Dec. 18, 1951 L. H. WIRSIG 2,578,989

PORTABLE FOLDING STOOL

Filed Dec. 13, 1948 3 Sheets-Sheet 1

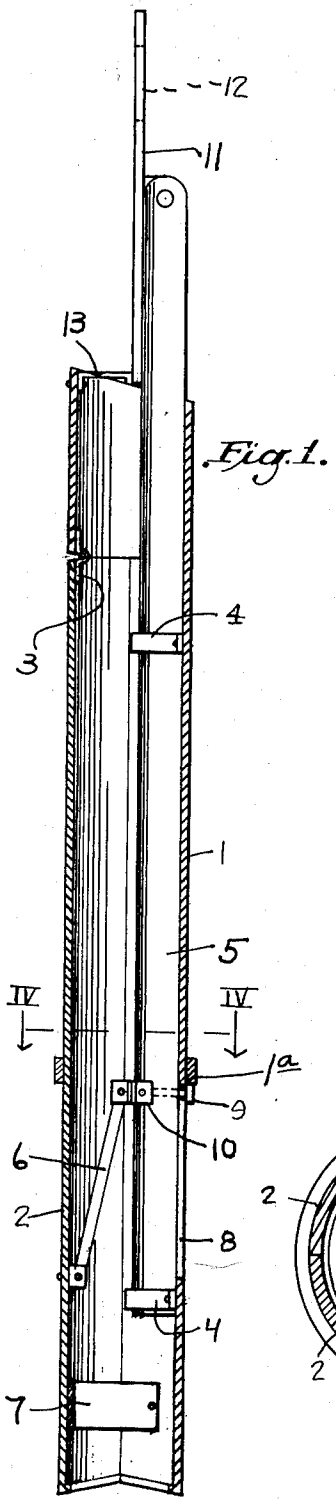


Fig. 1.

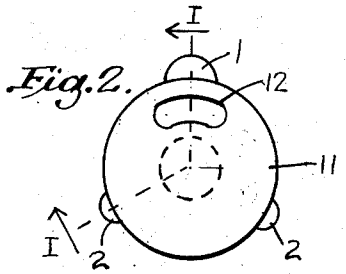


Fig. 2.

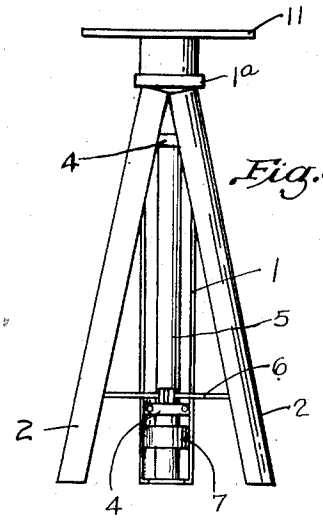


Fig. 3.

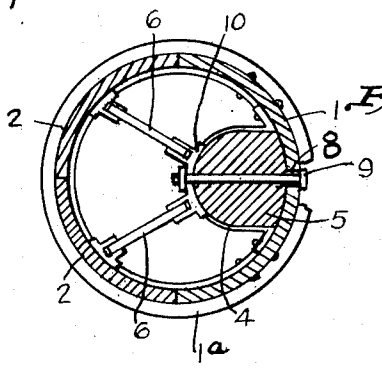


Fig. 4.

INVENTOR.
Leo H. Wirsig
BY
K. M. Thorpe
Atty.

Dec. 18, 1951 L. H. WIRSIG 2,578,989

PORTABLE FOLDING STOOL

Filed Dec. 13, 1948 3 Sheets-Sheet 2

Fig. 6.

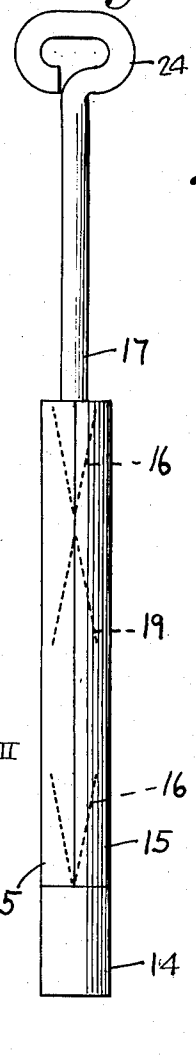


Fig. 5.

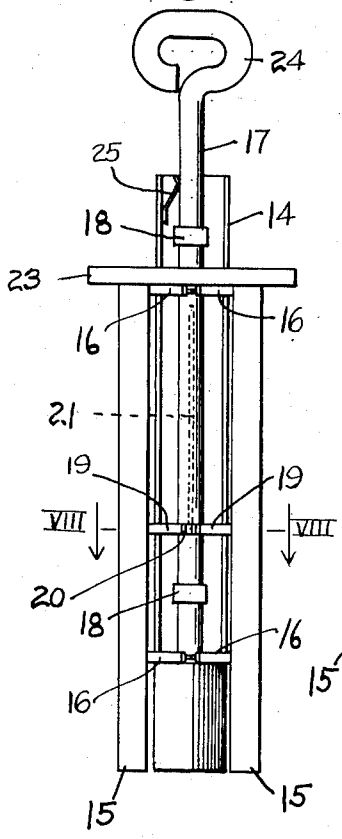
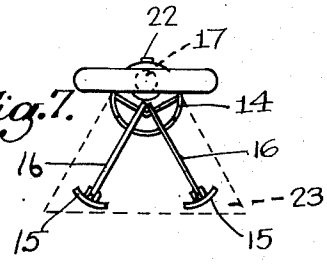


Fig. 7.



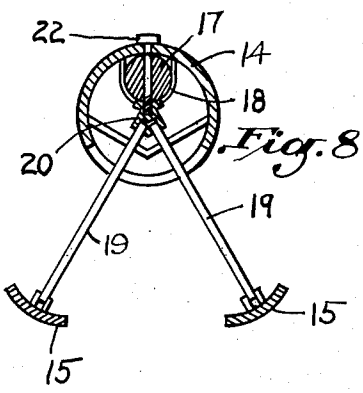


Fig. 8.

INVENTOR.

BY Leo H. Wirsig

K'M Thorpe

Atty.

Dec. 18, 1951 L. H. WIRSIG 2,578,989

PORTABLE FOLDING STOOL

Filed Dec. 13, 1948 3 Sheets-Sheet 3

Fig. 9.

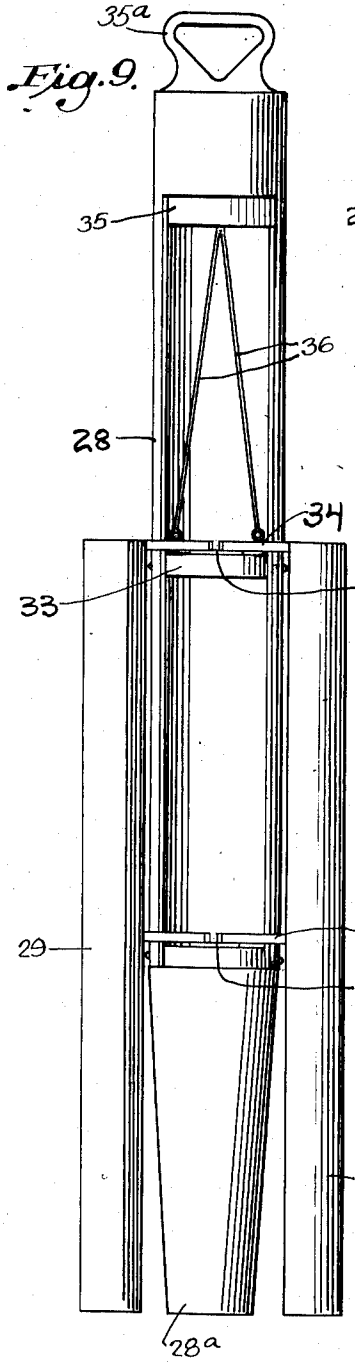


Fig. 10.

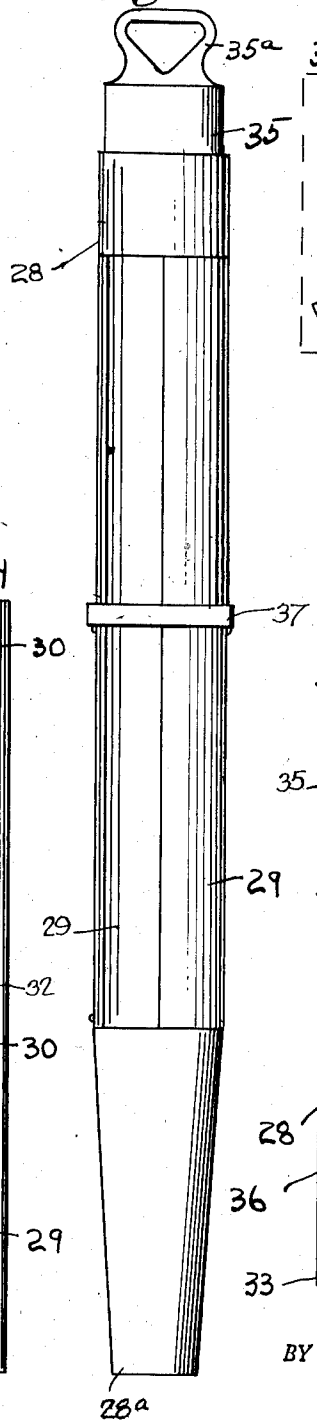


Fig. 11.

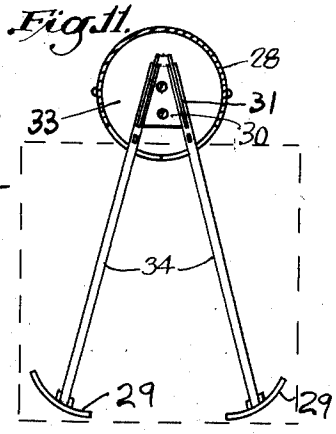


Fig. 13.

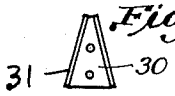


Fig. 14.

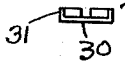
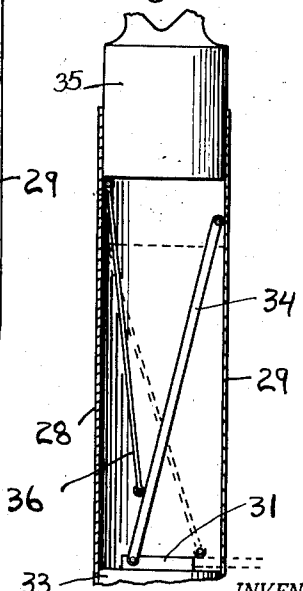


Fig. 12.



INVENTOR.
Leo H. Wirsig
BY K. M. Thorpe
Atty.

Patented Dec. 18, 1951

2,578,989

UNITED STATES PATENT OFFICE

2,578,989

PORTABLE FOLDING STOOL

Leo H. Wirsig, Deepwater, Mo.

Application December 13, 1948, Serial No. 65,045

10 Claims. (Cl. 155—137)

1

This invention relates to portable folding stools and has for its general object to produce a device of this kind which is of compact nature when folded or in inoperative position and is of strong and sturdy character when open or operative.

Another object of the invention is to produce a multiple leg stool which is provided with a principal or main leg with auxiliary or secondary legs automatically closed or opened upon reciprocation of an operating connection, the auxiliary leg operating and sustaining braces being securely tied or pivoted in fixed relation to the main leg so that strains tending to expand the legs will be equalized between all of the legs without flexing movement of any of the parts. This arrangement insures that the legs will be rigid when opened and will not wobble or collapse.

A further object of the invention is to provide a construction in which the seat may be pivoted to the operating bar, said seat, when the device is folded, providing a handle for the convenient portability of the stool.

A still further object is to produce a modified construction in which a back rest is provided when the stool is open.

With the general objects named in view and others as will hereinafter appear, the invention consists in certain novel and useful features of construction and organization of parts as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which:

Figure 1 is a vertical section on the line I—I of Figure 2 with the stool in its collapsed or folded position.

Figure 2 is a reduced top plan view of the same in its open or operative position.

Figure 3 is a side elevation of the stool as shown in Figure 2.

Figure 4 is an enlarged section on the line IV—IV of Figure 1, said section also showing the bolt which ties the operating bar to the leg.

Figure 5 is a side elevation of a modified stool in which the operating bar forms a back rest, the parts being shown in open or operative position with the seat plate in place.

Figure 6 is a side elevation of the construction shown in Figure 5 in collapsed or inoperative position, the seat board having been removed.

Figure 7 is a top plan view of the construction shown in Figure 5, the seat board being outlined in dotted lines.

Figure 8 is an enlarged section on the line VIII—VIII of Figure 5.

Figure 9 illustrates a modified construction in

2

open or extended position, this construction involving a parallel leg arrangement as shown in the stool illustrated in Figures 5 through 8.

Figure 10 illustrates the stool of Figure 9 in closed position.

Figure 11 is a section through Figure 1 in the plane of the upper leg braces.

Figure 12 is a section paralleling the upper leg braces when closed or folded.

Figure 13 is a top plan view of the hinge bracket to which the leg braces are pivoted.

Figure 14 is a face view of the bracket shown in Figure 13.

In the said drawings, where like reference characters identify corresponding parts in all of the figures, 1 is a main or principal leg which is preferably of tubular form throughout a portion of its length. In the construction shown in Figures 1 through 4 inclusive, the tube, in effect is slit longitudinally to form a pair of auxiliary legs 2, connected to the main leg 1 by internal hinges 3 in the preferred arrangement. Internal hinges are preferably used to accommodate a closing locking ring 1*a* hereinafter described.

Reciprocating longitudinally within the leg 1 and secured thereto by means of loops or rings 4 pressed out of the metal of the leg, welded or otherwise attached thereto, is an operating bar 5, said bar being pivotally connected to the auxiliary legs 2 by means of links 6 which act both as braces and operating members for the legs, and limit the degree or spread when open. It will be noted that the bar 5 is secured to the leg 1 by rings 4 both above and below the plane of the links 6 to insure the rigidity of the connected parts.

With the above arrangement it will be evident that reciprocation of the bar 5 will cause the auxiliary legs 2 to be folded or unfolded. The parts are so proportioned that when the legs 2 are folded they fit in cooperative relation to the main leg 1 and in combination therewith form a tubular cane or walking stick with all of the operating parts concealed therein.

In order to insure that the legs 2, when collapsed, substantially line up with the main leg 1, said leg is provided internally with a stop ring or segment 7 near its lower end. In order to tie the legs 2 against side sway or wobble, the bar 5 must be held against axial oscillation within the leg 1. One method of accomplishing this result is to form the leg with a longitudinal slot 8 receiving a headed bolt 9, the other end of the bolt being secured to the bar 5, preferably by

engaging a bracket 10 to which the ends of the links 6 are pivoted.

Pivotally secured to the upper end of the bar 5 is a seat 11 which may be formed with a hand hold opening 12. The seat 11, when folded, fits flatwise against the projecting end of the operating bar 5 and forms a handle for the folded stool and is preferably locked in position by a spring catch 13 carried by the upper end of the main leg 1. When the stool is to be opened the catch 13 is released and the seat is simultaneously swung on its pivot while the bar 5 is slid longitudinally to effect opening of the auxiliary legs 2, the upper end of the leg 1 being bevelled to form a support for the seat in a plane paralleling the plane of the lower ends of the legs when open. It is to be noted that the principal leg 1 must lean or tilt to the same angle as auxiliary legs 2, its bevelled top being cut at such angle as to compensate and parallel the ground for the support of the seat when the legs are fully open. Reverse operation of the seat and bar effects folding of the stool.

Although, under ordinary conditions, the catch 13 and seat 11 may be relied upon to hold the parts collapsed or folded, it may be desirable to supply additional holding means to retain the auxiliary legs snugly in position. This may be accomplished by the ring 1a which will be slid to the upper part of the leg 1 (see Figure 3) when the legs are open, and will be slid down until stopped by contact with the head of the bolt 9 (see Figure 1), when the legs are collapsed.

In the construction shown in Figures 5 through 8 inclusive, the main leg 14 is substantially reversed, in that the non-slit or tubular end is at the bottom of the stool rather than at the top thereof as in the construction first above described. In this construction, when the stool is open, all of the legs, the main as well as the auxiliary legs 15 stand parallel to each other, are perpendicular to the ground or supporting surface in both open and closed positions.

The auxiliary legs 15 are pivoted to the main leg 14 by links 16 which fold upwardly as shown in dotted lines in Figure 6 when the stool is collapsed. The operating bar 17 is held in sliding relation to the main leg 14 by being snugly enclosed by guide loops or rings 18 carried by the main leg. The auxiliary legs are caused to swing on their links 16 by means of operating links 19 pivoted at one end to a bracket 20 carried by the operating bar 17, said links swinging from their horizontal positions when the stool is open, Figure 5, to their dotted line position, Figure 6, when the stool is folded.

In order to secure the operating bar 17 against looseness or sway, the rear of the main leg is slotted as shown at 21 and a headed bolt 22 extends through said slot and is engaged with the bracket 20 as shown. The seat, in the present embodiment, is shown as a separate or detachable plate 23 which is adapted to rest on the upper links 16 and the tops of the auxiliary legs 15. The operating bar 17 extends upwardly above the plane of the seat and is formed with a carrying handle 24 at its upper end which acts as a back rest when the stool is unfolded. Any suitable means, such as a spring advanced latch 25 engaging a notch in the operating bar 17, may be used to hold the device in collapsed or folded position.

Referring to Figures 9 through 14, 28 is a metal tube forming a principal leg, the lower end of the tube receiving the reduced upper end of a

ground engaging foot 28a which may be a wood peg or the like. Cut out of the wall of the main leg are a pair of auxiliary legs 29. Rigidly secured, as by rivets shown, to the tube 28 at any suitable position depending upon the lengths of the auxiliary legs, is a wood or similar block 33.

Mounted upon the block 33 and upon the upper end of the foot 28a are hinge brackets 30 having upturned edge flanges 31 formed at diverging angles to control the angular swinging movement of the legs. Pivotally secured at their opposite ends to the flanges 31 and to the legs 29 are operating links 32 and 34, the ends of said links being slit to accommodate the flanges 31 so that said links are reinforced or held against side sway or wobble.

With the arrangement described it will be evident that the auxiliary legs 29 may be swung on the links 32 and 34 to and from opening position, Figure 1, to closed position, Figure 2. When the legs are in their closed position, a seat board shown in dotted lines Figure 11, may rest on the upper ends of the legs 29 and the shoulder formed on the leg 28 by the cutting out of the legs 28. When the legs are closed or folded, Figure 2, they may be locked in position by a ring 37 abutting the rivet heads securing the block 33.

To provide for the automatic operation of the legs 29 a reciprocating plug 35 is fitted in the upper end of the leg 28 and is formed with an operating handle 35a. Pivotally secured to the underside of said plug 35, see Figure 12, are a pair of operating rods 36, the opposite ends of said rods being each pivoted to one of the links 34. With this arrangement the stool may be opened or closed by manipulation of the plug 35 to effect corresponding swinging movement of the links and legs as will be readily understood.

From the above description it will be apparent that I have produced a construction embodying all of the features of advantage set forth as desirable and I reserve the right to all changes within the spirit and scope of the appended claims.

I claim:

1. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a leg-operating bar in longitudinal sliding engagement with the inner face of the main leg, and auxiliary leg-operating links pivotally connected to said operating bar and auxiliary legs.

2. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a series of spaced guide loops axially alined longitudinally of the main leg, a leg-operating bar reciprocating within the guide loops in guide contact with the inner surface of the main leg, and auxiliary leg-operating links pivotally connected to said operating bar and auxiliary legs.

3. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a leg-operating bar in longitudinal sliding engagement with the inner surface of the main leg, means interlocking the bar and main leg against independent axial rotation, and auxiliary leg-operating links pivotally connected to said operating bar and auxiliary legs.

4. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a series of spaced guide loops axially alined longitudinally of the main

leg, a leg-operating bar reciprocating within the guide loops in guided contact with the inner surface of the main leg, means interlocking the bar and main leg against independent axial rotation, and auxiliary leg-operating links pivotally connected to said operating bar and auxiliary legs.

5. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a leg-operating bar in longitudinal sliding engagement with the inner face of the main leg, auxiliary leg-operating links pivotally connected to the operating bar and auxiliary legs, and a seat pivoted to one end of the operating bar.

6. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a leg-operating bar in longitudinal sliding engagement with the inner surface of the main leg, auxiliary leg-operating links pivotally connected to the operating bar and auxiliary legs, a seat pivoted to one end of the operating bar, and a latch to hold the seat parallel to the operating bar when said seat is in collapsed position.

7. A portable folding stool comprising a main leg and a plurality of auxiliary legs hingedly connected to the main leg, a leg-operating bar in reciprocatory relation to and paralleling the main leg, auxiliary leg-operating links pivotally connected to said operating bar and auxiliary legs, spaced guide loops above and below the plane of the links holding the bar to the main leg, means interlocking the bar and main leg against independent axial rotation, a seat pivoted to one end of the bar, and a latch to hold the seat parallel to the bar when the stool is in collapsed condition.

8. A portable folding stool comprising a main leg and a plurality of auxiliary legs, links pivoting the main and auxiliary legs permitting swinging of the auxiliary legs to and from the main leg while preserving parallelism therewith, and an operating bar reciprocating on the main leg to effect swinging of said auxiliary legs.

9. A portable folding stool comprising a main leg and a plurality of auxiliary legs, said auxiliary legs when folded nesting with the main leg with the upper ends of the auxiliary legs above the corresponding end of the main leg, links pivotally connecting the main and auxiliary legs and operable to swing the auxiliary legs away from the main leg until the lower ends of all of the legs are in the same plane and the links are parallel thereto, and an operating bar reciprocatory on the main leg to effect swinging of said links carrying the auxiliary legs.

10. A portable folding stool comprising a main leg and a plurality of auxiliary legs, said auxiliary legs when folded nesting with the main leg with the upper ends of all the legs in the same plane and the lower ends of the auxiliary legs above the corresponding end of the main leg, links pivotally connecting the main and auxiliary legs and operable to swing the auxiliary legs away from the main leg until the lower ends of all of the legs are in the same plane and the links are parallel thereto, an operating bar reciprocatory on the main leg, and operating links connecting said bar and auxiliary legs.

LEO H. WIRSIG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
755,043	Pike	Mar. 22, 1904
2,359,821	Black	Oct. 10, 1944
2,380,911	Peterson	July 31, 1945

FOREIGN PATENTS

Number	Country	Date
339,271	Germany	July 19, 1921
531,638	Germany	Aug. 14, 1931
202,947	Great Britain	Dec. 20, 1923