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COLLAPSIBLE PERMANENT SHIPPING CONTAINER

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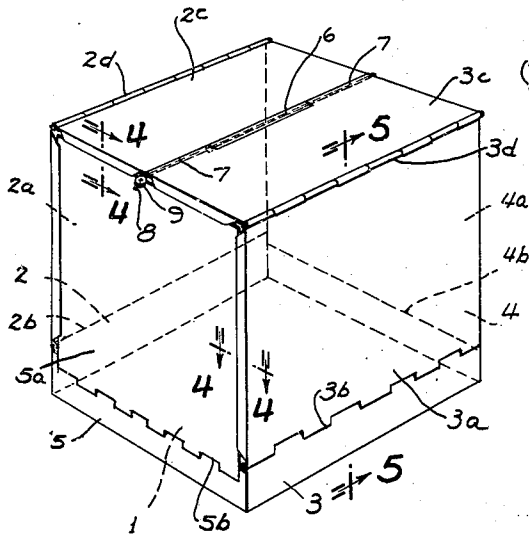


Fig. 1.

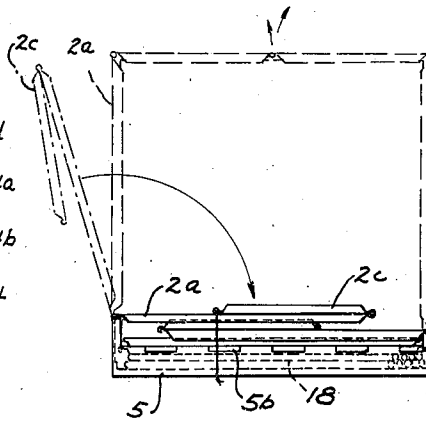


Fig. 2.

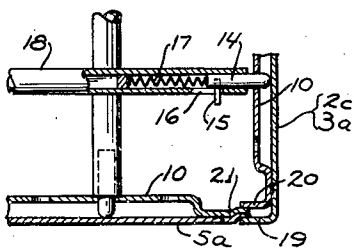


Fig. 4.

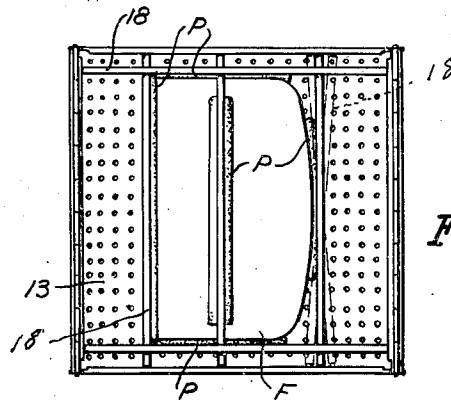


Fig. 3.

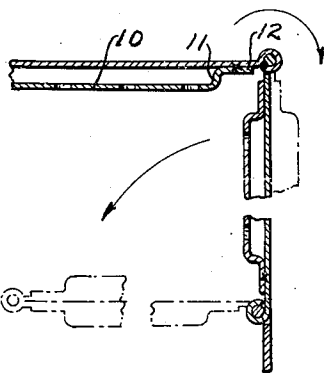


Fig. 5.

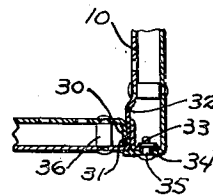


Fig. 6.

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COLLAPSIBLE PERMANENT SHIPPING CONTAINER

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7 Claims. (Cl. 220—6)

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This invention relates to collapsible, permanent shipping containers.

Many things are now shipped by crating them. This is expensive and disadvantageous as it is very often difficult to get the material and the labor to do the crating, especially when the shipper is an individual or not a large shipper.

It is the object of the present invention to provide a shipping container which is a permanent member that may be easily assembled and the article shipped firmly secured in the container with a minimum of trouble and expense. After the article has been transported to its destination the shipping container may be re-used to ship some other article or articles to another point or the shipping case may be shipped to another locality in collapsible condition. The container may be owned and shipped around much the same way freight cars are transported. It may be owned by the railroad or some other shipping agency that makes a business of packaging and transporting material or objects.

In the drawings—

Fig. 1 is a perspective showing the shipping case set up.

Fig. 2 is an elevation showing in full lines the collapsed shipping case and showing in dotted lines how the shipping case is set up and collapsed.

Fig. 3 is a plan view looking into the open shipping case with the covers folded back.

Fig. 4 is taken on either of the section lines 4—4 of Fig. 1.

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

Fig. 6 is a detail of the corner, similar to Fig. 4, showing a modified form.

The shipping case has a solid base construction made up of the bottom 1 and side walls 2, 3, 4 and 5 which are of progressively less height so that when the hinged side walls are folded in, as shown in Fig. 2, they will fold in on one another and remain in substantial horizontal position one on another, as shown in Fig. 2. These hinged side walls are designated 2a, 3a, 4a and 5a. Each folding side wall is secured to the base side wall by means of piano hinges 2b, 3b, 4b and 5b. The folding side walls 2a and 3a have folding tops or covers 2c and 3c which are connected to the folding side walls by piano hinges 2d and 3d. These covers 2c and 3c, when the box is set up as shown in Fig. 1, meet in the middle of the box with knuckles 6 and 7 on the underside of the covers, and these knuckles, when the covers meet edge to edge, are aligned

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and a heavy wire or rod 8 is passed through these knuckles or eyes and then bent down and a metal seal 9 applied to hold the wire in place and keep the container locked and sealed until it reaches its destination when the seal can be snapped off and the rod removed, making the covers free to be opened and the contents of the box lifted.

Each of the folding side walls and the covers is provided with a perforated plate or inner wall 10 which has offsets 11 and flanges 12 at the edges which permit the flanges to be spot welded to the cover or folding side walls. The offset holds the perforated plate in spaced relation to the wall that supports it. These perforated plates, including a bottom plate 13, shown in Fig. 3, have a large number of perforations, as shown in Fig. 3. These are placed an inch or less apart. These perforations are for the purpose of receiving the spring-pressed plungers 14. Each plunger has a little stud 15 for engaging in the slot 16 in the hollow end of the rod. A spring 17 is adapted to normally project the pin from the end of the rod but the pin is restrained from leaving the rod by means of the stud 15 operating in slot 16.

Fig. 2 shows how the shipping case is collapsed with the side walls and the covers folded in overlapping position and with the rods 18 secured in the bottom of the collapsed box.

When it is desired to set the shipping case up the collapsed members are unfolded and the article to be shipped is set in the box. It may be almost any kind of article or piece of apparatus, but here in the drawings a cabinet is shown, which is designated F. This piece of furniture is set on the bottom 13 of the box and then pads of excelsior or other packing material P are placed against the top and sides of the piece of furniture and then the rods 18 are pushed up against the pads and fastened into the perforations by letting the pins 14 snap into the perforation which sets the rod in the position desired to compress the piece of packing P on the sides, top, ends, front and back of the piece of furniture, as shown in Fig. 3. This definitely and tightly locks the piece of furniture in the box. The sides 2a and 3s have already been folded up and the turned-over edges 19 and 20 of the outer and inner walls 3a and 10 form a groove which straddles the projecting edges of walls 5a and 10. These edges form a tongue 21 which provides a tongue and groove interlock between the side walls when the walls are folded up to erect position, as shown in Fig. 1.

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This is shown in Fig. 4. Likewise, the covers 2c and 3c have the same tongue and groove overlapping with the top edge of the folding side wall 5a, as shown in Fig. 4, which is also a section on the line 4—4 that goes through the cover 2c and the folding side wall 5a.

In Fig. 6 a somewhat different way of obtaining the interlock at the corner of the side walls and the covers is shown, and also a different way of securing the inner walls or plates to the outer walls. At one edge one folding wall or cover has flanges 30 and 31 which overlap. These form a tongue within the meaning of the appended claims. The edge of the other folding wall is provided with a groove formed of a struck-out portion 32 and turned-over flanges 33 and 34 on the inner wall and outer wall, respectively. These are riveted together by rivet 35. The flange 34 projects beyond the inner wall to form the groove to receive the projection or tongue on the edge of the other folding member. A rivet 36 rivets together the inner and outer wall on the folding member which in this figure forms the tongue of the tongue and groove interlock.

When the article to be shipped has been set in the bottom of the container, the side walls folded up and the rods together with the pads locked in place by reason of the pins on the rods snapping into perforations in inner plates 10, then the covers are folded into place and the knuckles 6 and 7 brought into alignment, the rod or heavy wire 8 is threaded through the aligned knuckles and then a piece of sealing metal is pinched over the ends of the wire and this locks the case together. The case is now ready for shipment. When it arrives at its destination the seal is clipped off, the locking wire is removed and the covers and the folding side walls are folded back. While the unfolding is being done the packing rods and the packing pads are severally removed, the side walls are folded back and the article transported is exposed and may be lifted out.

It will be noted that the rods may be given an oblique disposition by allowing the pins to snap in perforations that are not exactly opposite one another (see the rods 18 at the right of Fig. 3). This may be advantageous because of the shape of the article being shipped.

The shipping case may be repacked with another article to be sent elsewhere or the rods may be laid in the bottom of the shipping case and the side walls and covers folded in, as shown in Fig. 2, and the package tied up with heavy cord or rope and returned or shipped to some other point.

What I claim is:

1. A shipping case, having in combination a bottom wall and a plurality of side walls and a cover, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjointing perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at least one retractable spring-pressed pin to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position.

2. A shipping case, having in combination a bottom wall and a plurality of side walls and a cover, some of said walls being provided with inner walls or plates arranged in spaced rela-

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tion with the companion outer wall and provided with areas having a large number of closely-adjointing perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at least one retractable spring-pressed pin to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position, each spring-pressed pin having a stud projecting through a slot in the rod to provide a limit for the outer movement of the pin and a finger piece by which the pin may be retracted to release the rod from the perforated wall.

3. A shipping case, having in combination a bottom wall and a plurality of side walls and a cover, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjointing perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends portions of reduced diameters, each rod with at least one retractable reduced diameter portion to allow the reduced portions to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position.

4. A shipping case, having in combination a bottom wall and a plurality of side walls and a pair of covers, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjointing perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at least one retractable pin to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position, the said walls being hinged at the bottom and said pair of covers hinged to opposing side walls, the said walls and covers being foldable to collapsed position or folded up into interlocking position and the covers being lockable together at their meeting edges, the said side wall and covers having tongues and grooves formed by extension of the inner walls along their interengaging edges to provide the interlocking when the case is set up.

5. A shipping case, having in combination a bottom wall and a plurality of side walls and a pair of covers, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjointing perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at least one pin arranged to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position, the said side walls being hinged at the bottom and said pair of covers hinged to opposing side walls, the said walls and covers being foldable to collapsed position or folded up

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into interlocking position and the covers being lockable together at their meeting edges.

6. A shipping case, having in combination a bottom wall and a plurality of side walls and a cover, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjoining perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at least one retractable spring-pressed pin to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position, the said inner walls or plates having offset edges and flanges welded to the outer walls to hold the inner wall in spaced relation to the outer wall.

7. A shipping case, having in combination a bottom wall and a plurality of side walls and a pair of covers, some of said walls being provided with inner walls or plates arranged in spaced relation with the companion outer wall and provided with areas having a large number of closely-adjoining perforations in combination with a plurality of rods substantially the length from one inside wall to the opposite inside wall, the said rods having on their ends pins, each rod with at

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least one retractable spring-pressed pin to allow the pins to be fitted in any selectable perforation in each opposing perforated side wall for the purpose of holding an article carried in the case in a definite position, the said side walls being hinged at the bottom and said pair of covers hinged to opposing side walls, the said walls and covers being foldable to collapsed position or folded up into interlocking position and the covers being lockable together at their meeting edges, the side walls and covers with their companion inner walls when folded to the set-up position having lapping extensions which provide a tongue in one member and a groove in the other to form a tongue and groove interlock.

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