Sept. 28, 1926. 1,601,168

L. D. FELTEN ET AL

SHIPPING CRATE

Filed Jan. 23, 1924 2 Sheets-Sheet 1

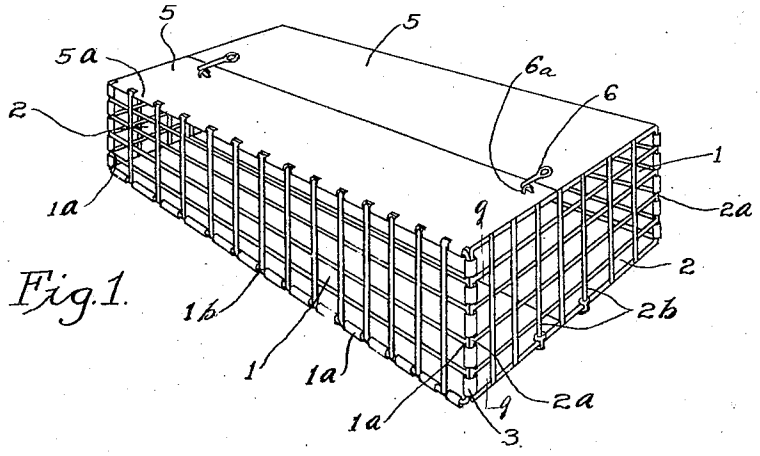


Fig. 1.

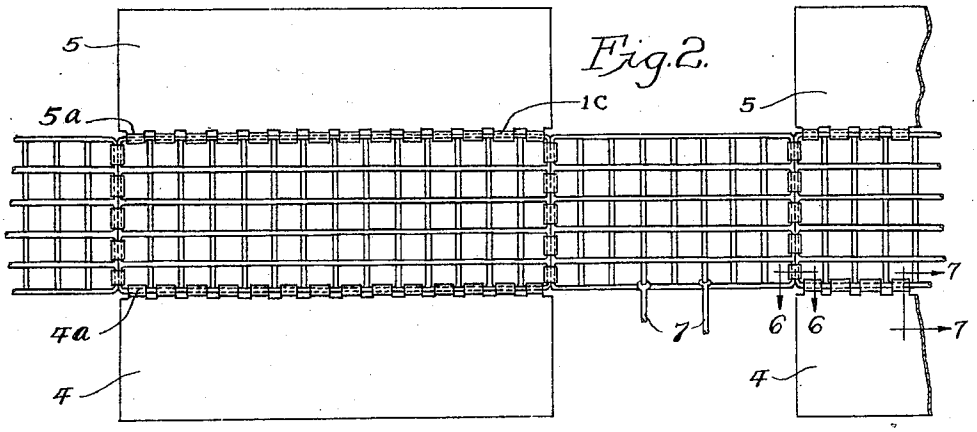


Fig. 2.

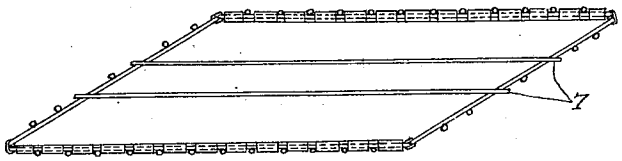


Fig 3

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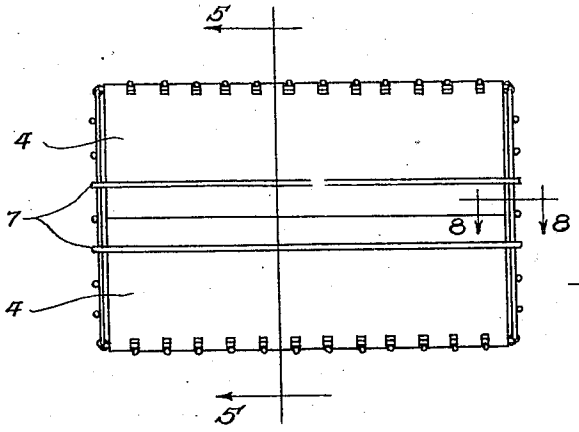


Fig. 4.

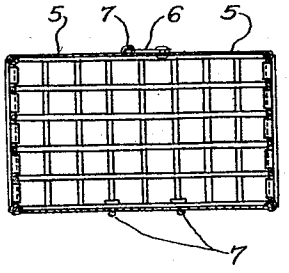


Fig. 5.

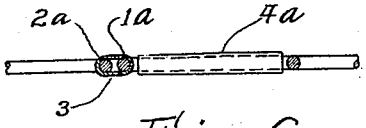


Fig. 6.

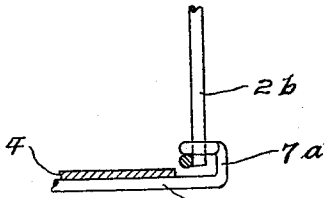


Fig. 8.

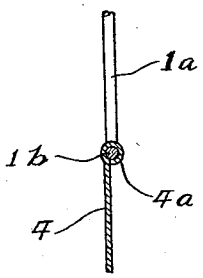


Fig. 7.

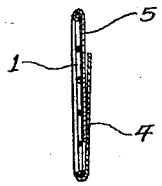


Fig. 9.

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Patented Sept. 28, 1926. 1,601,168

UNITED STATES PATENT OFFICE.

LEO D. FELTEN AND FRANK R. SALZER, OF ST. PAUL, MINNESOTA.

SHIPPING CRATE.

Application filed January 23, 1924. Serial No. 687,961.

This invention relates to a shipping crate and particularly to such a crate which may be set up in rigid operative position and which can also be easily collapsed into substantially one plane.

It is an object of this invention to provide a shipping crate, preferably having openwork sides which can be easily and cheaply constructed and easily and quickly set up in operative position or folded into collapsed position.

It is a further object of the invention to provide such a crate having sides and ends formed of intersecting horizontal and vertical members, the adjacent vertical members of which are pivotally connected, the horizontal members at the top and bottom of the sides having doors forming the top and bottom portions of the crate pivoted thereto.

It is also an object of the invention to have means for holding said doors in operative position, which doors are also foldable against the said side portions when the crate is collapsed.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a perspective view of the crate in operative position;

Fig. 2 is a partial plan view of the crate in developed form;

Fig. 3 is a view in elevation looking at the bottom side of the crate showing the same in partially collapsed position;

Fig. 4 is a bottom plan view of the crate in operative position;

Fig. 5 is a vertical section taken on the line 5—5 of Fig. 4 as indicated by the arrows;

Fig. 6 is a vertical section taken substantially on the line 6—6 of Fig. 2, as indicated by the arrows;

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 2, as indicated by the arrows;

Fig. 8 is a vertical section taken on the line 8—8 of Fig. 4, as indicated by the arrows; and

Fig. 9 is a vertical section taken substantially on the line 9—9 of Fig. 1 showing the top and bottom doors of the crate in folded position.

Referring to the drawings, the crate is shown comprising side portions or panels 1 and end portions 2. While these side and end portions can be made of various kinds of material, the same, preferably are made of openwork material, and in the embodiment of the invention illustrated, the same are shown as formed by intersecting vertical and horizontal members. The vertical members 2^a at the ends or edges of the end portions and the adjacent vertical end members 1^a at the ends or edges of the side portions are hingedly connected together by sleeves 3 embracing the same so that the sides and ends are hinged together about vertical axes adjacent their end or edge portions. The bottom horizontal members 1^b and the top horizontal members 1^c of the side portions 1 have pivoted or hingedly connected thereto the bottom doors 4 and the top doors 5, respectively. The doors 4 and 5 are provided with spaced ears 4^a and 5^a at their outer edges, which project between the vertical members of the side panels and are bent around to embrace the horizontal members 1^b and 1^c. As shown in Fig. 9, the doors 4 and 5 are located relatively to their pivots so that they will swing against the inside of the side panels 1 and lie in superposed position thereagainst. The top panels 5 are provided respectively, adjacent each end with hooks 6 and staples or eyelets 6^a which co-operate to form a securing means to hold said doors in operative closed position. A pair of rods 7 extend along the bottom of the doors 4 adjacent the edges thereof and are bent upwardly outside of the end panels 2, as shown at 7^a, said rods then being provided with eyelets or bent around vertically extending members 2^b of the end panels, as shown in Figs. 1 and 8, so that rods 7 are pivotally connected to the end panels 2 about vertical axes.

When the crate is to be used for shipping articles therein, the bottom doors 4 will be folded down to rest on the rods 7, the side and end panels being disposed substantially at right angles. The top doors 5 will then be moved into a horizontal plane and the hooks and staples 6 and 6^a engaged. This holds the doors 5 in operative position and securely locks the crate in such position. The end panels 2 will extend slightly above and below the doors 5 and 4, respectively, so that the side and end panels cannot swing about their vertical axes when

the crate is in operative position. When it is desired to fold the crate the hooks 6 are disengaged and the doors 4 and 5 folded against the side panels to which they are pivoted in overlapping relation, as shown in Fig. 9. The side and end panels 1 and 2 are then moved about vertical axes at the corners thereof so that the crate collapses substantially into one plane, the same being shown partially collapsed in Fig. 3. At this time, it will be noted the rods 7 merely move about the axes of members 2^b to which they are connected so as to be parallel at all times to the bottom edges of the sides of the crate. The crate, when in collapsed condition, can be returned to the sender or consignor again to be filled with goods.

From the above description it is seen that applicants have provided an extremely simple and efficient form of shipping and collapsible crate. The same can be used for a wide variety of materials. Made in various sizes it will form a convenient shipping crate for various grocery articles, eggs, etc. When made in other sizes it will form a very efficient crate for poultry. The device can be made of metal which is easily procured and owing to the few parts, can be produced at low cost. The device is preferably of metal which can be suitably coated to withstand the weather.

It will, of course, be understood, that various changes may be made in the form, details proportions and arrangement of the parts without departing from the scope of applicant's invention, which, generally stated, consists of a device capable of carrying out the objects above set forth, such as shown and described and defined in the appended claims.

What is claimed is:

1. A shipping crate comprising side and end panels, said end panels being pivotally connected to the side edges of said side panels, top and bottom doors pivotally connected to the top and bottom edges, respectively, of said side panels, and a pair of rods having their ends loosely connected to portions of said end panels and extending around the bottom edges of said end panels and between the same below said bottom doors to hold said bottom doors in operative position, said panels, doors and rods being adapted to be collapsed to lie in substantially one plane.

2. A shipping crate comprising sides and ends of open-work formation having vertical members at their ends and horizontal members at their tops and bottoms, means hingedly connecting the said vertical members of the adjacent end edges of said sides and ends, a pair of doors at the top of said crate hingedly connected to the top horizontal members of said sides and extending between said ends, means on the outer sides of said doors for holding them in operative substantially alined horizontal position, and a similar pair of doors at the bottom of said crate hingedly connected to the bottom horizontal members of said sides and extending between said ends, said pairs of doors being swingable between said ends substantially against said sides in overlapped relation, and rods loosely connected to said ends about vertical axes and extending therebetween at the outer sides of said bottom portions to hold the latter in operative position.

3. A shipping crate comprising substantially rectangular side and end panels formed of spaced vertical and horizontal rods, sleeves embracing the adjacent vertical rods of said side and end panels, respectively, to hingedly connect the same, top and bottom doors hinged to the top and bottom horizontal rods of said side panels, a pair of rods loosely connected to certain of the vertical rods in said end panels and extending around the lower edge of said ends across and beneath said bottom doors to hold the latter in operative position, and means for holding said top doors in operative position, said doors being foldable against the sides to which they are pivoted and said side and end panels being collapsible substantially into one plane.

4. A shipping crate comprising substantially rectangular side and end panels formed of spaced vertical and horizontal rods, means hingedly connecting the adjacent vertical rods of said side and end panels, respectively, top members for said crate secured to said sides, a pair of doors hingedly connected to the bottom of said side panels, and a pair of rods loosely connected to certain of the vertical rods in said end panels and extending around the lower edge of said ends across and beneath said bottom doors to hold the latter in operative position.

In testimony whereof we affix our signatures.

LEO D. FELTEN.
FRANK R. SALZER.