

A. GOLDENETZ.

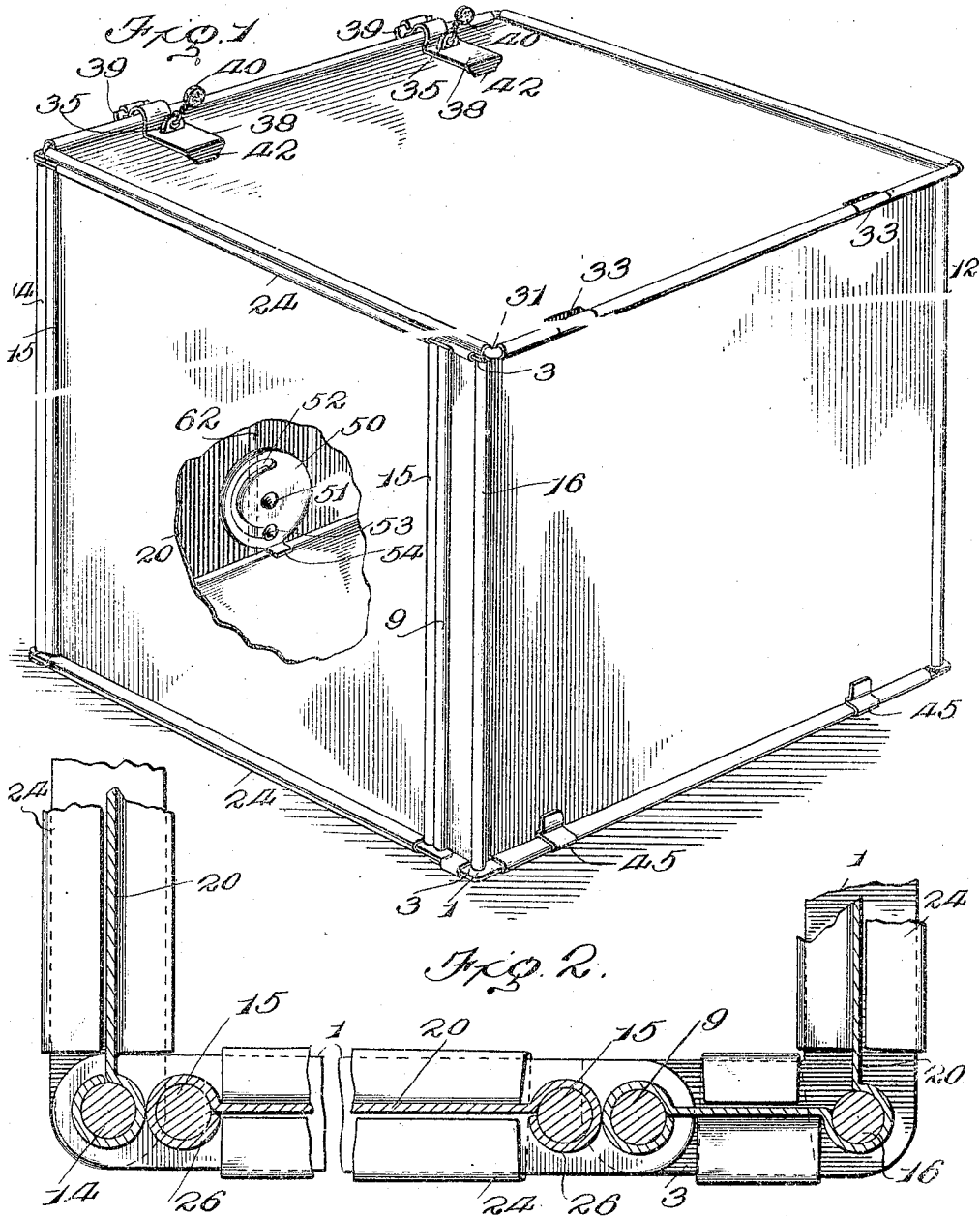
FOLDING BOX.

APPLICATION FILED AUG. 6, 1908.

952,445.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 1.



Witnesses
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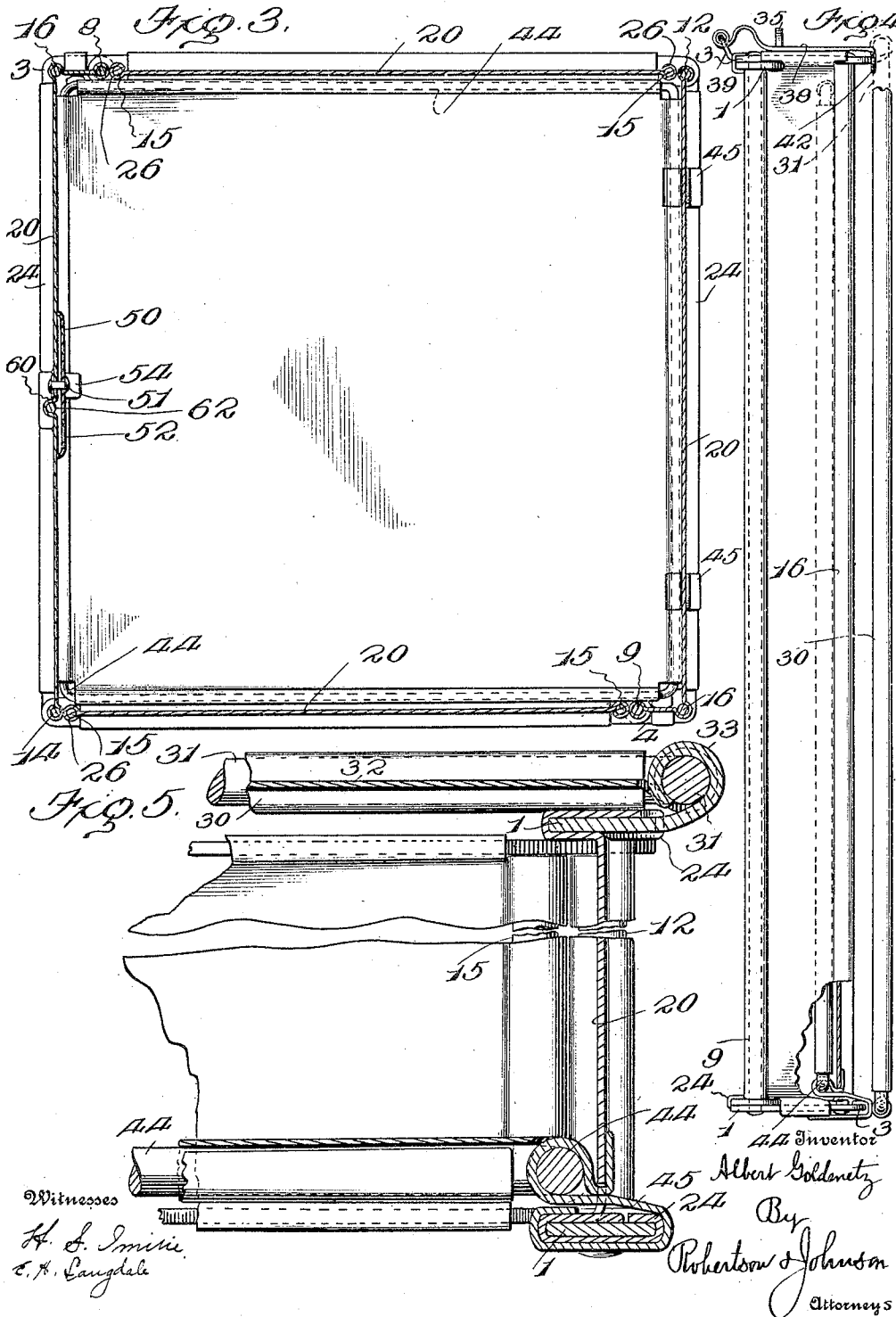
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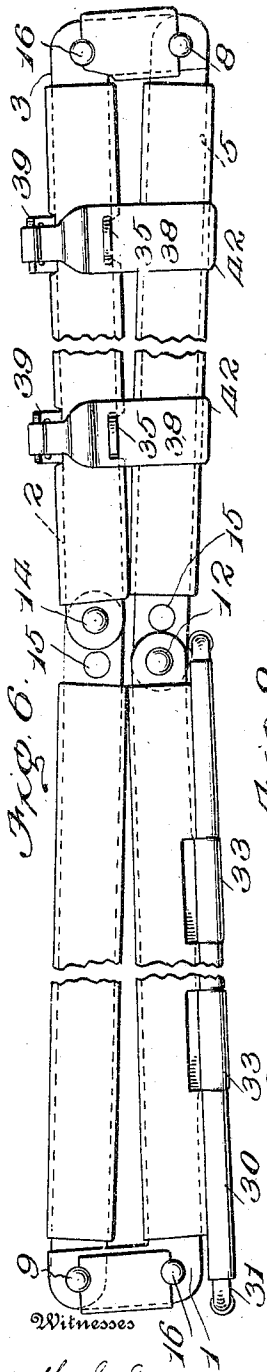
3 SHEETS—SHEET 2.



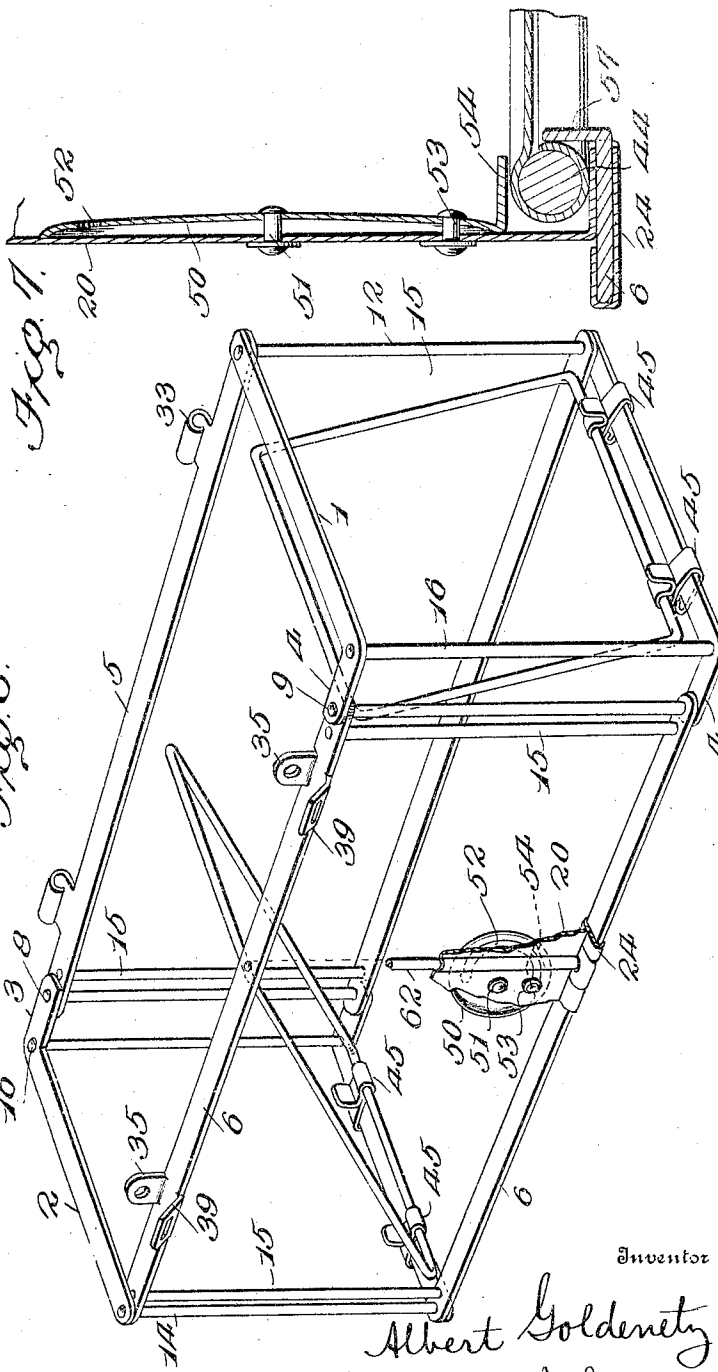
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3 SHEETS—SHEET 3.

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UNITED STATES PATENT OFFICE.

ALBERT GOLDENETZ, OF DEFIANCE, OHIO.

FOLDING BOX.

952,445.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed August 6, 1908. Serial No. 447,280.

To all whom it may concern:

Be it known that I, ALBERT GOLDENETZ, a citizen of the United States of America, and a resident of Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Folding Boxes, of which the following is a specification.

This invention relates to folding boxes adapted to be used in delivering or shipping merchandise from place to place; and the object of the invention is to provide a box of light material, preferably sheet metal, which may be folded up flat to occupy but little space, and therefore be especially adapted for the purpose of delivering groceries and transporting fruit, etc.

Another object is to provide a box of this character in which the bottom may be locked in position and the sides prevented from bulging.

Other details will also be hereinafter described.

The invention in its preferable embodiment consists of a box hereinafter more particularly described and then claimed.

In the drawings accompanying and forming part hereof: Figure 1 is a perspective view of my box ready for use. Fig. 2 is a cross section of part of the same, the line of section being through the rods and sheet metal sides. Fig. 3 is a horizontal sectional view, showing the arrangement of securing the sheet metal sides to the vertical rods. Fig. 4 is an end elevation of the box folded. Fig. 5 is a detail, partly in section, illustrating the connection between the sides and the framing members, and the way the cover and bottom are hinged. Fig. 6 is a top plan view of the same folded. Fig. 7 is a detail sectional view of the locking devices. Fig. 8 is a perspective view of the box having a two part bottom, the sides being off so that the construction may be better seen.

Referring now to the details of the drawings by numerals: The frame of the box comprises, both at the top and bottom, framing members formed preferably of flat metal bars, two of the bars 1 and 2 having L-shaped extensions 3 and 4 and the other bars 5 and 6 being straight bars connecting the two bars 1 and 2 as clearly seen in Fig. 8. At the points where the straight bars 5 and 6 are secured to the L-shaped pieces 3 and 4, they are pivotally connected by means of rods 8 and 9, which extend from the top

framing members to the lower framing members and connect them together, and the other corners of the box are also hinged together by means of similar rods 12 and 14, which also connect together the top and bottom framing members. This construction permits the box to fold substantially flat as seen in Figs. 4 and 6, and the rods 8, 10, 12 and 14 not only act as pivots but also strengthen the box and prevent the top and bottom framing members from collapsing. Two additional rods 15 are provided for each set of framing members 5 and 6 and these are for the purpose of having secured to them the sheet metal sides 20 of the box, and these sides inclose the whole space between the upper and lower framing members and between the said rods 15, each sheet metal side having its top and bottom bent around the upper and lower framing members as seen at 24 and also around the rods 15 as indicated at 26. The top and bottom framing members 1 and 2 are also each provided with an additional rod 16 at their L-shaped corners, and the sheet metal forming the sides is not only bent around said top and bottom framing members 1 and 2, but is also bent around the rod 14, and then looped around the extra rods 16 at the L-shaped corners and, instead of ending there, passes on and is bent clear around the rods 8 and 9 by which said L-shaped corners are hinged to the straight side members 5 and 6. (See Figs. 2 and 3).

To one side of the box, is secured a cover 30 which is formed of a wire 31 bent into rectangular shape and a sheet metal filling member 32, the latter being bent around the wire as clearly shown, and the cover being hinged, preferably to the upper framing member 1 by having extensions 33 on said upper framing member 1 bent around the rod 31 forming part of the cover.

When the box is in the position shown in Fig. 1, the cover is adapted to be folded down on top of the framing members 2, 5 and 6 and the framing member 2 is provided with lugs 35 which project through slots in the cover and these lugs 35 are adapted to coact with hasps 38 which are pivoted to lugs 39 opposite the lugs 35, these hasps being arranged to be moved over the lugs 35, when a ring or suitable locking device may be slipped through the perforations in the lugs 35 to lock the cover. Of course the locking of the cover also locks the box in the

position for use. When the box is folded the hasps 38 are again brought into use and are secured to the lugs 35 in the manner just described, and these hasps have flanges 42 which project over the upper side-framing members 5 and thereby lock the box in the folded position as shown in Fig. 4.

The bottom of the box may be made in one piece as shown in Fig. 1 or in two pieces as shown in Fig. 8. When made of one piece it is made in the same manner as the cover which has been already described and its wire 44 is preferably hinged to clips 45 projecting from the bottom framing member 1 so that the box may be opened as shown in Fig. 1, or it may be folded up against the side 1 as indicated in Fig. 6, when the box is folded. Just as long as the bottom of the box is in the position shown in Fig. 1 the box is held in open position ready for use even if the cover is not locked in position, and in order to provide a lock to hold this bottom in the position shown in Fig. 1, I employ a lock which in its preferable embodiment comprises a disk 50 pivoted at 51 to one of the sides of the box. This disk is slotted as indicated at 52 and coacts with a pin 53 which limits its rotary movement. The lock is also provided with a lug or projection 54 which, when the lock 50 is in operative position, is immediately under the pin 53 and immediately over one side of the wire in the bottom of the box, and this wire is thus held down by the lug 54 so that the bottom cannot be moved upward. When it is desired to open the bottom of the box, so that the box may be folded, the lock 50 is moved so that the lug 54 moves away from the bottom of the box, when said bottom may be folded against the side 1 and the box collapsed.

In order to make a better lock and at the same time to prevent the side from bulging I provide the lower framing member 2 with a lug 57, and this lug is immediately under the lug 54 when the lug 54 is in locked position. The lugs 54 and 57 coact in such a way as to receive and hold the rod in the bottom as clearly indicated in Fig. 7 and since the other end of the bottom is held at the opposite side 1 by its hinges, it is clear that the sides are thereby prevented from bulging.

In order to strengthen the box and also to prevent it from collapsing in the center of the sides, I form a groove 60 in the sheet metal forming the side, preferably directly behind the lock 50, and in this groove is located a wire rod 62 connecting the upper and lower framing members. This construction not only stiffens the side but prevents the top and bottom from collapsing as will be readily understood. In large boxes this stiffening rod may be inserted in several places at each side.

In the construction shown in Fig. 8, the rotary lock 50 has its lug 54 overlapping both parts of the folding bottom and it thereby locks both of said folding parts in position, but two separate locks may be provided for the two part bottom if desired.

Although I have illustrated the aforesaid lock 50 and prefer to use it in the form of a disk, it is obvious that it need not be made of disk form but any structure which provides means as the lug 54 capable of being moved over the bottom of the box to lock it in position or to be moved away in order to permit said box to be moved upward falls within the scope of my invention.

In Fig. 8, when the two part bottom is used, I may also employ a two part top, or if preferred a single top may be used which would be hinged to lugs projecting from the long side 5 as seen in said Fig. 8 instead of from the side 1 as indicated in Figs. 1 and 5.

It is obvious that changes and modifications may be made without departing from my invention, the scope of which is clearly set forth in the appended claims.

What I claim as my invention is:

1. In a folding box, upper and lower framing members comprising two members with L-shaped ends and two straight members, pivot rods pivotally connecting the L-shaped ends to one end of the straight members, pivot rods connecting the other ends of the L-shaped members with the other ends of the straight members, and sheet metal sides connected to said framing members, substantially as described.

2. In a folding box, upper and lower framing members comprising two members with L-shaped ends and two straight members, pivot rods pivotally connecting the L-shaped ends to one end of the straight members, pivot rods connecting the other ends of the L-shaped members with the other ends of the straight members, additional rods connecting said framing members alongside of said pivot rods, and sheet metal sides connected to said framing members and to said additional rods, substantially as described.

3. In a folding box, upper and lower framing members comprising two members with L-shaped ends and two straight members, pivot rods pivotally connecting the L-shaped ends to one end of the straight members, pivot rods connecting the other ends of the L-shaped members with the other ends of the straight members, additional rods connecting said framing members alongside of said pivot rods, sheet metal sides connected to the straight framing members and their additional rods, and sheet metal sides connected to the additional rods and to the L-shaped straight members by being bent around the pivot rods, substantially as described.

4. In a folding box, upper and lower framing members comprising two members with L-shaped ends and two straight members, pivot rods pivotally connecting the L-shaped ends to one end of the straight members, pivot rods connecting the other ends of the L-shaped members with the other ends of the straight members, additional rods at the corner of the L-shaped members, and sheet metal sides connected to said L-shaped framing members by being bent around the same and by being bent around the pivot rod at the L-shaped end of the framing members, then looped around the additional rod at the corner of the L-shaped members and being bent around the rod at the other ends of the L-shaped members, substantially as described.

5. In a folding box, upper and lower framing members comprising two substantially flat members with L-shaped ends and two substantially flat straight members, pivot rods pivotally connecting said members, whereby the box may be folded, sheet metal sides connected to said flat framing members, a top hinged to one of the top framing members and a bottom hinged to one of the bottom framing members, substantially as described.

6. In a folding box, upper and lower framing members comprising substantially flat metal bars, pivot rods connecting said sides whereby they may be folded, sheet metal sides connecting said framing members by being bent around the same, lugs projecting from one of the top framing members and a cover hinged to said lugs, substantially as described.

7. In a folding box, two pairs of sides pivotally connected together whereby they may be folded, a cover hinged to one of the sides and foldable parallel therewith when the box is collapsed and arranged to close the entire box when the box is open for use, and a hasp coacting with said cover to lock it when the box is in position for use, said hasp also coacting with one of the sides and locking the box in the folded position, substantially as described.

8. In a folding box, two pairs of sides pivotally connected together whereby they may be folded, a cover hinged to one of the sides and foldable parallel therewith when the box is collapsed and arranged to close the entire box when the box is open for use, and a hasp connected with one of the sides and coacting with said cover to lock it when the box is in position for use, said hasp also coacting with another of the sides and locking the box in the folded position, substantially as described.

9. In a folding box, two pairs of sides pivotally connected whereby they may be folded, a cover hinged to one of the sides

and arranged to cover the box, a lug on one of the sides coacting with said cover, and a hasp connected with said side and coacting with said lug to lock the cover in position, said hasp also coacting with one of the sides to lock the box in the folded position, substantially as described.

10. In a box, two pairs of sides pivotally connected whereby they may be folded, a cover hinged to one of the sides and arranged to cover the box, a lug on one of the sides coacting with said cover, and a hasp connected with said side and coacting with said lug to lock the cover in position, said hasp also having a flange coacting with one of the sides and a perforation to receive said lug to lock the box in the folded position, substantially as described.

11. In a box, the combination of a bottom adapted to be folded, and a lock comprising a rotatable member coacting with said bottom to lock the same in position and constructed to be moved away from said bottom to permit the bottom to be folded, substantially as described.

12. In a box, the combination of a bottom adapted to be folded, and a lock comprising a rotatable member constructed and adapted to be moved over said bottom to lock the same in position and to be moved away from said bottom to permit the bottom to be folded, substantially as described.

13. In a box, the combination of a bottom hinged to one side of the box, and a lock connected with one of the sides of the box and having a rotatable member adapted to lock said bottom in position, and constructed to be moved away from said bottom to permit the bottom to be folded, substantially as described.

14. In a box, the combination of a bottom hinged at one of its sides, a lug at the opposite side of the box coacting with said bottom, and a lock comprising a rotatable member coacting with said bottom and lug to lock said bottom and lug in engagement and thereby prevent the sides from bulging, substantially as described.

15. In a box, the combination of a bottom hinged at one of its sides, and a rotary lock secured to the box and having a projection thereon, said rotary member being movable to bring said projection over the bottom to lock the same in position, substantially as described.

16. In a box, the combination of a bottom hinged at one of its sides, a lug at the opposite side of the box coacting with said bottom, and a rotary lock above said lug having a projection thereon, said rotary member being adapted to rotate to clamp the bottom between said projection and said lug, substantially as described.

17. In a box, the combination of a bottom hinged at one of its sides, and a rotary lock

to hold the bottom in position, said lock having a slot limiting its movement and a projection arranged to coact with the bottom of the box, substantially as described.

- 5 18. In a box, upper and lower framing members, sheet metal sides connecting the same and having a groove therein, and a strengthening rod located in said groove and

connecting said upper and lower framing members, substantially as described. 10

Signed by me at Defiance, Ohio, this 24th day of July 1908.

ALBERT GOLDENETZ.

Witnesses:

F. L. Hox,
HARRIET BLAIR.