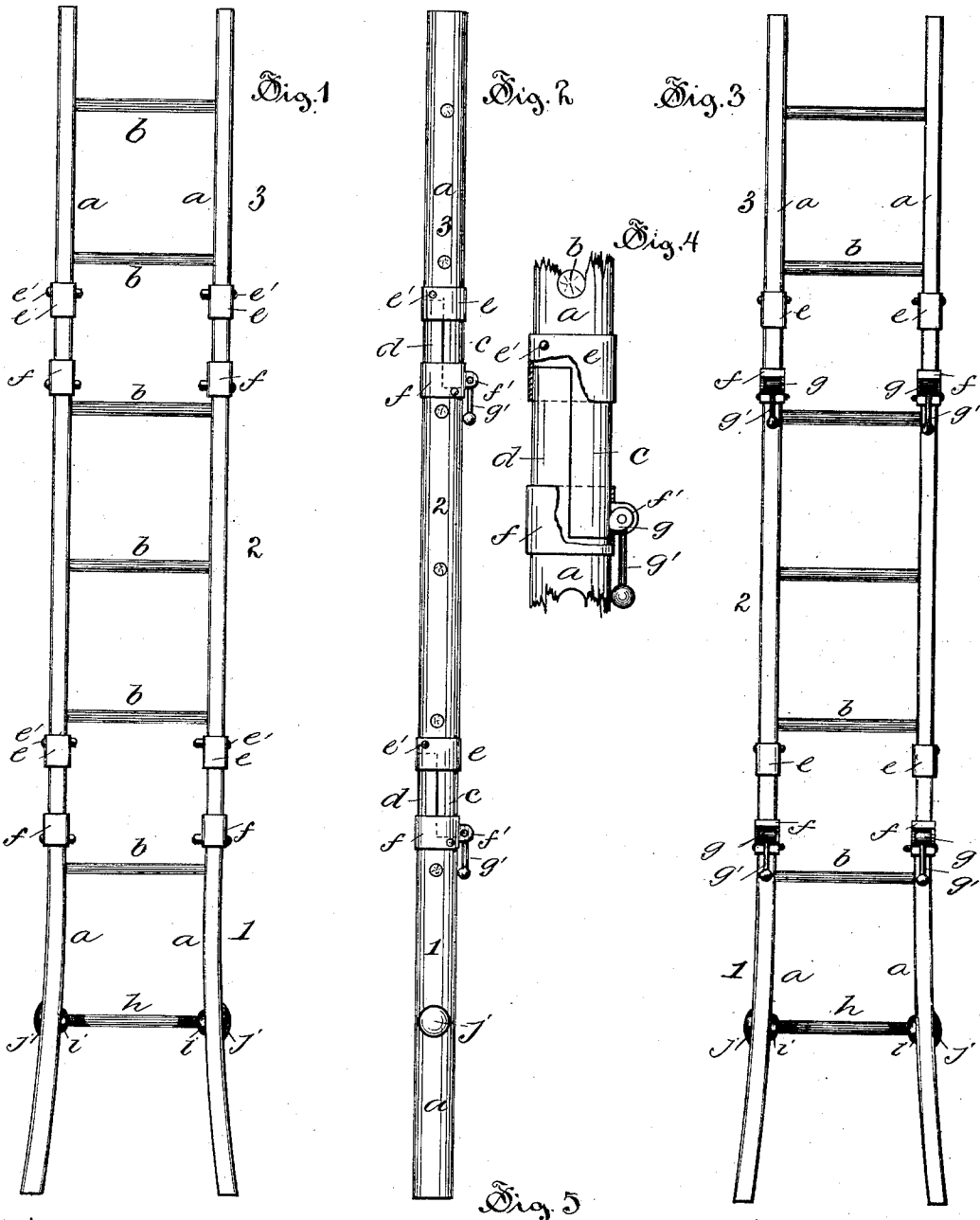


(No Model.)

J. T. LUZMOOR.
LADDER.

No. 375,079.

Patented Dec. 20, 1887.



Witnesses:

Henry L. Rickard,
Arthur B. Jenkins.



Inventor,

John T. Luzmoor,
By Harry R. Williams,
His Attorney.

UNITED STATES PATENT OFFICE.

JOHN T. LUZMOOR, OF HARTFORD, CONNECTICUT.

LADDER.

SPECIFICATION forming part of Letters Patent No. 375,079, dated December 20, 1887.

Application filed October 14, 1887. Serial No. 252,299. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. LUZMOOR, of Hartford, 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 relates to the class of sectional ladders; and the object is to provide the sections of a ladder with means whereby they can be easily put together and held in such manner as to make a strong joint, and also to provide a ladder with a device to prevent its twisting, that is simple, effective, and always in place.

Referring to the accompanying drawings, Figure 1 is a front view of a ladder provided with my improvements. Fig. 2 is an edge view of the same. Fig. 3 is a back view. Fig. 4 is a detail view on enlarged scale, showing the joint between two sections. Fig. 5 is a view of a metal round used to strengthen the ladder.

In the drawings, the figure 1 represents the lower section, 2 the middle section, and 3 the upper section. Of these sections there may be any number, of any length, with any number of rounds *b*, which join the side pieces, *a*, that is desirable and suitable.

A part of the lower end of the side pieces, *a*, of the several sections, except, of course, the bottom section, is cut away, leaving a projecting portion, *c*, and a strap or band, *e*, is placed around the side piece in such manner that part of the band encircles the side piece where it is cut away, so as to form a pocket, while a part of the band encircles the side piece above the cut-away portion to prevent the end from splitting. These bands *e* are preferably formed of cast metal, and are usually held in place by a bolt, *e'*, that passes through and through the band and side piece of the ladder.

The upper ends of the side pieces of the several sections are cut away to correspond with the end of the next section, leaving the projecting portion *d*, so that when the sections are joined the parts are halved together, as shown in Fig. 4. The straps or bands *f* encircle the side pieces similarly to the bands *e*, so that part of the band forms a pocket for the projecting portion *c*, while a part keeps the end of the section from splitting where it is weakened by being cut away.

Ears *f'* are formed on the back of the bands

f, between which are pivoted the cams *g*. When these cams are rotated, the highest point of the cam projects into the pocket, and each cam has a handle, *g'*, the end of which is preferably weighted, so as to normally hang downward. When the sections are joined, the projecting tongue *d* fits into the pocket formed by the band *e*, while the projecting part *c* fits into the pocket formed by the band *f*, and to bind the parts together in this position the cam *g* is rotated by the handle, so as to press the part *c* against the part *d* and make a tight joint between them. A metal plate can be attached to the back of the part *c* for a bearing, upon which the cam presses; or it may crush into the wood, as shown in the drawings. With this kind of a joint the parts are held tightly together, so that there is no play, and the parts cannot be disjoined unless the cam is turned over, for the stronger the force tending to draw the sections apart the tighter the cam binds them together.

It will be noticed, also, that the weight on the end of the cam-lever normally tends to drop by gravity and lock the cam, this, of course, preventing any jar or shake from accidentally unlocking the parts.

It is sometimes necessary to provide ladders of this class with a device to prevent them from springing and twisting, and to accomplish this I provide a metal round, which consists of a bar, *h*, having a right-hand thread cut on one end and a left-hand thread cut on the other end, and bearing on these threaded ends collars *i* and *j*, threaded similarly with the end of the bar upon which they are borne. In using this the bar is placed in the sockets provided for a round and the collars *i* turned up until they bear against the inner faces of the side pieces. Then the collars *j* are screwed on the bar until they bear against the outer face of the side pieces, so the side pieces are firmly held between the collars. By grasping the bar with any suitable instrument and rotating it the sides of the ladder may be brought together or forced apart, as shown in the drawings, to form a widened base.

If it is desired, any number of these rounds may be placed in a section, taking the position of the usual wooden round.

My structure is easily jointed or taken apart, is strong and light in weight, and has no pro-

jecting portions to obstruct free travel up and down the ladder when in use.

I claim as my invention—

1. In a sectional ladder, in combination with
5 the halved ends of the side pieces, the bands *e* and the bands *f*, bearing cams *g* to bind the ends of the sections together, all substantially as described.

2. In a sectional ladder, in combination with
10 the halved ends of the side pieces, the bands *e*, fast to the lower ends of the side pieces, the bands *f*, fast to the upper ends of the side pieces, a cam held between ears on the bands

f in such position as to bind the ends of the sections together, and a handle to rotate the
15 cam, substantially as described.

3. In combination with the within-described ladder, the round *h*, with its opposite ends fitted with reverse threads, the said ends bearing the collars *i* and *j*, substantially as de-
20 scribed.

JOHN T. LUZMOOR.

Witnesses:

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