

[54] **BOX HAVING A CARRYING
HANDLE-LATCH**

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220/97 F, 229/44, 229/45

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[58] Field of Search. **220/55.7, 55 R, 55 G,**
220/60 R, 97 F, 94 A; 229/44, 45; 206/1 R,
73; 150/.5; 190/55 R; 292/87, DIG. 30; 16/11
R, 124

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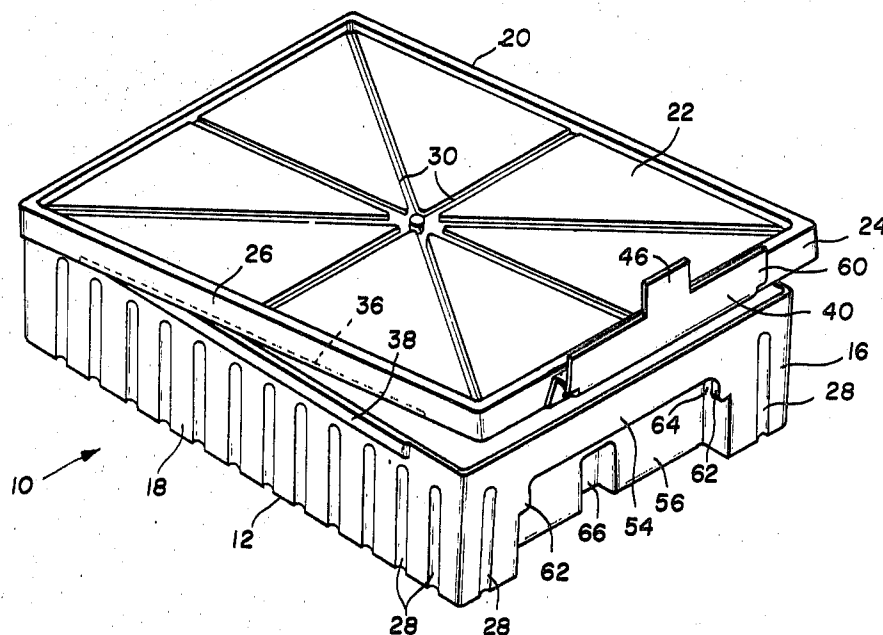
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[57]

ABSTRACT

A thin plastic rigidified box comprising a receptacle, a cover for the receptacle, and a detent and carrying handle-latch for releasably securing the cover to the receptacle. The carrying handle latch is movable between an unlatched position in which the cover may be readily removed from the receptacle, and a latched position in which the latch serves the dual function of releasably securing the cover to the receptacle and providing a carrying handle for the box. The carrying handle-latch comprises a flexible arm having a handle forming hook latch for latching onto a shoulder on the receptacle, and one or more auxiliary flap latches integral with the arm that are forced past a flange and into a notch in the receptacle for greatly increasing the force required to move the hook latch to its unlatched position.

8 Claims, 6 Drawing Figures



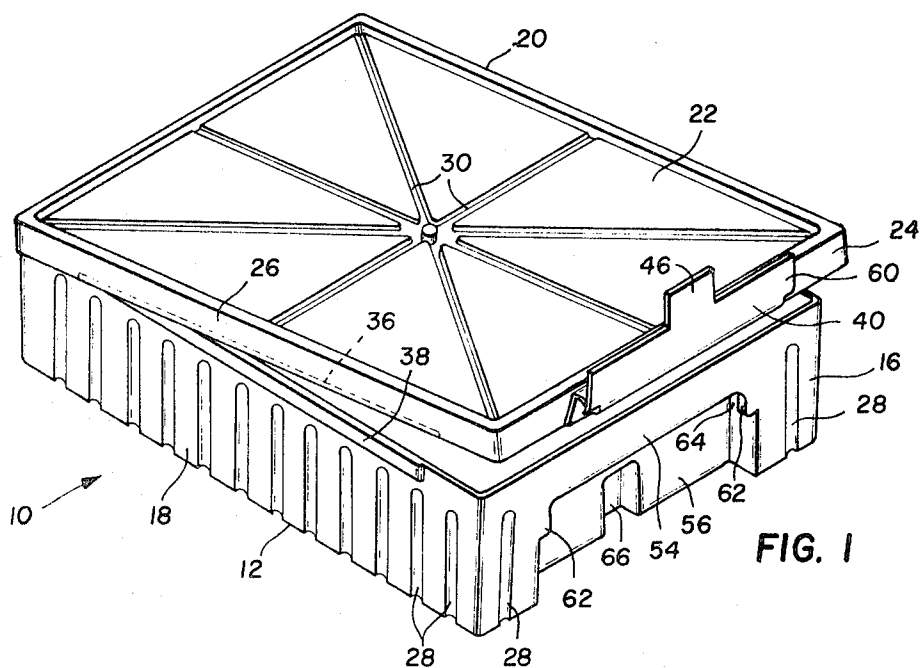


FIG. 1

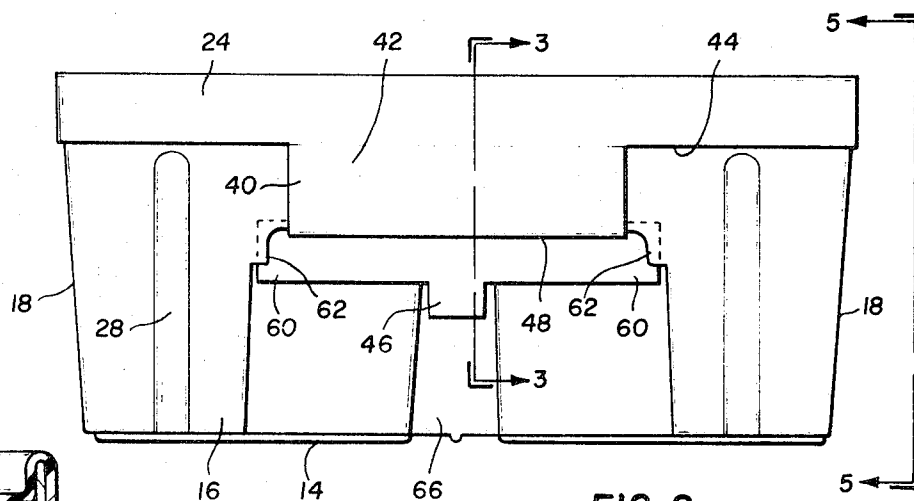


FIG. 2

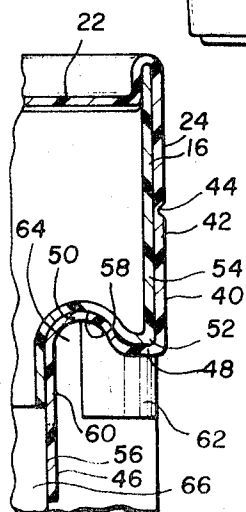


FIG. 3

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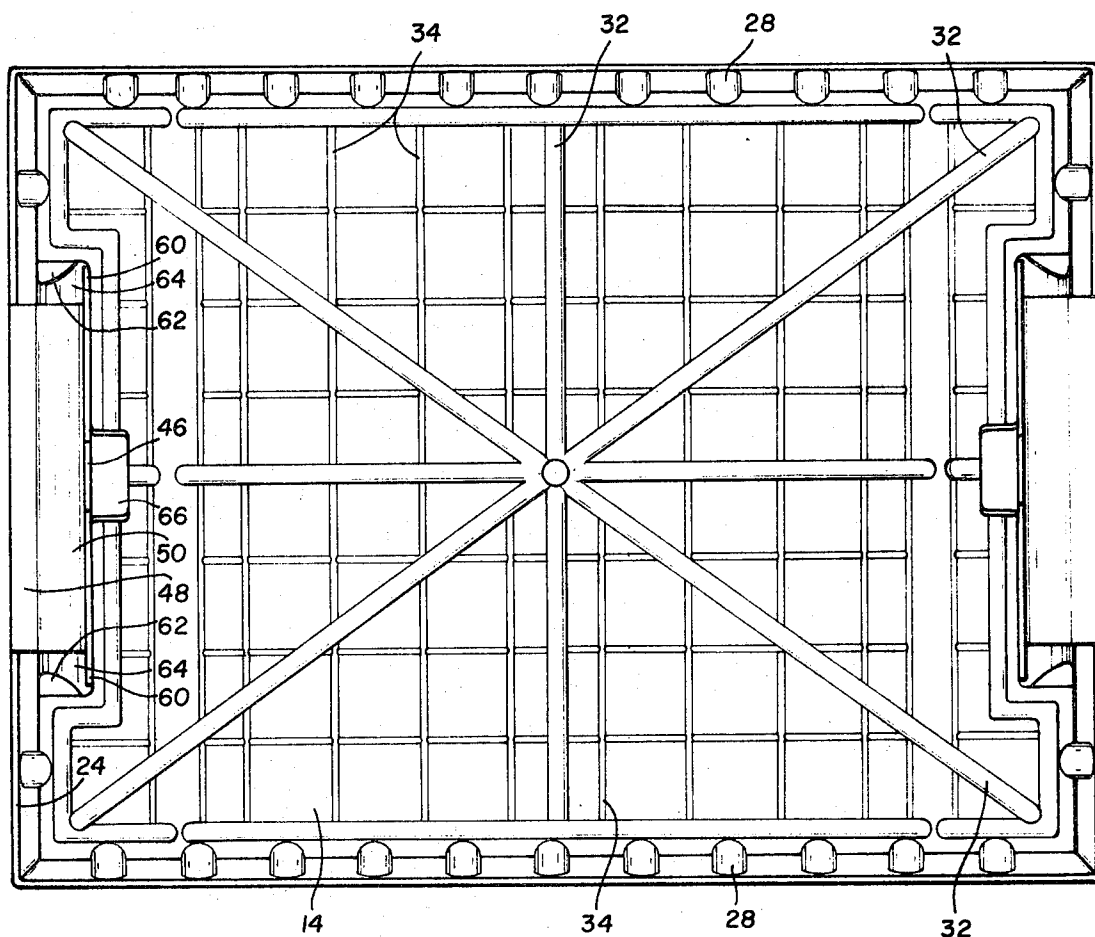


FIG. 4

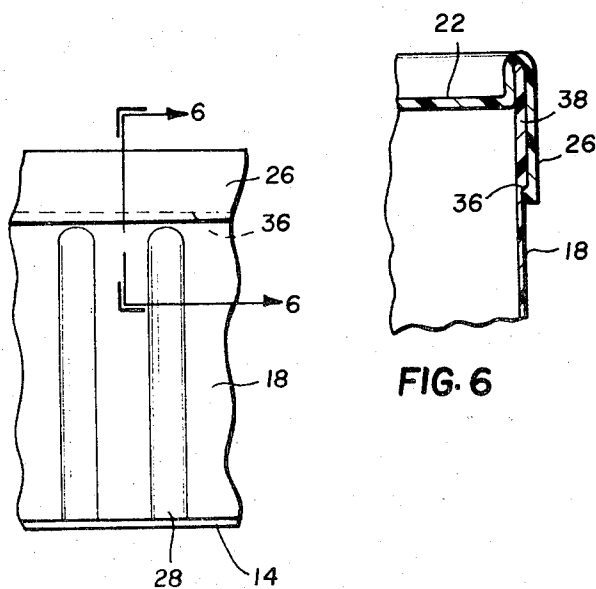


FIG. 5

FIG. 6

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BOX HAVING A CARRYING HANDLE-LATCH**BACKGROUND OF THE INVENTION****1. Field of the Invention**

This invention relates generally to latched receptacles, and more specifically to a box having a detent and carrying handle-latch.

2. Description of the Prior Art

Boxes comprising receptacles having hinged or unhinged covers that are held in a closed position by any suitable latch means are well known in the art. All of such latch means to applicant's knowledge serve only one function and that is to releasably secure the cover to the receptacle in a latched position. Although the variety and forms of latch means available on the market are too numerous to mention, a great need still exists for a box and latch means of simple design and construction, thoroughly reliable in operation, and economical to manufacture. Preferably, such a latch means should not only releasably secure the cover to the receptacle, but in addition should provide a carrying handle for the box, the handle and latch means being so constructed that when force is applied to the handle to lift the box, such force serves to positively hold the latch means in its latched position. This greatly reduces the likelihood of the latch means becoming unlatched during handling of the boxes.

SUMMARY OF THE INVENTION

This invention includes within its scope an improved box comprising a five-sided rectangular receptacle, a cover for the receptacle, and a carrying handle-latch means for releasably securing the cover to the receptacle. The receptacle and cover are preferably formed of a thin flexible rigidified plastic material, and the box cover has depending sides that completely encircle the upper end of the receptacle. One or more of the sides of the receptacle has a longitudinally extending rim along the upper edge of the side which cooperates with a lip along the corresponding edge of the side of the cover to provide a detent for initially holding the cover onto the receptacle to facilitate latching the latch means. The carrying handle-latch means comprises a flexible inverted T-shaped arm hingedly secured to the cover and having a resilient hook at one end adapted to releasably engage a shoulder on the receptacle, and to cooperate therewith to form a handle for the receptacle. The T-shaped arm further has at least one resilient auxiliary flap latch which is forced past a complementary flange on the receptacle and into a recess behind the flange.

The objects of the invention include an improved box having a carrying handle-latch serving the dual function of releasably securing a cover on the box and providing a carrying handle for the box without protruding past the end of the box to waste storage and stacking space.

Another object is a carrying handle-latch means of simple design and construction, thoroughly reliable in operation, and economical to manufacture, with both cover and receptacle being stackable to conserve space and facilitate the return of empties.

BRIEF DESCRIPTION OF THE DRAWINGS

In the detailed description of the preferred embodiment of the invention presented below, reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of the box and latch mechanism of this invention showing the box cover in a partially open position;

FIG. 2 is an enlarged end view of the box of FIG. 1 in a closed position;

FIG. 3 is an enlarged segmental section view taken substantially along line 3 — 3 of FIG. 2;

FIG. 4 is an enlarged bottom view of the box of FIG. 1;

FIG. 5 is a segmental side elevational view of the box of FIG. 2 looking at it from line 5 — 5; and

FIG. 6 is an enlarged segmental section view taken along line 6 — 6 of FIG. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings, a box 10 is shown comprising an open-ended, five-walled receptacle 12 having a bottom wall 14, two end walls 16, and two side walls 18, and a cover 20 for the receptacle having a top wall 22, two end walls 24 and two side walls 26 which is mountable over the open end of the receptacle 12. The box 10 is preferably injection-molded from any suitable plastic and is provided with spaced grooves 28 in the end and side walls 16, 18 respectively, radially extending grooves 30 in top wall 22, and ridges 32, 34 in the bottom wall 14 (see FIG. 4) to add rigidity to the box. At least one of the side walls 26 of the cover 20 is provided with a bead 36 (See FIGS. 1 and 6) along the edge which in the closed position of cover 20 cooperates with the lower edge of a longitudinal ridge 38 along the upper edge of side walls 18 to provide a detent for assisting in holding cover 20 on receptacle 12 to facilitate closing a latch means, now to be described.

The carrying handle-latch means comprises a flexible inverted T-shaped plastic arm 40 having one end 42 preferably integrally molded with cover 22 along an edge 44 of end wall 24 to provide a hinge for arm 40 and having a pull tab 46 at its other end. A hook latch 48 having an elongated, arcuate ridge 50 (See FIG. 3) is provided adjacent pull tab 46. Due to its flexibility, hook latch 48 may be forced past a shoulder 52 extending between parallel, spaced apart end wall surfaces 54, 56 as best seen in FIG. 3, and into an elongated depression 58 of shoulder 52 for releasably holding the cover 20 in a closed position, and cooperating with shoulder 52 to provide a convenient handle for box 10. The box further has auxiliary flap latches comprising oppositely-directed, laterally-extending, flexible flaps 60 on arm 40 positioned between pull tab 46 and hook latch 48 which may be flexed past corresponding flanges 62 molded into the receptacle in the path of flaps 60. The flanges 62 extend from wall surface 54 toward wall surface 56 to form notches 64 between flanges 62 and wall surface 56. The flaps 60 enter the notches 64 and then regain their original shape for assisting in holding the hook latch 48 in its latched position. It should be noted that the hook latch 48 - shoulder 52 arrangement is such that when the hook latch is in its latched position as seen in FIG. 3, any attempt to lift the box by engaging the undersurface of the ridges 50 will cause the weight of box 10 to forcibly press the ridges 50 and associated depressions 58 together thereby assisting in holding the hook latch in its latched position. A recess 66 is provided in wall surface 56 in register with pull tab 46 to facilitate manual grasping of the pull tab for moving the latch means to its unlatched position as

seen in FIG. 1. Preferably, latch-handles are arranged on each of the opposite ends of the box as shown in the bottom view of FIG. 4.

The invention has been described in detail with particular reference to a preferred embodiment thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention as described hereinabove.

We claim:

1. A handle-latch for a box having a receptacle and a cover, comprising:

a shoulder on the receptacle forming a handle for the receptacle;

flexible latch means on the cover movable to a latched position in which said latch means is flexed into engagement with said shoulder to releasably latch the cover on the receptacle, and further cooperates with said shoulder to provide a handle for the box which when manually lifted helps to retain said latch means in its latched position;

said cover extends between first and second substantially parallel, spaced-apart, end wall surfaces;

said receptacle further having a flange adjacent one end of said shoulder and extending from said first wall surface toward said second wall surface to form a notch between said flange and said second wall surface;

said latch means comprises a flexible arm having a hook end for releasably engaging said shoulder when moved to its latched position; and

said hook end further having a laterally-extending flexible flap adapted to engage said flange and to be flexed past said flange and to nest in said notch to greatly increase the force required to move said latch means to its unlatched position.

2. The invention according to claim 1 wherein said shoulder has a depression and said latch means comprises a flexible arm having a depending hook end for releasably engaging said depression when said latch means is moved to its latched position.

3. A handle-latch for a plastic molded box having a receptacle and a cover, comprising:

an end wall of the receptacle having first and second, substantially parallel, spaced-apart end surfaces and a shoulder extending between said first and second surfaces, said shoulder having a depression adjacent said second end surface;

said end wall further having a flange at one end of said shoulder and extending from said first end surface toward said second end surface and spaced therefrom to form a notch; and

flexible latch means on the cover comprising a hook latch and a flap latch, said latch means being movable to a latched position in which said hook latch is flexed into engagement with said depression in said shoulder to releasably latch the cover on the receptacle and to cooperate with said shoulder to provide a handle for the box which when manually lifted helps to retain said latch means in its latched position, and said flap latch is flexed past said flange and into said notch to increase the force required to move said latch means to an unlatched

position.

4. The invention according to claim 3 wherein said latch means comprises a flexible arm having one end hingedly secured to said cover and a pull tab on its other end, and said hook latch is adjacent said pull tab, and said flap latch is a laterally-extending flexible flap between said pull tab and said hook latch.

5. The invention according to claim 4 wherein said arm is shaped as an inverted T, and said one end of said flexible arm is integrally formed with an edge of said cover, said end wall has a flange at each end of said shoulder, and said flap latch comprises a pair of oppositely-directed, laterally-extending flexible flaps between said pull tab and said hook latch.

6. In a plastic molded box, the combination comprising:

a receptacle having two flexible side walls, two flexible end walls, and a bottom wall in which all of said walls have rigidifying elongated grooves and/or ridges;

said end walls having first and second, substantially parallel, spaced-apart end surfaces and a shoulder extending between said first and second surfaces, said shoulder having a depression adjacent said second end surface;

said end walls each further having a flange at each end of said shoulder and extending from said first end surface toward said second end surface and spaced therefrom to form a notch;

a flexible cover for said receptacle having rigidifying elongated grooves and/or ridges; and

latch means on opposite ends of said cover and movable into a latched position in engagement with corresponding shoulders and flanges on said receptacle, each of said latch means comprising a flexible inverted T-shaped arm having one end integral with said cover, a pull tab at its other end, and a hook latch adjacent said pull tab for releasably engaging a corresponding depression in said shoulder when said hook latch is moved to said latched position, said arm further having flap latches comprising oppositely-directed, laterally-extending flexible flaps between said pull tab and said hook latch adapted to engage said flanges and to be flexed past said flanges and into said notches where said flaps regain their original shape to increase the force required to move said latch means to an unlatched position.

7. The invention according to claim 6 wherein at least one of said side walls has an elongated ridge parallel to its edge, and the corresponding side of said cover has an elongated bead engageable with said ridge when said cover is mounted on said receptacle to form a detent for releasably locking said side of said cover to said receptacle.

8. The invention according to claim 6 wherein said second end surface is provided with a recess in register with said pull tab to facilitate manual grasping of said pull tab for moving said latch means to its unlatched position.

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