

No. 658,395.

Patented Sept. 25, 1900.

C. PFEIFFER.

STEP LADDER.

(Application filed Apr. 26, 1900.)

(No Model.)

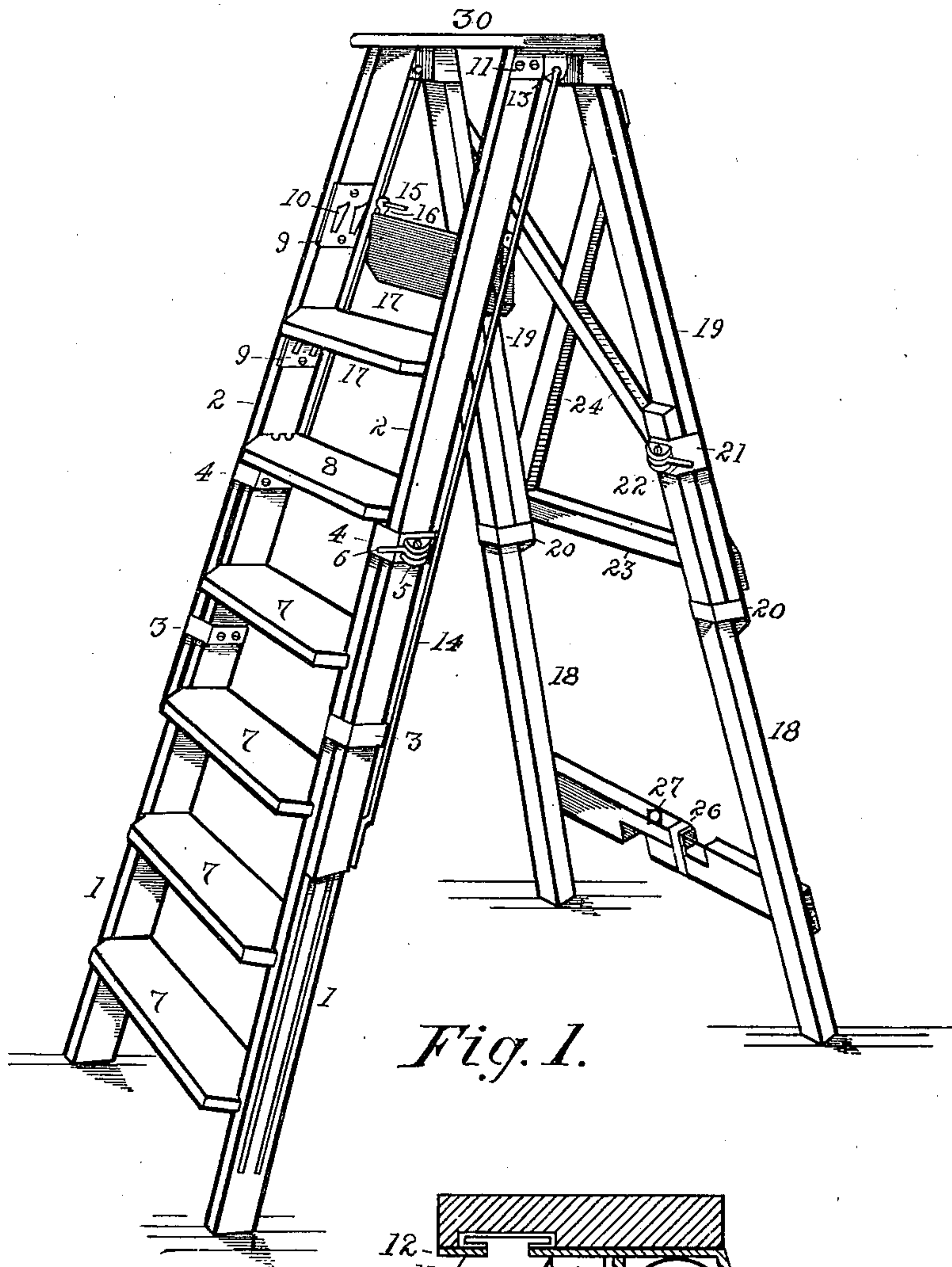


Fig. 1.

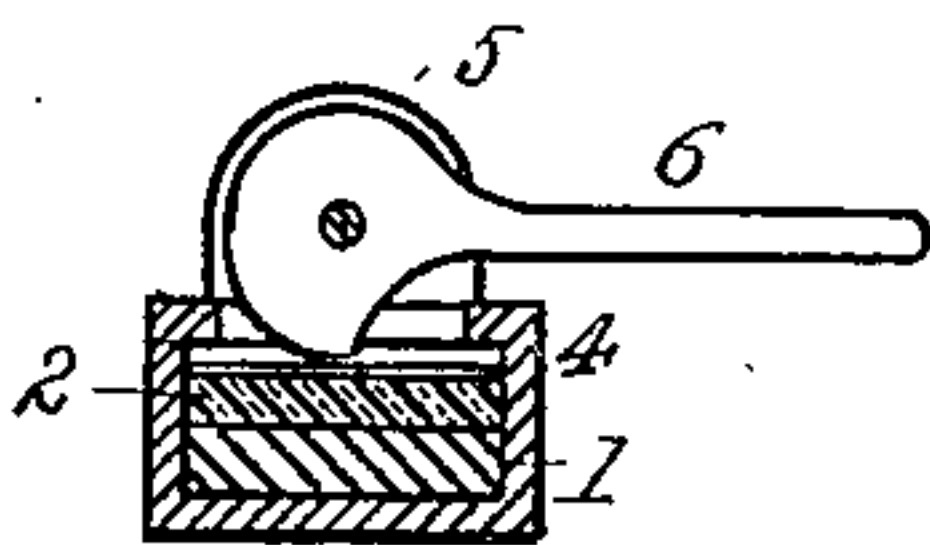


Fig. 2.

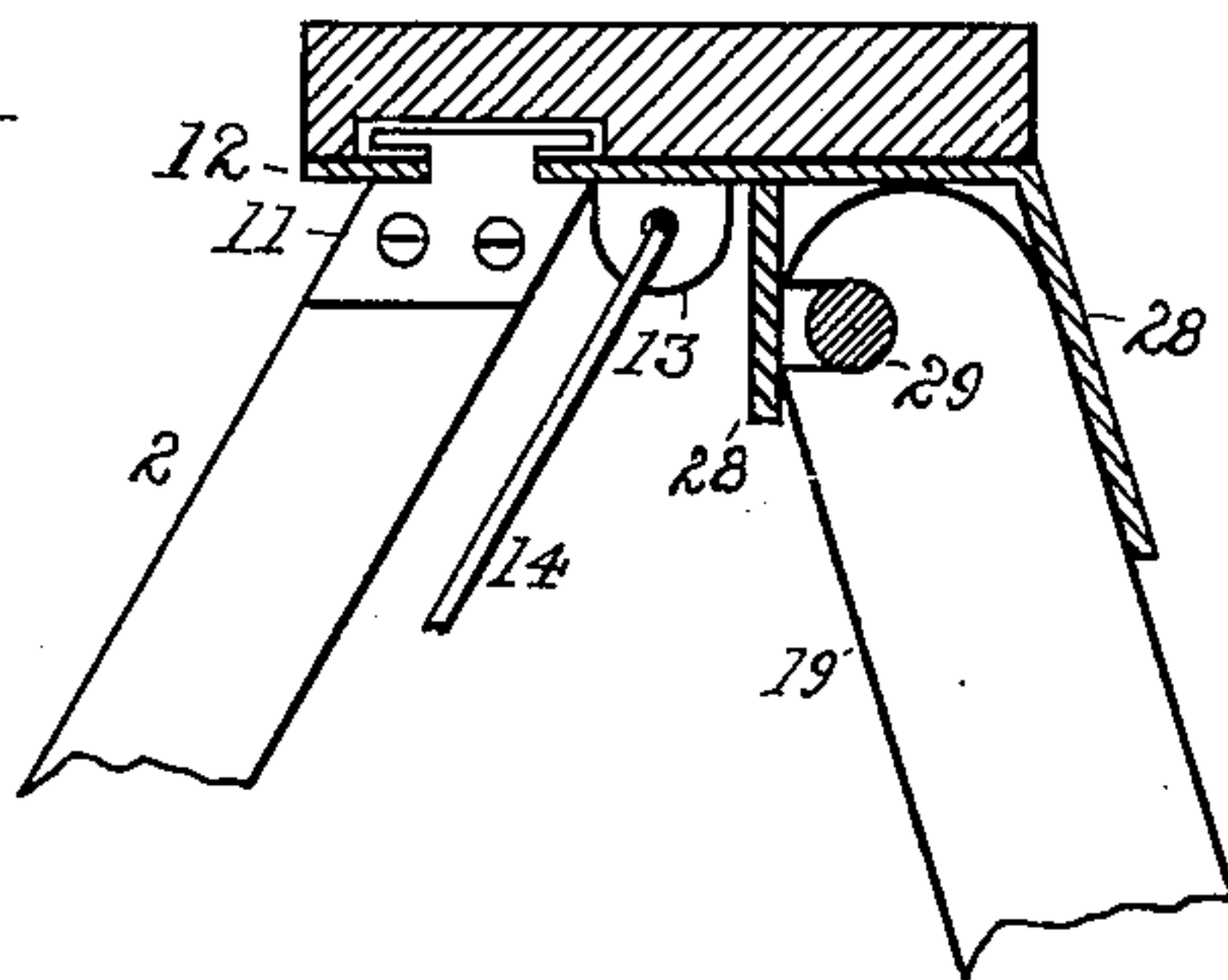


Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES PFEIFFER, OF AKRON, OHIO.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 658,395, dated September 25, 1900.

Application filed April 26, 1900. Serial No. 14,376. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PFEIFFER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Step-Ladders, of which the following is a specification.

My invention has a general relation to improvements in step-ladders, and has especial relation to that class in which the ladder is made adjustable in the length of the side rails, the legs, and other parts.

The objects of my invention are to produce an improved step-ladder that shall be longitudinally adjustable, the rails and legs of which shall be severally adjustable, in which the spread of the legs shall be adjustable, so that the ladder may be arranged to rest securely on surfaces of different heights, as stairs and the like.

A further object is to provide new and improved devices for connecting the treads or steps, so that they may severally be folded when desired, and a final object is to provide a new means for clamping the extensible part.

To attain the aforesaid objects, my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar reference-numerals indicate like parts in the different views, Figure 1 is a perspective view of my improved ladder; Fig. 2, a cross-section, enlarged, of one of the side rails, showing the locking device; and Fig. 3, an enlarged section of the top step and connected parts to show the method of uniting these parts.

Referring to the drawings, 1 1 are the lower halves of the extensible side bars, and 2 2 the upper halves, which sides lie against and slide on each other in straight upwardly-converging lines in loop-guides 3 and 4, the former consisting of metallic straps attached to the inner faces of the bars 1 1 and the latter similarly attached but slotted on the outer face and having ears 5 on opposite sides of the slot, between which ears is pivotally mounted a lever-cam 6, adapted to press on the outer

face of the bars 2 and hold them against sliding. Between the bars 1 1 are interposed steps or treads 7, secured by being inserted in notches or gains in the usual manner, and on the upper ends is secured by screws or nails a top step 8. The upper bars 2 have secured to their inner faces oppositely-disposed plates 9, each having bracket-lugs 10 to form supports for swinging treads hereinafter described. Each bar 2 has secured to its upper end a plate 11 cut in from each edge to form a T-head, as shown in Fig. 3, and these heads rest in slots in a plate 12, secured to the under face of the top step 30. This permits the upper ends of the bars 2 to slide toward each other for a short distance as the ladder is extended, so that the lower and upper bars will be in a true line at all times. Each plate 12 has a perforated ear 13, in which is secured one end of a rod 14, the lower ends of these rods being secured to the lower ends of the bars 2. Each rod bears at intervals pins 15, that project toward the other bar, and on these pins are hinged by means of metallic ears 16 swinging steps 17, arranged to hang downward when rocked over backward, as shown in the next to the upper step in Fig. 1, and when rocked over forward to rest on the bracket-lugs 10. The metallic ears are the ends of bars that preferably extend along the ends of the steps 17 and are beveled to fit the bracket-lugs 10 to afford greater security in their being retained.

From the foregoing description it will be apparent that rocking the steps 17 over backward the upper and lower halves of the ladder can telescope to the length of the bar 1, the upper step 8 having its end notched and the outer faces of the bars 1 grooved to permit of the passage of the bracket-lugs 10. The supporting-legs are similarly arranged to telescope and consist of lower halves 18 and upper halves 19, held by plain guide-loops and guide-loops 21, provided with slots and ears and lever-cams 22. The upper halves are made firm by a cross-bar 23 and diagonal braces 24; but to permit spreading of the lower halves 18 when extended an extensible cross-bar is interposed between them, consisting of two sticks halved for a part of their lengths to rest against and slide in each other, severally secured to the halves 18 and held

together by a guide-loop 26 and arranged to be retained by a bolt 27.

To connect the legs with the ladder, flanges 28 depend from the plate 12, the rearwardly 5 and longer one being arranged to such angle as it is intended shall be the limit of the outward movement of the legs, the two forming a box in which the upper ends shall be retained and swing. These upper ends are 10 rounded to move freely in the box and have deep notches in their front faces to receive a pivot 29, that passes through the sides of the box. By this construction it will be apparent that the ladder is susceptible of a great field 15 of adjustment to adapt it to different inequalities of floor as well as height.

I claim as my invention—

1. An improved step-ladder consisting of two sections both converging toward the top 20 with fixed steps in the lower half and pivoted steps in the movable half adapted to rock backward and brackets to support them when rocked forward, with devices for clamping the upper and lower side rails together at any 25 point, devices for permitting the upper ends of the upper rails to approach and recede from each other, and for insuring that the upper and lower rails shall be in contact along a straight line, in combination with independently-extensible legs and means for holding 30 the halves of said legs together and for lock-

ing them at any determined point, substantially as shown and described.

2. An improved step-ladder having a lower half with fixed steps, the side bars of the upper half arranged by means of guides and 35 clamps to slide on the bars of the lower half and to be retained at any desired point, in combination with rods lying parallel with said upper side bars, and bearing inwardly-projecting pins, steps pivotally mounted on said 40 pins, and brackets on said side bars to support said steps when rocked forward, substantially as shown and described.

3. In a step-ladder the combination with 45 the ladder side bars and top step, of plates attached to the upper ends of said side bars having T-heads, plates attached to the upper step having slots to receive said heads and having downwardly-projecting flanges to 50 form a box to receive the upper ends of the legs, legs fitted to enter said boxes and pins passing through said boxes and legs to hinge them together, substantially as shown and described. 55

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

CHARLES PFEIFFER.

In presence of—

C. P. HUMPHREY,
C. E. HUMPHREY.