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W. G. SEABOLD, SR

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BOX OR GRATE STRUCTURE

Filed May 22, 1930

Fig. 1

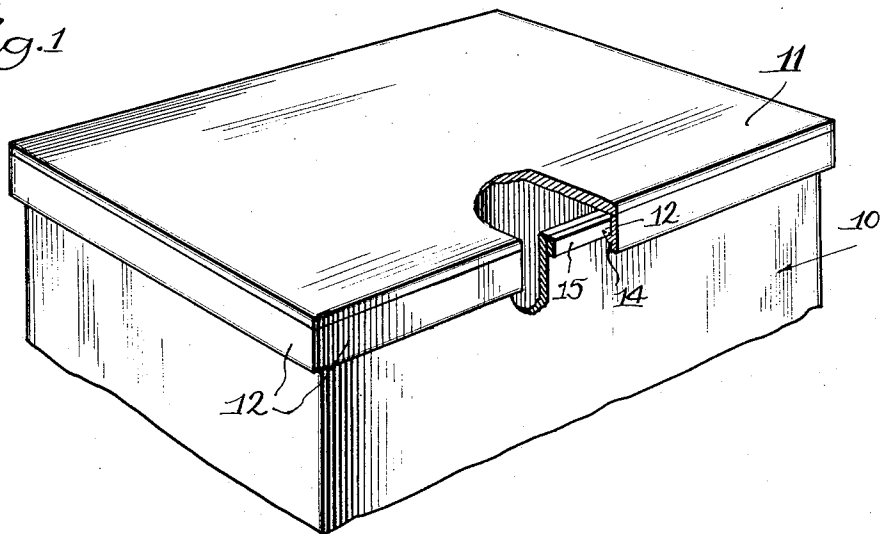


Fig. 2

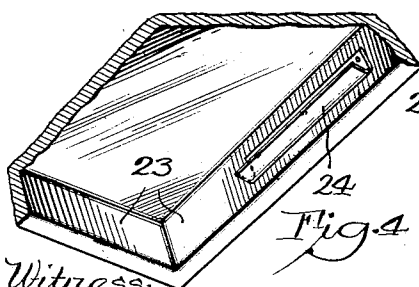
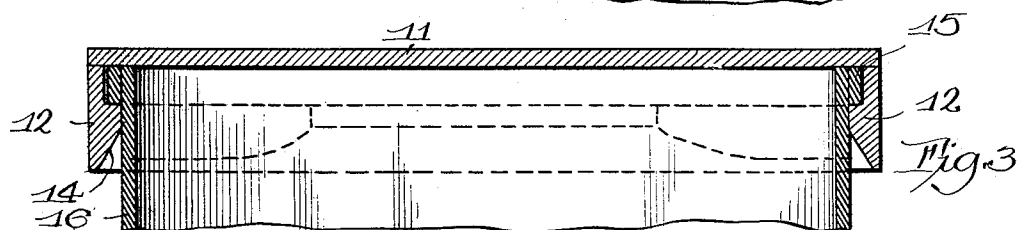
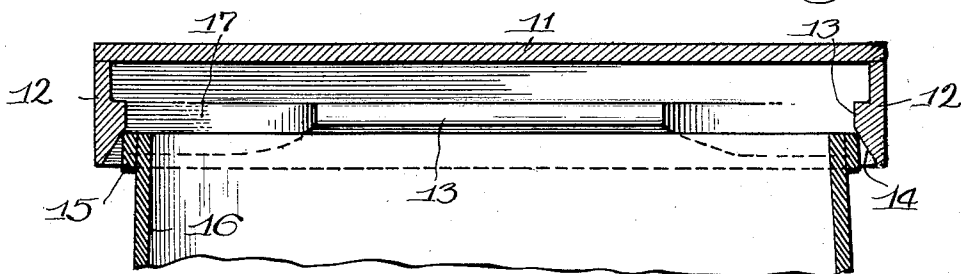


Fig. 4

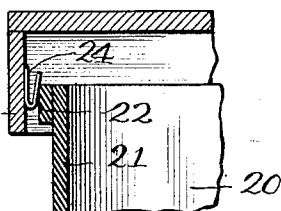


Fig. 5

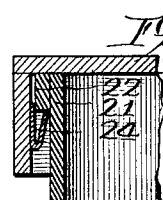


Fig. 6

Witness:
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UNITED STATES PATENT OFFICE

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BOX OR CRATE STRUCTURE

Application filed May 22, 1930. Serial No. 454,650.

The present invention relates to boxes, crates, enclosures and the like, and has particular reference to cooperating structures in both a box-like article, and a cap-like cover therefor, which structure is self-locking.

5 The invention aims to provide structures which can be made economically, and which can be assembled without the use of a tool in that operation. It is a particular object to apply the structure to wooden box construction.

10 It is another object of the invention to provide cooperating structures, one of which is resilient.

15 It is another object to provide a rigid cap or cover construction and a resilient structure in the box-like article.

Various other objects and advantages of the invention will be apparent from the following description of an exemplary embodiment thereof shown in the accompanying drawing in which

Fig. 1 is a general view of a box with cover fitted in locked position.

25 Fig. 2 is a cross section of the box showing a cover being moved into locking position.

Fig. 3 is a view like Fig. 2 showing the cover moved into locked position.

30 Fig. 4 is a modified form of the invention wherein the resilient part is on the cover.

Figs. 5 and 6 are respectively views of the cover and box of Fig. 4 in the act of being positioned to engage, and in the engaged relation.

35 Although I have hereinafter disclosed and specifically described a wooden box of the closed type, it is to be understood that the invention is not thus limited to a closed box, nor to any specific material, nor structure, and that various modifications and changes in construction are herein contemplated, as will fall within the scope of the invention as it is expressed in the appended claims.

45 The drawing shows for illustration a receptacle, such as the closed box 10, and a cap therefor such as the cover 11 having flanged sides 12, which receive the box. One or more of the flanged sides and preferably one or both pairs of opposite sides 12 have inwardly extending retaining means, such as the ribs

13 preferably formed integrally with the sides. Cam surfaces 14 may be formed flaring away from the cap top so that the top may more easily receive the box. The box has a complementary outward projection near its top edge to be engaged by the ribs 13 acting on the underside of the projection, such as strips 15 shown about the edge of the box.

In the preferred embodiment, the cover and its flanges are rigid and do not flex in use.

The box 10 has its sidewalls 16 which are to be engaged so formed that they may flex inwardly (Fig. 2) from normal position (Fig. 3). Since the box does not flex at the corners, the walls 16 do not flex adjacent the corners sufficiently to permit use of a long rib 13. Consequently short ribs are shown, as may be formed by cutting away portions 17 as the rib nears the corners.

By the structure above described the cover may be forced onto the box to lock itself. The cam surfaces 14 engage the strips 15 to flex the sides 16 inwardly. This permits the cover to move into place (Fig. 3) so that strips 15 are automatically hooked over ribs 13 as the box springs back to normal form.

Figs. 4, 5 and 6 show a modified form of the invention in which the flexing takes place in the cover or cap. A rigid box structure 20 is indicated with a side wall 21 and an outward projection 22 near the top edge. The cover has a set of rigid flanges 23 which will receive the box. On the inside of one or more flanges, inwardly projecting retaining means are shown which will flex. This is illustrated in the form of a V-folded metal strip 24, one side of which is secured to a flange. The other side is free to spring back (as in Fig. 5) when the cover is being positioned, and then to flex forward (as in Fig. 6) to engage under the projection 22.

The form of structure shown in Figs. 1 to 3 is preferred for the reason that it lends itself to the economical use of wood. The ribs 15 may act as cleats to hold panels or crate-forming lengths. Likewise the flanges 12 may form a frame to carry crate-forming lengths as a panel to be used as a closure

for the box or crate opening. The ribs and the bevel on the cover flanges are readily formed with standard machines and the cut away portions and the ribbed structure strengthen the flange. Such a cover may be forced onto a companion box and locked in place automatically. The bevelled ribbed flanges form convenient handles for lifting the box.

The invention is subject to various modifications, changes and departures from the specific illustrations. It is to be understood that the particular embodiments herein described do not in any way limit the invention short of its scope as expressed in the appended claims.

What I claim is:

1. A self-locking structure in a box-like article and cover therefor comprising a box-like article having two opposite panels forming sides which flex slightly inwardly, a rib on each of said panels at the edge near the box opening, a cap-cover for said box having peripheral flanges forming a rigid frame as a short skirt portion so formed as to provide a handle and adapted to fit over the open end of said box, an inward projection on two opposite flanges in a position corresponding to

the vicinity of the middle of the yielding panels of the box, said projections being bevelled to act on a rib to flex a panel, and being formed and positioned to engage the rib positively and to house the rib snugly in a space between the projection and the top of the cover.

2. A self-locking structure in a box-like article and cover therefore comprising a box-like article having two opposite panels forming sides, a rib on each of said panels at the edge near the box opening, a cap-cover for said box having peripheral flanges forming a rigid frame as a short skirt portion so formed as to provide a handle and adapted to fit over the open end of said box, an inward projection on two opposite flanges to engage under one of said ribs, said projection having an inclined surface for engagement with said rib in assembling the box and cover, said projection forming a space between itself and the top of the cover wherein to snugly house said rib, said rib and projection being arranged for positive engagement against withdrawal, one of the engaged parts being flexible for yielding as said inclined surface engages said ribs.

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