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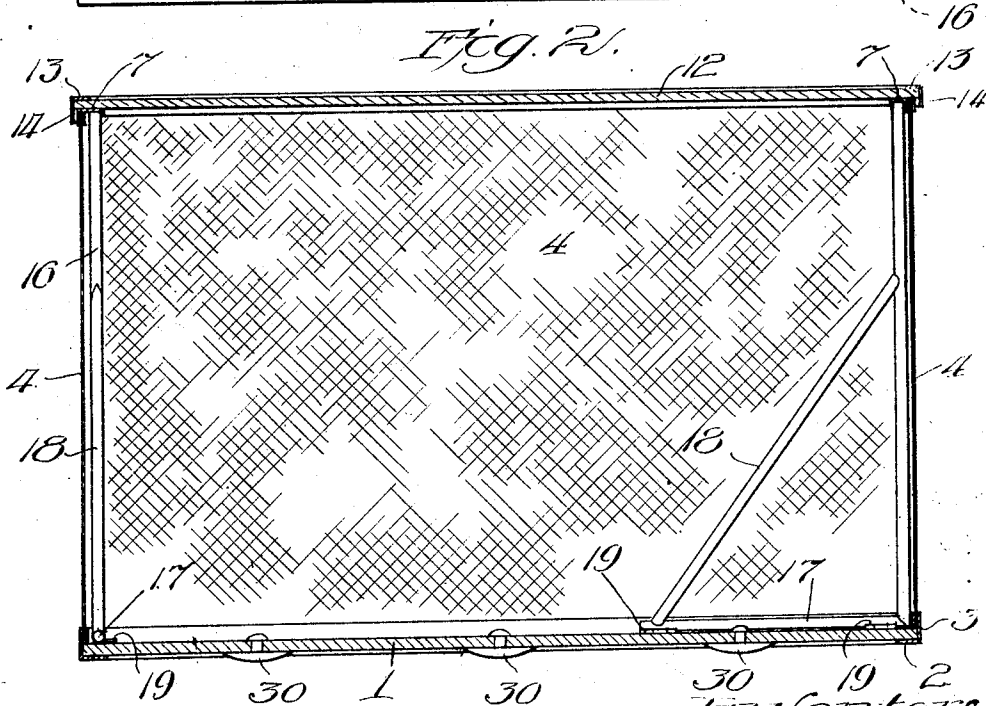
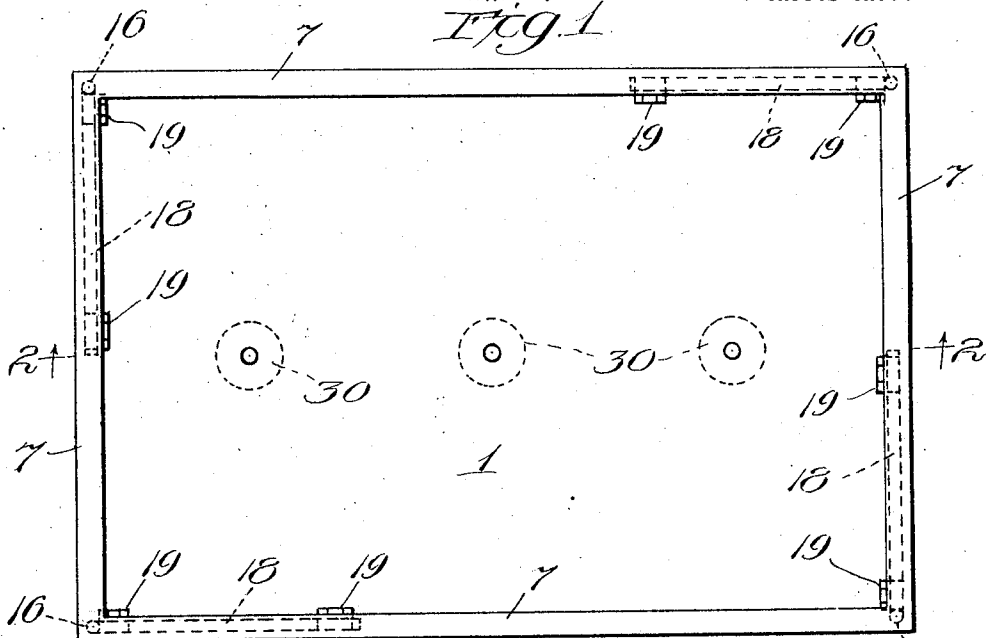
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G. R. MEYERCORD ET AL

COLLAPSIBLE SHIPPING CONTAINER FOR PARCEL POST PACKAGES

Filed Aug. 29, 1923

3 Sheets-Sheet 1



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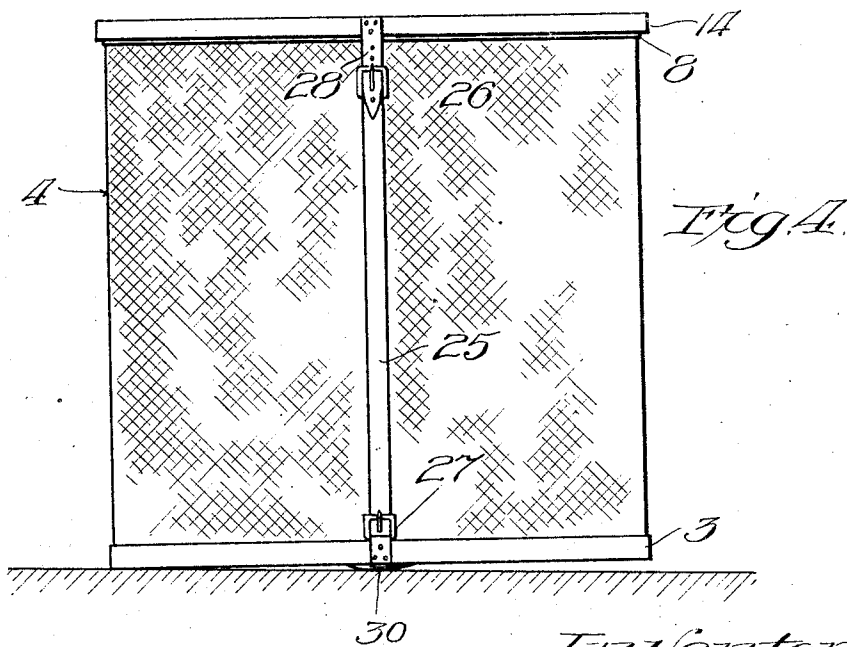
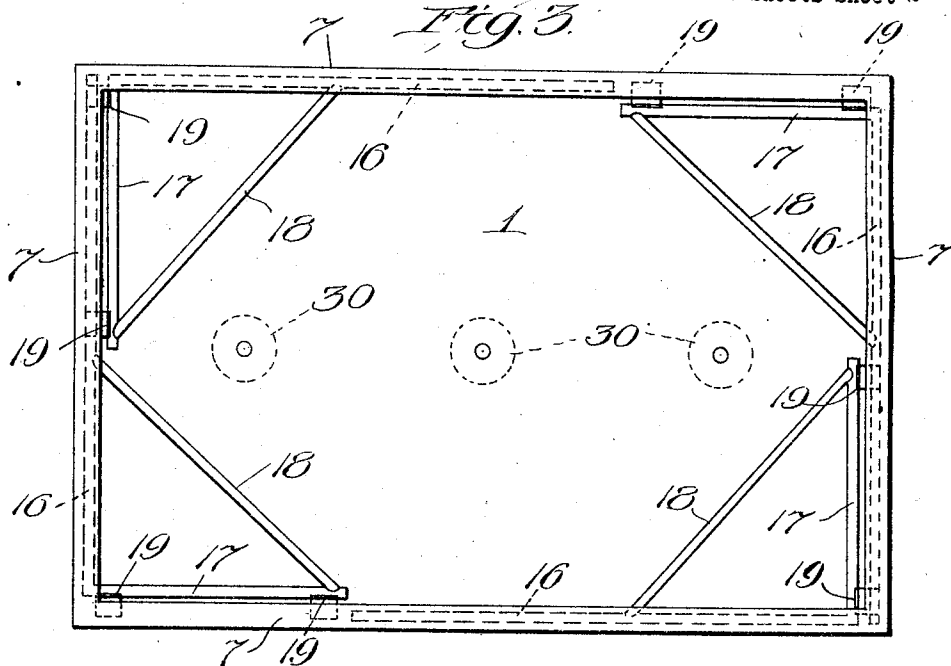
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3 Sheets-Sheet 2



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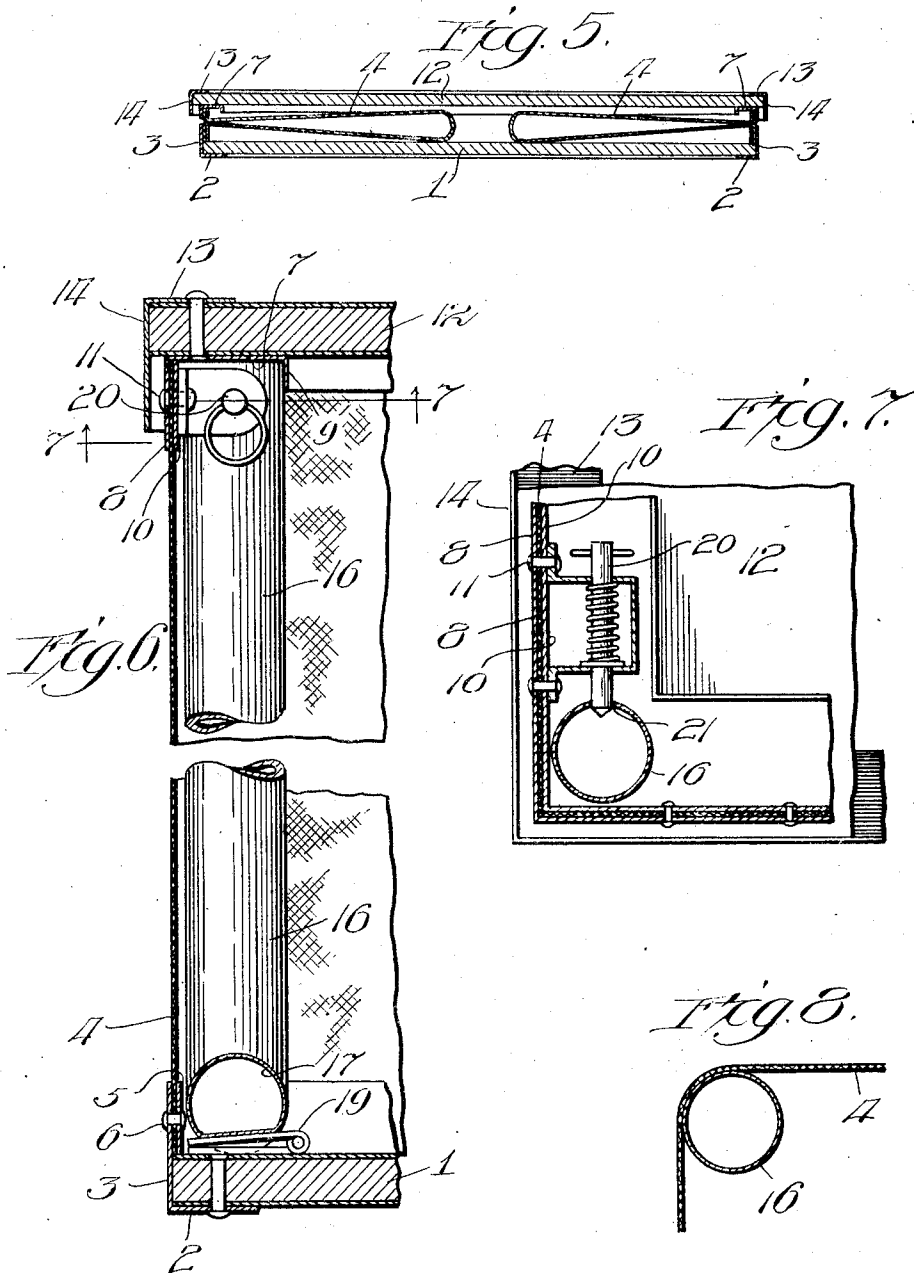
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COLLAPSIBLE SHIPPING CONTAINER FOR PARCEL POST PACKAGES

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE SHIPPING CONTAINER FOR PARCEL-POST PACKAGES.

Application filed August 29, 1923. Serial No. 659,883.

The present invention has for its principal object to produce a strong, light collapsible box or container in which parcel post packages, for example, may be packed and safely shipped and which will occupy but little space when collapsed for storage or shipment in an empty condition.

A further object of the present invention is to produce simple and novel antifriction supporting elements on a box or receptacle that must be moved about from place to place over a floor or platform, whereby the same may be moved more easily and with less strain on the same than is the case with similar devices that have antifriction elements at the four corners.

In attaining this latter object of our invention we place a plurality of separated antifriction devices on one of the center lines of the bottom of the container so that, when at rest, the container tips toward one side or the other. Consequently, when a number of such containers are piled upon each other on one side of a railway car, with the center line on which the antifriction devices are located extending parallel to the adjacent wall of the car, they will naturally tilt toward such wall and will therefore lie against or hug the latter. Therefore, viewed in one of its aspects, our invention may be said to have for its object to produce novel containers which, when stacked beside a wall, will bear against the same and will not tend to sway outwardly and fall.

The various features of novelty whereby our invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of our invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a top plan view of a container made in accordance with the present invention, the lid or cover being removed; Fig. 2 is a section taken approximately on line 2—2 of Fig. 1, showing the cover in place; Fig. 3 is a view similar to Fig. 1, showing the corner posts folded flat on the bottom of the container, preparatory to collapsing the container; Fig. 4 is an end view of a container, at rest; Fig. 5 is a vertical sec-

tion through the container in a collapsed condition; Fig. 6 is a vertical section, on a much larger scale than the preceding figures, through one end of the container, showing fragments of the bottom and of the top or cover; Fig. 7 is a section taken approximately on line 7—7 of Fig. 6, illustrating one corner of a container; and Fig. 8 is a transverse section through one of the corner posts and portions of two adjacent fabric walls.

Referring to the drawings, 1 represents a panel of plymetal consisting of a wooden core faced on both sides with sheet metal glued or cemented thereto; this panel having the proper size and contour of the bottom of the container to be formed. Around the edge of the bottom panel is placed a light angle iron one of the flanges 2 of which extends underneath the panel, while the other flange 3 extends upwardly in contact with the edge of the panel and for some distance beyond the upper surface of the panel. The side and end walls of the container are made of strong flexible material 4, preferably of a strong fabric such as canvas; the lower marginal portions of the side and end walls lying against the inner side of the upwardly-projecting portion of the flange 3 and being clamped between the same and an inner strip or band 5 which is fastened to the flange of the angle iron by means of rivets or other suitable fastening means 6. Extending along the upper edge of the fabric is a strong light metal frame 7 preferably in the form of an inverted channel having an outer deep flange 8 and an inner narrow flange 9; the fabric lying against the inner face of the long flange and being clamped thereto by means of a metal strip or band 10 engaging the inner side thereof and secured to the flange 7 by means of rivets 11 or otherwise.

The lid or cover is made of a panel 12 of plymetal, similar to that of which the bottom of the container is formed; there being placed around the edge of the top panel a light angle iron having one flange 13 overlying the top face of the panel and the other flange 14 engaged with the edge of the panel and extending downwardly for some distance below the bottom face of the panel.

The top panel is made slightly larger than the frame 7 so that the downwardly-projecting flange of the lid or cover can readily slip down around the frame.

When no means are present to hold up the frame around the mouth of the container, the flexible walls will collapse so as to permit the frame to drop down upon the bottom of the container, as shown in Fig. 5 and, if the flexible walls are folded inwardly, as shown in Fig. 5, the lid or cover is applied, and the parts are suitably fastened together in their collapsed condition, the container presents an extremely compact form and will therefore take up very little space when being stored or shipped. At the same time the flexible side and end walls are housed between the rigid top and bottom and are protected against injury.

Suitable means must be provided for holding the side and end walls upright and taut when the device is being used as a container. To this end we have provided corner posts, four being shown, since the container is rectangular in shape, each of these posts being in the form of an L-shaped member, preferably a tube of steel or other strong metal, to combine strength and lightness. One arm 16 of each post has a length equal to the distance between the bottom of the container and the bottom of the channel in the frame around the mouth of the container, when this frame is moved away from the bottom far enough to draw the canvas taut, and the other arm 17 is of any desired length. The two arms of each post are connected by a diagonal brace 18. In order to use this particular arrangement of posts, the shortest transverse dimension of a container should be at least as great as the height of the latter. Each post is fastened to the bottom of the container by one or more hinges 19, one leaf of each hinge being fastened to the bottom of the container and the other being fastened to the arm 17 of one of the posts. The posts and the hinges are so disposed that the posts may be swung between positions in which the members 16 stand upright, as shown in Figs. 1, 2 and 6, and positions in which the members 16 lie flat on the bottom of the container; the angle of each L lying in one of the corners of the container and the arms 16 and 17 lying parallel with the two side and end walls that meet to form that corner. Where one of the transverse dimensions of the container is not equal to or greater than the combined lengths of the arm 16 and of the arm 17, the hinges must be placed as shown, so that when the posts are folded down, their bases, that is, the arms 17, are spaced apart from the adjacent walls which they parallel, thus leaving space between the base of each post and the adjacent wall in which the free end of the arm 16 of another post

may lie. This arrangement insures a minimum thickness for the collapsed container, and also relieves the hinges from the stresses which would be created if one of the posts lay partly upon another post when they were folded down.

The members 16 of the posts preferably lie close to the adjacent wall which they parallel, so that when they are swung into their upright positions, they will fit into the channel of the frame 7, as best shown in Figs. 6 and 7.

Means should be provided for locking the posts in their upright positions, since they must be able to resist any blow or pressure that comes against the long corner edges between the side and end walls. This may conveniently be accomplished by attaching a spring-pressed bolt 20 to the inner side of the wide flange 8 of the frame 7 in such a position that each bolt may enter a hole 21 formed in the side of the corresponding post element 16, near the upper end of the latter; the movement of the bolt being parallel with the hinge axis of the corresponding post, so that when the bolt is interlocked with the post, the latter is positively prevented from swinging on its hinge or hinges.

Assuming the container to be in a collapsed condition, with the lid or cover off: It will be seen that to place the container in condition for use it is only necessary to lift the frame 7 and swing up each of the four posts until they are engaged by the spring bolts; the free ends of the posts bearing against the bottoms of the channel in the frame and pushing the frame upwards until the canvas is drawn taut. The container may then be used in the same way as a non-collapsible container. When it is desired to collapse the container, the lid or cover being off: The locking bolts are withdrawn, the posts are folded down upon the bottom of the container, and the canvas walls are allowed to collapse and the frame to drop down into the positions shown in Fig. 5. The lid or cover may then be laid on the frame and be secured to the bottom in any suitable manner, to hold the parts in their compacted condition. A convenient means for holding on the lid or cover both when the container is in its expanded condition and when it is collapsed, consists of a strap 25 at each end of the container (only one of the straps being shown); this strap being fastened at its lower end to the bottom of the container and being long enough to reach approximately to the top of the expanded container. There are two buckles on the strap, a buckle 26 near the free end and a buckle 27 near the lower end. Fastened to the end of the lid or cover is a short strap 28. When the container is in its expanded condition, the lid or cover may be held in place by engaging the straps

28 with the buckles 26. When the container is collapsed, the straps 28 may be engaged with the buckles 27, the main portions of the straps 25 being folded inwardly with the end walls of the container.

Containers of the kind described may be very heavy when filled, and should therefore be provided with antifriction supports which will permit them to be pushed or drawn over a floor or platform with a minimum expenditure of energy and with a minimum strain on the structure. Where antifriction devices are placed at the four corners of the bottom of the container, and one of them meets with an obstruction, the container may be severely strained. Furthermore, if the surface over which the container is being pushed or drawn is rough and uneven, there are four antifriction devices so distributed that if one of them does not strike an obstruction, another is very apt to, producing not only injurious stresses, to which reference has been made, but making the work of moving the container disagreeable.

In accordance with our invention, we place a plurality of antifriction devices, preferably in the form of comparatively flat convex button-like members 30, on the long central axis on the under side of the bottom of the container. In the arrangement shown, there are three of these button-like supports arranged in a row. In moving the container about, the antifriction supports travel along a single path and avoid all obstructions outside of such path. In case there should be an obstruction high enough to strike the advancing front end of the container, near one side of the latter, while the container is being held level, the container need only be tilted so as to raise the obstructed side above the obstruction. If the line of button-like supports meets an obstruction over which it is unable to pass, the impact will be directly along the longitudinal center of the container and there will be no tendency to twist the container about, as would be the case if a support at one corner struck an obstruction while a support at the opposite corner was free to travel ahead. In other words, our improved arrangement not only obviates certain disagreeable features incident to the work of moving heavy containers about, but it also prevents injury to the container due to localized strains, because all of the blows that can be transmitted to the container through the antifriction supports must come along the longitudinal center of the strong rigid bottom, which distributes them to all parts of the container.

The normal position of rest of the container is one in which it is tilted slightly toward one side, as illustrated in Fig. 4. In making a stack of such containers in a rail-

way car, for example, the lowermost container is placed close to one wall of the car and caused to tilt toward the latter. The next container will tend to tilt even more toward the wall because the surface on which it rests, the top of the underlying container, is slightly inclined. The second and successive containers may either be allowed to tilt as far as they will go, the lowermost container in that case being spaced apart from the wall of the car somewhat, or else they may be allowed to rest against and be partially supported by the wall. In either case the tendency of the stack is to lie close to the wall and not to sway away and topple over when jarred during the travel of the car.

By making the top and bottom of the container out of plymetal, the posts of tubing, and the sides and ends of canvas, a very strong, light and durable structure results; the top and bottom members and the posts being capable of withstanding heavy blows or of supporting great loads. Furthermore, by coordinating the parts in the manner illustrated, we obtain a large and bulky container of great strength when the same is expanded for use, and a small compact bundle when the same is collapsed for storage or shipment in an empty condition.

It will also be seen that our improved antifriction supports make the work of pushing or drawing the loaded container about easy, and give great stability to a stack of containers placed beside a wall of any kind.

While we have illustrated and described with particularity only a single form of our invention, we do not desire to be limited to the particular structural details thus illustrated and described; but intend to cover all forms and arrangements that come within the definitions of our invention constituting the appended claims.

We claim:

1. A collapsible container comprising a rigid bottom, flexible side and end walls, stiffening pieces along the upper edges of said walls, and corner posts each comprising an L-shaped member one arm of which lies parallel with one of said walls and is hinged to said bottom in such a manner that when the post is swung so as to lie flat sufficient space is left between the hinged arm and the adjacent wall to receive the free end of another post lying flat on said bottom.

2. A collapsible container comprising a rigid bottom and flexible side and end walls, a frame in the form of an inverted channel forming the upper edge of the container and having its outer flange fastened to said walls, and corner posts hinged to the said bottom so as to be capable of swinging from positions in which they lie flat on said bottom to positions in which they stand upright

in the corners of the receptacle and have their upper ends engaged in the said channel.

3. A collapsible container comprising a
5 rigid bottom, flexible side and end walls, a rigid frame fastened to the upper edges of the said walls, corner posts hinged to said bottom so as to be capable of swinging from
10 positions in which they lie flat on said bottom to positions in which they stand upright

with their upper ends engaged with the under side of said frame, and locking devices on said frame for engaging with the upper ends of said posts and locking the posts in their upright positions.

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In testimony whereof, we sign this specification.

GEORGE R. MEYERCORD.
CHARLES B. NORRIS.