will come to lie upon each other, while the even rungs will also lie upon each other. Thus the length of the entire ladder is reduced to the length of a single section *b*. Of course each section *b* may be composed of any desirable number of coils.

In Figs. 3 and 5 I have shown my folding ladder secured to a building *A* above a window. By pulling a hand-rope *c* a suitable catch *c'* is withdrawn and the ladder becomes distended, as in Fig. 5, to serve as a fire-escape.

What I claim is—

1. The combination of a series of rungs with spiral sectional uprights *b*, the coils of one section being placed between the coils of the adjoining section, substantially as specified.

2. The combination of a series of rungs having reduced ends with the sectional spiral wire uprights *b*, having heads *b'* and shoulders *b²*, the coils of one section being placed between the coils of the adjoining section, substantially as specified.

JULIUS A. DALUMI.

Witnesses:

F. V. BRIESEN,
WM. WAGNER.