Oct. 7, 1952 V. DI MAURO ET AL 2,612,926

COLLAPSIBLE CONTAINER

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Fig. 1.

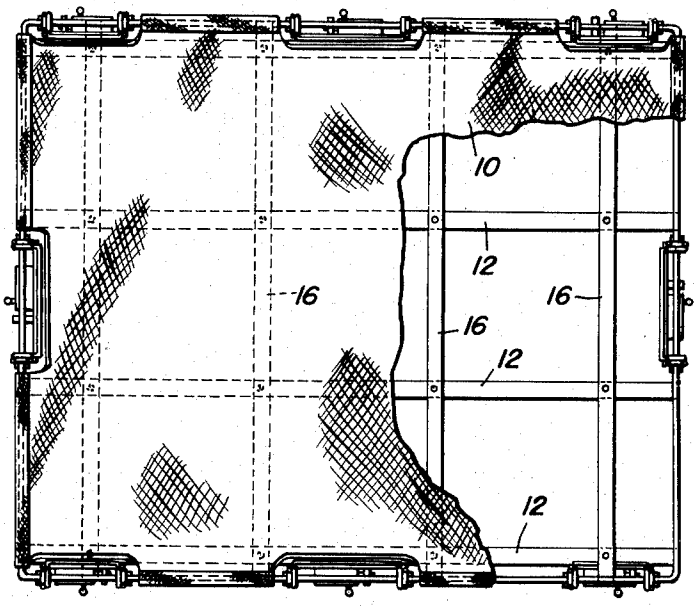
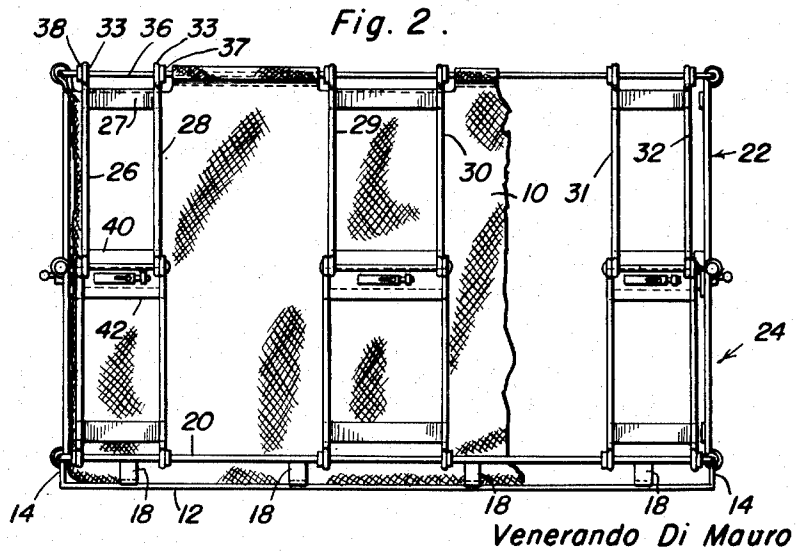


Fig. 2.



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Fig. 3.

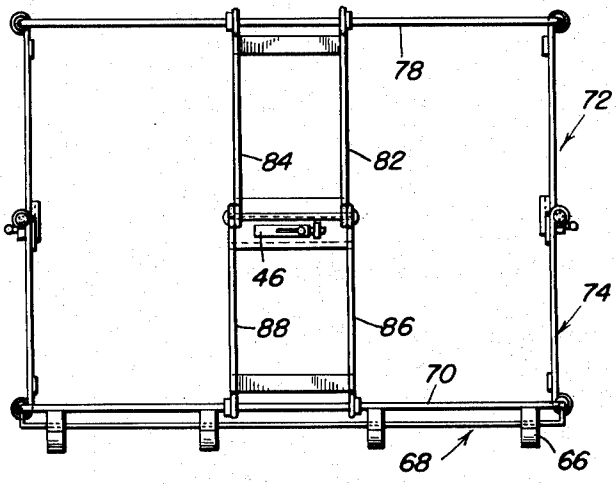


Fig. 8.

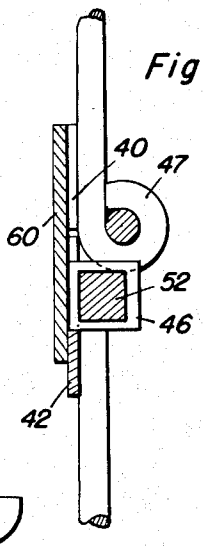


Fig. 13.

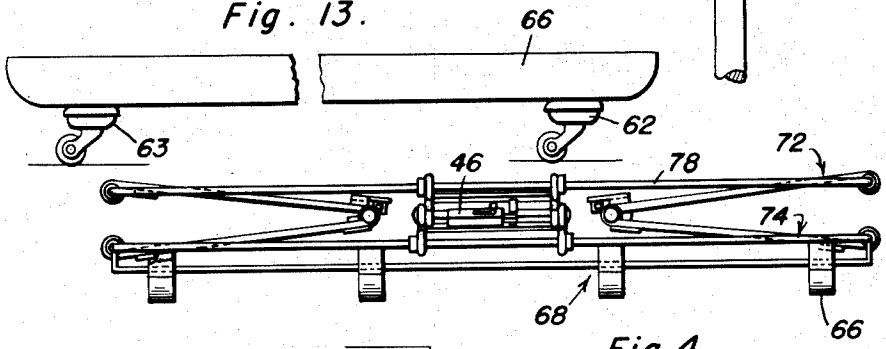


Fig. 4.

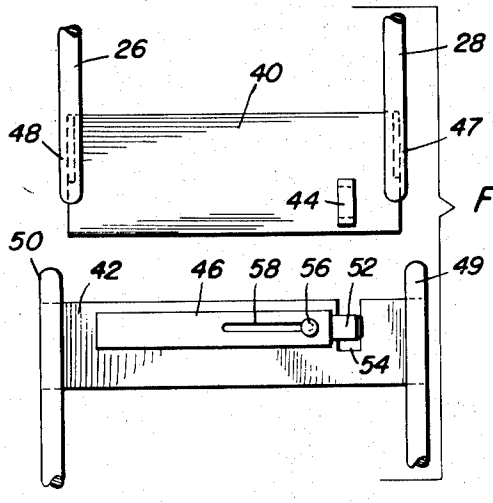


Fig. 9.

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Fig. 5.

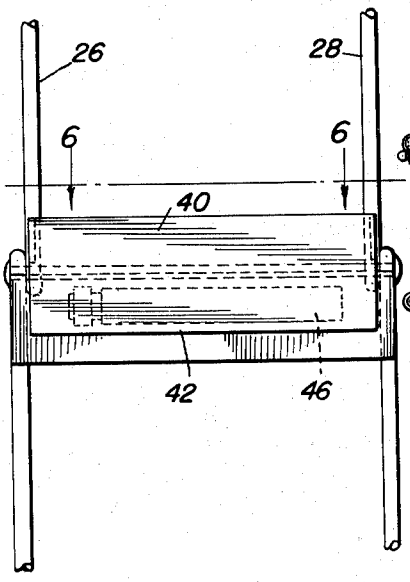


Fig. 10.

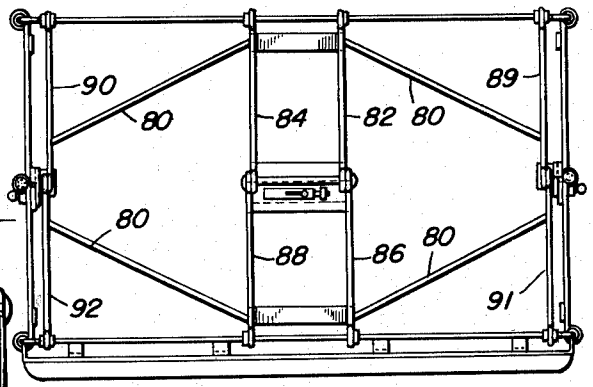


Fig. 11.

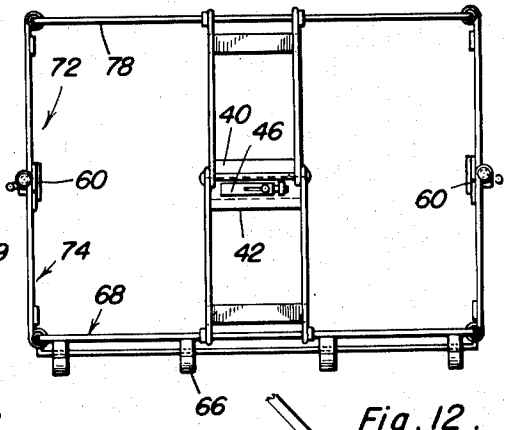


Fig. 6.

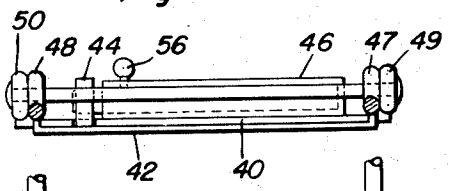


Fig. 7.

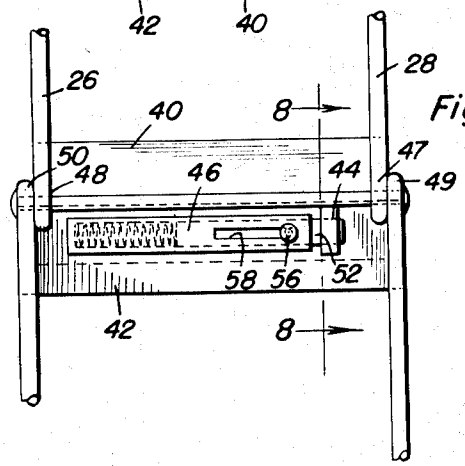
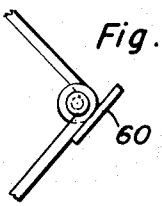


Fig. 12.



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UNITED STATES PATENT OFFICE

2,612,926

COLLAPSIBLE CONTAINER

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Application April 1, 1949, Serial No. 84,966

2 Claims. (Cl. 150—49)

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This invention relates to novel and useful improvements in containers of the collapsible type.

An object of this invention is to support various and sundry articles in a container which has improved characteristics in collapsing or folding whereby it may be easily moved from one position to the other, stored, and transported, the improvement residing in the actual structure of the various structural elements and the combination thereof, the bottom of the container being made of various cross members fixed together, and having upturned end portions whereby sides which are composed of pivoted sections may be pivotally carried by the upturned end portion so that the entire device may collapse into a neat and orderly arrangement.

A meritorious feature of the invention is the use of a latch in connection with the sides to maintain them in the extended position and the use of a stop in connection with the latch to limit the pivotal movement of the sections so that they are maintained in the full open position and cannot override this position.

Ancillary objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the invention, illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view of one form of the invention;

Figure 2 is an elevational view taken from the side and showing the device as illustrated in Figure 1, portions of the liner being broken away to illustrate details of construction;

Figure 3 is an elevational side view of a slightly modified form of the invention;

Figure 4 is a view showing the embodiment of the device of Figure 3 in the partially collapsed position;

Figure 5 is an enlarged elevational detail construction showing the connection between the sections;

Figure 6 is a sectional view taken on the line 6—6 of Figure 5 and in the direction of the arrows and illustrative further of the type of connection between the two sections;

Figure 7 is a back view of the detail of construction shown in Figure 5;

Figure 8 is a sectional view taken substantially on the line 8—8 of Figure 7 and in the direction of the arrows;

Figure 9 is an exploded elevational view showing the locking construction and how it is assembled for the sections;

Figure 10 is an elevational side view of another slightly modified form of the invention,

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this form differing from that of Figure 3 in that there are additional strengthening members supplied;

Figure 11 is an elevational view showing a modification in the pivotal connection between the sides and the bottom;

Figure 12 is an enlarged elevational detail of construction showing the stop which limits the relative movement of the sections with respect to each other; and

Figure 13 is an elevational fragmentary part of any of the embodiments teaching the utility of casters on the skids beneath the basket or collapsible container.

The present invention involves the concept of a new article of manufacture having utility in many fields. The actual use to which the invention is placed ultimately is not limited in any manner, as the device is adaptable particularly for use in connection with laundries, bakeries, hotel services, gymnasiums, and in many other environments.

The basic structure for the various modifications is simplified. Viewing Figures 1 and 2, it will be seen that a liner 10 is provided within the confines of the walls and the bottom of the container. This container is one of the articles of manufacture. It is noted at the outset that the size of the container is immaterial, that is, it may be made very small or very large. Also, the sides may be tapering whereby there is a small top and a large bottom or, vice versa, a large top and small bottom. A closure of any type may be used in connection with the container and releasably fastened in place by means of a padlock, latch or the like.

The framing of the container shown in Figures 1 and 2 is as follows: A plurality of substantially parallel cross members 12 are supplied with upturned ends 14 (Figure 2). Another set of a plurality of cross members 16 are provided, forming another part of the bottom and are connected with the first set of cross members 12 at their intersection by means of rivets, pins, screws or the like. The last-named set of cross members 16 have upturned end portions 18 as disclosed in Figure 2. A substantially rectangular (and square when a square construction is used) pivot bar 20 is fixed to the said upturned end portions 14 and 18 respectively in order to accommodate for pivotal movement the sides of the container.

Each side consists of an upper section, generally indicated at 22, and a lower section generally indicated at 24. The said upper and lower

sections are pivoted together by means of an eye and pin connection (Figure 12).

Viewing first the upper section 22, it will be seen that in this particular embodiment there are three pairs of rods 26, 28 and 29, 30 and 31, 32. The upper ends of all of these rods have eyes 33 formed thereon which are disposed on an upper pivot bar 36. This upper pivot bar extends around the total number of upper sections 22. Flanking the eyes 33 is a pair of stops 37 and 38, respectively, which prohibit lateral movement of the rods of the bars on the upper pivot bar 36. The rods 26, 28 being maintained in spaced relation by a brace plate 27. Each pair of rods is made in this manner.

The lower rods are made in an identical manner and have stops and brace plates connected therewith on the lower pivot bar 20. The inner ends of the pairs of rods are connected by means of an eye and pin combination. In Figure 9 this structure is shown clearly. Strengthening plates 40 and 42, respectively, are attached to the upper pairs of bars and the lower pairs of bars. Either the upper or the lower plates 40 or 42 may be provided with a latch and latch keeper respectively. For illustrative purposes, the keeper 44 is disposed on the plate 40, while the latch 46 is disposed on the lower plate 42 for engagement therewith. These plates are fitted one behind the other so that the eyes 47 and 48 at the lower parts of the rods 26 and 28 may fit within the eyes 49 and 50 which are on the upper ends of the rods of the lower section 24. Then, pins are simply passed through the appropriate eyes and these pins are conventional in nature and may assume the form of rivets or the like.

The latch 46 has a bolt 52 therein which passes over an opening or cut-out 54 in the lower plate 42 whereby free passage of the keeper 44 may obtain. The bolt operator or handle 56 passes through a suitable slot 58 in the housing of the latch 46 to serve its usual purpose.

In operation of this form of the invention, it is only necessary to release the latches and push downwardly on the upper pivot bar 36, thereby collapsing the framing so that it fits snugly within the base or bottom of the container.

In opening the device, it is only necessary to pick up the upper pivot bar 36, thereby pivotally operating the upper section with respect to the lower section 24 and automatically latching the same in the open position. In order that the device may be maintained in the proper extended position, means for limiting the travel of the section 22 with respect to the section 24, and accordingly all of the sections with respect to each other, is provided. This means consists of a simple plate 60, Figure 12, which is fixed to one of the bars of each pair for cooperation with the next adjacent bar in the other section. More specifically, the plate 60 is carried by one of the eyes and cooperates with not only the next adjacent eye but also a part of the material of the rod whereon the eye is located.

In this form of the invention, if it is found desirable, skids may be provided. The skids would be simple wood pieces as disclosed in Figure 13. Also this form of the invention may include skids in combination with casters 62 and 63, respectively, which are affixed to the said skids. This is but a matter of choice.

Referring to Figure 3, another structure is shown. Here the skids 66 are illustrated as being attached in the appropriate place, that is, to the bottom, generally indicated at 68. This bottom

is constructed identical to the bottom of the embodiment of the invention shown in Figure 1 and has sides connected on the pivot bar 70 also in an identical manner as described in connection with the first form of the invention. The sides are composed of upper sections 72 and lower sections 74 which are fixed in the extended position by means of the latches 46 cooperating in the same manner as discussed above. The only difference between this form of the invention and the initial form described in Figures 1 and 2 is in the reduction of a number of side rod sets and in the simplification of the combination. The embodiment of Figure 2 is a more comprehensive combination in that it includes three sets of rods extending from the upper pivot bar 36 and a similar number extending from the lower pivot bar 20. The upper pivot bar 78 of Figure 3 has only one set of bars extending therefrom and there is a similar number extending from the lower pivot bar 70.

Figure 10 shows a still further modification of the invention. In this connection, this modification is substantially the same as that of Figure 3. The differentiating feature is the use of structural supporting members 80 extending from the pairs of bars 82, 84, and 86, 88 which form a part of the upper section 72 and the lower section 74.

The strengthening members may be used or may be obviated, as desired. Further, other shapes of strengthening members may be used. Various combinations of strengthening members may be used. It is contemplated that the ends which are narrower than the sides of the container be made without any strengthening members 80 but the sides be made with them therein due to the longer span. When the strengthening members are used, they extend from the rods as discussed and terminate at a single pair of rods 89 and 90 respectively which depend from its upper pivot bar and a similar number 91 and 92 respectively which extend upwardly from the lower pivot bar.

The eyes used in connection with the invention may be turned inwardly or outwardly as desired. Reference to Figure 11 shows the eyes turned inwardly at the lower and upper ends of the bars while reference to the other figures in the drawings shows the eyes reversed or turned in the opposite direction.

It is apparent that other variations may be made without departing from the spirit of the invention.

Having described the invention, what is claimed as new is:

1. A collapsible container comprising sides and a bottom, said bottom being composed of one set of a plurality of substantially parallel cross members having vertical upwardly extending ends, a second set of substantially parallel cross members being arranged transverse to the other set, means connecting at least some of the members of the first set with members of the second set, the cross members in the second set having vertical upwardly extending ends, horizontal pivot bars secured to said ends and vertically spaced from said cross members, means pivotally connecting said sides with said bars, each of said sides including sections pivoted together, each of said sections including spaced apart rod members, the confronting ends of said sections having reinforcing plates secured thereto, latches carried by said plates to retain said sections releasably in a single plane, said sections being pivoted together by means of an eye and pin connection,

and a stop carried by one of the eyes limiting the relative movement of the sections.

2. A collapsible container having a substantially rigid bottom and foldable side walls, said bottom comprising two sets of parallel cross members, one set of cross members being arranged transverse to the other set, said sets of cross members being joined together, upturned ends of said cross members, eyes formed on said upturned ends, a pivot bar extending around said bottom and being secured in said eyes, a top pivot bar extending around and outlining the top of the container, collapsible side members extending between and pivoted on said top and bottom pivot bars, each collapsible side member including a pair of spaced apart rod members, each rod member having an upper and lower section, top and bottom brace plates maintaining said rod members in fixed spaced relation, stop members on said pivot bars, reinforcing plates attached to the upper and lower sections of the pairs of rods, eyes in said rods, a pin passing through said eyes to join said upper and lower rod sections, said

reinforcing plates fitting one behind the other, a latch bar slidably secured on the front plate, said plate having an aperture positioned to be intersected by said latch bar, a keeper on the rear plate positioned to extend through said aperture and slidably receive said latch bar.

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