W. W. OWENS.

COLLAPSIBLE SUPPORT.

APPLICATION FILED MAY 22, 1913.

1,115,731.

Patented Nov. 3, 1914.

2 SHEETS—SHEET 1.

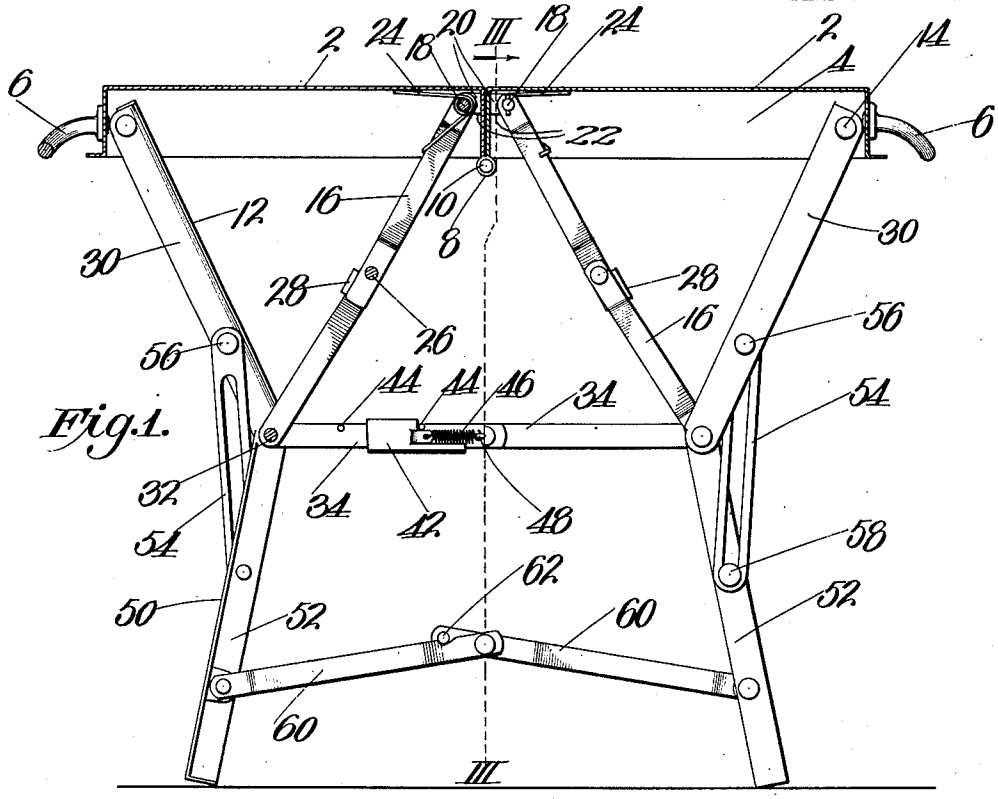

Fig. 1.

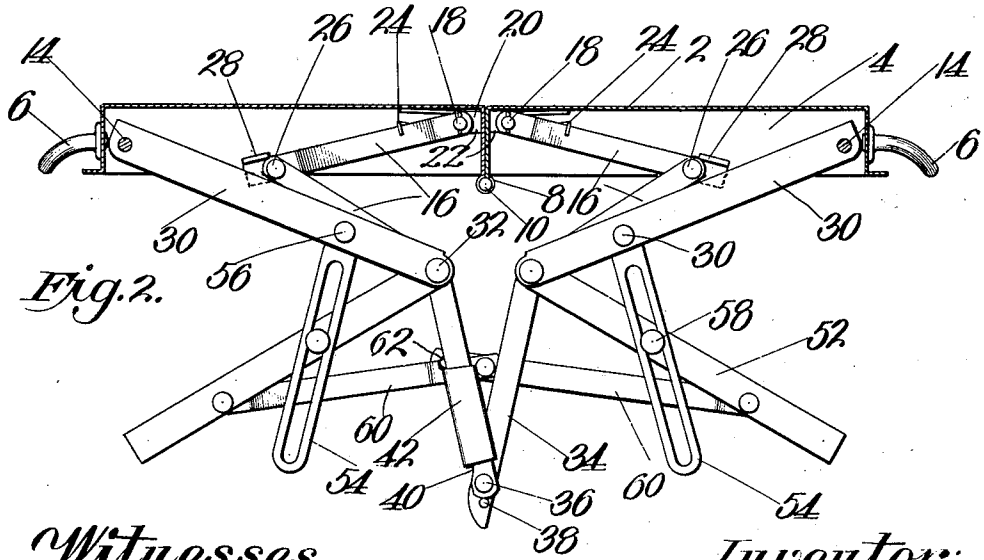

Fig. 2.

Witnesses

Frank R Glover

Chas. C. Grant

Inventor:

W. W. Owens.

By George H Thorpe Atty.

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Fig. 3.

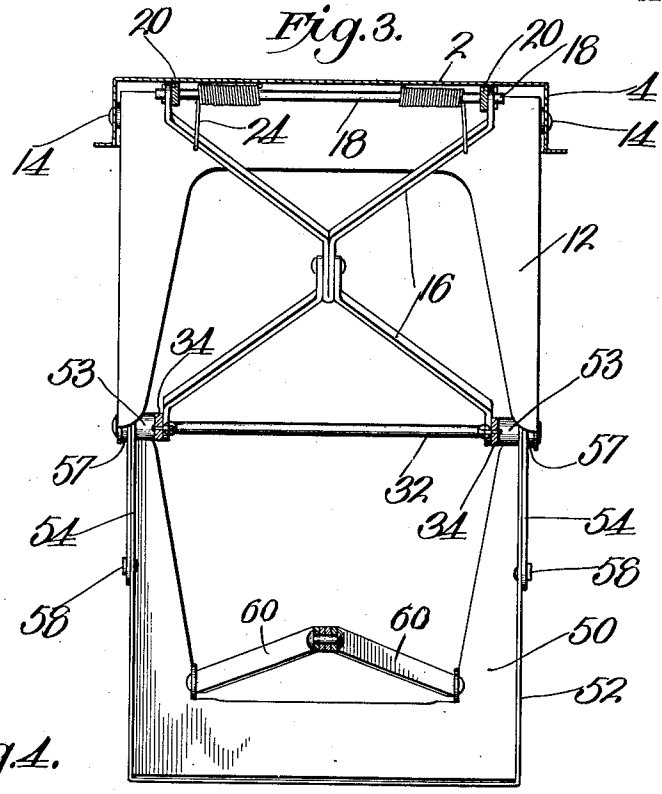


Fig. 4.

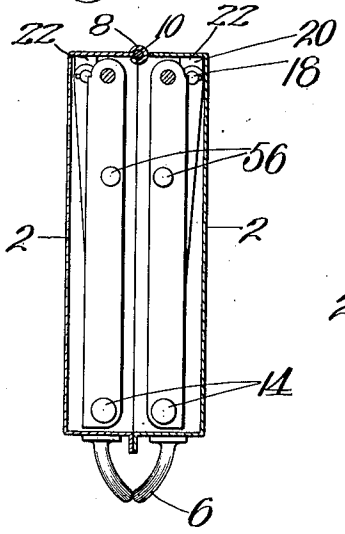
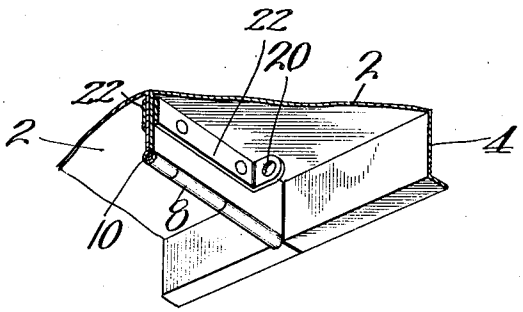


Fig. 5.



Witnesses
Frank R Glover
Chas. W. Grant

Inventor:
W. W. Owens.

By George H. Knight Atty.

UNITED STATES PATENT OFFICE.

WALTER W. OWENS, OF KANSAS CITY, MISSOURI.

COLLAPSIBLE SUPPORT.

1,115,731. Specification of Letters Patent. Patented Nov. 3, 1914.

Application filed May 22, 1913. Serial No. 769,223.

To all whom it may concern:

Be it known that I, WALTER W. OWENS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Collapsible Supports, of which the following is a specification.

This invention relates to collapsible supports of that class adapted for folding into a small and compact package so that it can be conveniently carried about by hand, and one object is to produce a simple, strong, durable and inexpensive device of this character which, when fully opened, automatically locks against collapse.

Another object is to devise a construction which will be adaptable as a support in various relations as for stools, tables, cots, work benches or in fact any article of this nature where a collapsible supporting structure may be desired.

With these general objects in view, the invention consists in certain novel and peculiar features of construction and organization 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 side view, partly in elevation and partly in vertical section, of a collapsible support embodying my invention. Fig. 2, is a side elevation with the supporting frame partly collapsed and the top in section to omit the near flanges thereof. Fig. 3, is a vertical section along the line III—III of Fig. 1. Fig. 4, is an elevation of the device collapsed with the seat flanges omitted. Fig. 5, is a broken perspective view of the hinge between the seat sections.

Referring to the drawing, the seat portion of the support is represented as composed of two metal sections 2 hinged together and having flange portions 4 depending from the sides thereof, so that the sections when folded as shown in Fig. 4 will constitute a box inclosing the collapsible frame support. The outer flanges are provided with hand holds 6, by which the support may be carried when folded and the inner flanges are pivoted together by means of a hinge, comprising fingers 8 cut integrally from the flange as shown in Fig. 5, and a hinge rod 10.

For supporting the ends of the seat a pair of U-shaped frames 12 is pivoted to the side flanges 4 by means of bolts or rivets 14. The inner or hinged ends of the seat are provided with supporting members in the form of approximately V-shaped toggles 16 which are connected to the sections near the hinge by means of pivot rods 18 mounted in lugs 20 at the ends of the bars 22, secured to the inner flanges 4. Coil springs 24 are mounted on the rods 18 and bear at their opposite ends against the seat sections and the outer sides of the adjacent toggle members thereby tending normally to hold the toggles straightened. Each pair of toggles is pivoted together at 26 and adjacent each pivot 26 one of the toggle members carries a stop lug 28 adapted to engage the other member of the toggle to limit the straightening movement.

The U-shaped frames 12 are each provided with outwardly extending guide flanges 30, to the lower ends of which the lower toggle members are connected by means of a pivot rod 32. By this construction it will be seen that when the toggles are broken they will be forced into the position shown by Fig. 2 and draw the frames 12 inward about their pivots 14.

For holding the frames 12 outward with the toggles straightened, a pair of links 34 is pivoted upon each of the rods 32 adjacent the lower toggle member 16. These links are pivoted together at their inner ends by means of pins 36 and one of each pair of links carries a pin 38 for engaging a recess 40 in the other link to limit their movement into horizontal alinement.

To lock the links in horizontal position, one of each pair of links carries a sleeve 42 sliding between stop pins 44 and normally held by a spring 46 connecting it to the hook 48 of the pivot pin 36 against the inner stop pin, in which position the inner end of the sleeve embraces the inner end of the opposite link and thereby holds the parts in the relation shown in Fig. 1. The pivot rods 32 also carry a pair of U-shaped frames 50 similar to the frames 12 above and provided with side flanges 52, the upper ends of which are pivotally mounted upon said rods and spaced from the links 34 by means of washers 53, the frames 50 being adapted to fold upward inside the flanges 30 of the frames 12.

Each pair of frames 12 and 50 is connected by a pair of slotted links 54 pivoted on pins 56 carried by the flanges 30 and spaced from said flanges by washers 57, the flanges

32 having pins 58 for operating in the slots of the links. These links 54 permit of folding movement of the said frames and at the same time limit their movement when the support is extended.

When the support is in extended or supporting position the frames 50 assume a downward diverging position below the frames 12 as illustrated in Fig. 1, and to retain the frames 50 in this spaced relation while the support is in use, a pair of toggle members 60 similar to the toggles 16 above is pivotally connected to the flanges 52 near their lower ends, one of said toggles 60 being provided with a stop pin 62 for engaging the adjacent portion of the other toggle member to limit their movement downward into horizontal locking position.

In the operation of the device, assuming that the parts are in supporting position as shown in Fig. 1, the latching members comprising the sleeves 42 are drawn back to unlock the links 34 which are then broken in a direction from the seat. The toggles 16 are then broken outward whereupon the frames 12 swing inward and frames 50 outward toward the seat. After the frames 12 have reached alined positions parallel with the sections 2 and inside the flanges 4, by taking hold of the hand holds 6 the sections may be closed in box-like fashion, as shown in Fig. 4, this last action breaking the toggle composed of links 60. The reverse of these actions will take place in unfolding the support for use, except that the unfolding will be accomplished by one movement after the sections have been opened, since the toggles 16 will straighten automatically and the locking of the links 34 will also be automatic.

From the foregoing it will be apparent that I have produced a collapsible support embodying the features of advantage enumerated as desirable, and while I have illustrated and described the preferred embodiment of the same, I wish it to be understood that I reserve the right to all modifications falling within the spirit and scope of the appended claims.

I claim—

1. In a device of the character described, a pair of top sections hinged together, and a collapsible supporting structure secured to said sections and held between the same when the sections are folded, said supporting structure comprising a pair of folding supporting frames, a pair of bracing toggles pivoted to said sections and said frames, a pair of bracing toggles pivotally connecting said frames, said pairs of toggles being adapted to swing into bracing position when said sections and said frames are unfolded, and means acting automatically to lock said second pair of toggles in bracing position.

2. In a device of the character described, a pair of top sections hinged together, and a collapsible supporting structure secured to said sections and held between the same when the sections are folded, said supporting structure comprising a pair of folding supporting frames, a pair of bracing toggles pivoted to said sections and said frames, a pair of bracing toggles pivotally connecting said frames, and means tending automatically to straighten said first pair of toggles into bracing position when said sections and said frames are unfolded, said unfolding movement also acting to straighten the second pair of toggles into bracing position, and means acting automatically to lock said second pair of toggles when straightened.

3. In a device of the character described, a pair of top sections hinged together and a collapsible supporting structure secured to and held between said sections when the same are folded, and comprising a pair of frames each consisting of two members pivoted together, one of said members of each frame being pivoted to one of the said sections, means to limit unfolding pivotal movement of the members of each of said frames, a pair of bracing toggles pivoted to said sections and said frames, and a pair of bracing toggles pivotally connecting the pair of frames.

4. In a device of the character described, a pair of top sections hinged together and a collapsible supporting structure secured to and held between the sections when the same are folded, and comprising a pair of frames each consisting of two members pivoted together, one of said members of each frame being pivoted to one of the said sections and the other members of said frames being adapted as legs to rest upon the ground, means to limit unfolding pivotal movement of the members of each of said frames, a pair of bracing toggles for and between said top sections and said frames, a bracing toggle connection between said frames at the hinge points of the members thereof, and a folding connection between the lower members of said frames to coöperate with the other toggles in producing a rigid support.

In testimony whereof, I affix my signature, in the presence of two witnesses.

WALTER W. OWENS.

Witnesses:
CHAS. W. GERARD,
G. Y. THORPE.