(No Model.)

F. S. SEAGRAVE.

LADDER.

No. 347,648. Patented Aug. 17, 1886.

Fig. 1

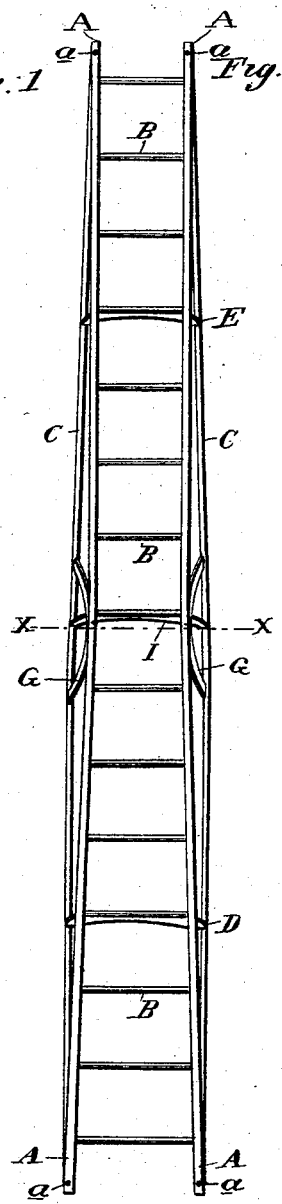


Fig. 2.

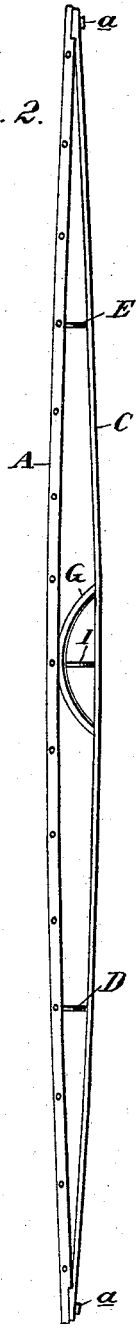
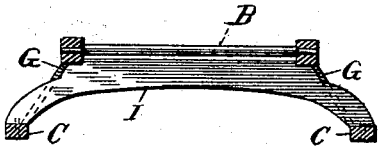


Fig. 3.



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LADDER.

SPECIFICATION forming part of Letters Patent No. 347,648, dated August 17, 1886.

Application filed March 25, 1886. Serial No. 196,457. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC S. SEAGRAVE, of Bay City, in the county of Bay and State of Michigan, have invented new and useful Improvements in Ladders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of this invention relates to certain new and useful improvements in the construction of laterally-braced and trussed ladders, by means of which a very effective, long, and efficient ladder is made, which will support a very heavy weight and be entirely free under all stresses from lateral swaying, while the parts are so arranged as not to interfere with the operations of the person who may be using the ladder.

The invention consists in the peculiar construction, combination, and operation of parts, as more fully hereinafter described.

Figure 1 is a front elevation with the ladder in an inclined position. Fig. 2 is a side elevation. Fig. 3 is a cross-section on the line *x x* in Fig. 1.

In the accompanying drawings, which form a part of this specification, A A represent two legs of a ladder, which are constructed in the usual way, except as hereinafter mentioned, and they are secured together by the rounds B, in the usual manner.

C C are trusses, preferably made of thin pieces of wood, one being provided for each leg, and secured thereto by means of bolts *a*, and by being halved with the leg, or, preferably, by inserting a dowel-pin between the truss and the leg, either by driving said dowel to force its own way, or into a hole or mortise prepared for the same, to provide extra resistance against end pressure or tension, which might destroy the efficiency of the trusses provided the bolts were simply relied upon to hold the trusses in place.

The rounds in my improved ladder are practically of the same length from the top of the ladder to a point near its center, so that the sides of the upper end of the ladder will be practically parallel, while from near such central part the rounds increase in length toward the bottom, thereby spreading the sides and giving a broader base to the ladder. The truss forms almost a direct line (looking at the device from the front) from the top to the bottom of each leg; or it may be slightly deflected outwardly at the center, as shown in Fig. 1, and forced backward at the center by the struts D, E, I, and G, the latter of which is arched or curved, the ends thereof being secured to the truss, while the center of the arch is secured to the leg or to the central spreader-strut in any convenient and desired manner. The other struts are preferably, though not necessarily, arched. This construction prevents either lateral sway or buckling in either the upper or lower quarter of the ladder under any circumstances in long ladders, while shorter ones may be found sufficiently strong with the trusses directly in rear of the leg, the parts being connected together substantially as described. It will readily be seen that, by this construction and arrangement of parts, very little timber is required and a maximum of strength is obtained in a very light ladder.

What I claim as my invention is—

1. A ladder having an expanded base, the spread of which increases downwardly from the center, and provided with independent wooden trusses secured to the ends of each leg, and struts between said legs and trusses, substantially as described.

2. A ladder provided with wooden trusses curved rearwardly and outwardly, and secured to the legs of the ladder by means of bolts or rivets, and supported against end-strain by "halving" the said trusses in the ladder-legs, or by dowel-pins, substantially as and for the purpose described.

3. In combination with a ladder provided with trusses secured thereto in the manner described, the struts, by means of which such trusses are secured in position, such struts being of varying lengths and extending beyond the two sides of the ladder proper, substantially as shown.

4. In combination with a trussed ladder, constructed substantially as described, the central arched struts, substantially as and for the purposes set forth.

FREDERIC S. SEAGRAVE.

Witnesses:
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