No. 745,320. PATENTED DEC. 1, 1903.

H. E. BRUNO.

EXTENSION STEP LADDER.

APPLICATION FILED MAY 8, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

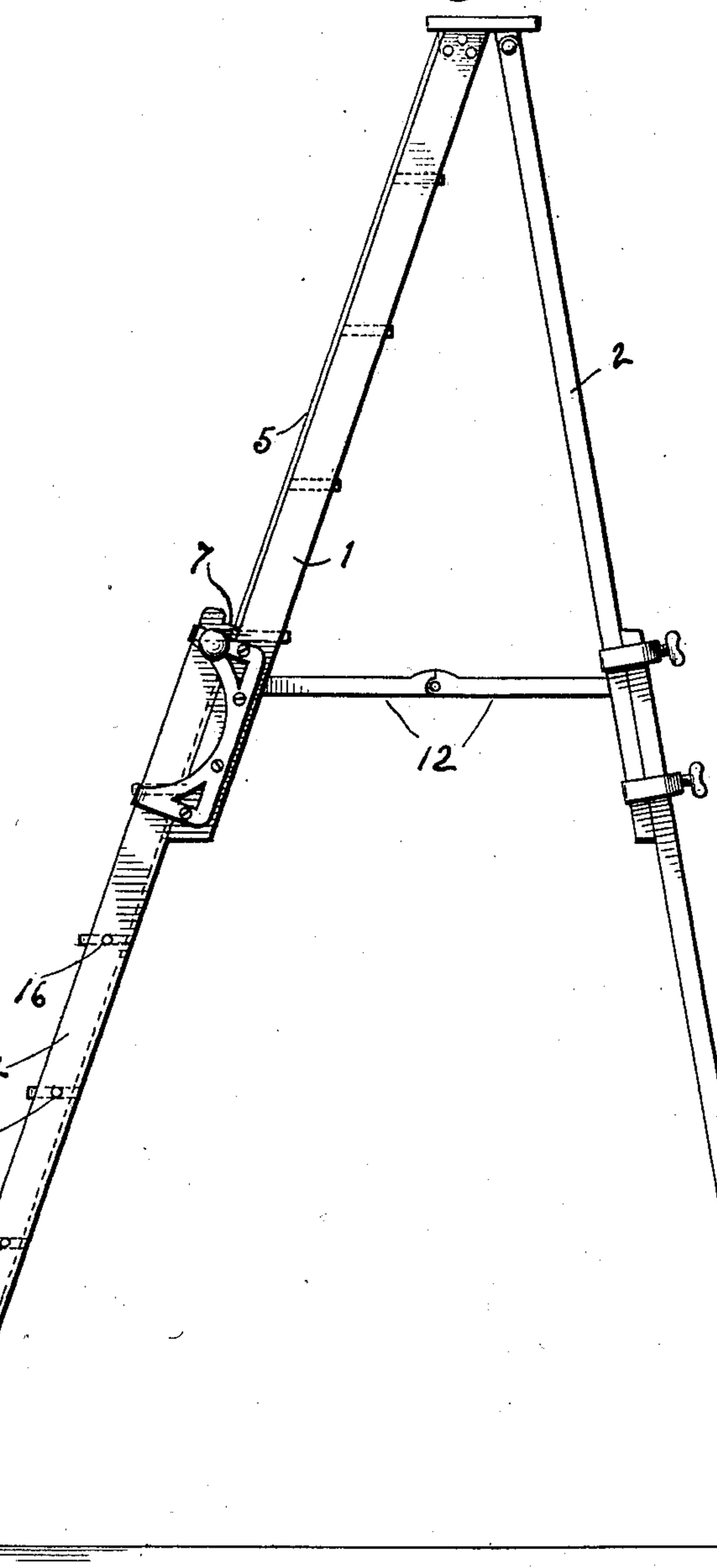
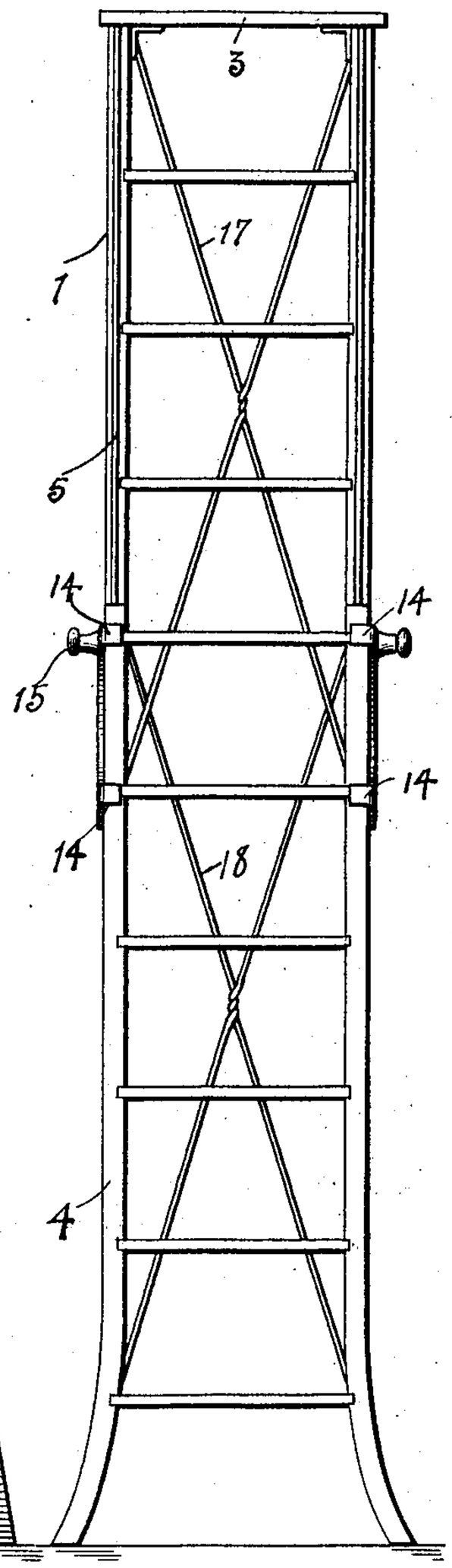


Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

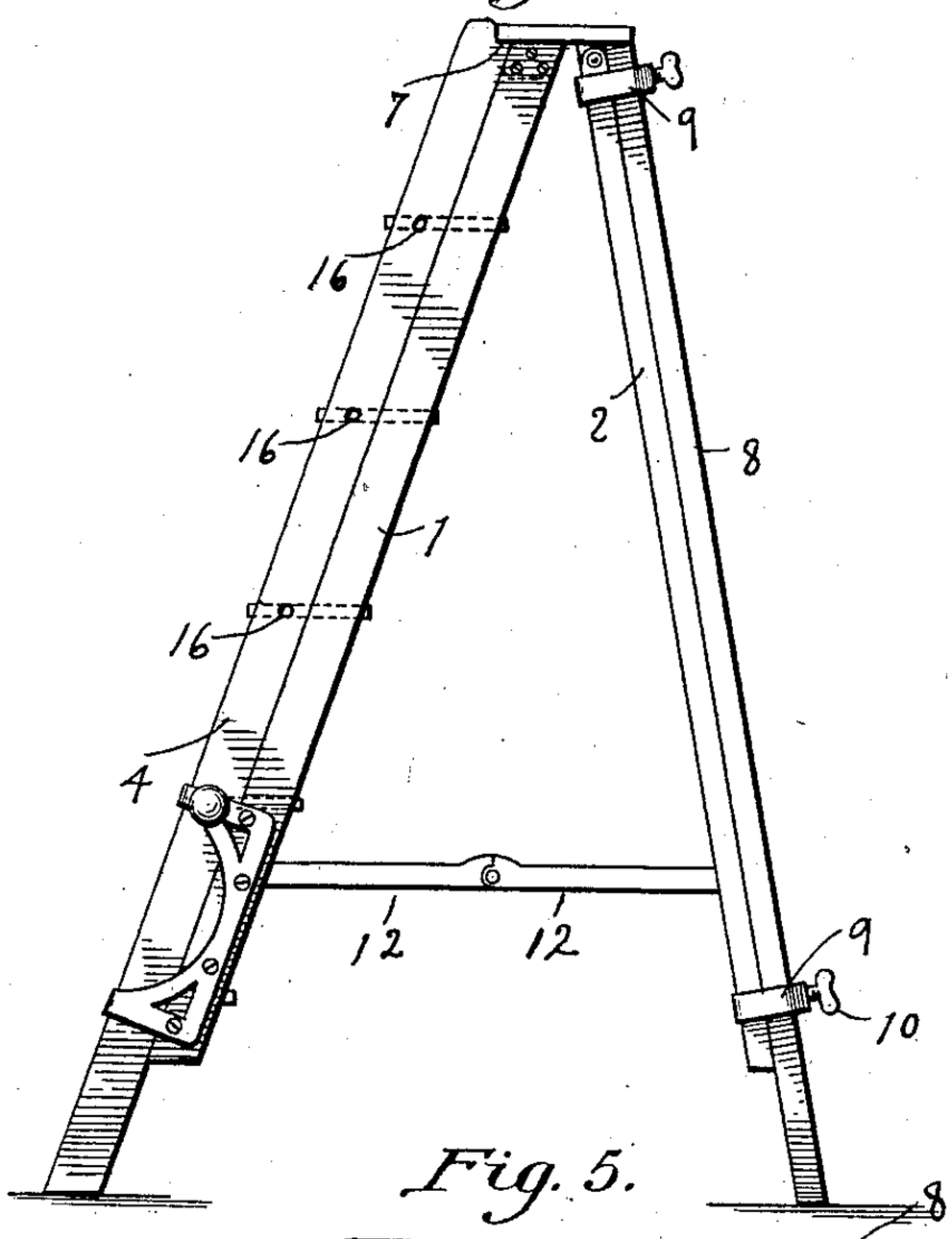


Fig. 5.

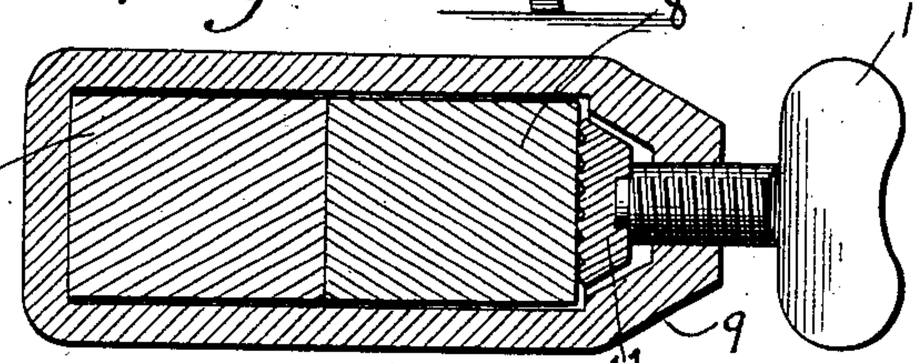


Fig. 6.

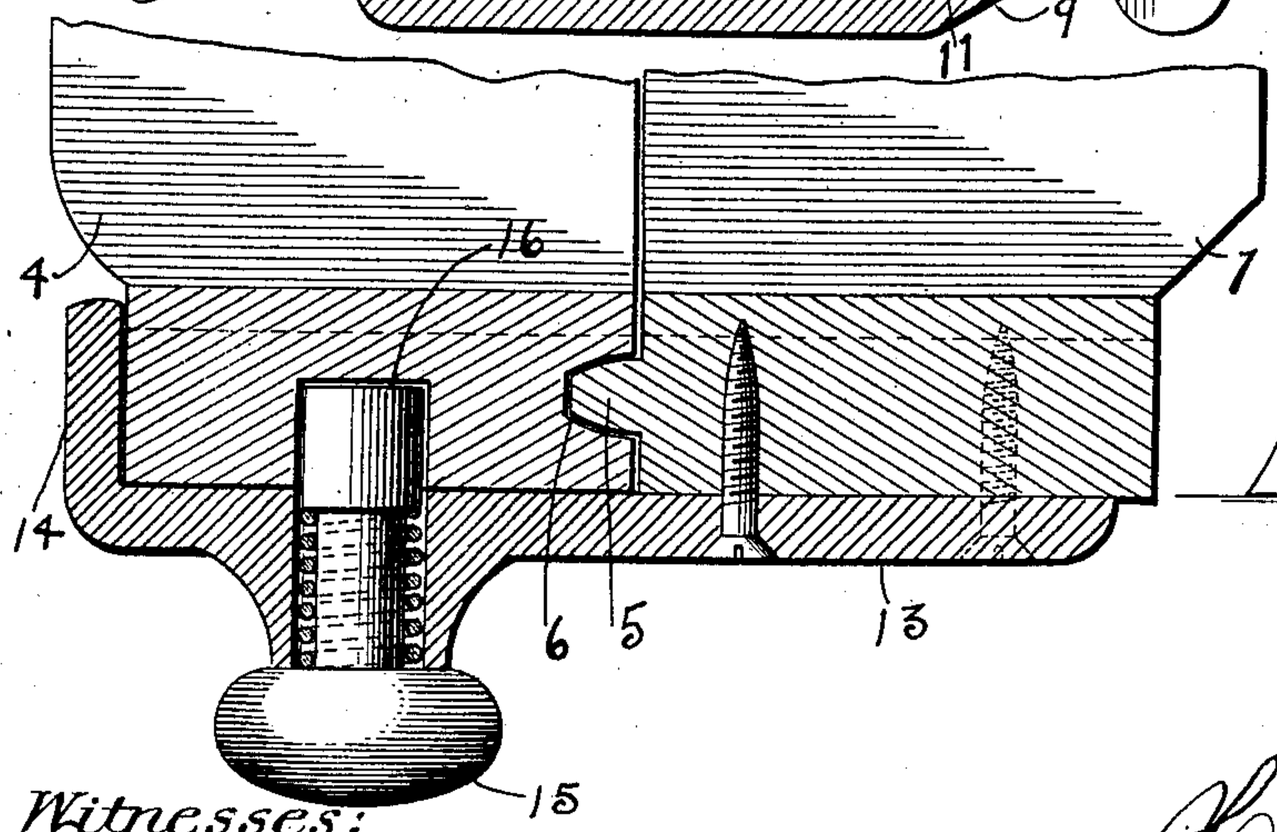
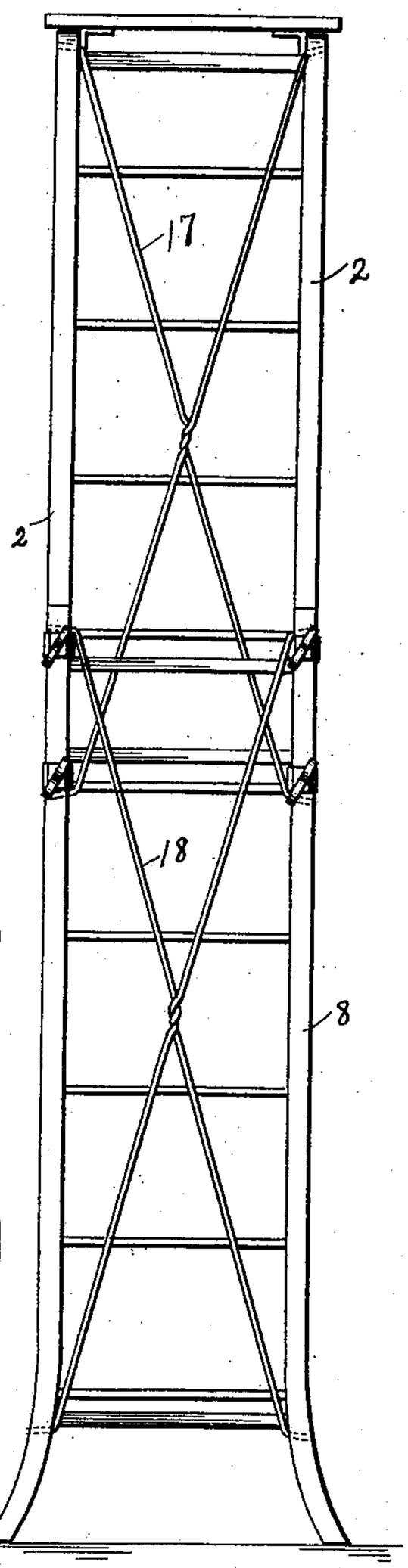


Fig. 4.



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No. 745,320. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

HERMAN E. BRUNO, OF ST. LOUIS, MISSOURI.

EXTENSION STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 745,320, dated December 1, 1903.

Application filed May 8, 1903. Serial No. 156,220. (No model.)

To all whom it may concern:

Be it known that I, HERMAN E. BRUNO, a citizen of the United States, residing at St. Louis, State of Missouri, have invented a new and useful Improvement in Extension Step-Ladders, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention has relation to improvements in extension step-ladders; and it consists in the novel construction and arrangement of parts, more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the step-ladder extended. Fig. 2 is a similar view showing the same closed. Fig. 3 is a front elevation of Fig. 1. Fig. 4 is a rear elevation of Fig. 1. Fig. 5 is an enlarged cross-sectional detail of the straps carried by the rear standards of the ladder, and Fig. 6 is an enlarged cross-sectional detail of the casting or shoe carried by the front standards of the ladder.

The object of my invention is to construct an extension step-ladder which shall be rigid when extended, one which is compact, durable, and cheap to manufacture.

In detail the invention may be described as follows.

Referring to the drawings, 1 represents the front fixed standards of the ladder, and 2 the rear hinged standards, both being secured to the upper platform 3 as usual. Adapted to slide along the fixed standards 1 are the forward extension members 4, the connection between the two being effected by a tongue 5 in the standards 1 engaging a groove 6 on the members 4. The members 4 are each provided with a shoulder 7 at its upper end, which engages the projecting edge of the platform 3 when the ladder is closed, this arrangement contributing to the rigidity of the parts, as is obvious. Embracing the hinged standards 2 and the rear extension members 8 are straps 9, each strap being provided with a rear clamping-screw 10, the base of the screw loosely operating in a gripping-block 11, adapted to bear against and grip the surface of the member 8 and hold the parts together when once adjusted to the proper height. The standards 1 and 2 are connected by the folding links 12 12 as usual.

Secured to the outer lateral faces of the standards 1 1 and spanning the seam formed between said standards and their extension members 4 are castings or shoes 13, each shoe having the front deflected terminal lips 14, which embrace the front face of the members 4, Figs. 3, 6. Mounted along the upper end of each shoe is a spring-controlled pull-knob 15, the stem of which can be made to engage one of a series of sockets 16, disposed opposite the ends of the several steps of the extension members. By means of the pull-knob 15 and the clamping-screws 10 the ladder may be set to any desirable extension, Fig. 1.

The several standards and their extensions flare outwardly at the bottom, Figs. 3, 4, thereby insuring an expanded supporting-base for the ladder. The rear standards and their extensions are reinforced by wire braces 17 and 18, respectively.

Having described my invention, what I claim is—

1. In an extension step-ladder, a suitable terminal platform, forward fixed standards and rear hinged standards for the same, tongues disposed along the front faces of the fixed standards, extension members having rear grooves for the reception of the tongues, shoes carried by the lateral faces of the fixed standards and spanning the seams formed between them and the extension members, lips on each shoe deflected to bear against the front face of each extension member, the lateral faces of the extension members having a series of sockets, and pull-knobs carried by the shoes and having stems for engaging said sockets, substantially as set forth.

2. In an extension step-ladder, a suitable terminal platform, forward fixed standards and rear hinged standards for the same, tongues disposed along the front faces of the fixed standards, extension members having rear grooves for the reception of the tongues, an upper terminal shoulder on each extension member adapted to bear against the front edge of the platform, shoes carried by the

lateral faces of the fixed standards and spanning the seams formed between them and the extension members, terminal deflected lips on each shoe bearing against the front face of each extension member, the lateral faces of the latter having a series of sockets, and pull-knobs carried by the shoes and having stems for engaging said sockets, substantially as set forth.

HERMAN E. BRUNO.

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