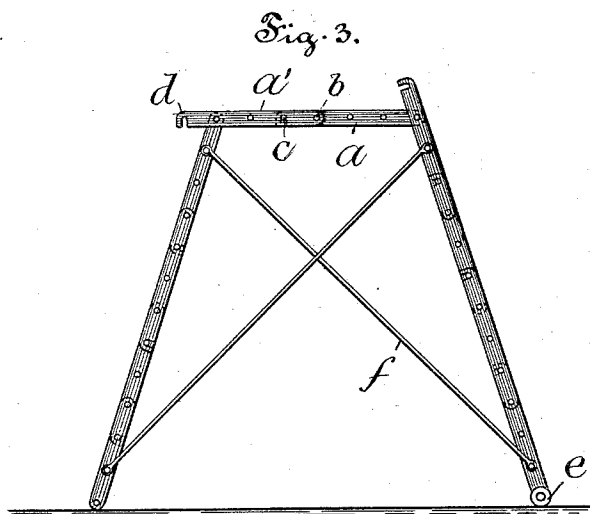
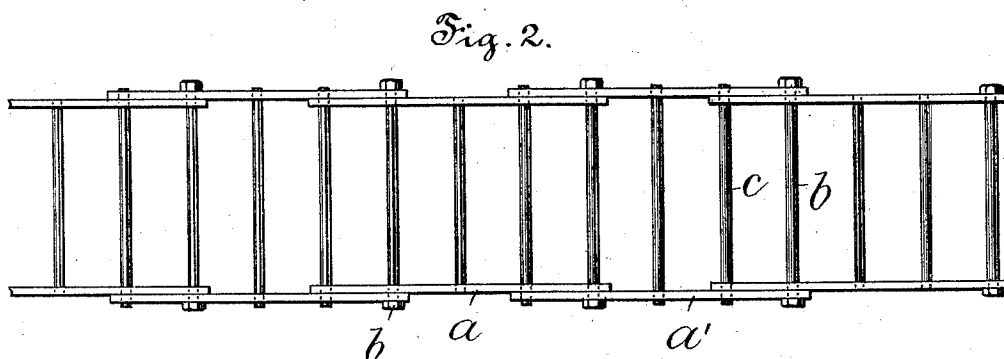
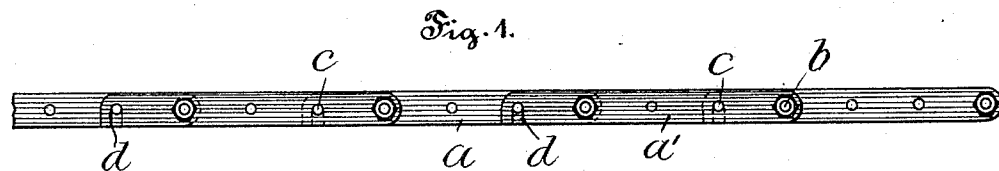


(No Model.)

E. L. RIPP.
LADDER.

No. 476,897.

Patented June 14, 1892.



Witnesses:
Herzmann Bormann
Thomas M. Smith.

Inventor:
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by J. Walter Douglass
att'y.

UNITED STATES PATENT OFFICE.

ERNST LOUIS RIPP, OF SCHÖNAU, NEAR CHEMNITZ, GERMANY.

LADDER.

SPECIFICATION forming part of Letters Patent No. 476,897, dated June 14, 1892.

Application filed March 18, 1892. Serial No. 425,443. (No model.)

To all whom it may concern:

Be it known that I, ERNST LOUIS RIPP, a subject of the King of Saxony, residing at Schönau, near Chemnitz, in the Kingdom of Saxony and German Empire, have invented certain new and useful Improvements in Ladders, of which the following is a specification.

The principal object of my invention is to provide a simple, strong, and comparatively inexpensive folding ladder.

The nature and characteristic features of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a side elevation of a folding ladder embodying features of my invention and showing a series of links disposed in pairs and having one of their respective extremities pivoted to certain rounds or rungs and having their free extremities adapted to engage rounds or rungs intermediate of the pivotal rounds or rungs. Fig. 2 is a plan view of the same, showing alternate pairs of links disposed inside and between the intervening pairs of links and illustrating a chain ladder of substantially equal width at both ends thereof; and Fig. 3 is an elevation of a ladder embodying features of my invention and showing the same arranged for use as a scaffold.

In the drawings, *a* and *a'* are a series of links disposed in pairs and forming the side pieces of the ladder. One of the respective extremities of each of these links is pivoted to certain of the rounds or rungs *b*, and the free extremities of these links *a* and *a'* are adapted to engage rounds or rungs *c* intermediate of the pivotal rounds or rungs *b*, and for this purpose are preferably provided with hooks *d*, so that stiffness or rigidity is imparted to the ladder in one direction without preventing it from being readily folded in the other direction. Moreover, the rounds *b* support only the strain incident to the pivotal connection between the links, and the intermediate rounds *c* support the strain exerted by the free ends of the links *a* and *a'*, so that

none of the rounds are subjected to the double strain or shearing force that would fall upon them if the free ends of the links were permitted to abut against the pivotal rounds *b* instead of against the intermediate rounds *c*. The alternate pairs of links *a* are disposed inside and between the intervening pairs of links *a'*, so that the ladder is of substantially equal width throughout its length.

The hereinabove-described ladder may be used in the customary manner, or it may be provided at one end with rollers *e* and used, in connection with tie-rods *f*, to form a scaffold, as shown in Fig. 3. In such case the rollers *e* also permit of the scaffold being moved from place to place, as required.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A flexible or folding ladder comprising a series of links disposed in pairs and having one of their respective extremities and a point intermediate of their extremities pivoted to certain of the rounds or rungs and having their free extremities adapted to abut against a round or rung intermediate of the pivoted rounds of the next succeeding pair of links of the series, substantially as and for the purposes set forth.

2. The combination, in a flexible or folding ladder, of a series of rounds or rungs, a series of links disposed in pairs and having one of their respective extremities and a point intermediate of their extremities pivoted to certain of the rounds or rungs and having their free extremities adapted to abut against a round or rung intermediate of the pivotal rounds of the next succeeding pair of links of the series, rollers at one end of the ladder, and tie-rods adapted to engage certain of said rounds or rungs, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ERNST LOUIS RIPP.

Witnesses:

R. E. JAHN,

A. B. BEYREUTHER.