E. B. STONE.

DRAG BOX.

APPLICATION FILED APR. 2, 1913.

1,112,943.

Patented Oct. 6, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

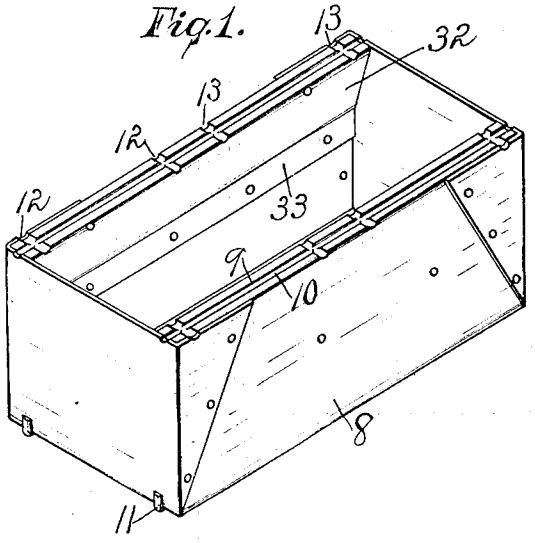


Fig. 2.

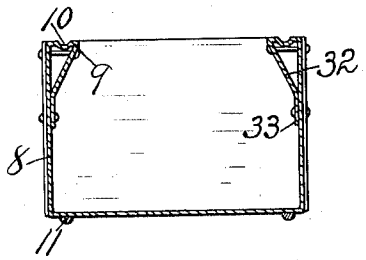


Fig. 3.

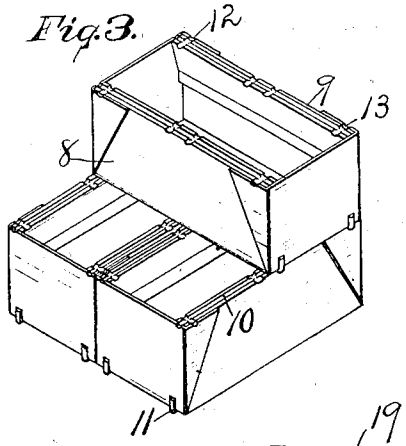


Fig. 10.

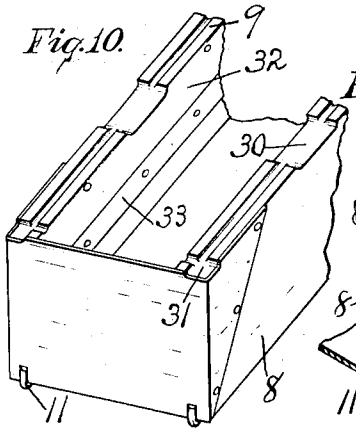


Fig. 4.

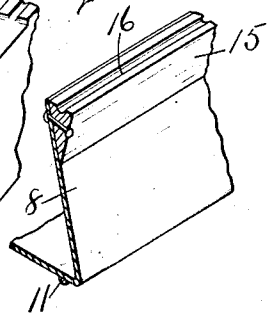


Fig. 5.

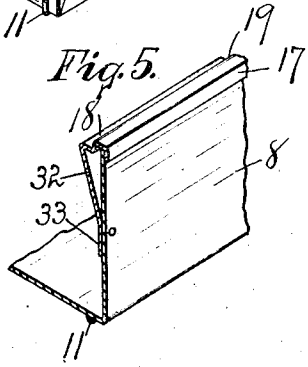
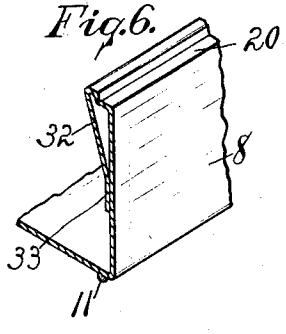


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

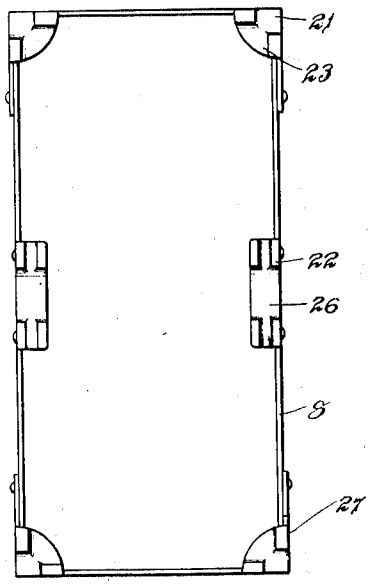


Fig. 8.

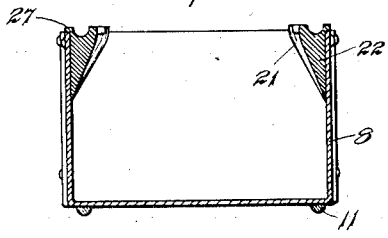
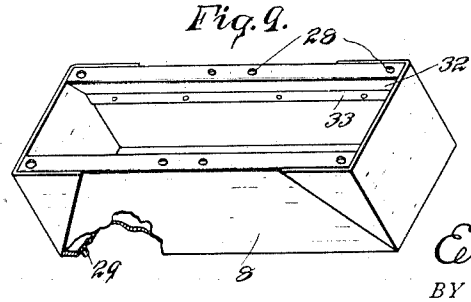


Fig. 9.



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DRAG-BOX.

1,112,943. Specification of Letters Patent. Patented Oct. 6, 1914.

Application filed April 2, 1913. Serial No. 758,305.

To all whom it may concern:

Be it known that I, ELMER B. STONE, a citizen of the United States, and a resident of New Britain, in the county of Hartford and State of Connecticut, have invented a new and Improved Drag-Box, of which the following is a specification.

My invention relates to the class of receptacles used more especially about factories for transporting manufactured articles and parts of articles, and an object of my invention, among others, is to provide a box of this character that shall be extremely simple and durable in its construction, and one enabling the boxes to be readily piled one on top of another so that the contents of an under box may be readily displayed and this without danger of the boxes sliding from the pile as they are being moved.

Forms of drag boxes embodying my invention, and in the construction and use of which the objects herein mentioned, as well as others, may be attained, are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a drag box embodying my invention; Fig. 2 is a view in cross section through the same; Fig. 3 is a view showing one manner of piling the boxes one on top of the other; Figs. 4, 5, and 6, are detail views showing modified forms of construction; and Figs. 7 and 8 show respectively in plan and section a box embodying another modification of the invention. Fig. 9 is a perspective view showing a drag box or receptacle embodying still another modification of the invention. Fig. 10 is a detail view showing a part of a box embodying still another slightly modified form of construction.

A drag box or receptacle containing my invention enables an extremely strong receptacle to be made in an effective and economical manner and having means which will enable them to be formed into piles of extreme rigidity and of practically any size with little danger of falling.

This improved box or receptacle has a bottom and an upper edge provided in any suitable manner with registering interengaging recesses and projections arranged to permit the piling of the receptacles crosswise and lengthwise each of another in an endless variety of ways. The upper edges of the boxes or receptacles may be provided in any suitable manner with the lugs or recesses, either or both, and when the sides are of comparatively thin material the upper edge may be formed to the desired thickness in any suitable manner.

While my invention is not confined to an article having thin sides and thick upper edges, as my invention finds ready adaptation in such a structure I have selected such for the purpose of disclosure of my invention herein.

The drawings show the box preferably constructed, as to its sides and ends, of a single piece of metal cut and bent to form the box in any well known manner. The upper edges of the sides 8 of the box are constructed of a width constituting ledges 9 extending lengthwise of the box and having lengthwise recesses or grooves 10 of a size and form to receive ribs or projections 11 disposed lengthwise of the box on the bottom thereof. While the construction of the ledges 9, so long as desired width is obtained, is immaterial, in a preferred form of structure shown herein they are composed of metal of substantially the same thickness as that of the box, the structure illustrated especially in Figs. 1, 2 and 6, having the ledges formed from the same piece of metal as that composing the sides, while in the structure shown in Fig. 5 they are composed of a separate piece of metal. These ledges may be strengthened or braced, if such shall be required, by extending the metal and firmly supporting its lower end. As shown, the metal is extended obliquely downward, as at 32, until it contacts with the side of the box, and a short extension 33 along the surface of the box may receive rivets by means of which the brace is secured in place. The grooves or indentations in the ledge may be formed by bending or indenting the metal. A number of boxes or receptacles thus constructed may be filled to the rim and piled one upon the top of another, the ribs or projections 11 of an upper box being located in the grooves or depressions 10 of an under box and the boxes may be slid one upon

another in a direction lengthwise of the box only. When placed in piles upon trucks or other conveyances and the piles are caused to assume inclined positions the boxes may be so arranged as to dispose the grooves and ribs in a manner to resist sliding movement of the boxes one upon another owing to such inclination. At the same time any of the upper boxes may be slid upon a lower box lengthwise thereof sufficient to uncover and expose the contents of the lower box, and this operation may be effected as to any of the boxes in a pile of two or more, the second box from the bottom being slid in one direction to uncover its contents and the third being caused to directly overlie the bottom box and the fourth box to overlie the second box and so on.

In a satisfactory form of construction the boxes are each made of a width substantially half that of the length, and the ledges 9 are provided with grooves or depressions properly arranged with respect to the ribs 11 on the bottom of the box to receive such ribs. In the structure shown in Fig. 1 two sets 12—13 of crosswise grooves are provided which will enable the boxes to be piled crosswise of each other as shown in Fig. 3. This crosswise arrangement of the grooves or depressions will enable the boxes to be piled to overlap each other, or "break joints" in an endless variety of ways, whereby a pile of almost any size and of extreme stability may be made. Take the showing in Fig. 3, for instance, two more boxes may be placed with their ends against the bottom boxes shown in this figure, and two more boxes placed upon the bottom boxes, disposed lengthwise thereof but across the joint formed by the meeting ends of the boxes, the upper boxes resting with their ends against the sides of the boxes disposed crosswise of the bottom boxes.

In Fig. 4 the ledge is produced by means of a solid piece 15 riveted to the upper edge of the box and having the groove 16 for the reception of the ribs 11 hereinabove described, it being noted that the sides of the box are inclined inwardly to locate the groove 16 in vertical alinement with the ribs 11.

In the form of device shown in Fig. 5 the ledge is similarly formed as in the structure shown in Fig. 1, it being constituted, however, of a separate piece of metal from that of the side and having a lip 17 overlapping the upper edge of the side and with a step or depression 18 in the place of the groove, this step being located to receive the ribs 11 on the bottom against the shoulder 19 formed by the step 18.

In the construction shown in Fig. 6 a step or depression 20 is provided, which step, however, opens outward instead of inward as shown in Fig. 5, and in this case the ledge, as in Fig. 1, is formed from the same piece of metal as the side of the box.

An examination of Figs. 7 and 8 will show the ledges arranged to perform their function, although not extending for the full length of the box, corner pieces 21 and center pieces 22 fulfilling the requirements to every intent and purpose. These corner and center pieces are arranged to receive the ribs from the bottom of the boxes or receptacles when the latter are disposed lengthwise or crosswise each upon another. In this form of the device the grooves 23 in the corner pieces may, if desired, be cut away on opposite sides, as clearly shown in the drawing, it being noted, however, that both the lengthwise and crosswise grooves are present to all intents and purposes. It may also in some instances, be desirable to remove the metal between the two crosswise grooves at the center of the box as clearly shown in this view, in this case, a single wide crosswise groove 26, of a width equal to the distance between two of the crosswise grooves, as illustrated in Fig. 1, serving the desired end. In this form of structure an overhanging part or lip 27 may be provided to rest upon the top edges of the box.

In the form of box shown in Fig. 9 instead of the lengthwise and crosswise grooves, recesses 28 are disposed both lengthwise and crosswise of the box to receive studs or lugs 29 arranged on the bottom of the box to register with said depressions or recesses.

In the slightly modified form of device shown in Fig. 10 while the construction is similar to that shown in Figs. 1, 2, &c., the center crosswise grooves 30 are shown as of the extreme width herein above described and the metal is also removed at the corners of the box as at 31 in a manner to preserve both the crosswise and lengthwise grooves to all intents and purposes at this point.

The recesses and lugs 28 and 29 are so arranged that they will interengage whether the boxes be piled crosswise or lengthwise each of another.

I claim:—

1. A receptacle having its upper edge and bottom provided with projections and recesses positioned to interengage with mating formations on a receptacle of like construction piled either crosswise or lengthwise thereof.

2. A receptacle having its upper edge and bottom provided with projections and recesses positioned to interengage with projections and recesses on a plural number of receptacles of like construction located in the same horizontal plane, either above or below, and arranged either lengthwise or crosswise thereof.

3. A receptacle composed of thin material and having an upper edge greater in breadth than the thickness of the metal composing the receptacle, said upper edge and the bottom having projections and recesses positioned to engage with projections and recesses on receptacles of like construction piled either crosswise or lengthwise one upon another.

4. A receptacle having its upper edge and bottom provided with projections and recesses positioned to register with projections and recesses on receptacles of like construction piled either crosswise or lengthwise one upon another, said projections and recesses being of a construction to permit, when so piled, sliding movement in one direction and prevent sliding movement in another direction.

5. A receptacle having an upper edge and with projections and recesses upon said edge greater in breadth than the thickness of the metal composing the receptacle and upon the bottom positioned to interengage with projections and recesses on receptacles of like construction piled either crosswise or lengthwise one upon another, said recesses extending out at the end of the receptacle to permit sliding movement in one direction only when so piled.

6. A receptacle having its upper edge and bottom provided with projections and recesses positioned to engage with projections and recesses on receptacles of like construction piled in the same position or in a different angular position with respect to a plane passing centrally through said receptacle in the direction of its depth.

7. A receptacle composed of thin material having at its upper edge a ledge formed of metal of substantially the same thickness, the metal composeing the ledge being extended downwardly therefrom against the side of the receptacle and secured thereto, the bottom of the receptacle and said ledge having an oppositely disposed registering lug and recess.

8. A receptacle composed of thin material having at its upper edge ledges formed of metal of substantially the same thickness extending substantially parallel with the bottom of the receptacle and then downward, a support for the lower edge of the downwardly extended part to hold it rigidly in place, said ledges and the bottom of the receptacle having projections and recesses positioned to interengage with projections and recesses on receptacles of like construction.

9. A receptacle formed of thin material and having an edge forming a ledge with lengthwise and crosswise grooves therein. and a projection formed on the bottom of the box and positioned to rest in either of the lengthwise or crosswise grooves on the edges of boxes of like construction.

10. A drag box composed of thin material having an edge constituting a ledge greater in breadth than the thickness of the metal composing the box and having a groove extending lengthwise in the upper surface thereof, and a rib formed on the bottom of the box in a position to enter a like groove in a box of like construction.

11. A box composed of thin material and having at its upper edges ledges formed of metal of substantially the same thickness extending substantially parallel with the bottom of the box and then obliquely downward and secured to the side of the box, said ledges having grooves and ribs extending lengthwise of the bottom of the box in position to enter the grooves in the upper edges of boxes of like construction.

12. A box composed of thin material and having a broad edge forming a ledge composed of metal of substantially the same thickness and extending substantially parallel with the bottom of the box and then downwardly and secured against the side of the box, said ledges having crosswise grooves and lengthwise grooves and said box being of a length substantially double its width, and ribs located on the bottom of the box and arranged to enter both the lengthwise and crosswise grooves in the upper edge of boxes of like construction.

13. A box composed of thin material and having its upper edges provided with ledges composed of metal of substantially the same thickness and extending substantially parallel with the bottom of the box and then downwardly and secured against the side of the box, said ledges having lengthwise grooves and two sets of crosswise grooves, the lengthwise grooves and the grooves of each set being located at a distance apart equal to the distance between ribs on the bottom of the box, said box being of a length substantially double its width, and ribs located on the bottom of the box.

14. A box composed of thin material and having its upper edges bent to form a ledge extending substantially parallel with the bottom of the box and then downwardly and secured against the side of the box, said ledges having lengthwise grooves located a distance apart substantially equal to the distance between ribs extending lengthwise on the bottom of the box, and ribs secured to the bottom of the box and extending lengthwise thereof.

15. A box composed of thin material having its upper edges bent to form a ledge extending substantially parallel with the bottom of the box and then downwardly and secured against the side of the box on the inner side thereof, said ledge having lengthwise grooves located a distance apart substantially equal to the distance between

ribs extending lengthwise of the box on the bottom thereof, and ribs located on the bottom of the box.

16. A box formed of thin material of a length substantially double its width and with its side edges bent at the top substantially parallel with the bottom to form ledges and then downwardly and secured against the inner surface of the box, said ledges having lengthwise grooves and a set of crosswise grooves, said lengthwise grooves and crosswise grooves being located substantially a distance apart equal to the distance between ribs located on the bottom of the box, and ribs located on the bottom of the box and extending lengthwise thereof.

17. A receptacle having its upper edge and bottom provided with oppositely disposed projections, and recesses located the same distance apart both crosswise and lengthwise of the receptacle.

ELMER B. STONE.

Witnesses:
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A. O. AMES.