Nov. 12, 1935. R. H. BROWN 2,020,766

COLLAPSIBLE BASKET

Original Filed July 21, 1930 2 Sheets-Sheet 1

Fig. 1

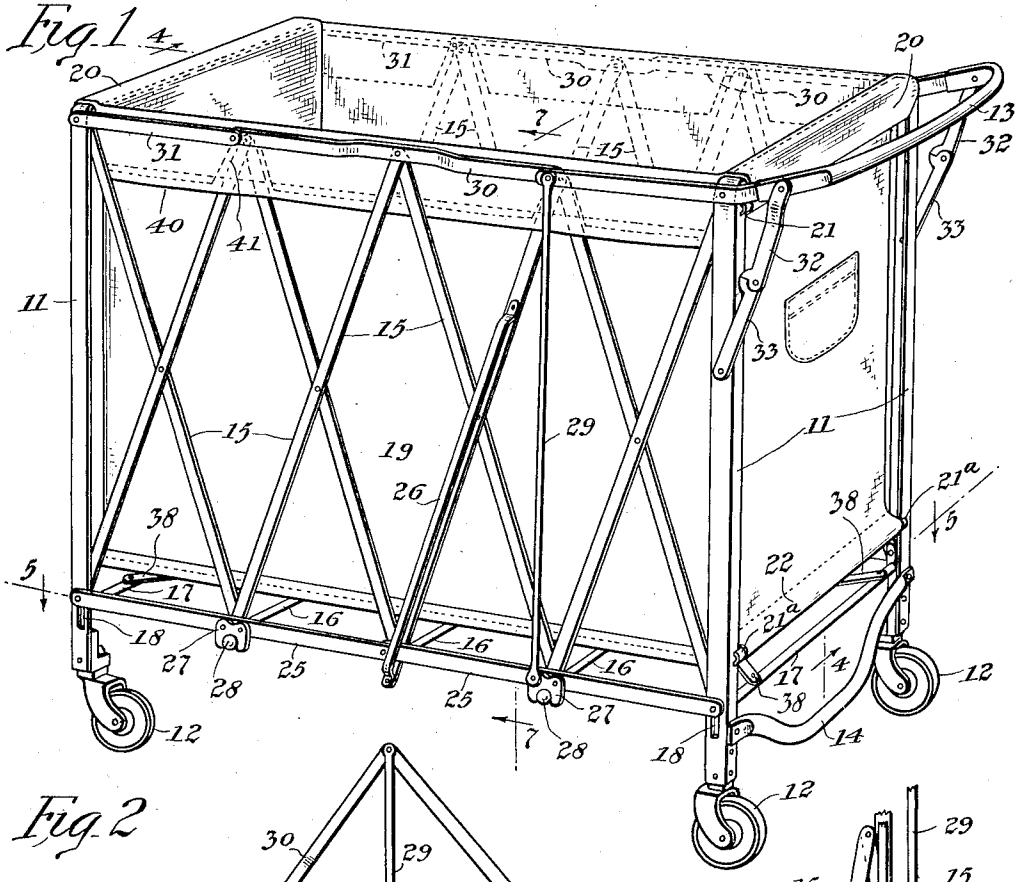


Fig. 2

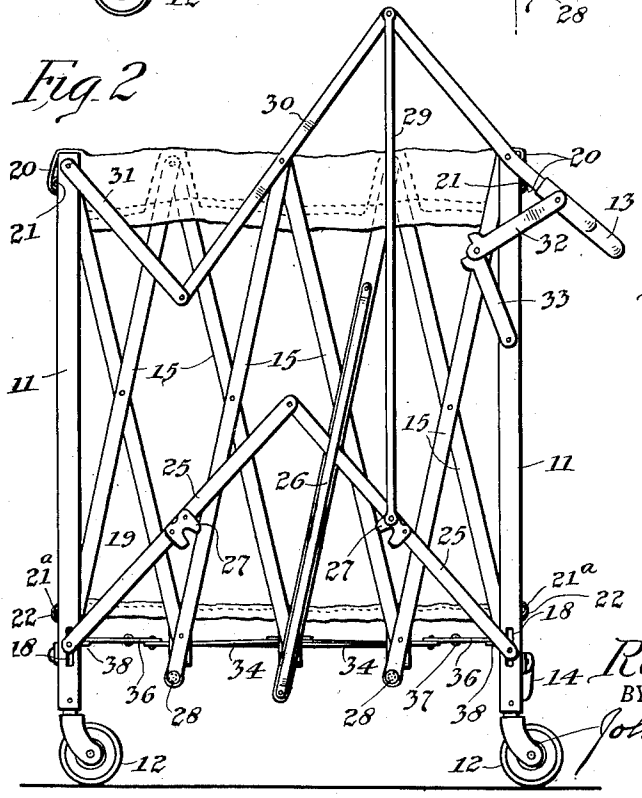
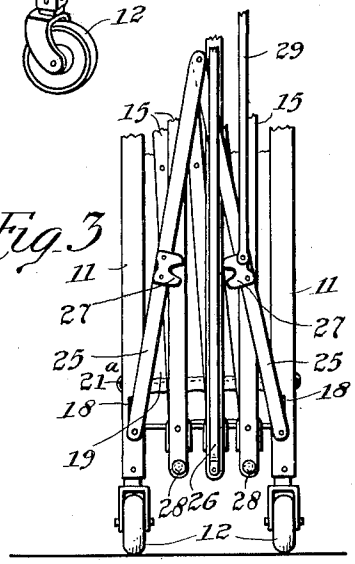


Fig. 3



INVENTOR.

Reinhardt H. Brown

BY

John Howard McElroy

his ATTORNEY.

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Fig. 4

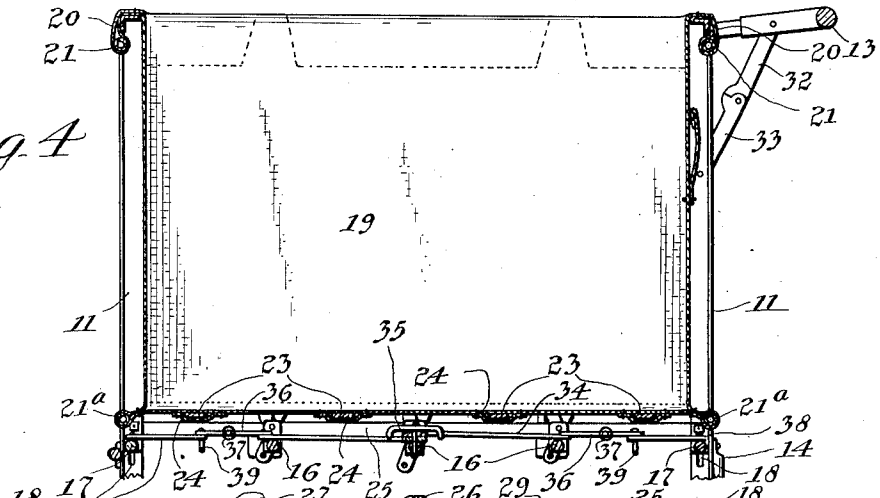


Fig. 5

Fig. 8

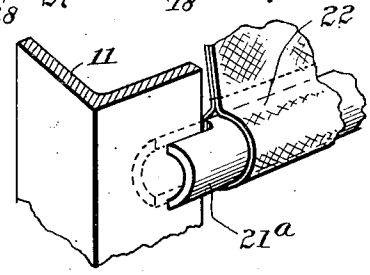


Fig. 6

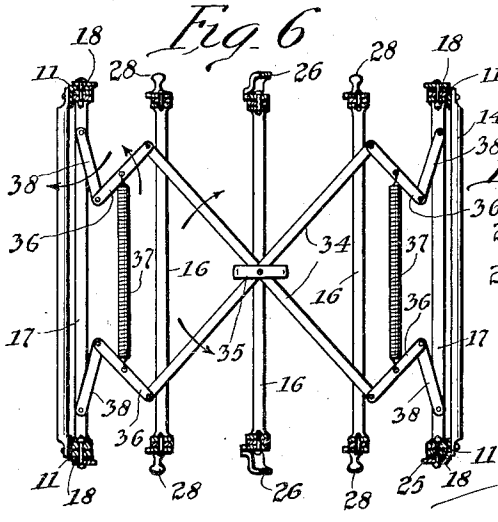
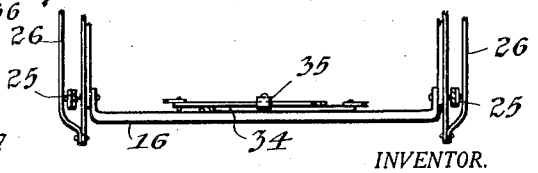


Fig. 7



INVENTOR.

Reinhardt H. Brown,

BY

John Howard McElroy,

his ATTORNEY.

Patented Nov. 12, 1935

2,020,766

UNITED STATES PATENT OFFICE

2,020,766

COLLAPSIBLE BASKET

Reinhardt H. Brown, Fremont, Ohio

Application July 21, 1930, Serial No. 469,308
Renewed March 13, 1934

25 Claims. (Cl. 150—49)

My invention is concerned with baskets for use in laundries, hospitals, etc., and is designed to produce a capacious, easily transported device, which, when not in use, can be easily collapsed and stored away in a very small space as compared with that which it would occupy if not collapsed. When large numbers of baskets are sometimes in use, and floor space is expensive, then this collapsibility is of great value.

To illustrate my invention, I annex hereto two sheets of drawings in which the same reference characters are used to designate identical parts in all the figures, of which,—

Fig. 1 is a perspective view of a basket embodying my invention in its extended condition;

Fig. 2 is a side elevation of the same partially collapsed;

Fig. 3 is a side elevation of the lower portion thereof completely collapsed;

Fig. 4 is a vertical section on the line 4—4 of Fig. 1;

Fig. 5 is a horizontal section on the line 5—5 of Fig. 1;

Fig. 6 is a view similar to Fig. 5, but showing the parts partially collapsed;

Fig. 7 is a vertical sectional view on the line 7—7 of Fig. 1; and

Fig. 8 is an enlarged detail in perspective.

In employing my invention in its preferred form, I use the two end frames, each of which consists of the inverted, U-shaped angle-iron 11, the angle irons having secured at their bottoms the casters 12, so that the basket, even if filled by heavy material, can be readily moved from place to place. On the upper corners of one end, I pivot the generally U-shaped handle frame 13, which is preferably made up of the transverse portion consisting of the tube with its ends flattened to embrace the metal strips constituting the sides of the frame. The operation of the handle will be described elsewhere, and on the bottom of the same end on which I pivot the handle frame, I rivet the foot piece 14, which preferably consists of a tube with the ends flattened and the central portion bowed down so that the foot can be placed on it when the handle is being manipulated. The extensible side frames are preferably formed of metal bars 15 arranged to form a lazy tongs, and the lower ends of the central bars, where they are pivotally connected, are by the same rivets connected to the transverse rods 16 extending across the bottom of the basket. The lower ends of the outermost bars are similarly connected to the transverse rods 17, the rivets of which extend outwardly through the vertical slots 18 formed in the webs of the angle iron for this purpose. The upper ends of the outermost bars 15 are pivotally connected to the tops of the vertical portions of the frames 11, and it will be obvious that, with the structure so far described, the basket may be extended into the position shown in Fig. 1, in which the rivets connecting the transverse rods 17 with the co-operating bars 15 will be lifted to their highest position in the slots 18, and that when the basket is in process of being collapsed, as indicated in Fig. 2, the rivets will occupy the central portion of the slots 18, and when completely collapsed they will be at the bottom of the slots.

For ordinary uses, a flexible body 19 will be employed, and it will preferably be constructed of canvas, or some similar fabric, and it will be secured to the end frames at the top by the loops 20 formed in the fabric, which loops have passed therethrough the tubes 21, similar to the tubes 21^a, the end of one of which is shown on an enlarged scale in Fig. 8, with the recess therein, which recesses permit the ends of the tubes 21 to embrace the adjacent web of the frame 11 so as to be free to move up and down thereon, the movement at the top, however, being negligible. The bottom ends of the flexible body are movably secured to the end frames by the similar tubes 21^a extending through the loops 22 formed in the fabric to receive them. The bottom of the body is reinforced by the wooden slats 23, seen in Fig. 4, which extend transversely across the under side and are held in place by the cloth strips 24 sewed or otherwise secured to the bottom.

With the mechanism thus far described, it will be seen that I have produced a collapsible basket that could be collapsed by seizing both ends, or similarly extended, but I preferably employ the handle frame 13 previously described, and employ connections by which the basket can be extended or collapsed by the movement of the handle.

To this end, I pivot on the ends of the rods 17, by the same bolts or rivets as connect it with the bars 15, the bars 25, which are pivoted together at their adjacent ends, and thus form a toggle joint, which, when straightened out, serves to lock the lower part of the sides in their extended position, as well as acting as an effective brace. To form limit stops for the movement of the toggle joint and to guide it during its movement, I preferably secure on the outer face of one of the central bars 15 a bar 26, which, co-operating with the bar to which it is secured, forms the loop in which one of the toggle bars 25 moves. I also

preferably form a further locking mechanism by having the U-shaped catch plates 27 riveted on the central portions of the toggle bars 25 and adapted to co-operate in the extended position with the lugs 28 extending outwardly from the lower ends of two of the bars 15 and having the reduced neck portion with which the recess in the catch plates 27 co-operates. When the handle 13 is employed to operate these toggle bars 25 in extending or collapsing the basket, I pivot to the ends of the handle the vertical rods or links 29, which have their lower ends pivoted to the adjacent toggle bars 25, preferably in connection with one of the catch plates 27. To extend or retract the upper ends by the same movement of the handle, I employ the bars 30, which might be called double toggle bars, which are pivoted at their center to the tops of the middle pair of the bars 15, where they are pivotally connected by the same rivet. The other ends of these double toggle bars 30 are pivotally connected to the single toggle bars 31, which have their other ends pivotally connected to the top of the end frame, as will be clearly seen from Figs. 1 and 2. To lock the handle frame 13 with the parts in the extended position, I pivot thereon the upper ends of the toggle lock bars 32 and 33, the adjacent ends of the bars being pivotally connected and provided with lugs which prevent the bar being moved substantially beyond its extended position, and the lower ends of the bars 33 are pivoted to the adjacent end frame, as clearly shown.

When the parts are in the position shown in Fig. 1, and it is desired to collapse the basket, all that is necessary is to break the toggle joints 32, 33, and then swing the handle frame 13 downward, if it is employed, and this action is facilitated by putting the foot on the cross piece 14. This movement of the handle will, as seen in Fig. 2, collapse the parts ultimately to the position shown in Fig. 3.

With only the skeleton construction thus far described, the basket in use might be more or less racked, i. e., forced into the shape of a rhomboid in horizontal cross section, if a strain were applied to one or to two diagonally opposite corners. To avoid this, I employ braces to prevent such a deformation from its natural, rectangular cross-section, and while these braces might consist of a pair of crossed, diagonally-arranged cables, I preferably employ the mechanism illustrated in Figs. 5, 6 and 7, as cables would sag and possibly become tangled, when the basket was collapsed. To this end, I pivot on the center of the middle bar 16 a pair of cross bars 34, and, by the same rivet, I secure above them an inverted, shallow, U-shaped stop-piece 35, whose downwardly projecting ends extend between the cross bars 34 at all times, and when in the extended position, shown in Fig. 5, compel the cross bars 34 to swing away from each other (as seen in Fig. 6), instead of permitting them to swing toward each other, which would interfere with their collapsing properly. The four links 36 are pivoted at one end to the ends of the cross bars 34, and at their other ends to the adjacent ends of the four links 38, which have their other ends pivoted to the transverse bars 17. The adjacent pairs of links 36 are connected by the helically-coiled contractile springs 37, which act to draw the links 36 and 38 to the position shown in Fig. 6 when the basket is collapsed, while the cross bars 34 move in the direction shown. The movement of these cross bars 34 and links 36 and 38 continues in the direction indicated by the arrows until the framework is completely collapsed.

In forming the flexible body portion, I preferably reinforce the upper portion of the sides by turning over the portion 40 and sewing it down, except for the two triangular portions 41 on each side, which are not sewed down, and which form a pocket into which project the upper ends of the adjacent bars 15, thus securing the top of the body to the extensible side frames.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of modifications, and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a handle frame pivoted on one of the end frames, and connections between the handle frame and the side frames to collapse or extend said side frames as the handle frame is swung on its pivots.

2. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames and having transverse reinforcing slats in its bottom, a handle frame pivoted on one of the end frames, and connections between the handle frame and the side frames to collapse or extend said side frames as the handle frame is swung on its pivots with the flexible body collapsing into bellows folds as the side frames are collapsed.

3. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames, a handle frame pivoted on one of the end frames, connections between the handle frame and the side frames to collapse or extend said side frames as the handle frame is swung on its pivots, and rollers on the bottoms of the end frames.

4. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, transverse rods connecting the bottoms of said side frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames and having its bottom just above said transverse rods, a handle frame pivoted to one of the end frames, and connections between the handle frame and the side frames to collapse or extend said side frames as the handle frame is swung on its pivots with the flexible body collapsing into bellows folds as the side frames collapse.

5. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames, a handle frame pivoted on one of the end frames, connections between the handle frame and the side frames so that they can be extended or collapsed by swinging the handle frame, and means for locking said side frames in their extended position.

6. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames and consisting of a pair

of lazy tongs connecting the end frames, a pair of toggle bars pivoted at their ends in the bottoms of the end frames and having catches carried thereby adapted to engage lugs on the bottoms of the lazy tongs when they are extended, a handle frame pivoted on one of the end frames, and connections from the handle frame to the toggle bars, said connections consisting of vertical links pivoted to the ends of the handle frame and connected to the toggle bars.

7. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames, and means for extending or collapsing said side frames, said means comprising double toggle members pivoted at one end to single toggle members pivoted at their other ends to one end frame and at their other end to single toggle members pivoted at their other ends to the other end frame.

8. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames, and means for extending or collapsing said side frames comprising double toggle members pivoted at their ends to the ends of single toggle members pivoted at their other ends to the end frames, together with a pair of toggles pivoted at their ends to the end frames and connected by vertical links to the double toggle members.

9. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames, and means for extending or collapsing said side frames comprising double toggle members pivoted at their ends to the ends of single toggle members pivoted at their other ends to the end frames, together with a pair of toggles pivoted at their ends to the end frames and connected by vertical links to the double toggle members, said last-mentioned toggles having catches adapted to engage lugs on the side frames when they are extended.

10. In a collapsible basket the combination with a pair of end frames, of extensible side frames connecting said end frames, a handle frame pivoted on one of the end frames, connections between the handle frame and the side frames to collapse or extend said side frames as the handle frame is swung on its pivots, and a foot piece at the bottom of the end frame on which the handle frame is pivoted, for the purpose described.

11. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended, and means for securing the ends of said body to the end frames, consisting of tubes slotted at their ends to slide on the end frames and passed through loops formed on the flexible body.

12. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, transverse rods connecting the bottoms of said side frames, and collapsible means for preventing racking of the basket, consisting of a pair of cross bars pivoted on the central transverse rods, four links pivoted on the end frames, four intermediate links connecting the adjacent ends of the four links and of the cross bars, and contractile springs connecting the pairs of intermediate links.

13. In a collapsible basket, the combination with a pair of end frames and antifriction supports therefor, of a pair of extensible side frames connecting said end frames, a handle frame pivoted on one of the end frames, connections, between the handle frame and the side frames whereby they can be extended or collapsed by swinging the handle frame, and means for locking said handle frame in the extended frame position.

14. In a collapsible basket, the combination with a pair of non-collapsible end frames, of extensible and collapsible side frames connecting said end frames, transverse members connecting the bottoms of the side frames, and means supported on the transverse members and collapsible in a horizontal plane for preventing racking of the basket when extended.

15. In a collapsible basket, the combination with a pair of non-collapsible end frames, of extensible and collapsible side frames connecting said end frames, transverse members connecting the bottoms of the side frames, and means for preventing racking of the basket when extended consisting of cross members extending diagonally toward opposite corners to which they are pivotally connected and collapsible in a horizontal plane only.

16. In a collapsible basket, the combination with a pair of end frames and anti-friction supports therefor, of a pair of extensible side frames connecting said end frames and consisting of lazy tongs, a pair of upwardly-breaking toggle bars pivoted at their ends in the end frames and having catches carried thereby, lugs on the side frames engaged by the catches when the toggle bars are extended, and loop bars connected to one of the lazy-tong bars on each side and embracing one of the toggle bars.

17. In a collapsible basket, the combination with a pair of end frames and anti-friction supports therefor, of a pair of extensible side frames connecting said end frames and consisting of lazy tongs, a pair of upwardly-breaking toggle bars pivoted at their ends in the lower portions of the end frames and resting when extended on rivet lugs connecting the bars of the lazy tongs at the bottom, and loop bars connected to one of the lazy-tong bars on each side and embracing one of the toggle bars.

18. In a collapsible basket, the combination with a pair of non-collapsible end frames, of extensible and collapsible side frames connecting said end frames, transverse bars connecting the bottoms of the side frames, and means collapsible in a horizontal plane only for preventing racking of the extended basket supported on the transverse bars and pivotally connected to the bottoms of the end frames.

19. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames, and a handle frame pivoted on one of the end frames and so connected to the side frames that it can be swung to collapse or extend said side frames.

20. In a collapsible basket, the combination with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames, a pivoted handle connected to the side frames which can be swung to collapse or extend said side frames, and means for locking said side frames in their extended position.

21. In a collapsible basket, the combination

with a pair of end frames, of extensible side frames connecting said end frames, a flexible body fitting in between said frames when extended and secured at its ends to the end frames, a handle frame mounted to move on one of the end frames, and connections between the handle frames and the side frames whereby by moving the handle the side frames may be extended or collapsed.

22. In a collapsible receptacle, the combination of a pair of end frames, of extensible and collapsible side frames connecting said end frames, said side frames being inclusive of a plurality of pivotally connected bars; supporting means connecting the lower portions of said side frames, said supporting means being collapsible upon relative movement of said end frames, and spring means urging said side frames toward collapsed position.

23. In a collapsible receptacle, the combination with a pair of non-collapsible end frames; of extensible side and bottom frames connecting said end frames; a plurality of toggle bars pivotally connecting said end frames; said side and bottom frames being so connected that breaking movement of said toggle bars collapses said side and bottom frames, and spring means urging said frames toward collapsed position.

24. In a collapsible receptacle, the combination of a pair of end frames; a plurality of sets of toggle bars connecting said end frames; a connection between said sets of toggle bars whereby movement of one of said sets of toggle bars causes movement of another set; said toggle bars being arranged whereby during relative movement of said end frames the latter remain in substantial parallel relationship.

25. In a collapsible basket, the combination with a pair of non-collapsible end frames; of extensible side frames connecting said end frames; a flexible body fittting in between said frames when extended and secured at its ends to the end frames; a plurality of sets of upwardly-breaking toggle bars pivotally connecting said end frames; an operating handle connected to one set of said toggle bars; said side frames and toggle bars being so connected that movement of said handle causes upward movement of said toggle bars to collapse said side frames, said flexible body collapsing into bellows folds as said side frames are collapsed.

REINHARDT H. BROWN