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M. SHEPARD.
SHIPPING CASE.
APPLICATION FILED APR. 30, 1909.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

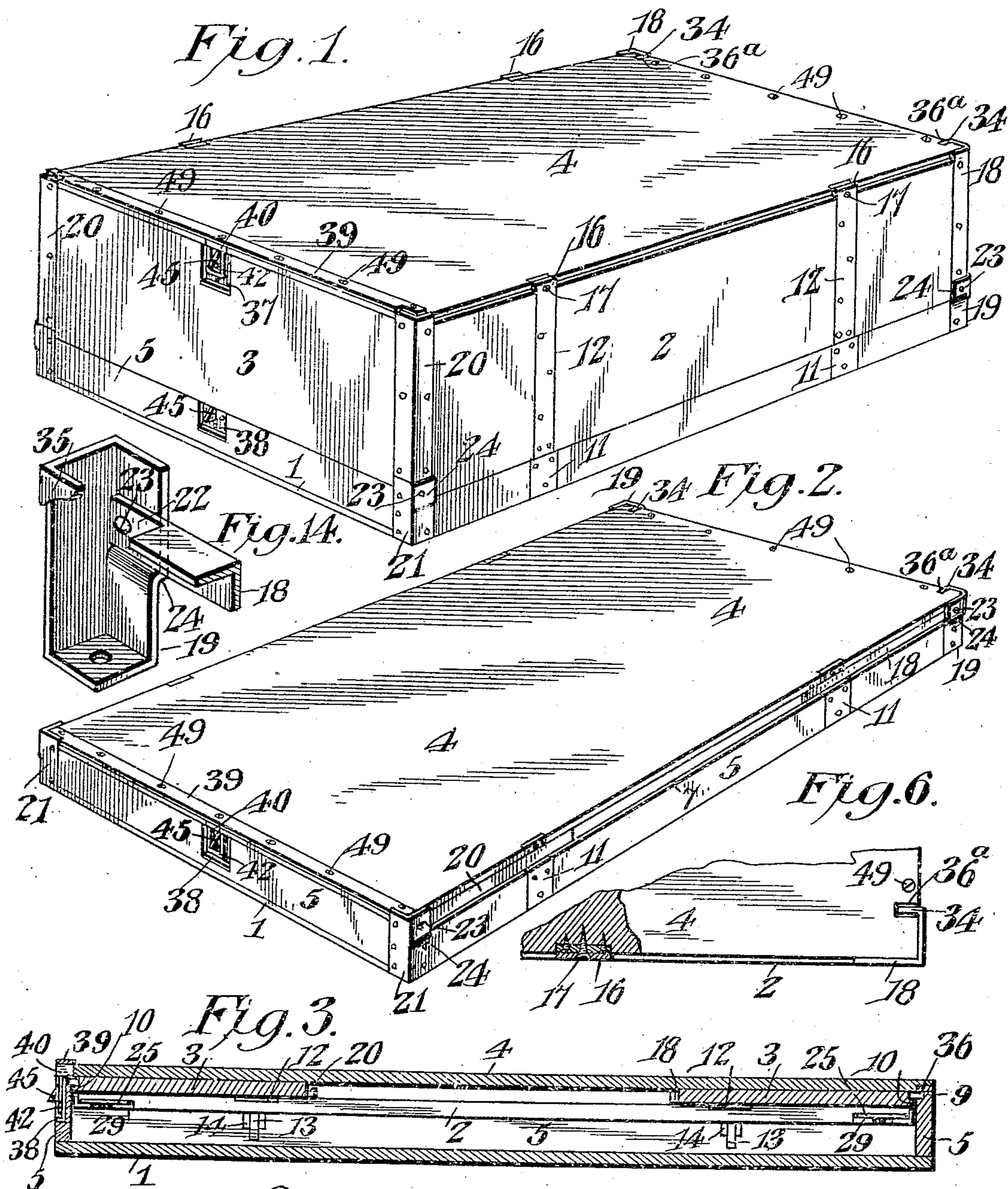


Fig. 7. 39 4 20
Witnesses. Jas. E. McLathrian
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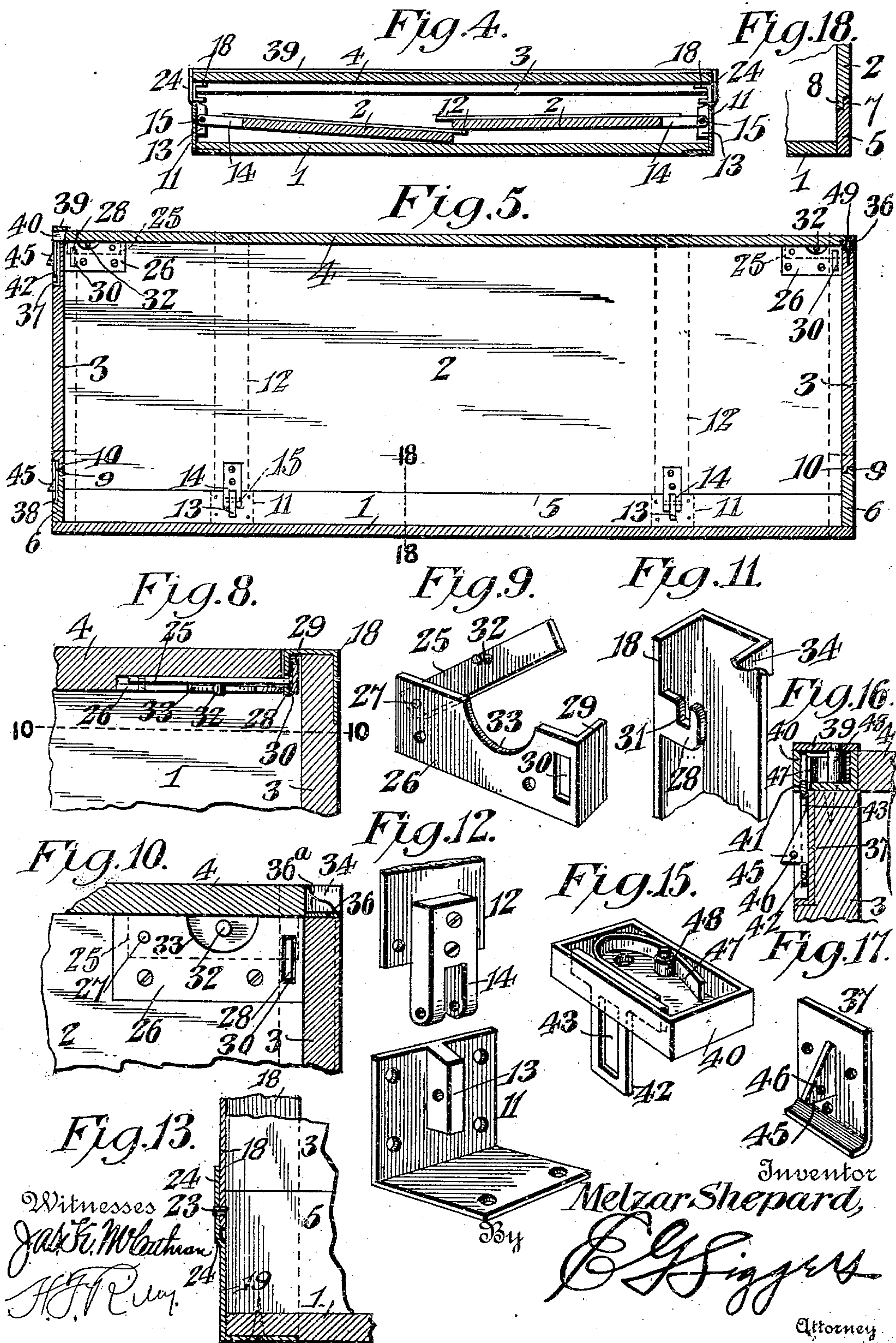
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UNITED STATES PATENT OFFICE.

MELZAR SHEPARD, OF WAYNE, MICHIGAN, ASSIGNOR TO WAYNE SHIPPING CASE COMPANY, OF WAYNE, MICHIGAN, A CORPORATION OF MICHIGAN.

SHIPPING-CASE.

955,705.

Specification of Letters Patent.

Patented Apr. 19, 1910.

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To all whom it may concern:

Be it known that I, MELZAR SHEPARD, a citizen of the United States of America, residing at Wayne, in the county of Wayne and State of Michigan, have invented certain new and novel Improvements in Shipping-Cases, as shown in the following specification, reference being had therein to the accompanying drawings.

10 The invention relates to improvements in shipping crates.

The object of the present invention is to improve the construction of shipping cases, and to provide a simple and comparatively inexpensive shipping case, strong and durable in its construction, easy to operate and adapted, after the goods have been removed, to be readily folded into a smaller compass so that it may be returned to the shipper at a minimum cost.

A further object of the invention is to provide a shipping case of this character, which, when folded, will afford sufficient space in its reduced size to return within it shelves, trays or partitions, etc., employed for holding the goods within the case when shipping the same, thus providing against the destruction or loss of such parts.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a perspective view of the foldable shipping case, constructed in accordance with this invention. Fig. 2 is a similar view, the shipping case being folded. Fig. 3 is a longitudinal sectional view of the same. Fig. 4 is a transverse sectional view, the parts being arranged as shown in Fig. 2. Fig. 5 is a longitudinal sectional view, the shipping crate being arranged as shown in Fig. 1. Fig. 6 is a plan view, partly in section, showing one corner of the box and a portion of the cover. Fig. 7 is a detail view of the opposite corner of the box. Fig. 8 is a horizontal sectional view of one corner of the box, illustrating

the fastener for securing the foldable side and the end members together. Fig. 9 is a detail perspective view of the locking device, shown in Fig. 8. Fig. 10 is a vertical sectional view, taken substantially on the line 10—10 of Fig. 8. Fig. 11 is a detail view of the upper end of one of the metallic corner cleats. Fig. 12 is a detail perspective view, illustrating the construction of the hinges of the foldable side members. Fig. 13 is a detail vertical sectional view, illustrating the construction of the hinges of the foldable end members. Fig. 14 is a detail perspective view of the hinge shown in Fig. 13. Fig. 15 is a perspective view of the cover fastener. Fig. 16 is a vertical sectional view of the same. Fig. 17 is a detail perspective view of the keeper. Fig. 18 is a sectional view on the line 18—18 of Fig. 5.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the embodiment of the invention illustrated in the accompanying drawings, the shipping crate comprises in its construction a bottom 1, foldable side and end members 2 and 3 and a removable cover 4. The side and end members are hinged to fixed side and end members 5 and 6, consisting of marginal strips secured to the bottom and having sufficient height to form, when the shipping crate is folded, a space or compartment for the reception of partitions, trays and the like employed for holding the goods within the crate when shipping the same. The size of the compartment will of course vary with the character of the shipping crate and will suit the requirements of the same. The fixed side members 5 have their upper edges 7 rabbeted, and the lower edges 8 of the foldable side members are correspondingly rabbeted to fit the rabbeted upper edges of the fixed members 5 to form a tight joint when the shipping crate is arranged for use. The contiguous edges 9 and 10 of the fixed and foldable members are correspondingly rabbeted and form tight joints, as clearly shown in Fig. 5 of the drawings.

The side members are connected by hinges composed of a lower L-shaped leaf 11 and an upper leaf 12. The lower leaf 11, which has horizontal and vertical sides or wings, fits the lower side edge of the crate and is let into the same, its outer face being flush

with the adjacent faces of the crate. The vertical wing of the lower leaf 11 is provided at its inner face with a vertical lug 13, and the upper leaf, which is extended vertically to form a metallic cleat, is provided at its inner face with depending spaced arms 14, which are arranged at opposite sides of the lug 13. The lug 13 and the arms 14 are connected by a transverse pintle 15, which pierces the parts and permits the side members 2 to fold inwardly. The arms of the side hinges at one side of the crate are shorter than those at the other to permit the foldable side members to overlap and fit snugly against each other. The upper leaf or hinge elements are secured in recesses of the outer faces of the foldable side members and their upper ends 16 project above the upper edges of the foldable side members, so as to engage the side edges of the cover and they terminate flush with the upper face of the latter. The projecting ends 16 are provided with perforations for the reception of screws 17, which engage threaded openings of the cover to assist in securing the same firmly on the body of the crate. When the foldable side members are vertical, the upper leaf 12 is arranged in the same plane as the vertical portion of the lower leaf, and the hinge is off-set inwardly from the said vertical parts to permit the side members 2 to fold clear of the fixed side members 5.

The foldable end members are hinged to the fixed end members by pivotally connected upper and lower metallic corner cleats 18 and 19 and 20 and 21, each composed of two sides or wings, arranged in flush relation with the sides and ends of the crate. These corner irons or cleats extend beyond the end members a sufficient distance to overlap the fixed and foldable side members. The lower end of the side wing of each of the upper corner cleats is provided with an extension 22, which is pivoted to the inner face of the adjacent side of the lower corner cleat by a rivet 23, or other suitable fastening device. The upper portion of the side or wing of the lower corner cleat is bent outwardly at 24 to enable the pivoted side or wing of the upper cleat to lie in the same plane as the lower portion of the side or wing of the lower cleat. These angle cleats or corner irons permit the end members 3 to fold inwardly. The fixed side members are of uniform height and the fixed end members, which extend above the fixed side members, correspond with each other in height, the ends of the crate when folded lying in the same horizontal plane. By this construction the cover is adapted to be fitted on and interlocked with the body of the crate, when the members 2 and 3 are folded, as hereinafter fully explained.

The foldable side members are secured by

a latch 25, pivoted at one end to a plate or casing 26 by a rivet 27, or other suitable fastening device, and adapted to engage a keeper lug 28. The casing 26 is arranged horizontally and is provided at the outer end with a transverse flange 29, and it has a vertical slot 30, arranged adjacent to the flange and adapted to receive the end of a keeper lug, which projects inward horizontally from the side flange or wing of the adjacent upper corner cleat. The slot extends to the plane of the inner face of the flange 29, which fits against the keeper lug 28, whereby the foldable end member is interlocked with the foldable side members and held against outward movement. The keeper lug 28 is provided in its upper edge with a vertical recess 31, which receives the free end of the latch 25, whereby the foldable side member is secured to the foldable end member and is held against both inward and outward movement. The cover when in place maintains the latch in engagement with the keeper lug. The latch is provided with a stud or projection 32, forming an operating handle, and the casing 26 is provided in its upper edge with a recess or cut-away portion 33 to receive the stud or projection 32 when the latch is in engagement with the coacting keeper 28.

The upper corner cleats or irons project above the upper edges of the foldable side and end members and receive the corners of the cover 4, whereby the latter is held against horizontal movement. The lower corner cleats or irons also project above the fixed members and receive the corners of the cover when the crate is folded, as illustrated in Fig. 2 of the drawings. The upper and lower cleats 18 and 19 are provided at the end wings or flanges with upper and lower inwardly extending cam lugs 34 and 35, having lower curved edges set at an inclination and forming cam faces, adapted to be engaged by a metallic strip 36, secured to the lower face of the cover 4 at one end thereof, whereby this end of the cover is securely fastened to the crate. The cover is provided with end slots 36^a into which the cam lugs project, when they are engaged by the metallic strip 36. The corner cleats or irons at the other end of the crate are plain, the cover being secured by a fastener mounted on the cover and adapted to engage upper and lower keepers 37 and 38. The cover is provided at this end of the crate with a transverse metallic strip 39, secured to the upper face of the cover. The fastener, which is secured beneath the metallic strip 39, consists of a rectangular casing 40, composed of a bottom and side and end walls, the metallic strip 39 constituting the top of the rectangular casing. The rectangular casing 40 is provided in its bottom with a slot 41, arranged adjacent to the outer wall

of the casing 40 and receiving the depending portion of a substantially T-shaped locking member 42, having an enlarged upper portion or head arranged within the casing.

5 The depending portion is provided with an opening 43 and forms a loop for engaging with the keepers 37 and 38. Each keeper is provided with a projecting substantially triangular flange 45, presenting an inclined

10 upper or front edge to the locking member and having a lower horizontal edge or shoulder for engaging with the locking member. The keeper flange 45 is provided with a perforation 46, adapted to receive

15 the wire of the seal or other fastening means. The upper portion or head of the locking member is engaged by a spring 47, arranged within the rectangular casing and bowed or bent, as illustrated in Fig. 15 of

20 the drawings, one side of the spring being free and fitting against and engaging the inner face of the head of the locking member. The other side of the spring is held between a stud 48 and the inner side wall of

25 the casing, the stud also serving as a fastening means for securing the casing to the metallic strip 39 of the cover. The spring yieldably maintains the locking member in engagement with the flange of the keeper

30 and permits the depending portion or loop to be readily sprung into and out of engagement with the keeper flange. When the locking member is in engagement with the keeper, the cover is securely fastened on the

35 body of the crate. The cover is also secured to the body of the crate by vertical screws 49, arranged at suitable points and piercing the metallic strips 36 and 39 and securing the cover to the body of the crate.

40 The vertical and horizontal screws are employed only for securing the cover to the crate when the latter is arranged for shipping goods.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A foldable crate of the class described including a bottom having fixed side and end members provided with rabbeted upper

50 edges, foldable side members having their side edges correspondingly rabbeted, hinges secured to the outer faces of the foldable side members and the fixed side members and having pintles arranged interiorly of

55 the crate adjacent to the inner faces of the said members and located at different elevations to permit the foldable side members to overlap and lie in different planes when folded, and foldable end members hinged to

60 the fixed end members and having lower rabbeted edges.

2. A foldable crate of the class described including a bottom, fixed side members of uniform height, foldable side members, and

65 side hinges, each comprising a lower leaf

secured to the outer faces of the fixed members and provided at its inner face with a lug, an upper leaf secured to the outer faces of the foldable side members and having an arm, a pivot connecting the lug and the arm 70 and located interiorly of the crate adjacent to the inner faces of the said members, the arms of the hinges of one of the foldable side members being of greater length than those of the other side members to permit 75 the side members to fold in different planes in overlapping relation.

3. A foldable crate of the class described including a bottom having fixed side members of uniform height, foldable side mem- 80 bers, and side hinges, each comprising a lower L-shaped leaf secured to the outer faces of the fixed side members and provided at its inner face with a vertical lug, an upper leaf secured to the outer faces of the fold- 85 able side members and having a pair of arms spaced apart to receive the lug, a pivot piercing the arms and the lug and arranged interiorly of the crate, the pivots at opposite sides of the crate being located at different 90 elevations to permit the foldable members to lie in different planes and to overlap when folded.

4. A foldable crate of the class described including a bottom, foldable side members, 95 hinges connecting the side members and provided with extended upper leaves forming cleats and projecting above the upper edges of the foldable side members, foldable end members, and a removable top arranged 100 upon the upper edges of the foldable side and end members and between the projecting upper ends of the said upper leaves.

5. A foldable crate of the class described including a bottom, foldable side members, 105 hinges connecting the side members and provided with extended upper leaves forming cleats and projecting above the upper edges of the foldable side members, foldable end members, a removable top arranged upon 110 the upper edges of the foldable side and end members and between the projecting upper ends of the said upper leaves, and fastening means for securing the cover to the projecting ends of the upper leaves. 115

6. A foldable crate of the class described including a bottom, fixed side members, foldable side members, and hinges connect- 120 ing the foldable side members with the fixed side members and comprising approximately L-shaped lower leaves secured to the lower side edges of the crate and provided at their inner faces with vertical lugs, and upper leaves secured to the outer faces of the side 125 members and projecting above the same and provided at their inner faces with arms pivoted to the said lugs, the pivots at the opposite side of the crate being arranged at different elevations to permit the foldable members to overlap, and a removable cover 130

secured between the projecting ends of the upper leaves.

7. A foldable crate of the class described including foldable side and end members, an inwardly extending keeper lug arranged at the inner face of one of the said members, and a latch pivotally mounted at the inner face of the other member and detachably engaging the lug, and a cover fitted on the sections and retaining the latch in engagement with the keeper lug.

8. A foldable crate of the class described including foldable side and end members, a keeper lug arranged at the inner face of one of the said members, a pivoted latch arranged at the inner face of the other member to engage with the lug, and a plate or casing for the latch provided with an opening to receive the keeper lug and having a flange arranged contiguous to the said lug.

9. A foldable crate of the class described including foldable side and end members, a corner cleat secured to one of the members and provided at the inner face thereof with an inwardly extending keeper lug having a recess, a latch casing mounted on the other member and having an opening to receive the said lug and provided contiguous to the same with a flange, and a pivoted latch arranged within the casing and engaging with the keeper lug.

10. A foldable crate of the class described including foldable side and end members, an angle corner cleat secured to one of the members and provided with an inwardly extending keeper lug, a latch casing mounted on the other member and provided with means for interlocking it with the said lug and having a recess, and a pivoted latch member arranged to engage the lug and having an operating device at the said recess.

11. A foldable crate of the class described including spaced cam lugs located at the upper edge of one of the walls of the crate, a cover provided with means for interlocking it with the cam lugs, and fastening means located at the opposite wall of the crate.

12. A foldable crate of the class described including a bottom, folding members, upper and lower corner cleats hinged together

and provided at one end with upper and lower cam lugs, a cover provided at one end with means for interlocking it with either the upper or lower cam lugs, and fastening means for securing the other end of the cover to the crate.

13. A foldable crate of the class described including a bottom, fixed side and end members, upper and lower angle corner cleats forming hinges for connecting the foldable end members with the fixed end members, the cleats at one end of the crate being provided with inwardly extending lugs having lower cam edges arranged in spaced relation with the upper edges of the adjacent fixed and foldable end members, and a cover provided at one end with slots and having a metallic strip spanning the slots and arranged to interlock with the said lugs, which project into the slots, and locking means located at the other end of the cover.

14. A foldable crate of the class described including a fixed member, a foldable member hinged to the fixed member, upper and lower keepers mounted on the said members, a cover, and a fastener carried by the cover and composed of a casing having a slot, a locking member extending through the slot and movable inwardly and outwardly to engage and release the said keepers, and a spring located within the casing and engaging the locking member.

15. A foldable crate of the class described including a fixed member, a foldable member hinged to the fixed member, upper and lower keepers having projecting flanges, a cover, and a fastener carried by the cover and composed of a casing provided in its bottom with a slot, an approximately T-shaped locking member extending through the slot and having an opening to engage with the flanges of the keepers, and a spring arranged within the casing and bearing against the upper portion of the locking member to maintain the lower portions thereof in its engaging position.

In testimony whereof, I sign this specification in the presence of two witnesses.

MELZAR SHEPARD.

Witnesses:

J. H. PERRAULT,
I. G. HOWLETT.