

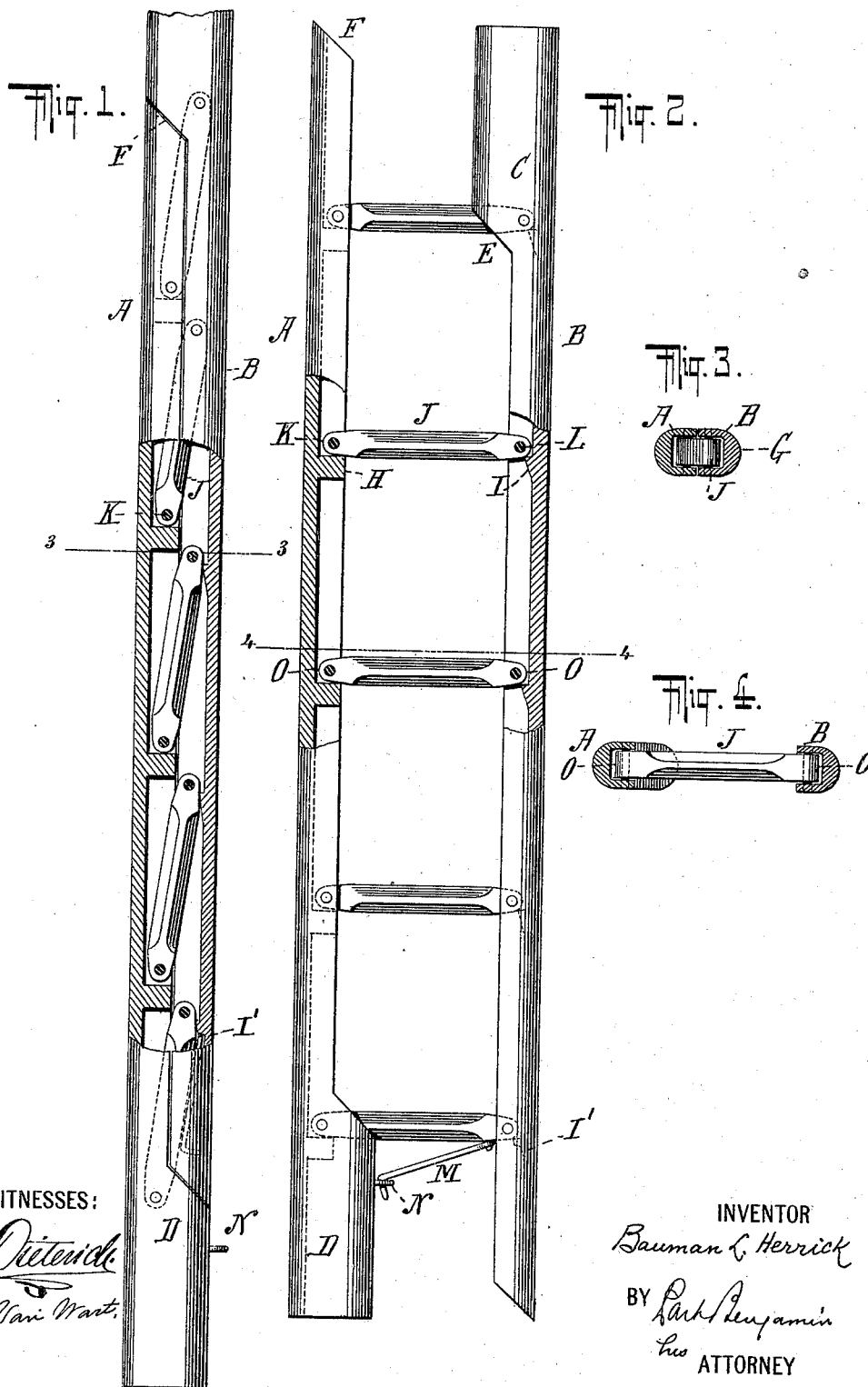
No. 646,987.

B. L. HERRICK.
LADDER.

Patented Apr. 10, 1900.

(No Model.)

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WITNESSES:

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LADDER.

SPECIFICATION forming part of Letters Patent No. 646,987, dated April 10, 1900.

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To all whom it may concern:

Be it known that I, BAUMAN L. HERRICK, of the city, county, and State of New York, have invented a new and useful Improvement in Ladders, of which the following is a specification.

My invention relates to that type of ladder in which the side bars are connected by rounds which are pivoted in said bars at their opposite ends, so that said side bars may be brought together or separated in order to fold the ladder into compact form or to extend it for use.

My invention relates more particularly to the construction of the ladder wherein the side bars are provided with shoulders at intervals along their inner sides so constructed and arranged and in such proximity to the pivots of the rounds as that when the ladder is in open position each round will be above and bear upon the shoulder, thus securing a firm support.

My invention further consists in constructing the shoulders in one side bar of less depth than the shoulders in the other side bar, so that when the two side bars are brought together one end of each round shall lie between the contiguous shoulders.

My invention further consists in providing a ladder, constructed as hereinbefore described, with means, such as a pivoted brace, for holding said ladder in its open or extended position.

My invention still further consists in constructing said ladder, as a new article of manufacture and sale, with side bars of semitubular sheet metal, each bar having a tubular end, as described, and also constructing the rounds of said ladder of metal, as more particularly hereinafter detailed.

In the accompanying drawings, Figure 1 represents my ladder with the side bars closed. Fig. 2 represents the ladder with the side bars separated, and hence in open position for use. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a cross-section on the line 4 4 of Fig. 2.

Similar letters of reference indicate like parts.

A and B are the side bars of the ladder.

These may be constructed of wood or any desired material; but I prefer to make them of sheet metal, such as steel, in semitubular form, except at the extremity C of bar B and the extremity D of bar A, which extremities are tubular. When said bars A and B are of wood, the extremities D and C will preferably be solid.

The part E of the projection of the tubular portion C is beveled, as shown, to correspond to the beveled end F of the bar A, and the similar part of the projection D is beveled in like manner to correspond to the beveled end of the side bar B. By this arrangement the beveled parts of the two side bars A and B when said bars are brought together, as shown in Fig. 1, fit, while the inner faces of said bars also come closely together, thus bringing the ladder into the shape of a single bar.

The periphery of the device, as shown in Fig. 3, may be rectangular, or, if desired, it may be made circular, or, in fact, in any suitable configuration which may be desired.

Where the side bars A and B are made of thin sheet metal in arch form or curve form, it may be desirable to thicken the metal at the arch, as indicated at G in Fig. 3. When the bars are not of thin sheet metal, but of other material, the recesses also, as shown in Fig. 3, may be made rectangular in cross-section and the thickness obtained in that way. Disposed at regular intervals in each side bar are shoulders H I. The shoulders I in bar B are less in depth than the recess or concavity of said bar. The shoulders H in bar A may be equal in depth to the concavity or recess in bar A.

At J are shown the rounds of the ladder, the ends of which enter the recesses or concavities of said bars and are pivoted therein. The pivots K and L, it will be noticed, are in proximity to the shoulders H and I and lie on one side thereof, so that when the ladder is open, as shown in Fig. 2, the end portions of the round obtain a bearing upon both shoulders. These shoulders then act as a support for the round which rests upon them and assist the pivots in sustaining the weight of the person standing on the round. This construction is of especial advantage, in that

it affords a more secure support for the rounds and also effectually prevents any undue wearing at the pivots. This is an important feature, which adds greatly to the strength of the device.

The object of making the shoulders I less in depth than the recess or concavity of the bar B will readily be understood from Fig. 1, which shows the ladder in closed position. The reduction in depth of this shoulder is to be such that when the two side bars are brought together, as shown in said Fig. 1, sufficient space is afforded for the end portion of the round J to lie between the contiguous shoulders H I, and thus permit the inner faces of the two side bars to be brought into close proximity. This feature is also an important one, because it insures the folding of the ladder in close compass without interfering with the support given to the rounds by the shoulders from below when the ladder is in open position.

Any suitable means may be provided for holding the ladder in open position. I prefer to use a brace M, which may be secured to one round and have a hook at its end adapted to enter a staple N on the side bar A, or, obviously, the brace M may be secured to the side bar A and enter a staple on the round. In order to accommodate the brace M when the side bars are folded together, the lower portion of the shoulder I' may be cut away, as shown in Figs. 1 and 2, to form a suitable recess.

The cross-section of the rounds is not material; but the extremities O are curved or rounded, so as to permit of their ready turning upon the shoulders.

While, as I have stated, this ladder may be made of wood, it is preferable to construct it as an article of manufacture entirely of metal, the side bars being semitubular and tubular, as described, in order to adapt it for use as a fire-escape from burning buildings, for which purpose it is especially well adapted. By suitably varying its cross-sectional shape it may be introduced as a member of an ornamental molding or disposed up and down on a house front, like a water-pipe or leader. When made of sheet metal, as described, it becomes very light and portable.

I claim—

1. The combination in a ladder of the type herein specified of side bars each having shoulders, and rounds fastened by fixed pivots to said side bars and in proximity to and on one side of said shoulders; whereby when said ladder is open said rounds lie above and

bear upon said shoulders, substantially as described.

2. The combination in a ladder of the type herein specified, of side bars, each having a recess in its inner side, and having shoulders disposed at intervals in said recesses, and rounds fastened by fixed pivots at their opposite extremities in said recesses and in proximity to and on one side of said shoulders; whereby when said ladder is open said rounds lie above and bear upon said shoulders, substantially as described.

3. The combination in a ladder of the type herein specified, of side bars of arched or curved cross-section, having shoulders disposed at intervals in the concavities of said side bars, and rounds having rounded or curved extremities fastened by fixed pivots in said side bars on one side of and in proximity to said shoulders; whereby when said ladder is open said rounds lie above and bear upon said shoulders, substantially as described.

4. The combination in a ladder of the type herein specified, of side bars, each having a recess in its inner side, and having shoulders disposed at intervals in said recesses; the shoulders in one of said bars being of less depth than the recess in said bar, and rounds fastened by fixed pivots at their opposite ends in said recesses in said bars and in proximity to and on one side of said shoulders; the aforesaid parts being constructed and arranged so that when said ladder is open said rounds shall have a bearing above and upon said shoulders, and when said ladder is closed one end of each round shall lie between the contiguous shoulders in said bars, substantially as described.

5. As a new article of manufacture, a ladder having its side bars composed of semitubular sheet metal, each bar having a tubular portion at one extremity beveled to correspond to the beveled end of the opposite bar, and the said side bars being provided with fixed shoulders in them, the shoulders of one bar being of less depth than the shoulders of the other bar as set forth, in combination with rounds also of metal fastened by fixed pivots in said side bars on one side of said shoulders, and adapted to obtain a bearing upon said shoulders when said ladder is open, and to be wholly inclosed in and between said side bars when said ladder is closed, substantially as described.

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Witnesses:

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