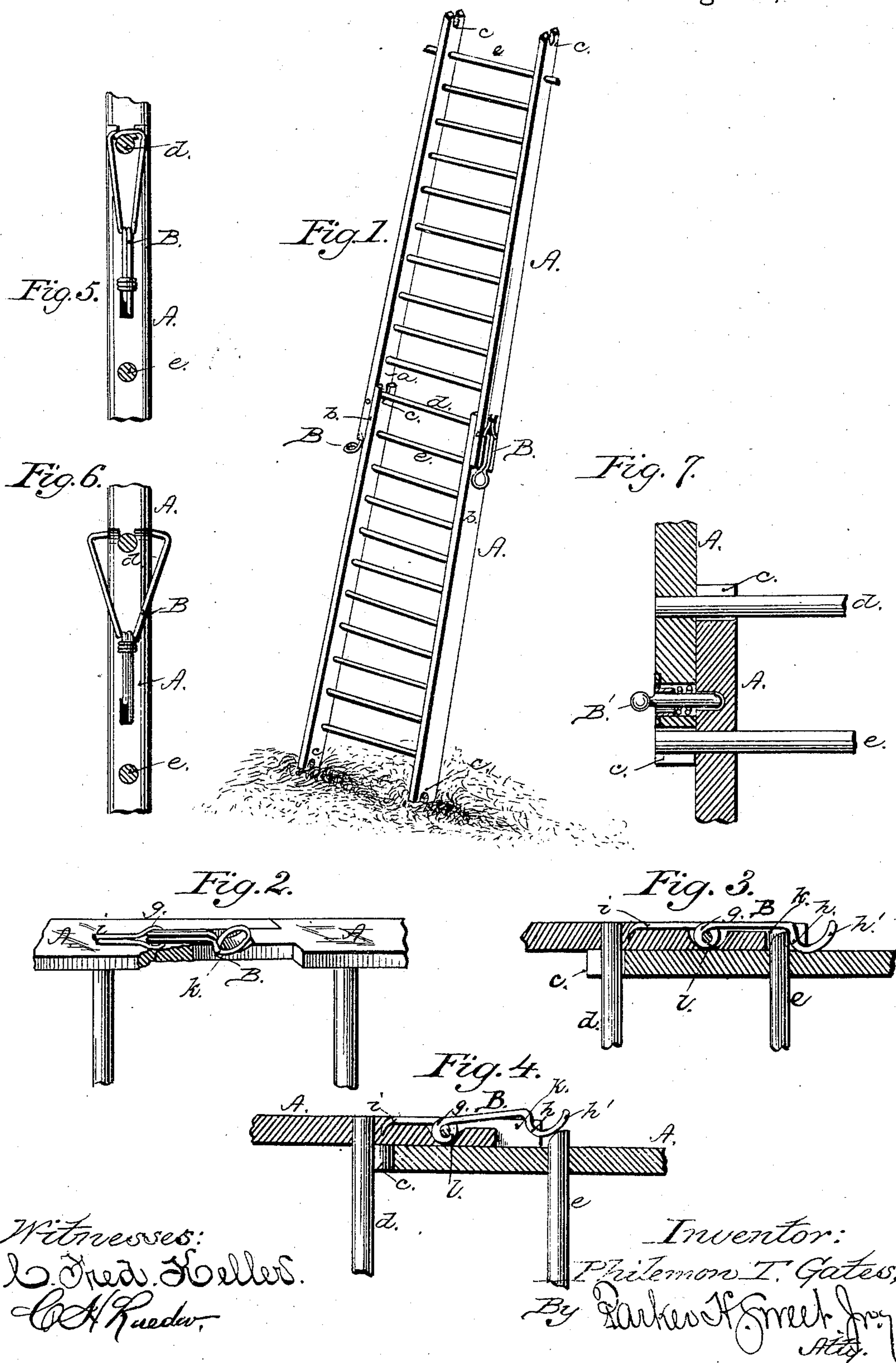


(No Model.)

P. T. GATES.
SECTIONAL LADDER.

No. 303,721.

Patented Aug. 19, 1884.



UNITED STATES PATENT OFFICE.

PHILEMON TENNEY GATES, OF NEW YORK, N. Y.

SECTIONAL LADDER.

SPECIFICATION forming part of Letters Patent No. 303,721, dated August 19, 1884.

Application filed March 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILEMON T. GATES, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Sectional Ladders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates more particularly to improvements in the construction of sectional ladders, whereby two or more short ladders may be securely fastened together to provide a continuous ladder of any desired length, and which may be readily put together or taken apart, although my said invention is as equally adapted for securing frames, platforms, screens, &c., together in a like manner; and my improvements consist, essentially, in the novel arrangement of said ladders, frames, &c., together, and in the manner of locking or securing the several sections in position, all as will be hereinafter more fully described, and specifically designated in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of two short or sectional ladders joined together in accordance with my invention; Fig. 2, a detail sectional view of two frames secured together in a similar manner. Figs. 3 and 4 represent detail sectional views, and Figs. 5 to 7 modifications of my invention.

Similar letters of reference occurring on the several figures indicate like parts.

In carrying out my improvements each of the short or sectional ladders A may be of any desired length, and similar in all respects to each other, being preferably constructed broader at the lower extremities and gradually growing narrower toward the top, so that the inner sides, *a*, of the bottom of one ladder will fit smoothly against the outer sides, *b*, of the top of another ladder, when the two are joined together, as fully shown in Fig. 1. The upper and lower ends of the sides of each ladder are provided with grooves or notches

c, as shown, so that when two ladders or sections are joined together the bottom round, *d*, of the upper ladder fits snugly in the notches *c* in the top of the lower ladder, and the notches in the bottom of the upper ladder rest over and upon the ends of the upper round, *e*, in the lower ladder, the ends of the said round *e* projecting beyond the sides of the ladder a short distance, as shown. On both sides of the bottom of each ladder or section, except the first or ground section, is provided a spring clutch or fastener, B, the lower end of which projects over and beneath the protruding ends of the round *e*, or their equivalent, to hold the two sections firmly together. This spring clutch or fastener B is preferably formed from a short length of wire, which is first bent double, then again bent double, then again bent so as to provide a central loop or coil, *g*, a hooked lower end, *h*, formed with a projecting lip or thumb-piece, *h'*, and its opposite end, *i*, projecting downward, as shown. The spring-clutch thus formed is adapted to fit within a vertical groove, *k*, in the sides of the bottom of each ladder or section, a pin or bolt, *l*, passing through the sides of the ladder or section and through the central loop or coil, *g*, to hold the spring in place.

Modifications of the spring-fastener are shown at Figs 5 to 7, the projecting ends of the spring B lapping over the lower round of the upper ladder to hold the two sections together, as shown in Fig. 5; or a pin or bolt, B', provided with a flat or coiled spring secured within the side of one of the sections, may be adapted to project into an opening in the side of the opposite section, to hold the two parts together, as shown in Fig. 7.

I do not wish to confine myself to the particular manner above described of splicing the ladders or sections together, as the same may be fitted together by a tongue and groove, as shown in Fig. 2, or by any of the well-known methods of joining two or more ladders, sections, or frames together, the essential feature of my invention being the employment of a spring clutch or fastener to securely hold the several sections in place when joined together.

In the operation of my invention, the desired number of ladders, sections, or frames may be readily joined together, the hooked

end of the spring-clutch B of one section automatically slipping over the projection, or its equivalent, upon the opposite section, thereby securely locking the same together. The
5 several parts are as readily taken apart by releasing the end or ends of the spring-clutch B from the projections upon the opposite section.

My invention is especially adapted for the purpose of securely holding together sections
10 of ladders, platforms, frames, &c., which must necessarily be of a portable nature, and which are required to be placed together or taken apart at short notice.

Having thus described my invention, what
15 I claim as new and useful is—

1. The herein-described means for securing sections of ladders together, consisting in providing the lower ends of one section A with a spring clutch or fastener, B, and with grooves

c, which engage with the projecting ends of
20 the upper round of a lower section, the upper ends of an adjacent lower section being grooved to engage the lower round of the upper section, substantially as and for the purpose specified.

2. The combination of one section A, pro-
25 vided at its upper ends with grooves c, and with the round d, having projecting ends, with an opposite section having its lower ends provided with grooves c, and with a spring clutch or fastener, B, whereby the two sections are se-
30 curely held together, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

PHILEMON TENNEY GATES.

Witnesses:

ABIATHOR P. BROOKS,
JOHN W. HUBBELL.