2 Sheets--Sheet 1.

B. G. HILDRETH.
Step-Ladder.

No. 164,683.

Patented June 22, 1875.

FIG. 1

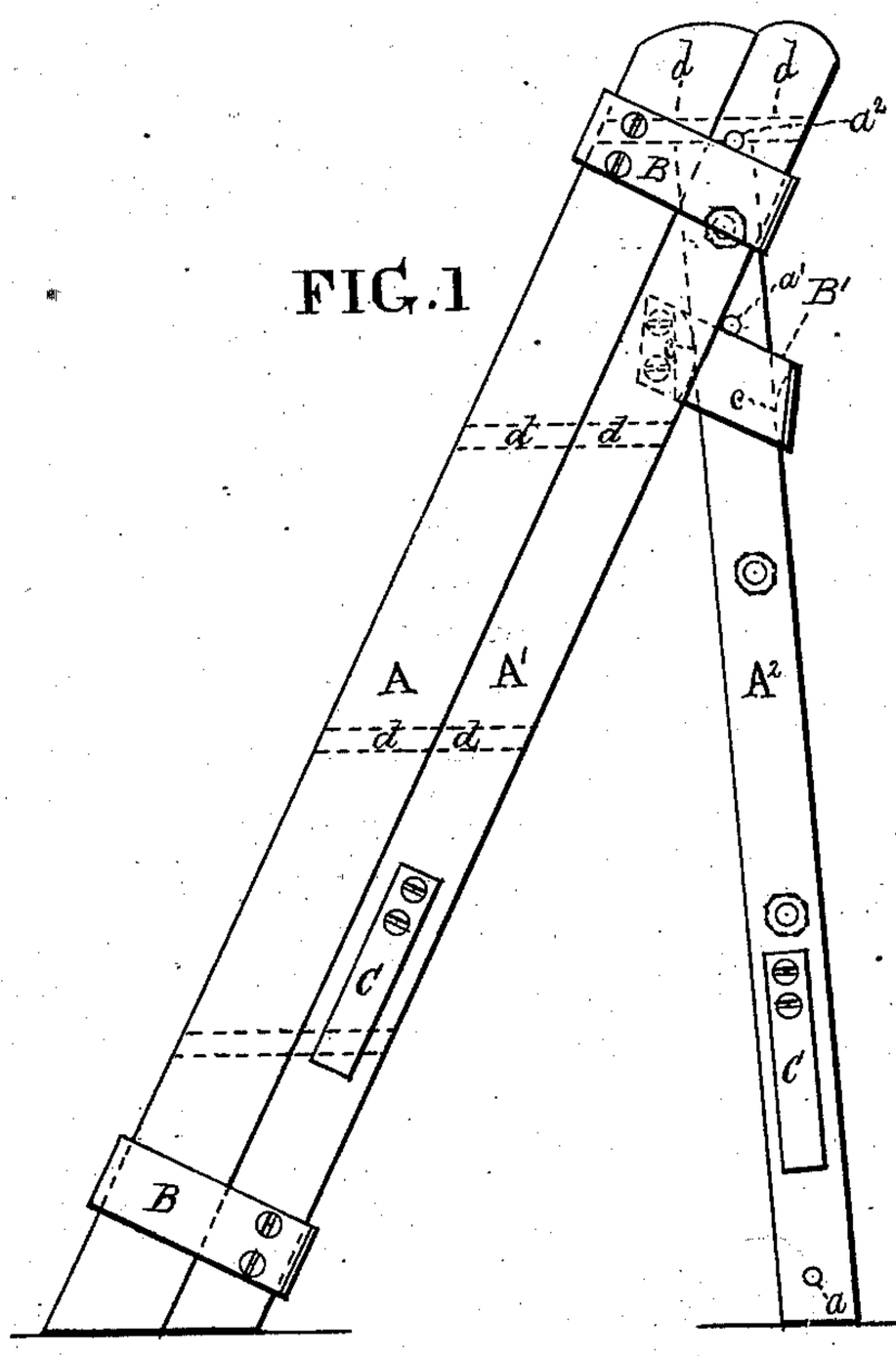
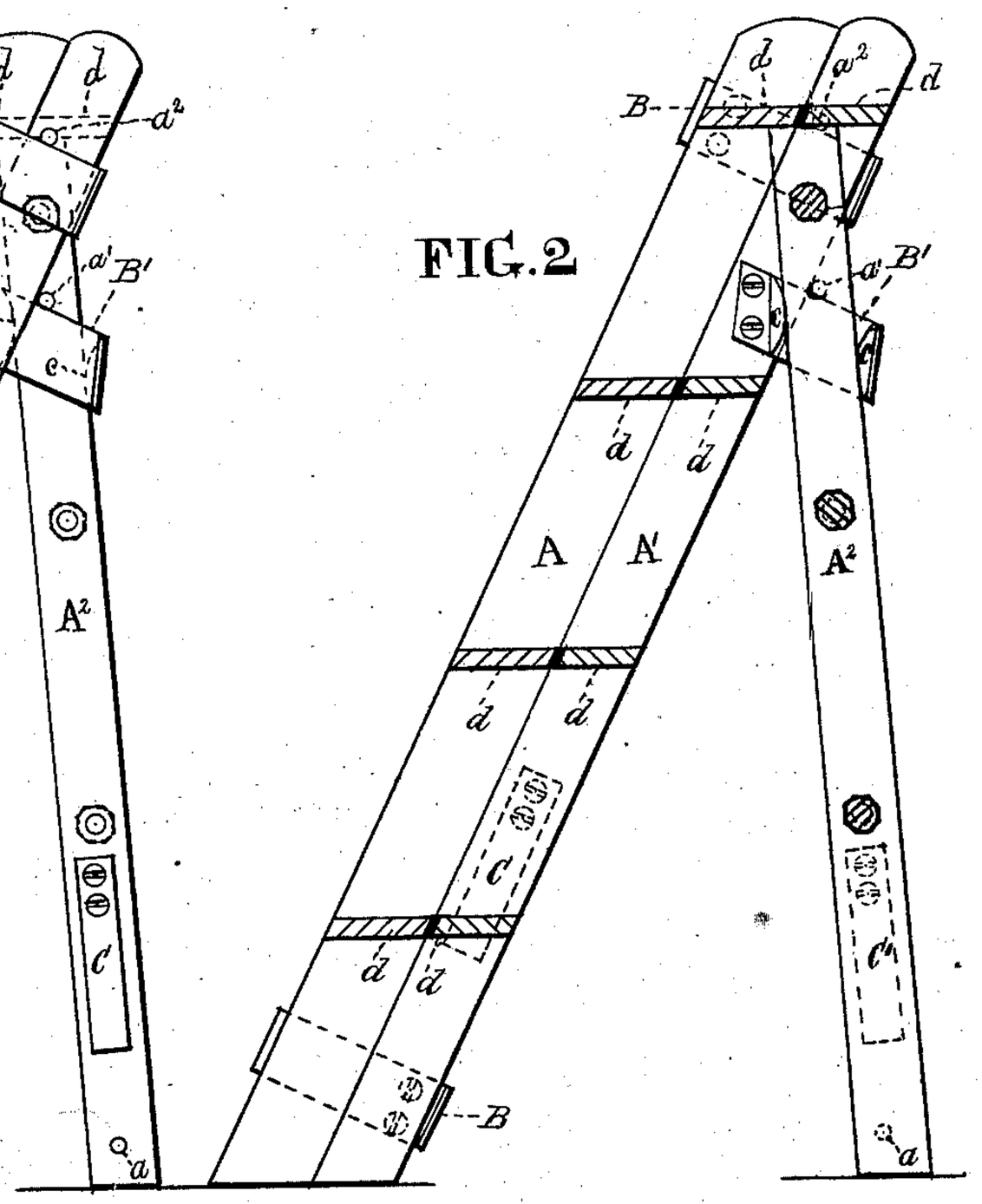


FIG. 2



Witnesses;

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Inventor;

Bradley G. Hildreth

By His Attorney.

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2 Sheets--Sheet 2.

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Step-Ladder.

No. 164,683.

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FIG. 5

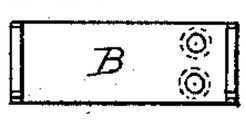

FIG. 6

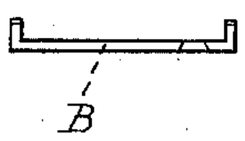

FIG. 7

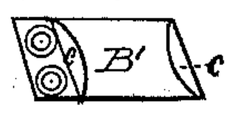

FIG. 8

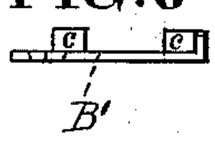

FIG. 3

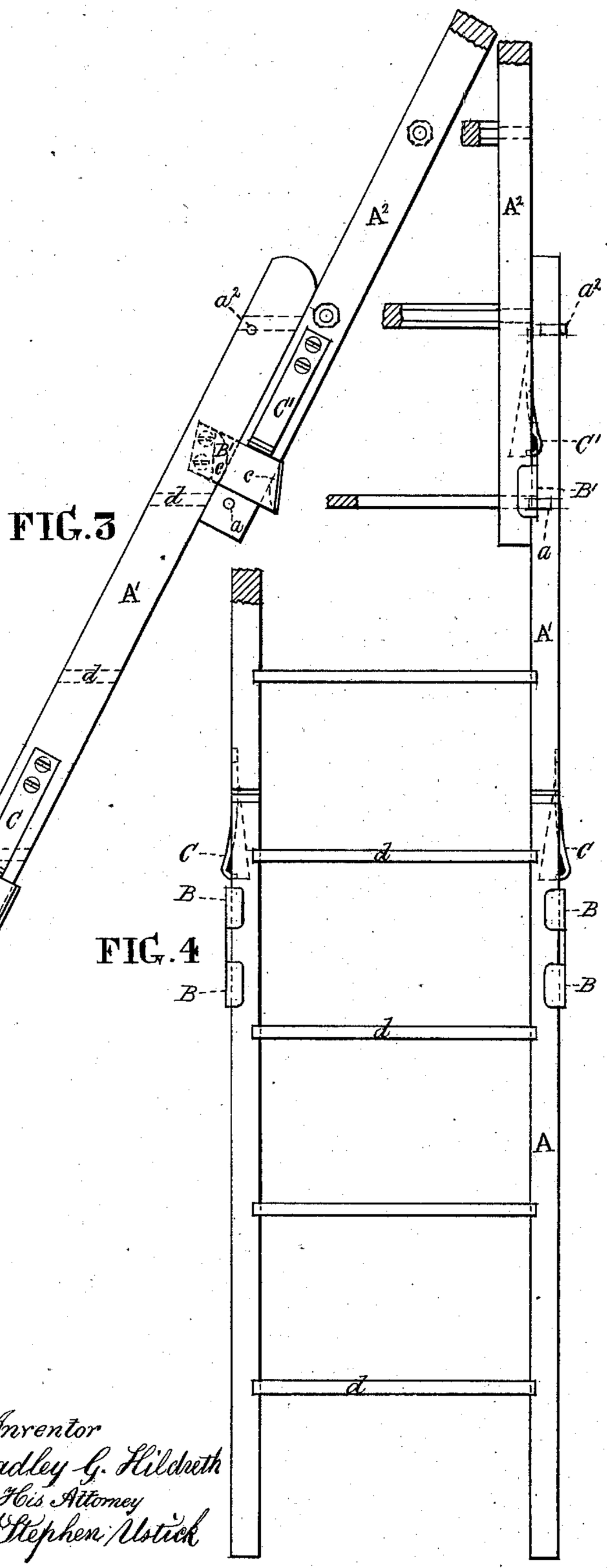

FIG. 4

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UNITED STATES PATENT OFFICE.

BRADLEY G. HILDRETH, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. **164,683**, dated June 22, 1875; application filed December 29, 1874.

To all whom it may concern:

Be it known that I, BRADLEY G. HILDRETH, of Wilmington, in the county of New Castle and State of Delaware, have invented an Improvement in Step-Ladders, of which the following is a specification:

The object of my invention is the production of a ladder of simple construction, and not liable to get out of order, and still to be adapted to all the uses of a step-ladder, and having the advantage of being extended to reach any height required for house purposes.

My invention relates to the following particulars: Each succeeding section is held in its upward position by means of spring-catches, as hereinafter described. The side pieces of the upper section slide between hooks of iron fastened to the inside of the next lower section, which have bevels to cause a locking of the said upper section when all the sections are brought to their lower position and the lower end of the upper section is spread out from the next section to form a support, the upper ends of the side pieces bearing against the under sides of the upper step of the next section, and pins which project from said side pieces resting upon the above-mentioned irons, whereby the ladder is firmly braced in position in its contracted form.

In the accompanying drawings, Figure 1 is a side elevation of my improved step-ladder. Fig. 2 is a section of the same in a vertical plane parallel therewith. Fig. 3, Sheet No. 2, is a side elevation with the sections extended. Fig. 4 is a rear view of the same. Figs. 5 and 6 are a face and end views of one of the clasping L-irons B. Figs. 7 and 8 are like views of one of the irons B′.

Like letters of reference in all the figures indicate the same parts.

A, A^1, and A^2 are, respectively, the front, middle, and rear sections of my improved ladder. The sections A and A^1 are connected together by means of the clasping L-irons B, one of which is shown in Figs. 5 and 6. One end of the lower irons is confined by means of screws to the middle section A′, the other ends clasping the outer edges of the side pieces of section A. The connection of the upper irons is reversed to cause the free ends to clasp the outer edges of section A^1, whereby said section may slide out from section A, nearly the whole length thereof, as seen in Figs. 3 and 4. When section A^1 is thus extended, the catches C, which have at this time passed above the upper irons, spring outward, and their lower ends rest upon said L-irons B for the support of section A^1 in its elevated position. Section A^2 is held against the rear side of section A^1 by means of L-irons B′, one of which is shown in detail in Figs. 7 and 8. The front ends of the irons are let into section A^1, and confined by means of screws, as shown in Fig. 2, the inner faces of the irons being brought the proper distance apart to admit of section A^2 sliding freely between them. The projecting ends of pins *a* strike against the lower edges of the L-irons B′, and guard against the section being drawn out of its connction with section A^1, and the spring-catches C′, as they pass above said irons, spring outward and rest upon the upper edges thereof, and prevent the descent of section A^2.

When the section is required to be lowered or contracted, the spring-catches are sprung inward to admit of their passing inside of the L-irons B^1, and section A^2 is prevented passing too far in the opposite direction by the projecting ends of the pins a^1 coming against the upper edges of the L-irons B^2. The section A^1 is prevented moving too far in the same direction by the projecting ends of pins a^2 coming against the upper edges of the L-irons B, which are confined to section A.

When the ladder is not in use, the sections lie flat together. When it is used for the ordinary purpose of a step-ladder, the lower end of the section A^2 is spread out from section A^1, as seen in Fig. 2, and the upper ends of its side pieces bear against the lower side of the upper steps *d d* of the sections A^1 and A, and the edges of said side pieces bear against the beveled or rounded edges of the flanges *c* of the L-irons B^1 B^1, and the pins a^1 a^1 upon their upper edges, whereby the ladder is held firmly in its position.

The steps *d* of sections A and A^1 are made to correspond in their distances apart, in order that when the two sections are brought together their united widths give good rests for the feet.

If desired, recesses may be made in the

lower side of the upper step of section A^1, to receive the upper ends of the side pieces of section A^2.

If desired, the catches C C′ may be made of rigid bars to turn on joint-pins, and forced out by means of springs in any convenient manner.

I claim as my invention—

1. The combination of the L-irons B^1 with sections A^1 and A^2, for holding the sections together, guiding them in the expansion and contraction of said sections, and holding section A^2 in the position seen in Figs. 1 and 2, substantially as set forth.

2. The combination and arrangement of the spring-catches C and C′, respectively, with the sections A^1 and A^2, and the clasping-irons B and B^1, whereby, when either section is brought to its elevated position, its spring-catches are caused to rest upon the upper edges of the clasping-irons of the next section beneath it, to hold it in its elevated position, substantially as set forth.

3. The combination of section A^2, having pins a^1 a^1, with section A^1, having irons B^1 B^1, provided with flanges c c, constructed and arranged substantially as set forth, whereby the ladder is held firmly in a secure position.

B. G. HILDRETH.

Witnesses:

W. H. MERRILL,

ANDREW CAREY.