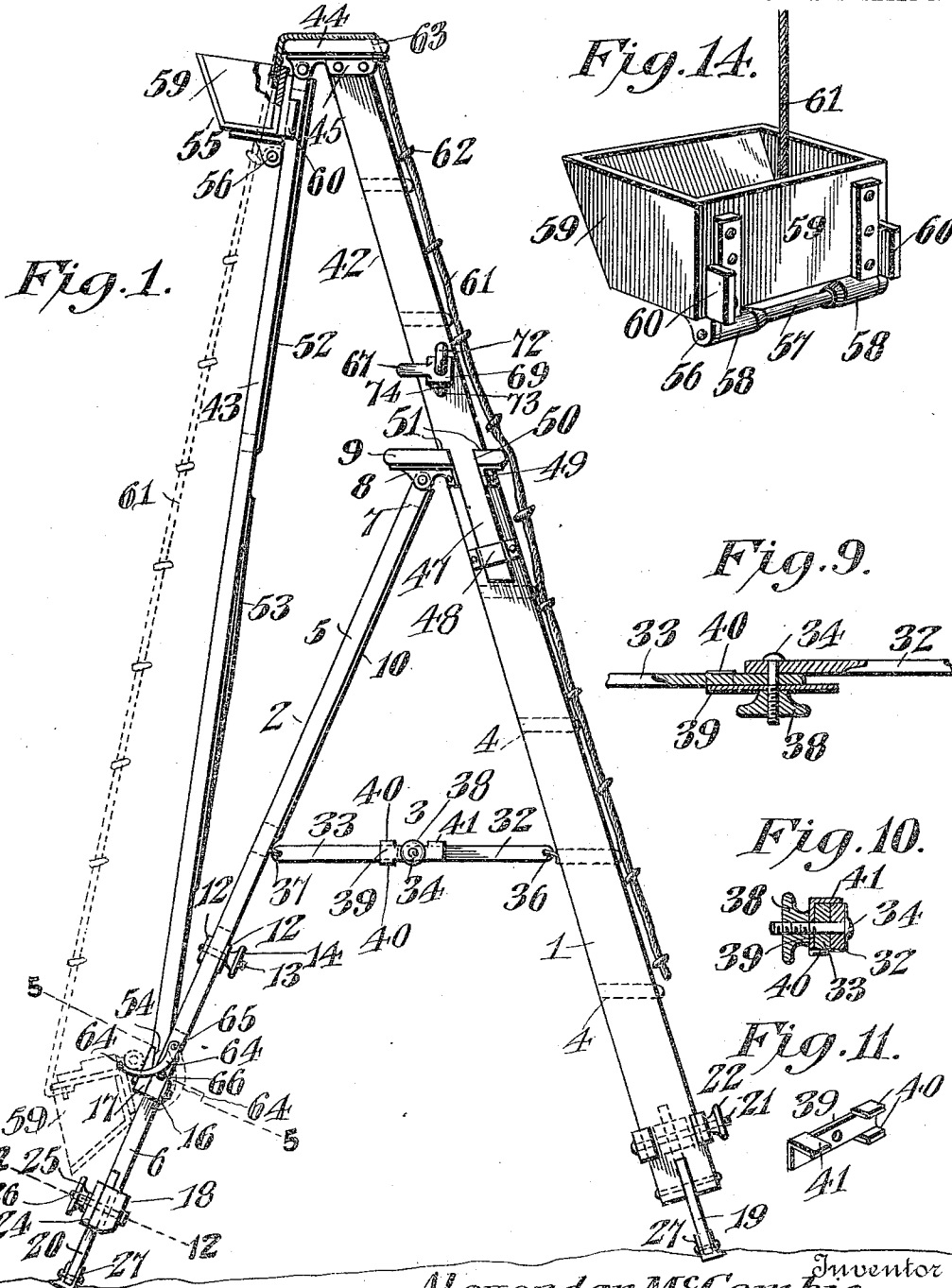


A. McCOMBIE.
SECTIONAL FRUIT PICKING STEP LADDER.
APPLICATION FILED JAN. 19, 1909.

952,836.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 1.



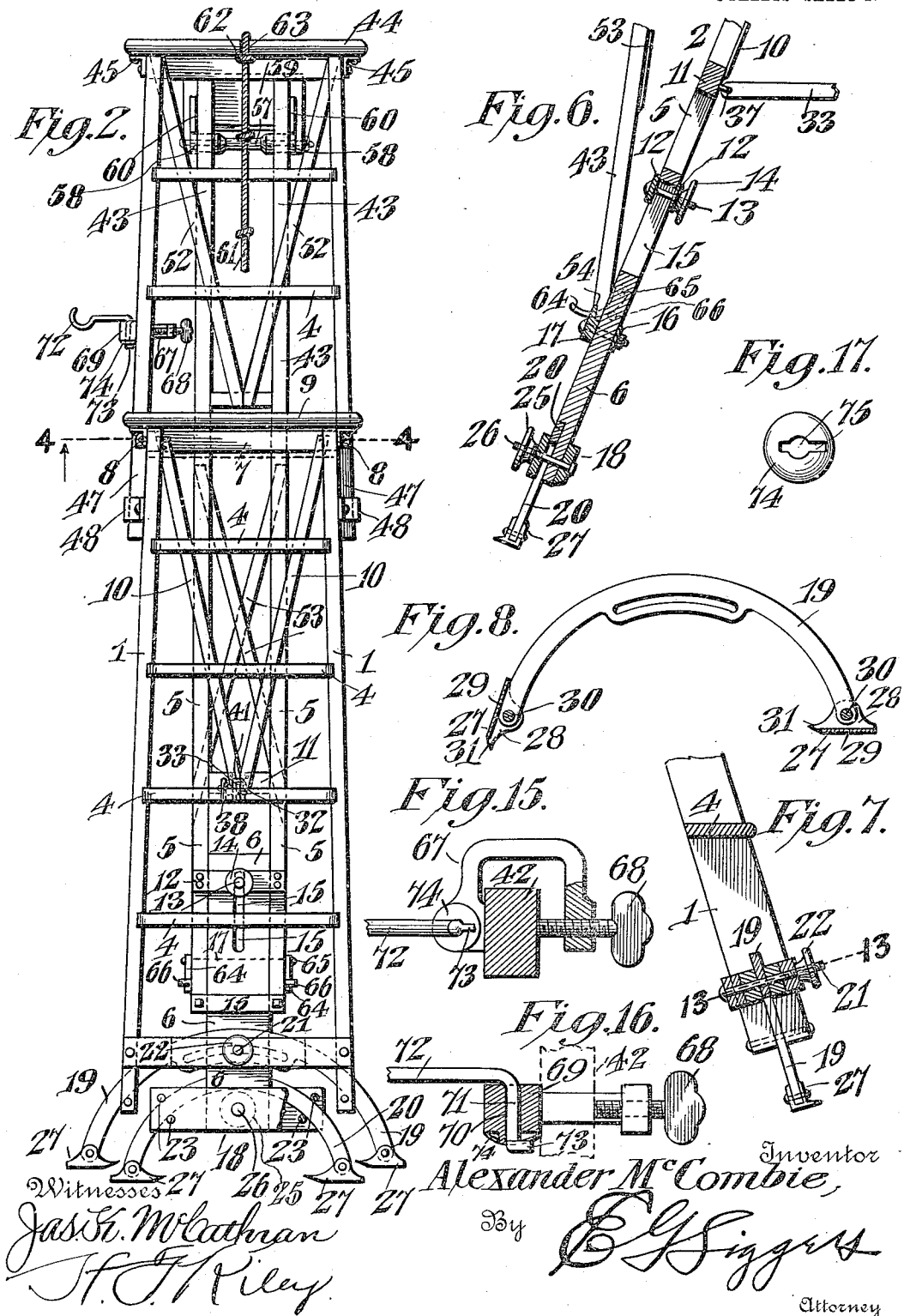
Witnesses
Jas. E. McCombie
H. J. Rely.
 Alexander McCombie, Inventor
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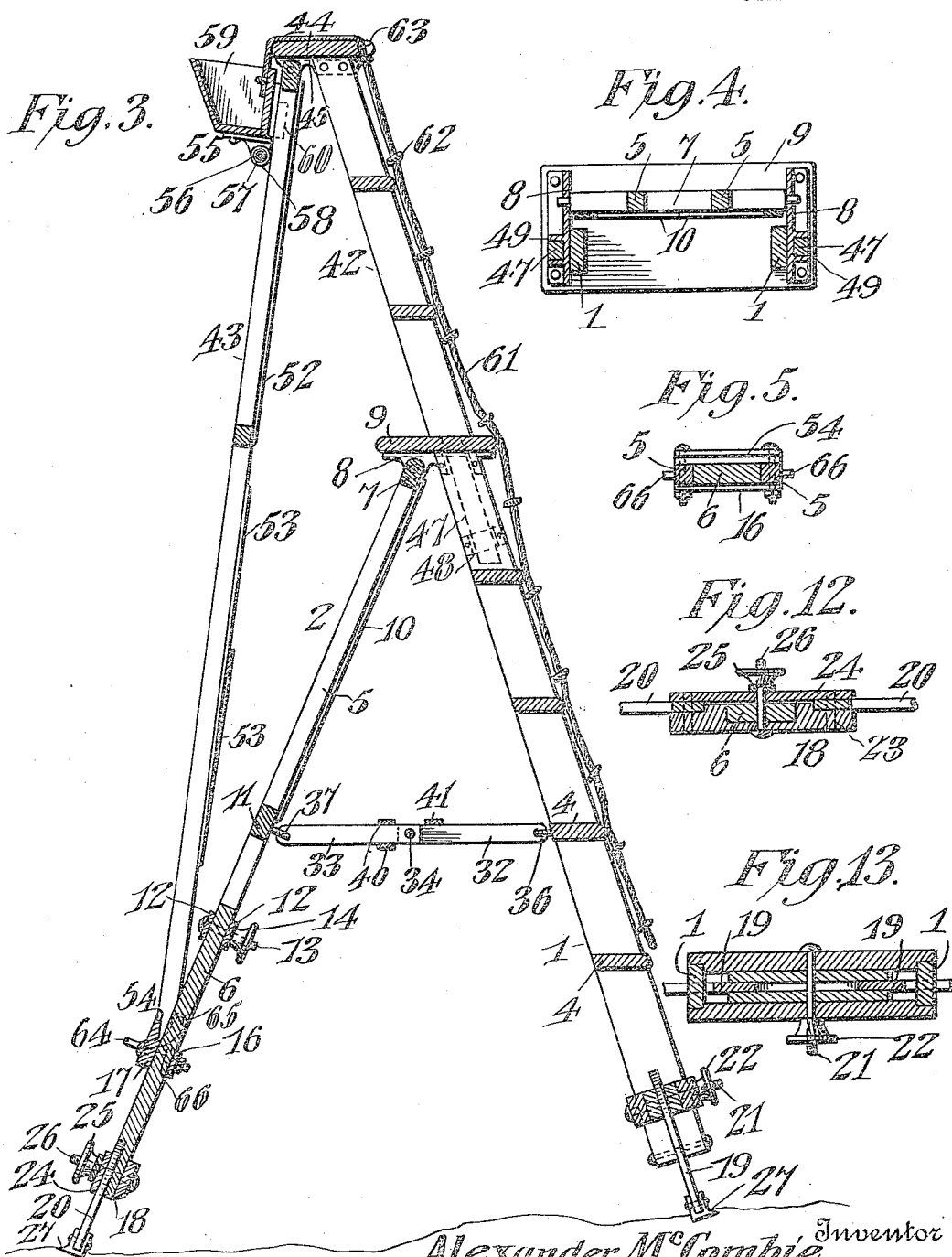


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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ALEXANDER McCOMBIE, OF GRASS VALLEY, CALIFORNIA.

SECTIONAL FRUIT-PICKING STEP-LADDER.

952,836.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed January 19, 1909. Serial No. 473,057.

To all whom it may concern:

Be it known that I, ALEXANDER McCOMBIE, a citizen of the United States, residing at Grass Valley, in the county of Nevada and State of California, have invented a new and useful Sectional Fruit-Picking Step-Ladder, of which the following is a specification.

The invention relates to a sectional fruit picking step ladder.

The object of the present invention is to improve the construction of step ladders, and to provide a simple, inexpensive and efficient sectional step ladder comprising a plurality of step ladders, adjustable in unison and equipped with adjustable base members adapted to conform to inequalities or irregularities of the ground, and capable of rigidly supporting the extension step ladder in a vertical position and of positively holding in either soft or hard ground.

A further object of the invention is to provide a sectional step ladder of this character, which is capable of being extended to a length of from five to ten feet, and of being folded up to a length of from two to three feet, and of being carried in a compact form.

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substantially on the line 5-5 of Fig. 1. Fig. 6 is a detail sectional view, illustrating the manner of mounting the supporting leg of the upper step ladder section on the leg of the lower. Fig. 7 is a detail sectional view of the lower step ladder section, illustrating the manner of mounting the front arcuate base member. Fig. 8 is a detail view of one of the base members, the feet being in section. Figs. 9 and 10 are detail sectional views, illustrating the construction of the joint of the spreading braces. Fig. 11 is a detail sectional view of the plate of the joint. Fig. 12 is a detail sectional view on the line 12-12 of Fig. 1. Fig. 13 is a sectional view on the line 13-13 of Fig. 7. Fig. 14 is a detail perspective view of the carrier and the box or receptacle. Figs. 15 and 16 are detail sectional views, illustrating the construction of the clamp hook for supporting the basket. Fig. 17 is a detail view of a spring washer.

Like numerals of reference designate corresponding parts in the several views.

The invention consists in a sectional step ladder, comprising a plurality of step ladders, adjustable in unison and equipped with adjustable base members adapted to conform to inequalities or irregularities of the ground, and capable of rigidly supporting the extension step ladder in a vertical position and of positively holding in either soft or hard ground.

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an intermediate point. The upper ends of the braces 10 are secured to the cross bar 7. This provides a rigid supporting leg for the lower step ladder section. The lower bar or member 6 is guided by spaced upper transverse metallic straps or bars 12, and is secured in its adjustment by means of a screw 13, having a thumb nut 14 and piercing the bar 12 and operating in a longitudinal slot 15 in the upper portion of the bar or member 6. The bar or member 6 is movable inwardly and outwardly with respect to the bars or members 5 to vary the length of the rear leg 2 to adapt the lower step ladder section to the character of the ground and to arrange it to suit the upper step ladder section. The bar or member 6 is also guided at the lower end of the bar 5 by means of an inner transverse connecting metallic strap 16 and an outer support 17, extending across the space between the bars 5. The lower end of the bar or member 6 is provided with a cross head 18, preferably composed of two bars or pieces, as shown, and extending from opposite sides of the lower end of the bar or member 5.

The lower step ladder section is equipped at the bottom with arcuate base members 19 and 20, consisting of curved bars or pieces connected between their ends to the lower step ladder section, and capable of arcuate adjustment to arrange their terminals to correspond to any irregularities or unevenness of the supporting surface, whereby the extension step ladder is rigidly maintained in a vertical position irrespective of the character of the ground on which it is placed. The lower end of the front ladder portion of the lower step ladder section is provided with arcuately arranged guides for the base member 19, which has a central arcuate slot through which passes a screw 21, having a clamping nut 22. The screw also passes through the adjacent portions of the step ladder section, as clearly illustrated in Figs. 7 and 13, and the nut 22 enables the base member to be clamped in its adjustment. The rear arcuate base member 20 is guided in the cross head 18 between spaced rivets 23, or other suitable fastening devices. The cross head is provided with a clamping plate 24, operated by a thumb nut 25 of a screw 26 and adapted to force the clamping plate 24 against the curved member 20, whereby the latter is secured in its adjustment. The step ladder is placed upon the ground to which the curved members 19 and 20 automatically adjust themselves, and the latter is then arranged in a vertical position and the screws 22 and 25 tightened, which clamp the parts in such position.

The curved base members are equipped at their ends with adjustable feet 27, composed of spaced sides 28 and a connecting bottom

portion 29 and secured to the terminals of the curved members by means of the pivots 30, piercing the sides 28 and the ends of the curved member. The bottom 29 presents a flat lower face and the inner ends 31 of the feet are pointed. The feet are adapted to be arranged in a horizontal position to present a flat lower surface to the ground, and are also capable of being turned up, as illustrated at the left hand side of Fig. 8 of the drawings to present their points to the supporting surface. By this construction, the feet are adapted to securely hold either in hard or soft ground.

The stretching brace 3 is composed of front and rear members 32 and 33, connected at their inner terminals by a pivot screw 34 and hinged at their outer terminals 36 and 37 to the front and rear portions of the lower step ladder section. The pivot screw receives a thumb nut 38 for clamping the parts in their adjustment, and the rear member carries a plate 39, perforated for the reception of the screw 34 and provided at its rear end with a pair of spaced lugs 40 and having a front lug 41. The spaced lugs 40 engage the rear section 33 at the upper and lower edges thereof, and the front lug 41, which is located in advance of the pivot when the sections are in a horizontal position, is swung upward when the joint is broken, and it is adapted to engage the upper edge of the front section 32 to prevent the sections of the brace from swinging downward below a horizontal position.

The upper ladder section is composed of a front ladder portion 42, forming an extension of the ladder portion of the lower step ladder section, and parallel rear legs 43, forming a rear prop and pivotally connected at their upper ends with the top step 44 by means of brackets 45, which are also secured to the side bars of the front ladder portion of the upper section. The ladder portions 47 of the side bars of the front ladder portion of the upper ladder section are reduced and are fitted in sockets 48, and extend through recesses 49 and 50 of the brackets 8 of the lower ladder section. The reduced lower portions 47 also form upper shoulders 51 for engaging the upper face of the top step 9. The sockets 48 preferably consist of metal loops and detachably receive the lower reduced portions 47 of the side bars of the ladder portion of the top step ladder section. This will enable the top step ladder section to be removed from the lower step ladder section when a shorter step ladder is desired.

The bars or stiles 43 of the rear legs are arranged parallel with each other, and are connected by suitable braces 52 and 53, and their lower ends 54 are recessed to engage the supporting bar 17. The supporting bar 17, which extends across the space between

the lower ends of the bars 5, is provided with an upwardly projecting portion recessed at the inner side or face to provide a socket to receive the lower ends of the legs 43, which are adapted to be readily placed in and removed from the support 17. By this construction, the upper and lower ladder sections are adapted to fold in unison, and the ladder may be readily carried from one place to another with the same facility as an ordinary step ladder.

The rear supporting legs 43 of the upper step ladder section form rails for a carrier 55, composed of opposite substantially L-shaped members, connected by a transverse rod 56 on which is mounted a sleeve 57, having enlarged roller portions 58, forming spaced rollers arranged to run on the track formed by the rear legs. The carrier to which a box 59, or other suitable receptacle is secured is provided with spaced lugs 60, extending inwardly from the upright portions of the L-shaped members and arranged at opposite sides of the rear legs and adapted to maintain the carrier on the track.

The receptacle is raised and lowered by a suitable flexible connection, preferably in the form of a rope 61, extending to the top of the upper step ladder section and provided at intervals with knots 62, forming enlargements and adapted to engage a slot 63 of the top step 44 of the upper step ladder section. The rope is adapted to be engaged with the top step 44 to hold the receptacle 59 in an elevated position to receive the fruit, and the rope is disengaged from the slot 63 when it is desired to lower the carrier and the box 59 to the ground. The box or receptacle 59 is automatically dumped by curved tippie members 64, pivoted at their inner ends 65 to the bars at the outer edges thereof and projecting outwardly to the path of and arranged to be engaged by the rollers of the carrier, whereby the box or receptacle will be pivotally supported at the bottom, and will be caused to tilt outwardly and downwardly to dump the fruit upon the ground, or into a receptacle, thereby enabling the box or receptacle to be emptied without bruising or otherwise injuring the fruit. The pivoted tippie members 64, which are supported in operative position by studs 66, are adapted to be swung upward and inward out of the way in folding the extension step ladder.

The sectional step ladder is equipped with a hook clamp, adapted to support a basket, which is filled by the picker and then emptied into the box or receptacle. The hook clamp comprises an approximately U-shaped clamp 67, equipped at one side with a clamping screw 68 and provided at the opposite side with a boss 69, having a slot 70 in which is detachably arranged a pivot portion 71 of a hook 72.

In practice the clamp is arranged in a horizontal position and engages one side of the upper step ladder section, as clearly illustrated in Figs. 2 and 15 of the drawings. The hook extends outwardly, and the vertical inner pivot portion is provided at the lower end with a lug 73, formed by bending the lower terminal of the pivot at right angles and detachably engaged by a spring washer 74, having a slot 75 conforming to the configuration of the slot of the boss 69. The slots of the boss and the washer are of a size to permit the pivot and the lug to readily pass through them, and the washer is then partially rotated to arrange its slot at an angle to the lug 73, whereby the hook is detachably secured to the clamp. The spring washer, which is of substantially concavo-convex form, frictionally engages the clamp and the lug 73 of the hook and maintains the hook in its adjustment.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A sectional step ladder comprising a plurality of step ladder sections, each including a front ladder portion, and a rear leg, the rear legs of the sections being hinged to the front ladder portions independently of each other, and the lower end of the upper leg being detachably supported upon the lower leg, whereby the upper and lower legs are adapted to swing inwardly in unison and to separate automatically.

2. A sectional step ladder comprising a plurality of step ladder sections arranged one upon the other and each including a front ladder portion, and a rear leg, the rear legs being hinged to the front ladder portions independently of each other and the lower end of the upper leg being detachably supported upon the lower leg, said legs being adapted to swing inwardly in unison and separate automatically, the front ladder portion of the upper step ladder section being detachably seated upon the lower step ladder section to permit an independent use of the latter.

3. A sectional step ladder comprising upper and lower step ladder sections, each including a front ladder portion, and a rear leg, the rear legs being hinged to their respective front ladder portions independently of each other and the upper leg being detachably supported upon the lower leg, whereby the said legs are adapted to swing inwardly in unison and separate automatically, the ladder portion of the upper step ladder section being rigidly and detachably connected with and forming an extension of the ladder portion of the lower step ladder section.

4. A sectional step ladder comprising a lower step ladder section including a front ladder portion and a rear leg and provided

at the top with opposite recesses, sockets secured to the exterior of the front ladder section adjacent to the recesses, and an upper step ladder section composed of a front ladder portion having the lower terminals of its sides reduced to fit in the recesses and the said sockets, and a rear leg mounted on the rear leg of the lower step ladder section.

5. A sectional step ladder comprising a lower step ladder section including a front ladder portion having a top step provided with opposite recesses, a rear leg, brackets connecting the rear leg with the front ladder portion and provided with recesses corresponding with those of the top step, and sockets secured to the front ladder portion, and an upper ladder section having side portions passing through the said recesses and fitting in the said sockets.

6. A sectional step ladder comprising a lower step ladder section including a front ladder portion, and a rear leg hinged to the front ladder portion, a support mounted on the rear leg and provided with a recess, and

an upper step ladder section composed of a front ladder portion mounted on the lower step ladder section, and a rear leg detachably fitted in the recess of the said support and hinged independently of the rear leg of the lower step ladder section, said legs being adapted to swing inwardly in unison and to separate automatically.

7. A sectional step ladder comprising a main step ladder section including a front ladder portion and rear stiles, an upper step ladder section composed of an upper step ladder portion, and rear stiles engaging the rear stiles of the main section and forming a track, and a carrier arranged to run on the track.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALEXANDER McCOMBIE.

Witnesses:

J. T. MALEVILLE,
JAMES SNELL.