

(No Model.)

D. HUNT.
LADDER.

No. 581,348.

Patented Apr. 27, 1897.

FIG. 1-

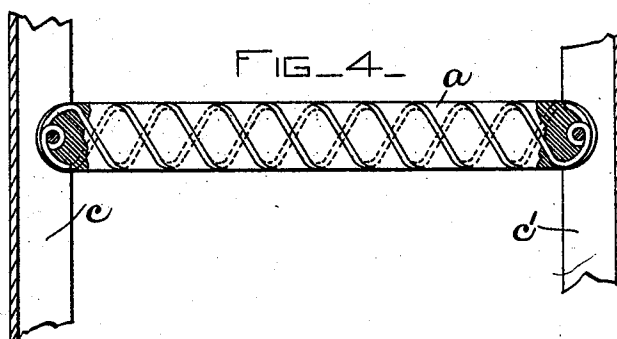
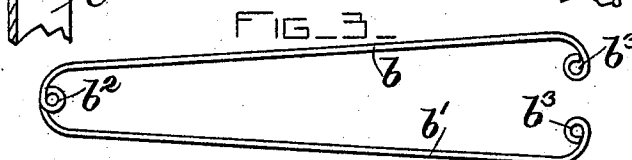
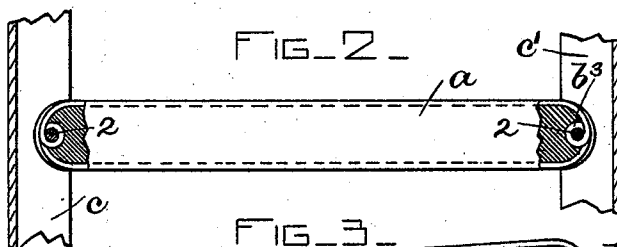
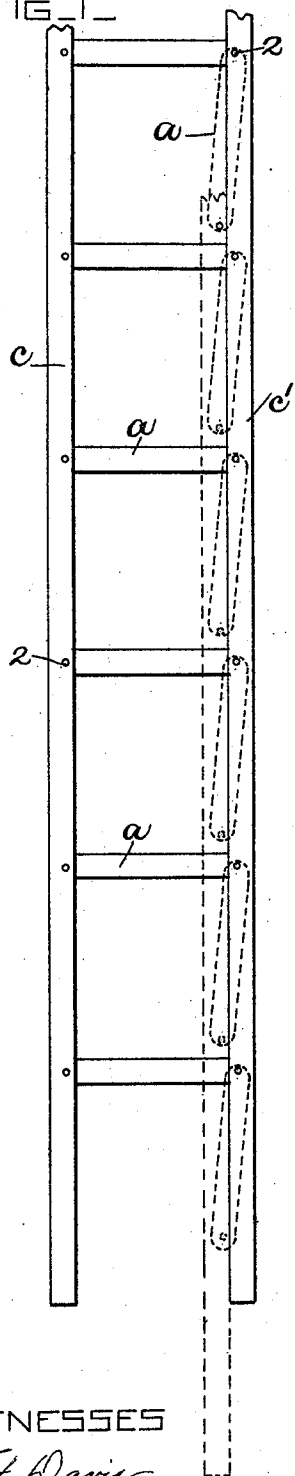
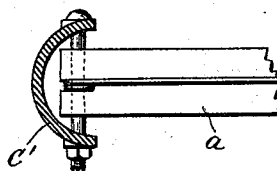


Fig. 6.



WITNESSES

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LADDER.

SPECIFICATION forming part of Letters Patent No. 581,348, dated April 27, 1897.

Application filed January 6, 1896. Renewed September 30, 1896. Serial No. 607,500. (No model.)

To all whom it may concern:

Be it known that I, DAVID HUNT, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Ladders, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to construct a very light and serviceable yet strong and durable ladder, and the invention has particular reference to the construction of the rounds of the ladder.

In accordance with this invention the round is made of wood or some equivalent material, and to reinforce it it is inclosed within or embraced by wires running longitudinally thereof, which may be made straight or bent spirally or otherwise formed. There may be several of these wires, if desired. In case a collapsible ladder is to be made these rounds are pivotally connected to the side strips, and in such case the wires are bent to form eyes or pivot-holes for the pivot-pins.

When making a collapsible ladder, I may make the two side strips of half-round material, so that when collapsed the rounds will be inclosed within the space formed within and between said side strips.

Figure 1 shows in front elevation a ladder made collapsible and having rounds embodying this invention; Fig. 2, a detail of one of the rounds inclosed in or embraced by the wires embodying this invention; Fig. 3, a detail of the wire shown in Fig. 2; Fig. 4, a detail of a round having a wire wound thereon spirally, yet extending lengthwise the round; Fig. 5, a detail of one of the wires shown in Fig. 4, and Fig. 6 a cross-section of one of the side strips and a portion of a round.

The round *a* (see Figs. 2 and 3) has formed exteriorly upon each side and running lengthwise a groove, which extends from end to end of the round, and this groove is also preferably carried transversely across the ends, connecting the two side grooves. A wire of suitable length is bent to form two arms *b b'* of a length corresponding to the length of the round, said wire having formed at the middle an eye *b²* and having formed at each end an eye *b³*. This wire (shown in Fig. 3) is then caused to embrace the round, being seated in

the groove formed exteriorly thereon, and to secure it in place pins 2 pass through the ends of the rounds and through the eye. The rounds made in this way are very strong and durable and may be made very light. The rounds thus constructed may be rigidly secured to the side strips of the ladder by means of the pins 2, but herein I have represented a collapsible ladder composed of two half-round side strips *c c'*, and the pins which pass through the ends of the rounds and serve to secure the wire in place thereon may serve as pivot-pins, being extended and passed through the side strips. Such a collapsible ladder will be very light and serviceable.

In Figs. 2 and 3 the wire is made quite straight from end to end, but in Figs. 4 and 5 I have represented the round as having formed exteriorly upon it spiral grooves extending from end to end, and the wire will be bent spirally, as shown in Fig. 5, and adapted to enter said groove, it having formed at each end an eye. Two such wires may be utilized with good effect. Therefore I do not desire to limit my invention to any number of wires that I may use or to the particular way that they may be connected to or caused to embrace the round.

I claim—

1. In a ladder, the combination of the side strips and rounds connected thereto, each round consisting of a strip of wood and wires embracing it longitudinally, and provided at the ends with eyes which receive pivot-pins to connect the rounds with the side strips, substantially as described.

2. In a ladder, the combination of the side strips and rounds, each round having a groove formed exteriorly upon it, and a binding-wire seated in said groove, and means for connecting said wire at the ends of the rounds to the side pieces, thereby connecting the rounds thereto, substantially as described.

3. In a ladder, the combination of the side strips and rounds, each round having longitudinal grooves formed exteriorly upon it, and a wire bent to embrace said round, seated in said longitudinal grooves, and having eyes formed at its ends and middle, and pins passing through said eyes to connect the rounds thereto, substantially as described.

4. In a ladder, the combination of half-

round side strips *c, c'*, and rounds connected thereto, each round consisting of a strip of wood, and wires embracing it longitudinally, and provided at the ends with eyes which receive pivot-pins to connect the rounds with the side strips, substantially as described.

5 In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

DAVID HUNT.

Witnesses:

F. H. DAVIS,

B. J. NOYES.