

P.M. Papin,

Ladder.

NO. 83084.

Patented Oct. 13. 1868.

Fig. 1.

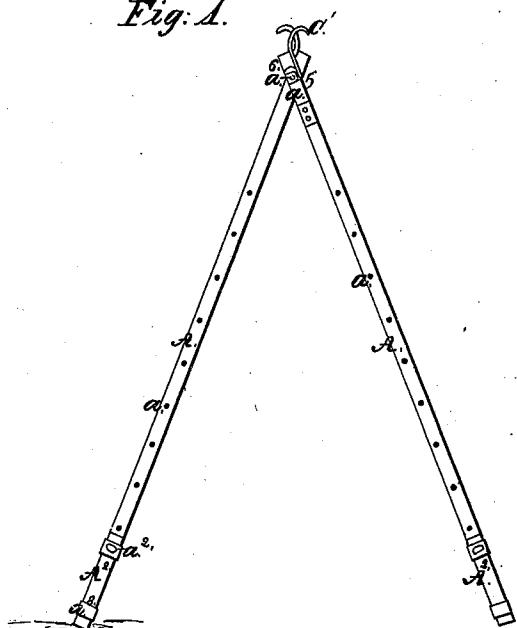


Fig. 2.

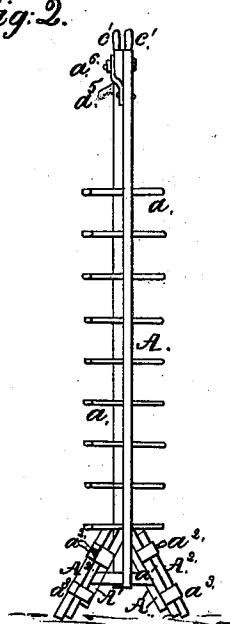


Fig. 3.

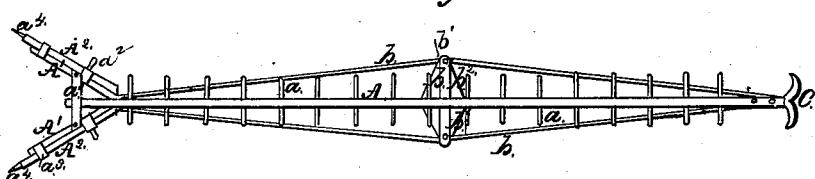


Fig. 4.



Witnesses:

Geo. J. Horth Jr.

George J. Green

Inventor:

P. M. Papin by his atty

M. Randolph & Co.

# United States Patent Office.

P. M. PAPIN, OF ST. LOUIS, MISSOURI

Letters Patent No. 83,084, dated October 13, 1868.

## IMPROVED LADDER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, P. M. PAPIN, of St. Louis, in the county of St. Louis, and State of Missouri, have made certain new and useful Improvements in Ladders; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of this invention is in the formation of a ladder, for general uses, and especially for purposes of plucking fruit from trees, by a combination of two single rail-ladders, either of which ladders being arranged to be used singly; and said general nature applies, furthermore, to a system of trussing the long single ladder-rail, to prevent said rail from deflection under weight, and from side oscillations.

To enable those skilled herein to make and use my improved invention, I will now describe the same fully, having reference to the accompanying drawings, of which—

Figure 1 is a side elevation of the double ladder, and Figure 2 is a front elevation thereof.

Figure 3 is a plan of a long ladder and its trussing.

Figure 4 is a central section of such long ladder.

I construct my said ladder of a single central rail or rod, A, through which the rounds  $a$  are passed, and wherein they are secured in the usual manner.

In order to steady the single rail, when placed in the nearly upright position in which it is used, I connect to the said rail A the spreading feet, A<sup>1</sup>, connected at upper ends with A, and by the suitable cross-bar, a<sup>1</sup>.

Furthermore, to accommodate any inequalities of height of ground, I arrange, on said feet A<sup>1</sup>, the sliding feet A<sup>2</sup>, held by the set-screw a<sup>2</sup>, when secured and guided by the clamps a<sup>3</sup>.

In the lower surface of the sliding feet A<sup>2</sup>, I arrange the spike-studs, a<sup>4</sup>, to impinge on the floor or ground, and thereby secure the base of the ladder in position.

When I arrange the rail A to connect with a second

single ladder, to form my double ladder, then I connect, on one side of the rail A, the bearing, a<sup>5</sup>, for a journal-pin, a<sup>6</sup>, arranging the second ladder to pass inside said bearing a<sup>5</sup>, and hinge on said journal-pin, as indicated in figs. 1 and 2. The two single ladders thus connected will form a double ladder, which may be used generally, as the common hinged step-ladder.

In case the rail A becomes unduly long, I truss the same with the metallic rods b, securing said rods at each end of the rail A, and spreading said rods b at the middle of the rail to meet the ends of a cross-bar, b<sup>1</sup>, said cross-bar being secured to the under side of the rail A.

In order, moreover, to prevent side oscillations of the rail A, I brace the same laterally by the angle-blocks b<sup>2</sup>, which are secured to said cross-bar b<sup>1</sup>. Thus, owing to the depth of the truss-rods b below the rail A, they aid firmly to resist weights placed on the rounds, and owing to the spreading of said rods b at their connection with b<sup>1</sup>, and owing to said angle-blocks b<sup>2</sup>, the rail is prevented from lateral motion, and the whole forms a truss against weights applied vertically and laterally.

In long ladders, I use the double hooks C, at the upper end of the rail, to hold said end in its position. In shorter ladders, a single hook, C', as in figs. 1 and 2, will suffice.

Having thus fully described my invention,

What I claim, is—

The rail A, spreading feet A<sup>1</sup>, sliding feet A<sup>2</sup>, truss-rods b, cross-bar b<sup>1</sup>, angle-blocks b<sup>2</sup>, and hook C, the whole being combined and arranged in the manner described and for the purpose set forth.

In testimony of which invention, I hereunto set my hand, this 29th day of October, 1867, in presence of—

P. M. PAPIN.

Witnesses:

GEORGE P. HERTHEL, Jr.,  
A. HERTHEL.