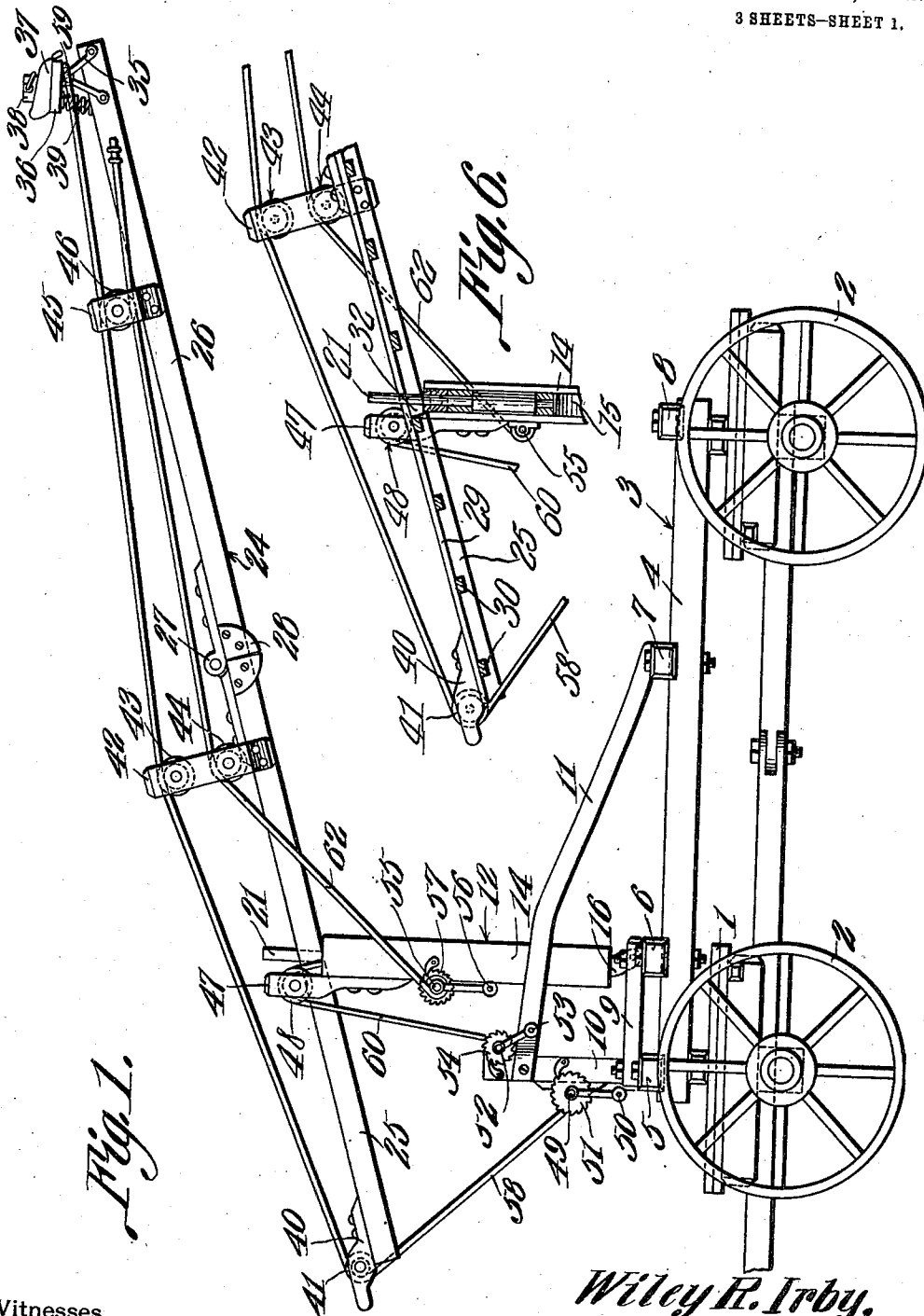


W. R. IRBY.
 FRUIT GATHERER'S AND PAINTER'S LADDER.
 APPLICATION FILED JUNE 12, 1911.

1,014,063.

Patented Jan. 9, 1912.

3 SHEETS—SHEET 1.



Witnesses
J. H. Wilson
L. H. Wilson

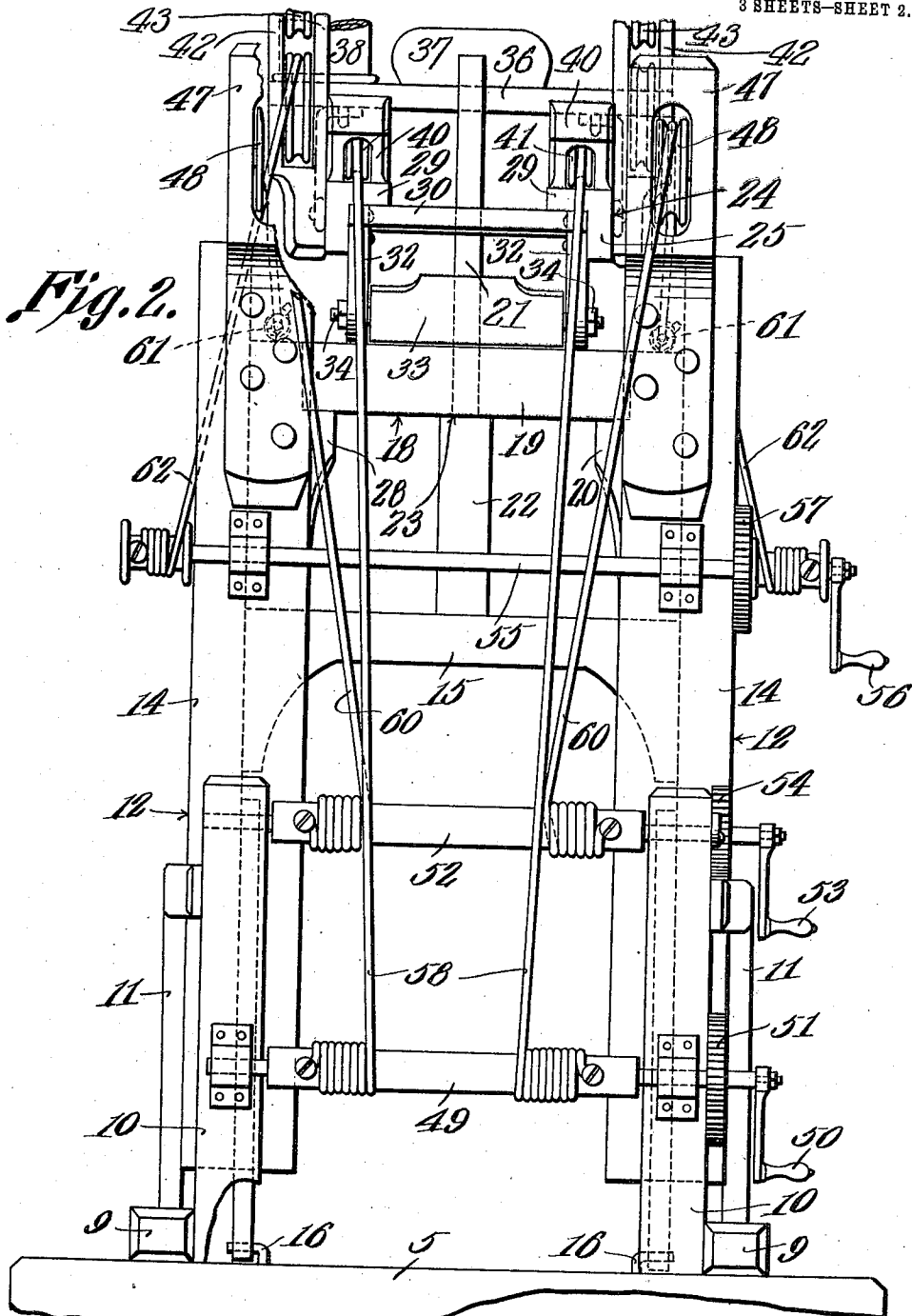
Wiley R. Irby,
 Inventor
 by *Cashow & Co.*
 Attorneys

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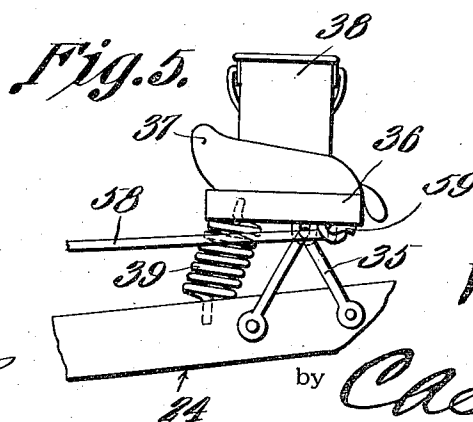
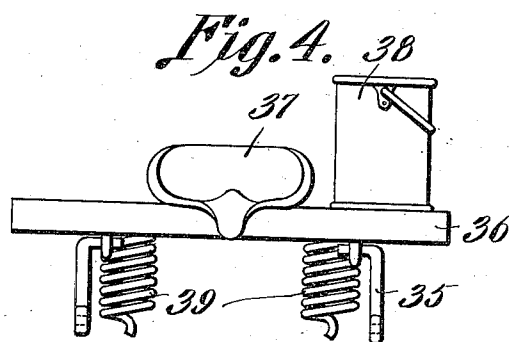
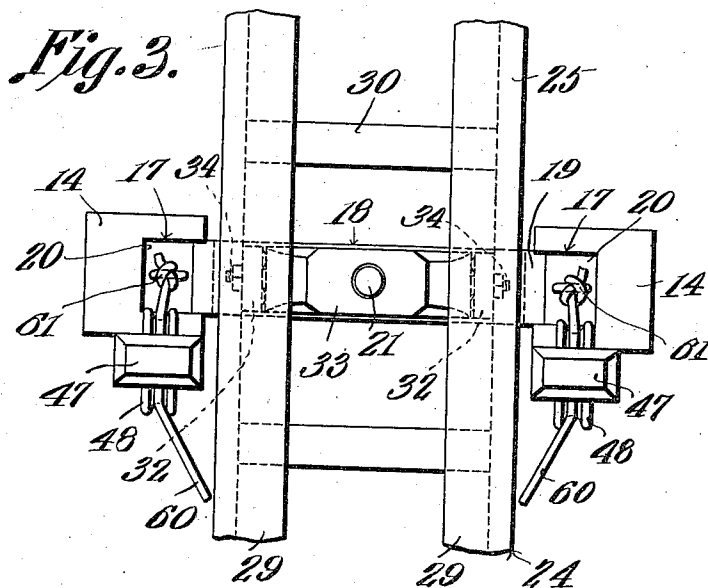
Wiley R. Irby, Inventor
by *C. A. Snow & Co.*
Attorneys

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3 SHEETS—SHEET 3.



Witnesses

J. P. Tomlin
L. H. Wilson

Wiley R. Irby,
Inventor

by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

WILEY R. IRBY, OF WEST MIDDLETON, INDIANA, ASSIGNOR OF ONE-HALF TO JAMES MOULDER, OF WEST MIDDLETON, INDIANA.

FRUIT-GATHERER'S AND PAINTER'S LADDER.

1,014,063.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed June 12, 1911. Serial No. 632,696.

To all whom it may concern:

Be it known that I, WILEY R. IRBY, a citizen of the United States, residing at West Middleton, in the county of Howard and State of Indiana, have invented a new and useful Fruit-Gatherer's and Painter's Ladder, of which the following is a specification.

The device forming the subject matter of this application, is a collapsible ladder structure, the parts of which are adapted to be raised and lowered, to facilitate fruit picking, painting, and other like operations, performed at a considerable height above the ground.

The object of the present invention is to provide novel means for raising and lowering the ladder structure, and to provide means for collapsing the same, and for housing the same compactly, when not in use.

A further object of the invention is to improve, generally, devices of the class to which this application pertains, and to render them simple and efficient in operation, and safe in use.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings;—Figure 1 shows the invention in side elevation, the parts being in operative position; Fig. 2 is an end elevation; Fig. 3 is a fragmental top plan; Fig. 4 is a front elevation of the seat and of the parts whereby the seat is assembled with the ladder, and Fig. 5 is an elevational detail, enlarged from Fig. 1, and Fig. 6 is a fragmental longitudinal section.

In carrying out the invention there is provided a vehicle body 1, wheel-supported, as shown at 2. The vehicle body 1 may be of any desired construction, the end in view being, to provide a vehicle upon which the ladder structure, hereinafter described, may be readily transported from place to place.

The top structure upon which the device is mounted, consists of a frame 3, connected with the vehicle body 1. The frame 3 may consist of parallel side bars 4, connected by

spaced, transverse braces 5, 6, 7 and 8. The braces 5 and 6 may be united by tie bars 9, disposed substantially parallel to the side bars 4. Fixed to and rising from the brace 5, is a pair of uprights 10, united by means of diagonal braces 11, with the brace 7.

The invention further includes a tiltable support 12, operatively connected with the frame 3 for vertical swinging movement. This support 12 consists of a pair of arms 14, united by a cross brace 15, the lower ends of the arms 14 being pivotally connected, as shown at 16, with the cross brace 6. The arms 14 of the tiltable support are equipped, adjacent their free ends, and in their inner faces, with guideways 17, in which is mounted for sliding movement, longitudinally of the support 12, a cross head, denoted generally by the numeral 18. The cross head 18 consists of a transverse bar 19 and angularly disposed feet 20, the ends of the bar 19 and the feet 20 registering slidably in the guideways 17 in the support 12.

Fixed to and rising from the cross brace 15, is a standard 21, enlarged at its lower end, as shown at 22, to form a shoulder 23, adapted to receive the bar 19 of the cross head 18, the standard 21 extending through the bar 19, to serve as an auxiliary support for the cross head 18, during the sliding movement thereof.

The invention further includes a ladder, denoted generally by the numeral 24, the ladder 24 being pivotally connected, intermediate its ends, with the tiltable support 12. The ladder 24 consists of aligned primary and secondary sections 25 and 26, respectively, the meeting ends of the sections 25 and 26 of the ladder 24 being united by hinges 27, the parts 25 and 26 being provided with depending butt-blocks 28, adapted to maintain the parts 25 and 26 of the ladder in alinement. The stiles 29 of the ladder 24 are preferably fashioned from angle members, and the rungs 30 of the ladder are engaged beneath one of the flanges of the stiles 29. Intermediate its ends, the primary part 25 of the ladder is equipped with a pair of outstanding arms 32, between which is disposed a head 33, the head 33 being pivoted to the arms 32, as designated at 34. The end of the standard 21, which projects through the bar 19, projects likewise

through the head 33, to afford a pivotal mounting for the head, the head in its turn, resting upon the bar 19 of the cross head.

Adjacent its free end, the secondary portion 26 of the ladder 24 is provided with outstanding bearing brackets 35, in which is pivoted a seat structure, comprising a plate 36, immediately engaged, pivotally, with the brackets 35, and a seat 37, secured to the plate 36. Secured also to the plate 36, is a receptacle 38, of any desired construction, in which the fruit and the like may be placed. The seat structure is mounted in the bearing brackets 35, for tilting movement, and a pair of retractile springs 39 are connected at their upper ends with the plate 36, the lower ends of the springs 39 being connected with the stiles of the secondary portion 26 of the ladder.

Adjacent its free, rear end, the primary part 25 of the ladder 24 is equipped with brackets 40, in which are journaled for rotation sheaves 41. Adjacent the point of pivotal union with the secondary part 26 of the ladder, the primary part 25 of the ladder is equipped with projecting standards 42, in which are journaled for rotation, superposed sheaves denoted by the numerals 43 and 44. The secondary part 26 of the ladder 24 is provided, intermediate its ends, with outwardly projecting standards 45, in which are journaled for rotation, sheaves 46. The arms 14 of the tiltable support 12 are supplied, adjacent their upper ends, with brackets 47, in which are journaled for rotation, sheaves 48.

Extended transversely of the uprights 10, and journaled for rotation thereon, is a primary shaft 49 provided with a suitable crank 50, or the like for its rotation, the movement of the primary shaft 49 being limited by suitable pawl and ratchet mechanism 51. Likewise journaled for rotation upon the uprights 10, and disposed above the primary shaft 49, is a supplemental shaft 52, having a crank or the like 53 for its rotation, the rotation of the supplemental shaft 52 being limited by suitable pawl and ratchet mechanism 54. Extended transversely of the arms 14 of the tiltable support 12, and journaled for rotation thereon, is an auxiliary shaft 55, provided with a suitable crank 56, for its rotation, the rotation of the auxiliary shaft 55 being controlled, by suitable pawl and ratchet mechanism 57.

A pair of flexible elements 58 is provided, these flexible elements 58 being connected at one end with the primary shaft 49. Thence, the flexible elements 58 are carried over the sheaves 41 which are located at the rear end of the primary part 25 of the ladder. These flexible elements 58 are carried over the tops of the upper sheaves 43 which are carried by the standards 42, the flexible elements being thence carried across the tops of the

sheaves 46 which are journaled for rotation in the brackets 45 of the secondary part 26 of the ladder. The forward ends of the flexible elements 58 are connected with the plate 36 of the seat structure the flexible elements 58 being connected with the seat plate 36, upon the opposite side of the pivotal connection of the seat plate, from which the springs 37 bear. The points of connection between the flexible elements 58 and the seat plate 36, are denoted by the numeral 59. A pair of flexible elements 60 are connected with the supplemental shaft 52, these flexible elements being thence carried over the sheaves 48 which are journaled for rotation in the brackets 47 upon the tiltable support 12, the flexible elements 60 being thence carried downwardly, into connection with the cross head 18, as denoted by the numeral 61. A pair of flexible elements 62 are connected with the auxiliary shaft 55, these flexible elements being thence carried over the upper runs of the lower sheaves 44 in the standards 42 upon the primary part 25 of the ladder, these flexible elements being thence carried forwardly, across the lower run of the sheaves 46 which are journaled in the standards 45 upon the secondary part 25 of the ladder. The forward ends of the flexible elements 62, are connected with the stiles of the secondary part 26 of the ladder, at a point slightly to the rear of the seat structure 37.

When the device is not in use, the tiltable support 12 may be folded downwardly, until its arms 14 rest upon the cross brace 7, between the diagonal braces 11. The primary part 25 of the ladder 24, will rest upon the tiltable support 12, and the secondary part 26 of the ladder may be folded backwardly, upon the primary part 25.

When it is desired to raise the ladder 24, the secondary part 26 is swung over, into approximate alinement with the primary part 25, the co-acting butt-blocks 28, constituting a means for preserving the ladder elements 25 and 26 in alined relation. When the supplemental shaft 52 is rotated, the flexible elements 60 will, simultaneously, move the tiltable support 12 into an upright position, and, at the same time, cause an elevation of the cross head 18 in the arms 14 of the support 12. In a single operation, the tiltable support 12 will be swung into a vertical position, and the entire ladder structure 24 will be lifted bodily. If, now, the primary shaft 49 be rotated, the flexible elements 58 will serve to elevate the free end of the ladder 24, it being noted that, since the head 33 is pivotally mounted between the arms 32, as shown at 34, the entire ladder structure 24 may be swung vertically upon the cross head 18. The operation of the primary shaft 49, therefore, will serve to elevate the free end of the secondary portion

26 of the ladder, the seat 37 being positioned at any desired height. In this connection it is to be noted that, since the flexible members 58 are connected with the pivotally mounted seat plate 37, in front of the pivotal mounting of the said seat plate, the operation of elevating the free end of the secondary portion 26 of the ladder will also serve to tilt the seat plate 36. Thus, when the free end of the portion 26 of the ladder is elevated, the seat plate 36 will be maintained in an approximately horizontal position, the springs 39 serving to offset the pull exercised upon the seat plate 36, by the flexible elements 58. The operation of the primary shaft 49 serves to tilt the ladder 24 as an entity, without altering the angle between the parts 25 and 26 of the ladder, these parts remaining in alinement when the primary shaft 49 is operated. When it is desired to change the angle between the parts 25 and 26, that is, to elevate the seat-carrying end of the secondary part 26, the auxiliary shaft 55 may be rotated, the flexible elements 62 serving to tilt the portion 26 of the ladder, until the said portion stands at an angle to the part 25. When the parts 25 and 26 are alined, the auxiliary shaft 55 may be rotated, to tighten up the flexible elements 62, until these elements 62 cooperate with the elements 58 in exercising a trussing function upon the ladder structure.

When it is desired to dispose the device in small compass, the primary shaft 49 may be manipulated, to permit the tiltable support 12 to swing downwardly into engagement with the cross brace 7, the auxiliary shaft 59 may be manipulated to fold the portion 26 of the ladder backwardly into overlapping relation upon the portion 25 of the ladder, the primary shaft 49 being manipulated to reel in the elements 58, and to dispose the free end of the primary part 25 of the ladder in close relation to the supporting frame 3.

When the shaft 49 is rotated, the rope 58 will not merely tip the section 26 on its hinge 27, instead of swinging the entire ladder about its pivot 33, for the reason that the standard 42 is so short that the vertical component of the pull of the rope 58 at its outer end, will be less than the downward pull due to the weight of the section 26.

The device is of simple construction, and may readily be manipulated, to extend and to elevate the ladder, or to fold up and to house the same, the operations above referred to taking place rapidly, and with a minimum expense of effort upon the part of the operator.

Having thus described the invention, what is claimed is:—

1. A device of the class described comprising a support; a ladder pivotally connected intermediate its ends with the support, for

vertical swinging movement; a seat pivoted to the outer end of the ladder; and means connected with the seat, for simultaneously tilting the seat and for raising and lowering the seat-carrying end of the ladder.

2. A device of the class described comprising a support; a ladder fulcrumed intermediate its ends upon the support; a seat pivotally connected with the ladder, adjacent the outer end thereof; means connected with the seat for simultaneously tilting the seat, and for raising and lowering the seat-carrying end of the ladder; and a spring device engaged with the seat, to oppose the action of said means.

3. A device of the class described comprising a support; a ladder pivoted intermediate its ends upon the support, for vertical swinging movement; a seat pivotally supported upon the ladder, adjacent the outer end thereof; a spring uniting the seat with the ladder, upon one side of the pivotal mounting of the seat; a flexible element connected with the seat, upon the opposite side of the pivotal mounting of the seat, the flexible element being carried longitudinally of the ladder and engaged in its intermediate portion with the ladder; and means for operating the flexible element, to effect a simultaneous tilting of the seat, and a raising and lowering of the seat-carrying end of the ladder.

4. A device of the class described comprising a frame; a support hinged to the frame for vertical swinging movement; a ladder pivoted intermediate its ends upon the support; means for raising and lowering the support; and means for tilting the ladder upon the support.

5. A device of the class described comprising a frame; a support pivoted to the frame for vertical swinging movement; a ladder comprising hingedly connected parts, one of which parts is pivotally connected with the support for vertical swinging movement thereon; means for raising and lowering the support; means for folding one of said ladder members upon the other of said members; and means for tilting the ladder upon the support.

6. A device of the class described comprising a frame; a support pivoted to the frame for vertical swinging movement; a cross head slidable in the support longitudinally of the same; a ladder pivoted intermediate its ends upon the cross head; and means connected with the cross head for simultaneously moving the cross head in the support, and for elevating the support with respect to the frame.

7. A device of the class described comprising a frame; a support pivoted to the frame for vertical swinging movement; a cross head slidable in the support, longitudinally of the same; a ladder pivoted in-

intermediate its ends upon the cross head; a sheave upon the support; a flexible element trained about the sheave and engaged with the cross head; and means for operating the flexible element, to secure a simultaneous tilting of the support and a sliding movement of the cross head in the support.

8. A device of the class described comprising a frame; a support pivoted to the frame for vertical swinging movement; a cross head slidable in the support; a standard fixed to and rising from the support, and extended through the cross head; a ladder; a movable member upon the ladder, through which member the standard extends; and means for simultaneously tilting the support and for raising and lowering the cross head.

9. A device of the class described comprising a frame; a support pivoted to the frame for vertical swinging movement; a ladder connected with the support for tilting movement with respect to the support, and for movement longitudinally of the support; and means for simultaneously elevating the support and for moving the ladder longitudinally of the support.

10. A device of the class described comprising a sub-structure; a support pivoted thereto for vertical swinging movement; a ladder consisting of hingedly connected primary and secondary parts, the primary part being pivotally connected, intermediate its ends, with the support; primary and supplemental shafts journaled for rotation upon the sub-structure; an auxiliary shaft journaled for rotation upon the support; a flexible element secured at one end to the free end of the secondary part of the ladder, and extended anti-frictionally over the primary part of the ladder, adjacent its free end, into engagement with the primary shaft; a flexible element connected with the secondary part of the ladder, adjacent its

free end, the flexible element being operatively connected with the auxiliary shaft; both of said flexible elements being anti-frictionally supported, in their intermediate portions, upon the primary part of the ladder; and a flexible element connected with the supplemental shaft, and with the support, to effect a raising and lowering of the support.

11. A device of the class described comprising a sub-structure; a support pivoted thereto for vertical swinging movement; a cross head slidable in the support; a ladder consisting of hingedly connected primary and secondary parts, the primary part being pivotally connected, intermediate its ends, with the cross head; primary and supplemental shafts journaled for rotation upon the sub-structure; an auxiliary shaft journaled for rotation upon the support; a flexible element secured at one end to the secondary part of the ladder, adjacent the free end thereof, said flexible element being extended anti-frictionally over the primary part of the ladder, adjacent its free end, into engagement with the primary shaft; a flexible element secured to the secondary part of the ladder, adjacent the free end thereof, said flexible element being operatively connected with the auxiliary shaft; both of said flexible elements being anti-frictionally supported, in their intermediate portions, by the primary part of the ladder; and a flexible element connected with the cross head, and extended anti-frictionally over the support, into engagement with the supplemental shaft.

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

WILEY R. IRBY.

Witnesses:

M. J. RAYL,
R. T. HACKER.