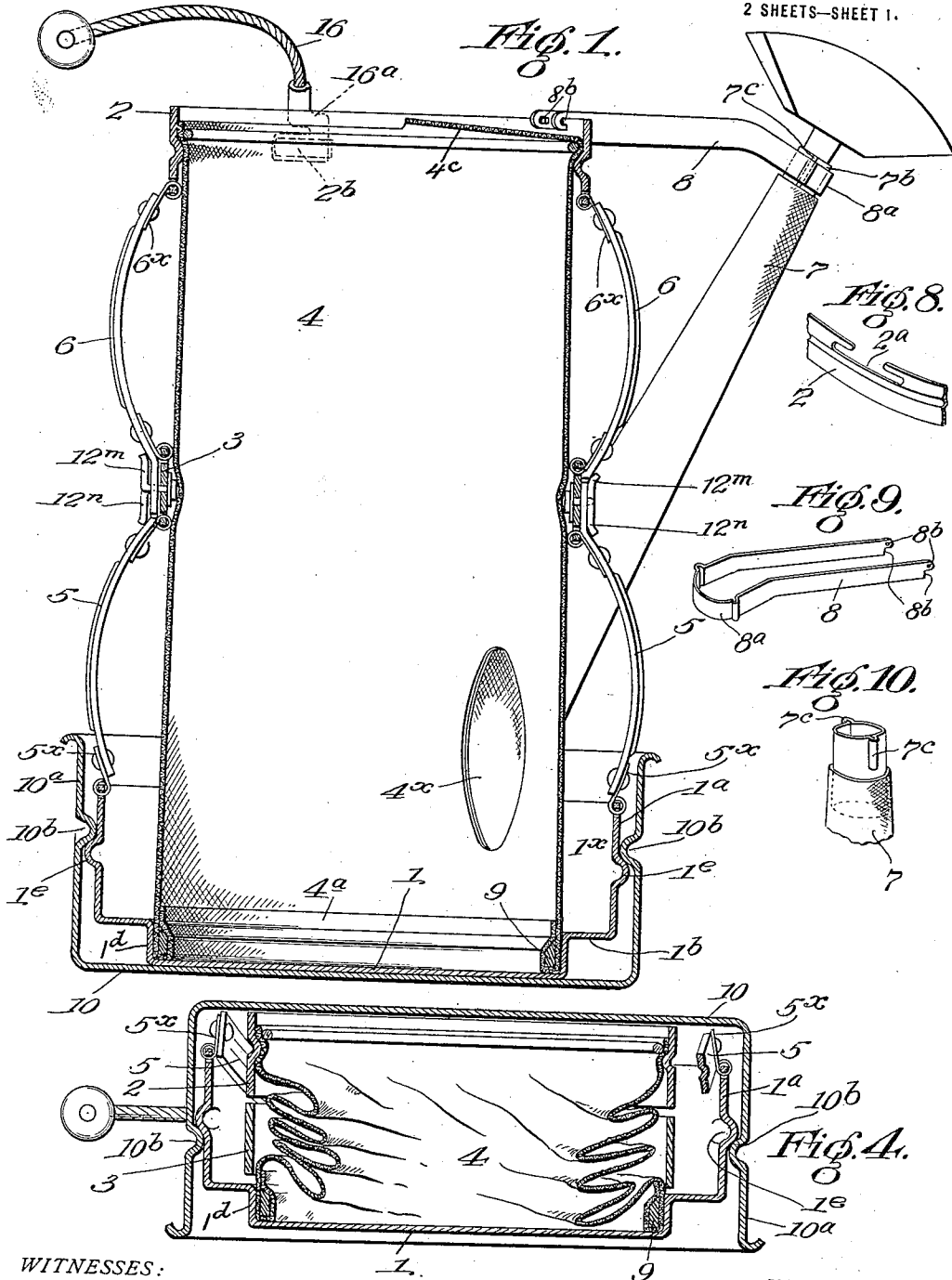


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A. C. GUHL.
COLLAPSIBLE CAN.
APPLICATION FILED MAR. 17, 1920.

Patented Apr. 19, 1921.
2 SHEETS—SHEET 1.



WITNESSES:
P. J. Gathmann

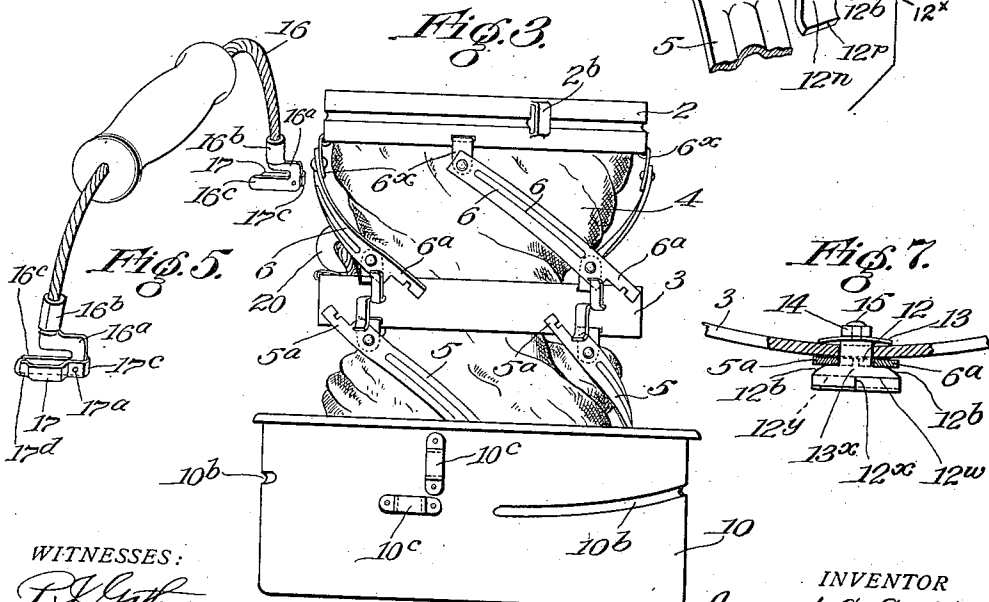
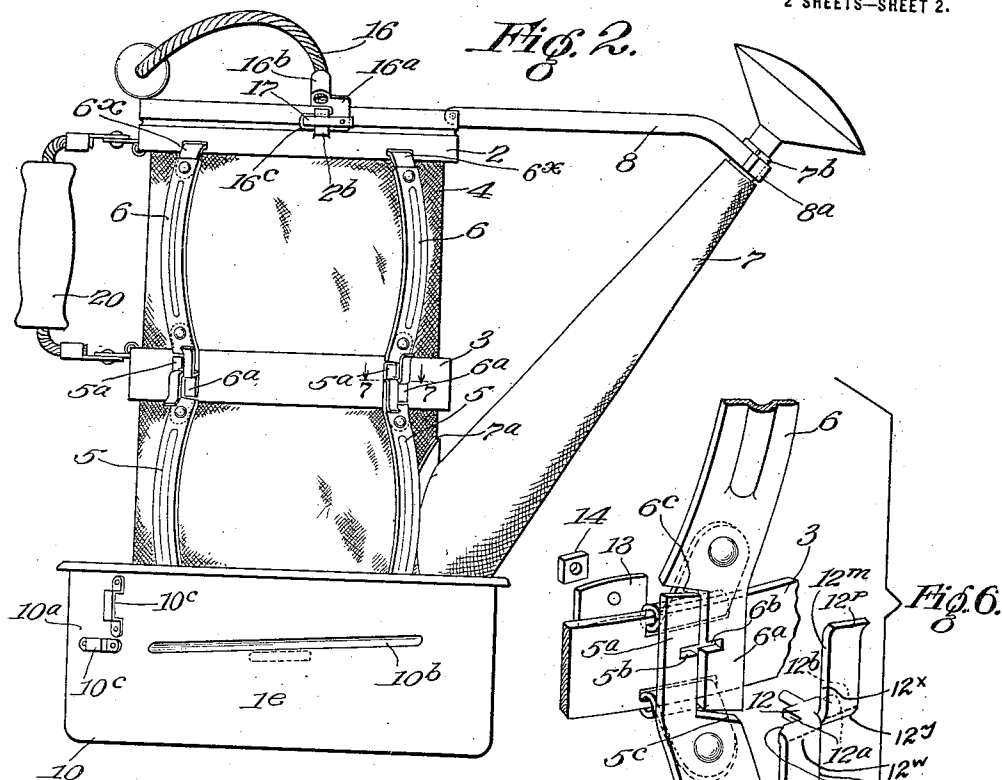
INVENTOR
August C. Guhl.
BY *Burton Burton*
HIS ATTORNEYS

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WITNESSES:

F. J. Gathmann

INVENTOR

BY *August C. Guhl.*
Lawton & Lawton
HIS ATTORNEYS

UNITED STATES PATENT OFFICE.

AUGUST C. GUHL, OF CHICAGO, ILLINOIS.

COLLAPSIBLE CAN.

1,375,384.

Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed March 17, 1920. Serial No. 366,541.

To all whom it may concern:

Be it known that I, AUGUST C. GUHL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Collapsible Cans, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved construction of a collapsible can or the like, the particular form and certain specific feature of the invention being adapted for a portable watering can. It consists in the elements and features of construction shown and described, as indicated in the claims.

In the drawings:

Figure 1 is a vertical axial section of a watering can embodying this invention.

Fig. 2 is a side elevation of the same, both Figs. 1 and 2 showing the can extended in form for service.

Fig. 3 is a side view of the can partly collapsed, showing the method of folding of the struts in collapse.

Fig. 4 is a sectional view of the can collapsed into the base member and with the casing reversed as a cover and means for carrying the collapsed can.

Fig. 5 is a detail elevation of the carrying handle.

Fig. 6 is a detail perspective view of a joint in the strut structure.

Fig. 7 is a detail section at the line, 7—7, on Fig. 2.

Fig. 8 is a detail perspective view of a portion of the top ring showing means of attaching the spent stay.

Fig. 9 is a perspective view of said stay.

Fig. 10 is a detail perspective view of the spout terminal.

In the structure shown in the drawings, the collapsible can comprises a rigid outer member, 1, which is of cup form adapted to constitute a receptacle into which the remainder of the can structure may be collapsed. 2 is a top rigid member which is a ring for encompassing and securing the upper end of the collapsible fabric member, 4. 3 is an intermediate ring, also adapted to encompass, and which may be secured to, the fabric member intermediate the upper and lower ends of the latter. The rigid bottom cup form member, 1, is connected to the rings, 2 and 3, by two sets of collapsible

struts, 5 and 6. The struts of the series, 5, are pivoted at their lower ends to the upper margin of the cup member, 1, and at the upper end to the lower margin of the intermediate ring, 3. The struts, 6, are pivoted at their lower ends to the upper margin of the ring, 3, and their upper ends to the lower margin of the ring, 2. Preferably the two series of struts, 5 and 6, are equal in number and a strut of each series is aligned vertically with a strut of the other series at the extended position. Each of the two struts in alinement meeting at the middle ring, 3, is extended beyond its pivot to that ring toward the other strut, the extensions, 5^a and 6^a, lapping by each other as seen in Fig. 6, and each having a notch, 5^b, 6^b, rendering the extensions hooked in form, these notches facing each other for engaging a stop, 12, which is mounted on the ring, 3, in position for such engagement, and for stopping the two struts at alined position. It will be observed, however, that the two extensions, 5^a and 6^a, of the struts would stop against each other at said alined position without the interposed stop, while without that stop, although but for the interposed stop either might force the other past the alined position; but in addition to the interposed stop for preventing this, the two extensions are adapted in shape to prevent it, being each formed with an angular recess at one side to receive the projection of the other strut, said recesses being indicated at 5^c and 6^c, respectively. In order to render the fabric-extending structure consisting of these struts and connected parts rigid at erect position of the struts, the stop, 12, has shoulders, 12^a, 12^a, under which the extensions, 5^a and 6^a, pass as the struts come to erect position; and the stop is mounted in the ring, 3, so as to be subject to the action of a retracting spring, 13, secured on the inner end of the stem of the stop, by means of a washer, 14, over which the end of the stop is riveted down as shown at 15. The outer corner of the shoulder is slightly beveled or rounded, as seen at 12^b, to facilitate the entrance under or behind it of the entering edge of the extensions, 5^a and 6^a, that is, so that these extensions wedge their way into their place under or behind the shoulder, and are thereby held tight by the retractive action of the spring, 13. In order that the struts, 5 and 6, may be certainly guided so as to enter behind the shoulder, as they swing up from

approximately horizontal position,—that is, from their collapsed position,—toward the erect position, the stop, 12, is made, as shown in Fig. 6, by being cut from a flat blank, as may be understood from said Fig. 6, the blank being split at 12^x, and folded at the dotted lines, 12^y and 12^v, to form two oppositely-projecting lugs or flanges, 12^m and 12ⁿ, one projecting upward and the other downward, and both flexed outward at their ends as seen at 12^p, so that in the early part of the movement of the strut from horizontal or collapsed position toward erect position, their lateral edges enter under or behind these lugs, 12^m and 12ⁿ, and are thereby guided surely to the shoulders, 12^a.

The cup-shaped bottom receptacle member, 1, is made with a concentric depression in its bottom web forming a vertical annular shoulder, 1^a, the diameter of the depression and of this annular shoulder being the diameter of the flexible fabric tube member, 4; and said tube member is secured at its lower end to the bottom member, 1, by having said lower end finished with a hem, 4^a, in which there is inclosed a rigid ring, 9, whose diameter is such, taking into account the thickness of the fabric of the tube, 4, that the ring-inclosing hemmed end of the tube can be entered into the depression defined by the shoulder, 1^a, only after the bottom member, 1, has been expanded to such extent as it may be by heating it to a temperature not high enough to injure the fabric of the tube, 4. Said hemmed ring-inclosing end being thus entered in the heat-expanded bottom member, 1, upon cooling of the latter the lower end of the tube member, 4, is gripped and held securely, and undetachably under the ordinary conditions of use of the device.

The struts, 5 and 6, are longitudinally curved approximately in conformity to the curvature of the encompassing wall, 1^a, of the cup-shaped bottom receptacle member, 1, so that at that position they extend in curved position in the annular space, 1^x, between said outer encompassing wall, 1^a, and the flexible fabric tube member, 4, which when collapsed normally folds or buckles inward, leaving said annular space available for the folded struts. From the position of the pivots of the struts of the two series, 5 and 6, at the lower and upper edges respectively, of the ring, 3, it will be seen that the two series will fold one above the other in collapsed position. In order to facilitate the folding of the struts in the cup-formed bottom receptacle member, 1, their pivotal connections to the said bottom receptacle member, 1, and to the upper ring, 2, is made through intermediate short link members, 5^x, 6^x, which are pivoted respectively, to the upper edges of the cup-shaped bottom member and the lower edge of the ring, 2, for swinging radially with respect to said

circular member, and to the struts, 5 and 6, respectively, for the pivotal movement of the struts necessary for collapse. From this construction it results that when the struts are collapsed into the cup-shaped bottom receptacle member, 1, they can each roll slightly as the links, 5^x and 6^x, in turn at their pivotal connection with the member, 1, and the ring, 2, thus permitting the struts to fall a little more deeply into the cup-shaped bottom member, 1.

A spout, 7, is made of fabric and secured to the side of the flexible tubular fabric member, 4, registering with an aperture, 4^x, in said tubular member, the securement being effected by stitching, with a stay, 7^a, in a well understood manner. The discharge end of the spout, 7, is fitted with a metal ferrule, 7^b, interiorly tapered for securement by friction of the tapered terminal of a discharge nozzle or head of any desired form. This metal ferrule, 7^b, serves as the means of attaching the stay loop, 8, for holding the outer end of the spout in discharge position, the stay being provided with an eye, 8^a, for engaging the ferrule, and being pivoted at the opposite end to the ring, 2, in a manner permitting it to fold into the ring at the collapsed position of the parts, as seen at 2^a,—which is a duplex bayonet slot whose two projections the eyes, 8^b, of the stay loop, 8, snap into engagement, each arm of the loop having a shoulder, 8^c, which stops against the outer side of the ring at spout-supporting position.

The device is fitted with a flexible and detachable handle member, consisting of flexible cable or rope, 16, having at its opposite ends clips, 16^a, for disengageably attaching it to the upper ring, 2. For the purpose of such attachment, said ring has struck outwardly from it two staple-form loops, 2^b, 2^b, in diametrically opposite positions, and the clips, 16^a, are each formed from sheet metal blanks adapted to be folded to form an eye, 16^b, for gripping the cable, 16, and with a flat tongue, 16^c, adapted to be inserted under the staples, 2^b. For preventing accidental disengagement of the clip from the staple, there is secured upon the tongue, 16^c, a flat spring, 17, secured by a rivet, 17^a, and having the end beyond the rivet folded down at 17^c, past the end of the clip, so that it is stayed at two points with respect to the clip and cannot turn thereon, the opposite end having a flexure, 17^a, forming a nose up-holding the intermediate portion of the spring from the face of the lug, 16^c, for a space equal to the thickness and width of the staple, so that the lugs, 16^c, being entered into the staple spring, 17, will snap down over the staple and latch it against accidental disengagement.

10 is a case for the collapsible can adapt-

ed also to form a broadened bottom for the same when it is in service. This casing is of cup form,—that is, comprising bottom and encompassing side wall, 10^a. It is of

5 diameter enough greater than the cup-shaped bottom receptacle member, 1, to admit the latter into said casing with the means of engagement consisting of two or more spirally-inclined beads, 10^b, struck in-
10 wardly upon the wall, 10^a, of the casing, 10, and a corresponding number of outwardly-struck bosses, 1^c, upon the member, 1, the bosses being positioned with respect to the beads so that the member, 1, being insert-
15 ed into the casing, the bosses may enter past the higher end of the beads, and be engaged thereunder upon rotating the casing with respect to the member, 1; the lower ends of said spirally-inclined means being
20 at such distance from the bottom of the casing that rotation as described, clamps the bottom member, 1, tightly against the bottom of the casing. The height of the wall, 10^a, is adapted to permit the casing
25 to be used as a cover for the bottom receptacle member, 1, when the other parts of the can are collapsed thereinto, the casing being for that purpose inverted and its beads, 10^b, engaged with the bosses, 1^c, and
30 the parts screwed together in the same manner as above described, until the bottom (now top) of the casing clamps down upon the most upwardly-protruding portion or content of the base receptacle member, 1.
35 When the casing is thus applied as a cover to the collapsed can, the handle member, 16, which is disengaged from the ring, 2, preparatory to collapsing the can, is designed to be engaged with the casing, which for
40 that purpose is provided with exterior staples, 10^c, corresponding in form to the staples struck out from the ring, 2, for the engagement of the handle grip, and coöperating with said grips in the same manner.
45 It will be understood from the foregoing description that in collapsing the can structure, swinging the struts over into horizontal position, the ring, 2, is rotated and the ring, 3, is also rotated but substantially
50 only half as much, and that in this process the flexible fabric tube member, 4, will be twisted, and thereby contracted radially as it is collapsed. The contraction of the tube, 4, in this process affords room for ac-
55 commodating the flexible fabric spout member, 7, which may be tucked inside the struts, 5, and wrapped around the tube member, 4, as it is being twisted and collapsed.

There is preferably provided a tilting
60 handle, 20, adapted to be detachably attached to the casing, 10, which for that purpose has bayonet slot apertures, 10^x, into which the clips, 20^a, which terminates the flexible handle, 20, may be engaged, and
65 from which they may be readily disengaged

upon dropping the handles and spreading apart the ends.

For preventing overflow of the can in pouring from the spout, the fabric member, 4, has at the top extending above the 70 retaining key ring, 9, a half-circle flange or half-top 4^e, at the side toward the spout.

I claim:—

1. In a collapsible can and the like, in combination with a rigid bottom member 75 of cup form, a fabric member of tubular form having a hem at the bottom end and a rigid metal ring inclosed in the hem dimensioned to require diametric expansion of the bottom member in order to introduce 80 the hemmed-ring inclosing end of the fabric member thereinto; whereby the hemmed fabric member may be permanently secured to the bottom member by expanding the latter by heat and shrinking it out of the ring- 85 inclosing hem.

2. In the construction defined in claim 1, the rigid bottom member having a cup-like depression in its bottom web producing an annular platform or shoulder in said bottom 90 member around and outside of the tubular fabric member; for accommodating collapsible strut members in said rigid bottom member.

3. In a collapsible can and the like, a rigid 95 bottom member of cup form; a flexible fabric member of tube form having its lower end secured to the bottom web of said bottom member at a circle spaced concentrically inward from the outer wall of the cup- 100 form bottom member; a rigid ring secured to the upper end of the fabric tube; an intermediate ring encompassing the tube intermediate its ends, and two sets of struts each distributed circumferentially about the 105 tube, one set pivoted at the lower end to the wall of the cup-form bottom member, and at the upper end to the intermediate ring, and the other set pivoted at the lower ends to the intermediate ring and at the upper 110 ends to the top ring; the struts being longitudinally curved outward in approximate conformity to the circular form of the encompassing wall of the cup-formed bottom member; whereby said struts are adapted to 115 fold down into the annular space between said wall and the flexible fabric tube member.

4. In a collapsible can and the like, a rigid base member; a flexible fabric member se- 120 cured at the bottom to the base member; a ring secured to the upper end of the fabric member; an intermediate ring encompassing the fabric member intermediate the top and bottom; two sets of struts outside the 125 fabric member, one set pivoted at the lower end to the bottom member, and at the upper ends to the intermediate ring, and the other set pivoted at the lower ends to the intermediate ring and at the upper ends to the 100

top ring, the ends of the struts of both sets which are pivoted to the intermediate ring being formed with lateral notches rendering them hooked, and means on the intermediate ring for engaging the hooked ends of the studs as the latter turn on their pivots toward their erect position.

5. In the structure defined in claim 4, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the struts, the pivots of the two alined struts on the intermediate ring being spaced apart vertically, the hook-forming notches of the struts being at the ends of the struts beyond their said pivots respectively, said ends lapping by each other and being stopped against each other, at erect position.

6. In the structure defined in claim 4, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the struts, the pivots of the two alined struts of the intermediate rings being spaced apart vertically, the ends of the struts beyond their pivots to the intermediate ring lapping by each other at erect position, and the hook-forming notches being in said lapping end portions and facing each other at the erect and lapped position of the struts; whereby the hook engaging means is between said lapped ends and serves as a stop for stopping them at erect position.

7. In the structure defined in claim 4, foregoing, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the struts, the pivots of the two alined struts on the intermediate ring being spaced apart vertically, the ends of the struts beyond their pivots to the intermediate ring lapping by each other between their said respective pivots, and a stop mounted in said ring for encounter of the said lapping ends, said stop having shoulders which overhang the lapped and stopped ends of the struts for crowding them closely against the ring at their erect position.

8. In the structure defined in claim 4 foregoing, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the strut, the pivots of the two alined struts of the intermediate rings being spaced apart vertically, the ends of the struts beyond their pivots to the intermediate rings lapping by each other between their said respective pivots, and stops mounted in said ring for encounter of the lapped ends, said stops having shoulders which overhang the lapped and stopped ends of the struts for crowding them closely against the ring at their erect position, and

a spring acting on said stop to retract the said shoulder against said lapped ends.

9. In the structure defined in claim 4 foregoing, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the struts, the pivots of the two alined struts on the intermediate ring being spaced apart vertically, the ends of the struts beyond their pivots to the intermediate ring lapping by each other between their said respective pivots, and a stop mounted in said ring for encounter of said lapping ends, said stop having upwardly- and downwardly-projecting lugs behind which said ends enter in turning toward erect position.

10. In the structure defined in claim 4, foregoing, the two series of struts being positioned with a strut of one series substantially aligned with a strut of the other series at erected position of the struts, the pivots of the two alined struts on the intermediate ring being spaced apart vertically, the ends of the struts beyond their pivots to the intermediate ring lapping by each other between their said respective pivots; a stop mounted in said ring for encounter of said lapping ends, said stop having an upwardly and a downwardly projecting lug behind which said ends respectively enter in turning toward erect position, and a spring acting on said stop to retract said lugs against the lapped ends.

11. In a collapsible can, in combination with rigid top and bottom members, a flexible fabric member which connects said rigid members, and struts for holding the flexible members extended; a flexible handle and pivoting clips for engaging it with the top rigid member, said top member having exteriorly-projecting staple loops struck out from it for entrance circumferentially of the can, the clips having tongues extending for entrance circumferentially into said staple loops, and retaining springs secured to the clip tongues having reflexed ends for snapping over the staples to retain the clips against escape.

12. In combination with a collapsible can and the like, which comprises a rigid base member adapted to constitute a receptacle, a rigid top member, a flexible fabric member which connects said rigid top and bottom members, and strut structures connecting the two rigid members, dimensioned for holding the flexible member extended, said strut structure being adapted to collapse with the flexible member into the receptacle base member; a case for said collapsible can in the form of an open-topped vessel diametered for receiving the base receptacle and having interiorly-struck spirally-extending beads, the base receptacle having exteriorly-projecting bosses adapted to engage with

said spiral beads, said beads and bosses being relatively positioned for securing the case onto the bottom of the base receptacle for carrying the case with the collapsible can when the latter is extended, or on top of the base receptacle for covering the base and the parts collapsed therein.

13. In a collapsible can, in combination with rigid top and bottom members, a flexible fabric member which connects said rigid member, and struts for holding the flexible

members extended, said fabric member having a pouring spout leading from its lower part, and having at the top a partial closure flange or web extended from the side walls inward toward the middle at the side of the fabric member toward the spout.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 12th day of March, 1920.

AUGUST C. GUHL.