April 7, 1942. C. E. POPE 2,279,247

FOLDABLE CRATE

Filed Nov. 21, 1938

FIG. I

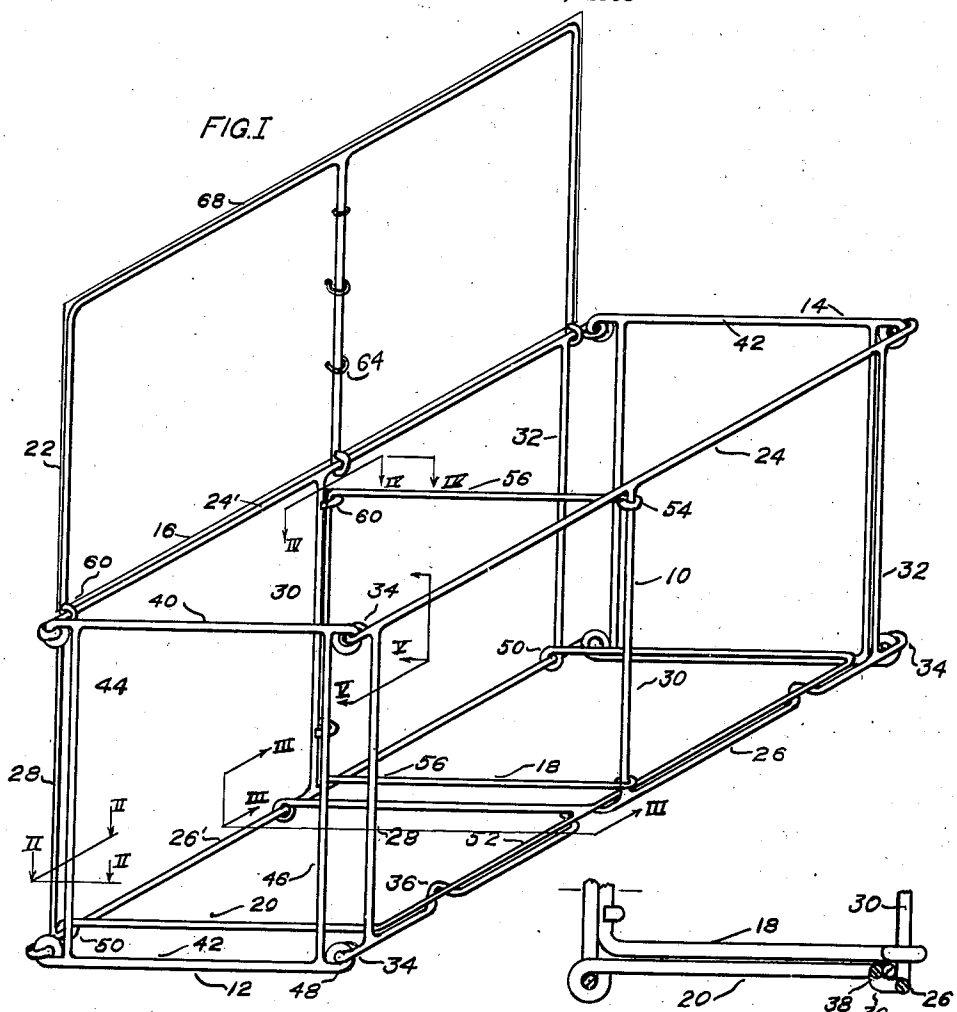


FIG III

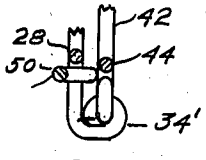


FIG. II

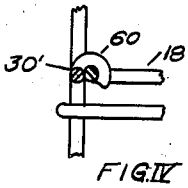


FIG. IV

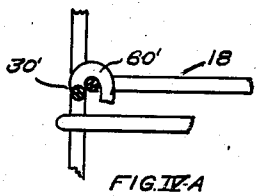


FIG. IV-A

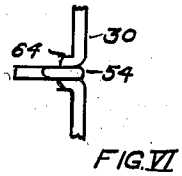


FIG. VI

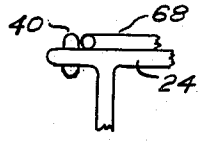


FIG. V

CLAUDE E. POPE.
INVENTOR.

Elmer G. Johnson
ATTORNEY.

Patented Apr. 7, 1942 2,279,247

UNITED STATES PATENT OFFICE

2,279,247

FOLDABLE CRATE

Claude E. Pope, Oakland, Calif.

Application November 21, 1938, Serial No. 241,558

1 Claim. (Cl. 220—84)

This invention relates to folding crates such as used for the crating of eggs for shipment.

It is desirable to provide folding crates so that when empty, they may be collapsed to occupy a fraction of their set-up volume. When collapsed, empty crates may be shipped as an incident to the shipment of reciprocal trade products on the return trip of a carrier to the source of the filled crate.

Foldable crates must, in addition to fulfilling their mission of collapsibility, provide a rigidity and strength of the order of that inhering in ordinary crates.

It is accordingly one of the objects of this invention to provide a collapsible crate, which, when set up, is substantially rigid and free from strain under influence of normal distorting forces.

It is another object of the invention to provide a collapsible crate the flat walls of which are brought into closely adjacent planes upon collapsing thereof.

Other objects of the invention will become apparent to those skilled in the art upon consideration of the following specification in connection with the accompanying drawing, in which:

Fig. I is an isometric view of the framework of a crate the covering paper walls of which have been removed,

Fig. II is a fragmentary sectional plan taken from the plane II of Fig. I,

Fig. III is a fragmentary elevation from plane III of Fig. I,

Fig. IV is a fragmentary view from plane IV of Fig. I,

Fig. IVA is a view similar to Fig. IV showing a modified detail,

Fig. V is a view from plane V of Fig. I, and

Fig. VI shows a modified hinge detail.

The crate frame comprises a series of integral frame sections including a forward wall section 10, end wall sections 12 and 14, rear wall section 16, central partition section 18, bottom flap section 20, and lid section 22.

Each of the sections is preferably fabricated of a series of round metal rods or tubes.

The front wall frame section 10 comprises a pair of parallel beam members 24 and 26 rigidly joined adjacent their end portions and their midsection by parallel uprights 28, 30, and 32.

The extending portions of the beams are bent rearwardly of the front wall to form eyelets 34 having their axis parallel to uprights 32 with the planes horizontal.

Lower beam 26 is provided with bottom-flap stops 36 which may be bent upwardly to provide keepers 38.

Rear wall frame 16 is identical with the front section except for omitting the bottom-flap stops, and that it faces its eyelets toward the front section.

The front and rear wall sections are linked together by end sections 12 and 14 comprising upper and lower beams 40 and 42 joined by uprights 44 and 46 adjacent the beam ends. The free beam ends are bent to form eyelets 48 having their axis horizontal and receiving the eyelets 34 in hinged interlinking relation therewith.

Bottom-flap section 20 comprises an M-shaped bail each leg of which is provided with an eyelet 50 adjacent its free end for the reception of lower beam 26' of the rear wall frame to hinge thereabout. The portion 52 of the bottom flap section lies upon stops 36.

In order to confine the legs of the flap section, the extreme eyelets 50 may encircle beam 26 between upright 28 and eyelet 34' as shown in Fig. II.

Pivotally mounted as by eyelets 54 at the free ends of legs 56 thereof is a rectangular partition section comprising a bail 18 foldable about upright 30 and, in set-up position, engaging a pair of hooks 60 positioned to lie within the corners of the bail and prevent vertical displacement with respect thereto.

In order to prevent release of bail 18, as might occur as a result of a central compression from front to rear of the crate, the hook 60', Fig. IVA, may be employed providing a pocket laterally of the line of compression for reception of the bridge portion of the bail whereby both tension and compression results in self locking action.

In order to restrict movement of eyelets 54, the upright 30 may be offset as at 64, Fig. VI, to hinge the eyelets in the offset.

Cover section 22, of M-shape, is pivoted to beam 24' of the rear wall section by eyelets 66, which may encircle the beam between upright 32 and 28 and eyelets 34'.

As shown in Fig. V the cover bail 68 overlies beam 24 and lies adjacent beam 40 to assist in fixing the prismatic shape of the frame when closed.

It will be observed from Fig. III that bottom section 20 underlies divider section 18 and is locked down thereby.

In order to collapse the frame, lid 68 is hinged rearwardly and downwardly against rear wall section 16. Divider section 18 is rotated

against section 10. Bottom section 20, being released, is folded upwardly adjacent section 16.

Sections 16, 10, 12, and 14 are then free to collapse by hinging about the axes of eyelets 34.

The exterior faces of the frame sections have secured thereto, as by staples 64, a suitable covering material such as cardboard or other fibreboard of suitable strength, each frame having a separate sheet secured to it. The staples may be placed so as to embrace the rod of the frame.

Suitable means to fasten the cover section down may comprise a cord secured through the cover material to the cover section frame and adapted to anchor to a suitable capstan on the front section.

Having described a preferred embodiment of my invention and explained the principle thereof, it will be understood that reference shall be had to the claims for determination of what I claim as my invention.

I claim:

A collapsible crate comprising front and back side frames formed of two uniform section elongated horizontal rods integrated with three vertical rods extending between the ends and midpoints of said elongated rods, the elongated rods having four extension forming eyelets displaced laterally of the plane of the frames and having the axis of the eyelet openings disposed vertically; end frames comprising two short horizontal rods joined by two vertical rods adjacent the ends of said horizontal rods, the vertical rods of said end frames being longer than the vertical rods of the side frames by the double diameter of the rods, extensions on the short horizontal rods forming eyelet members lying in the plane of the end frames, the axes of the eyelets being at right angles to the planes of the end frames; the eyelets of the side and end frames being interlinked; the bottom rod of the front frame being bent rearward to form stops and keepers; a cover pivoted to the upper rod of the rear wall having eyelets secured therearound between the vertical rods and the eyelets of the horizontal rods, said cover being formed of rods in the shape of an M, pivotally connected to the upper horizontal rod of the rear wall, and in closed position, the outer legs of the cover lying in the plane of the upper horizontal rods of the end frame members; a rod formed, U-shaped partition frame pivoted to the intermediate vertical rod of the front side frame; locking hooks mounted on the rear side wall middle vertical rod for receiving the bridge of the partition frame; and an M shaped bottom member pivoted to the horizontal rod of the rear side wall frame.

CLAUDE E. POPE.