R. L. PICKERING.

FOLDING CRATE.

APPLICATION FILED JUNE 29, 1911.

1,040,403.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

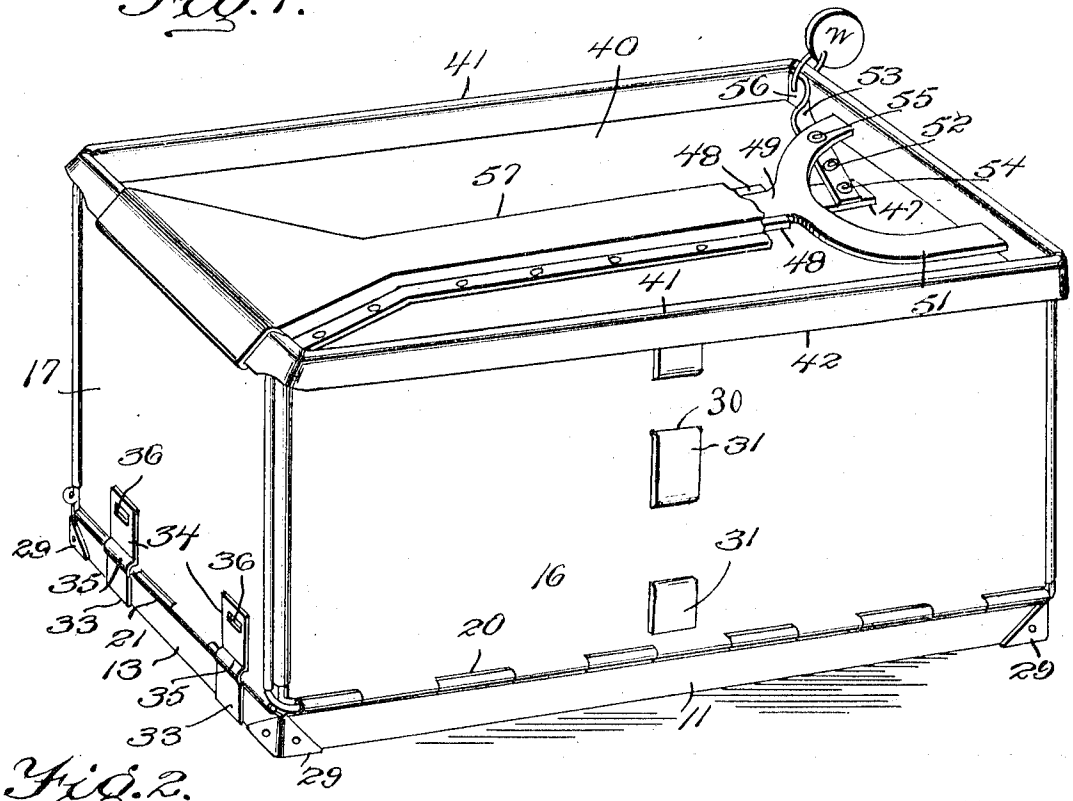
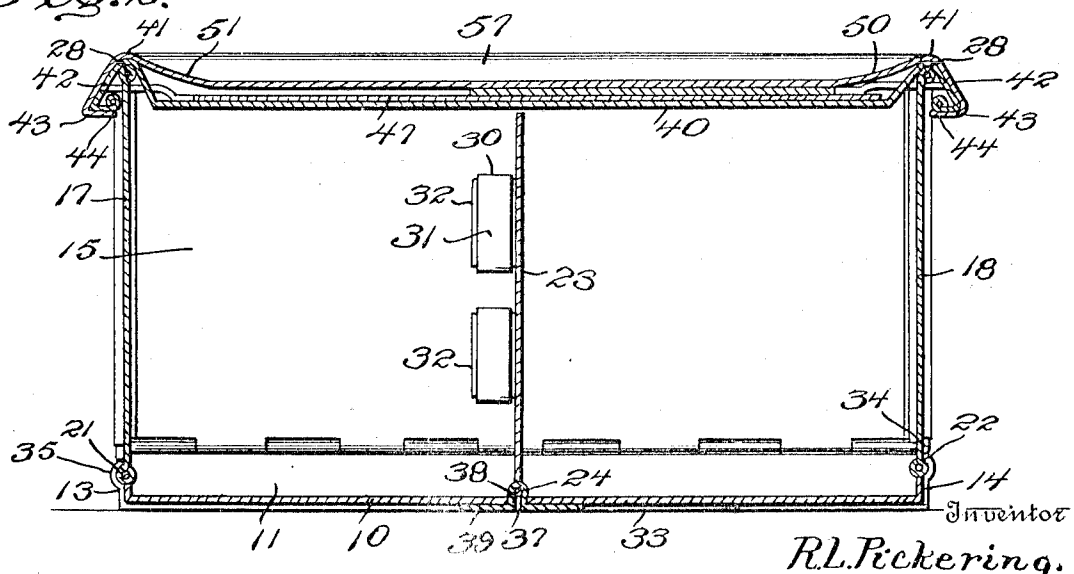


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

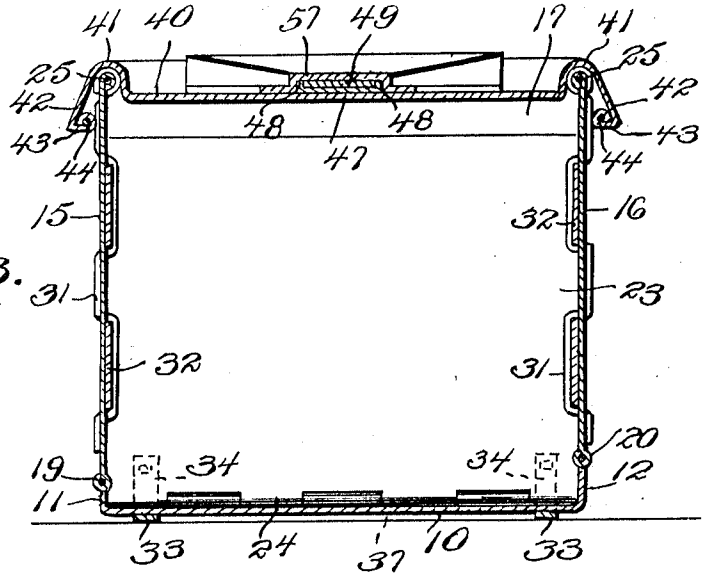


Fig. 4.

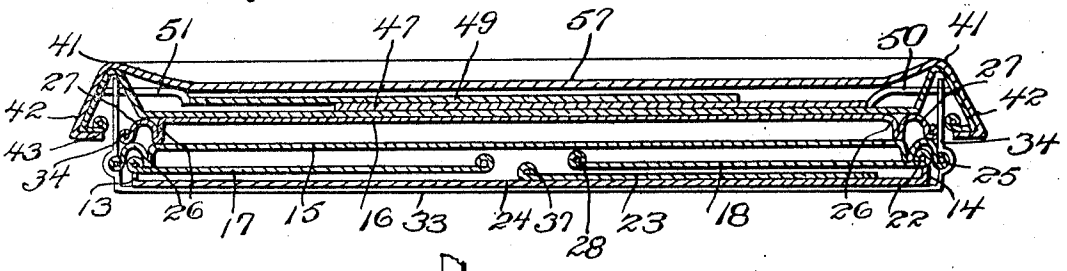


Fig. 6.

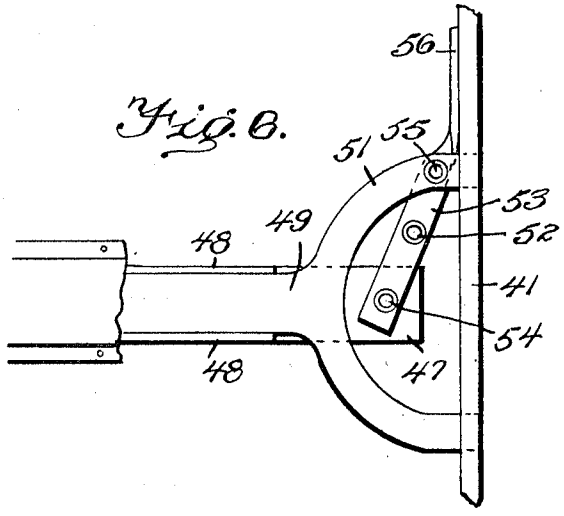
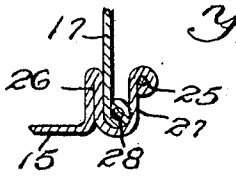


Fig. 5.



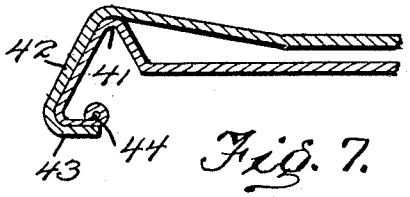


Fig. 7.

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UNITED STATES PATENT OFFICE.

RUBEN L. PICKERING, OF FALLING SPRING, WEST VIRGINIA.

FOLDING CRATE.

1,040,403. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed June 29, 1911. Serial No. 636,080.

To all whom it may concern:

Be it known that I, RUBEN L. PICKERING, citizen of the United States, residing at Falling Spring, in the county of Greenbrier and State of West Virginia, have invented certain new and useful Improvements in Folding Crates, of which the following is a specification.

This invention relates to improvements in folding crates, and has for its object to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character constructed entirely of sheet metal and provided with a detachable closure having a novel form of fastening device whereby the cover is simultaneously locked to the sides and ends when in open position.

Another object of the invention is to provide a device of this character having novel means whereby the cover is locked to the sides and ends when folded.

Another object of the invention is to provide a device of this character whereby the sides and ends are foldable into close relations without decreasing the capacity of the structure.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists of certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view of the improved device in open position with parts partly broken away to illustrate the construction. Fig. 2 is a longitudinal sectional elevation; Fig. 3 is a transverse sectional elevation; Fig. 4 is a longitudinal sectional view showing the parts in folded or collapsed position; Fig. 5 is a detail sectional view illustrating the construction of the sockets of the side members. Fig. 6 is an enlarged detail illustrating the operation of the locking levers; Fig. 7 is a sectional detail illustrating the construction of the rim of the cover and the guard member.

The improved device is constructed principally of sheet metal, and of any required size and of any required proportions, and comprises a bottom 10 having upturned sides 11—12 and upturned ends 13—14, the upturned sides and ends forming rib-like portions as shown. One of the side ribs is of less height than the other, as for instance, the side rib 11, while the end ribs 13—14 are of less height than the side rib 11, the object to be hereafter explained.

The improved device includes two side members 15—16 and two end members 17—18. The side member 15 is hingedly united as shown at 19, to the rib 11, while the side 16 is hingedly united as shown at 20, to the rib 12. The end 17 is hingedly united as shown at 21, to the rib 13, while the end 18 is hingedly united as shown at 22, to the rib 14. By this arrangement the ends 17—18 are foldable into close relations to the bottom 10, while the side 15 is foldable over the folded ends, and the side 16 foldable over the folded side 15, the greater height of the rib 12 permitting the parts to be folded into close parallel relations, as will be obvious.

An intermediate partition is provided in the improved structure and is indicated at 23, and is hingedly united as shown at 24, to the bottom 10. The sides 15—16 are each provided at their edges with a binding wire represented at 25 arranged in a novel manner, and utilized to support the sockets at the ends of the sides, but as these binding wires are arranged precisely alike upon both of the sides the description of one will suffice for both. The material employed for the sides is greater in length than the bottom 10 and the binding wires are extended along the outer edge and around the ends of each side and are united in the usual manner thereto by rolling the metal around the wire.

The surplus material in the sides at the ends before mentioned, is utilized to form sockets to receive the side edges of the ends 17—18, the sockets being formed by bending a portion of the metal upon itself as represented at 26, and then bending the remaining portion of the sides into parallel relations with the bent portion 26, as represented at 27, the space between the portions 26—27 forming sockets which engage over the adjacent side edges of the ends 17—18 as represented in Fig. 5. The contiguous edges of the sides 15—16 and the ribs 11—12 are formed with interengaging notches, the metal between the notches being bent around the binding wire 25 and thus forming hinges to swingingly connect the sides 15—16 with

the ribs 11—12. This arrangement forms a very compact, strong and durable connection between the sides and the bottom 10, and is constructed in an inexpensive manner and without employing useless parts. The ends 17—18 are each likewise provided with a binding wire indicated at 28, and the confronting edges of the ends and the ribs 13—14 are hingedly united in the same manner as the sides 15—16 are united to the ribs 11—12, as shown. The confronting ends of the ribs 11—12—13—14 are strengthened at the corners of the bottom by corner plates 29 secured preferably by riveting, as shown. The sides 15—16 are provided at intervals intermediate their ends, or at the point where the partition 23 is located, with slits or clefts 30, and strips 31 of sheet metal are woven through the slits to form sockets to receive the laterally turned edges 32 of the partition 23. By this simple means the partition is retained in its vertical position. At their upper ends the strips 31 are folded over the upper wired edges of the sides, as shown.

Extending beneath the bottom 10 and riveted or otherwise secured thereto, are strips 33 of strap metal, the strips extending beyond the bottom, and the extended portions upturned as shown at 34. The extended portions are of sufficient length when extended to project above the ribs 13—14 and are provided preferably with channels 35 to bear over the projecting portions of the hinges which unite the end ribs 17—18 to the end ribs 13—14. At their upper ends the projections 34 are each provided with an aperture 36 to receive the locking bolt when the crate is collapsed as hereafter explained.

The partition 23 is formed at its lower edge with a plurality of tongues which are folded around a wire which serves as a hinge pintle 37, and the bottom 10 is provided with cavities 38 corresponding in number and position with the spaces between the tongues of the partition. Each of the cavities 38 is provided with a holding strip 39 bent upon itself and engaged around the pintle wire and the sides extended through the apertures and separated beneath the bottom 10 or "clenched" against the bottom to form coupling means between the pintle and the bottom, and thus hingedly uniting the partition to the bottom.

The top of the improved crate is represented as a whole at 40 and is formed with an upturned folded-over rim 41 corresponding in outline to the sides and ends and bearing over the upper edges of the same so that the top 40 extends below the upper edges of the sides and ends when in position thereon, as shown. The outer portions of the folded-over rim of the top are extended at an outward and downward incline as represented at 42, and thence turned inwardly in a horizontal position as shown at 43, and provided at the inner edge with a binding wire 44. At the ends the folded-over rim of the top is extended outwardly to a greater extent than at the sides as represented in Figs. 1, 2 and 7, the object to be hereafter explained.

Mounted to slide upon the upper face of the cover 40, is a plate 47, this plate having its edges upturned as shown at 48, and bearing upon the plate 47 is another plate 49 slightly narrower than the plate 47, and engaging between the upturned edges 48. By this means the two plates are movable longitudinally and retained in parallel relations by the upturned edges 48 which serve as guideways between the two plates. The plate 47 is forked at one end as shown at 50 while the plate 49 is likewise forked at one end, as shown at 51, the two forked portions being located at opposite ends of the cover. The terminals of the forked portion 50 are arranged to operate through apertures formed in the elevated rib 41 of the cover at one end, and likewise through corresponding apertures in the end 18, while the terminals of the forked portion 51 operate through similar apertures in the turned-over rim 41 at the opposite end of the cover, and likewise through corresponding apertures in the end 17. By this arrangement when the plates 47—49 are moved outwardly or in opposite directions, the forked terminals serve as bolts to lock the cover 40 to the ends 17—18, and when the plates are moved inwardly, the forked terminals are withdrawn and release the cover. Pivoted at 52 to the cover 40, and within the forked portion 51, is an operating lever 53, the lever being pivoted at 54 to the plate 47, and at 55 to one of the forked portions 51 of the plate 49. At its outer free end the lever is upturned as shown at 56, and provided with an aperture, while the adjacent portion of the upturned rim 41 of the cover is provided with a corresponding aperture, the two apertures registering when the lever is in its outer position to provide means for receiving the hasp of a padlock or other fastening device. By this arrangement it will be obvious that by manipulating the lever 53, the two plates 47—49 may be actuated to lock the cover to the ends or to unlock it therefrom. This forms a simple means for manipulating the locking plates and is compact and simple. Bearing over the plates 47—49 and including the forked portions, is a guard 57, the guard conforming centrally in outline to the superimposed portions of the plates and enlarged at the ends to conform substantially to the forked portions, and with downturned edges bearing against the body of the top and riveted or otherwise secured thereto. At its ends the guard 57 is bent around the end portions of the upturned

rim 41 of the top and beneath the same, as shown. By this means relatively large projections are formed at the ends and thus provide efficient hand-grips to facilitate the handling of the device. The guard 57 is preferably formed of sheet metal considerably heavier than the metal of which the top and other parts are formed, and serves the two-fold purpose of a guard to the locking plates to stiffen and brace the top, and likewise stiffen and brace the turned-over portions, and to form hand-grips for the crate. By this simple means all of the locking mechanism except the projecting portion of the lever 53 is concealed, and protected by the guard 57.

When the device is arranged in folded position as shown in Fig. 4, the terminals of the forked portions 50—51 project through the apertures 36 of the projecting terminals 34 of the straps 33, and thus serve to lock the parts in closed relations.

By this simple arrangement it will be obvious that a simply constructed folding crate is produced, which may be employed for shipping various commodities, and returned to the shipper in folded condition when empty.

What I claim is:

1. A folding crate including a bottom, sides, and ends hingedly united to the bottom, and a top bent at its edges into an upwardly directed and downwardly opening rim for bearing over the upper edges of the sides and ends, the lower edge of said rim being further directed inwardly and bearing against the sides and ends and forming a horizontally extending hand grip entirely around the top and directed outwardly therefrom.

2. A folding crate including a bottom, sides, and ends hingedly united to the bottom, a top bent at its edges into an upwardly directed and downwardly opening rim for bearing over the upper edges of the sides and ends, said rim and ends having registering apertures, bolts slidable upon said top and passing through said apertures, a lever pivoted to said top and likewise pivotally connected respectively to said bolts, and a guard connected to said top and bearing over said bolts, said guard being extended at the ends around the rim of the top and beneath the same to form hand supports for the top.

In testimony whereof, I affix my signature in presence of two witnesses.

RUBEN L. PICKERING. [L. S.]

Witnesses:
H. W. KNIGHT,
M. P. HANNA.