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E. BERGMAN
STACKABLE DESK TRAYS
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3,047,157

Fig. 1

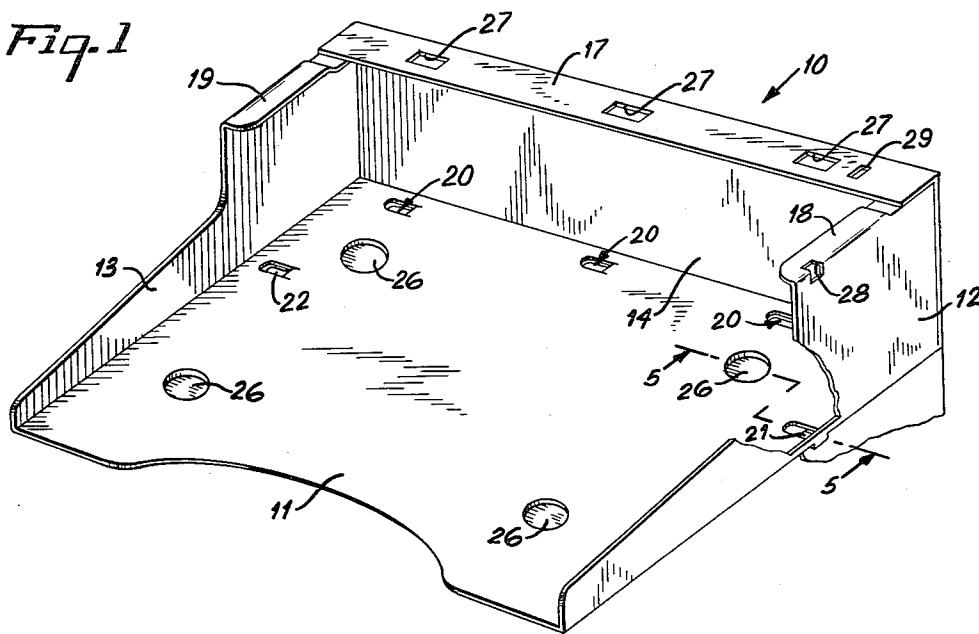


Fig. 2

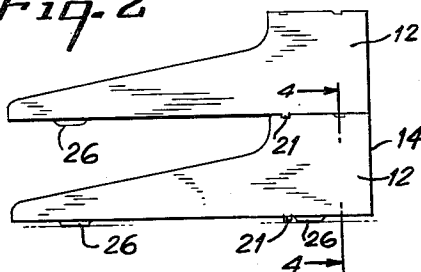


Fig. 3

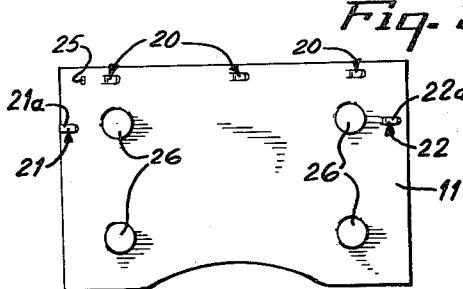
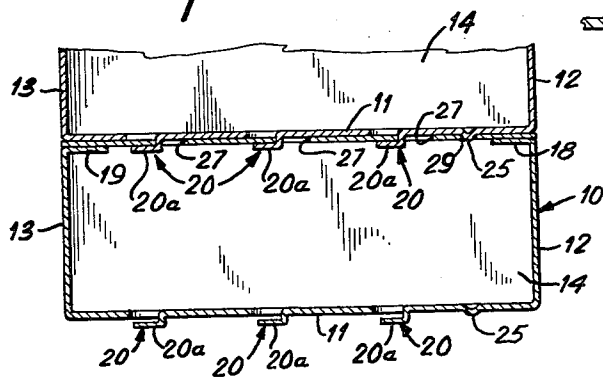
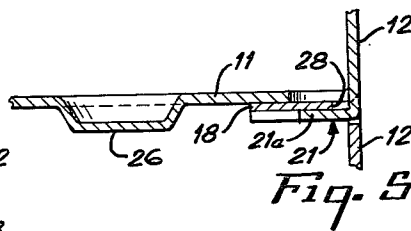


Fig. 4



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3,047,157 STACKABLE DESK TRAYS

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This invention relates to desk trays and more particularly to desk trays which can be stacked one upon another in interlocking relation.

A particular feature of this invention is the provision of desk trays which can be stacked in vertical alignment so that the stack will have no tendency to topple regardless of how many trays are contained in the stack.

Another feature of the invention is the provision of trays which can be readily interlocked in secure fashion without skill and without tools.

In addition, the trays of the present invention may be manufactured rapidly and inexpensively, while at the same time being of sturdy construction and capable of being stacked in a stable arrangement.

Other features and advantages of the present invention will be apparent in the following description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a tray, partially broken away, illustrative of the present invention;

FIG. 2 is a side elevation view of two trays in stacked relation;

FIG. 3 is a bottom view of the tray;

FIG. 4 is a vertical cross-sectional view taken on line 4-4 of FIG. 2; and

FIG. 5 is a vertical cross-sectional view taken on line 5-5 of FIG. 1.

Referring to the drawings, the tray 10 chosen for illustration comprises generally a floor 11, opposed side walls 12 and 13 extending vertically upward from opposite end edges of the floor, and a back wall 14 extending vertically upward from the rear edge of the floor. Preferably, the tray is fabricated from sheet metal although obviously many other materials may be used. Assuming sheet metal is employed, the walls 12, 13 and 14 could be integral extensions of the floor 11 which have been bent through 90° to the positions shown.

A rear flange 17 overhanging the floor 11 and parallel to it might be formed as an integral extension of the back wall 14 which has been bent through 90°. Similarly, the lateral flanges 18 and 19 extending from the upper edges of the side walls 12 and 13 respectively over and parallel to the floor 11 may be integral with their respective side walls.

The floor 11 is deformed in several places to produce elements of the present invention. Directly beneath the flange 17, the floor is deformed to present a number of gripping elements 20 (three of such elements being shown in the illustration). Although the elements 20 are shown integral with the floor 11, they may be formed separately, if desired, and fastened to the floor. Directly beneath the flange 18 the floor 11 presents a gripping element 21, and directly beneath the flange 19 the floor is formed with a gripping element 22.

Each of the gripping elements is L-shaped and has a tongue indicated by the reference numeral of the particular gripping element with an "a" appended to it. Thus the tongue of a gripping element 20 is labeled 20a. The tongue of each gripping element is spaced below the floor 11 a distance about equal to the thickness of any one of the flanges 17, 18 or 19, or in other words, equal to the thickness of the sheet metal stock.

The floor 11 is further deformed to present a detent 25 independent of the gripping members and having

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rounded edges (see FIGS. 2 and 3). The detent is also located directly beneath the flange 17. In addition, the floor is formed with four legs 26 which support the tray 10 on a desk if this tray happens to be the lowermost tray in a stack of such trays. Note that the legs 26 extend downwardly from the floor a distance greater than the distance of the gripping elements below the floor so that when the tray stands on a desk the legs will hold the gripping elements out of contact with the desk top.

The flange 17 is provided with a number of apertures 27, the number being equal to the number of gripping elements 20 formed in the floor 11, and the side wall 12 and flange 18 are provided with an aperture 28 which traverses the bend line between the side wall and the flange. The spacing between the apertures 27 is the same as the spacing between the gripping elements 20; however, the apertures are offset from direct vertical alignment with the gripping elements beneath them as may be seen clearly in FIG. 4. The apertures are offset so that when the gripping elements 20 of an upper tray are inserted through the apertures 27 of a lower tray, the side walls 12 and 13 of the two trays will be out of alignment. In this way, when the upper tray is moved laterally with respect to the lower tray in order to slide the tongues 20a of the gripping members 20 beneath the flange 17, to thereby secure the two trays together, the side walls 12 and 13 of the two trays will move into vertical alignment (see FIG. 4).

Another effect of the offset relationship between the apertures 27 and the gripping elements 20 is that when the gripping elements 20 of an upper tray are inserted through the apertures of a lower tray, the flanges 18 and 19 of the lower tray will be out of the vertical paths of the gripping elements 21 and 22 respectively. However, when the upper tray is moved laterally with respect to the lower tray, the tongue 21a of the gripping element 21 will slide through the aperture 28 and beneath the flange 18. Also, the tongue 22a of the gripping element 22 will slide beneath the flange 19. The gripping elements 21 and 22 help to produce a sturdy securement between the two trays.

The flange 17 is provided with an aperture 29 in vertical alignment with the detent 25 formed in the floor 11. When the stacked trays are moved laterally with respect to each other to bring their side walls into vertical alignment, the detent 25 snaps into the aperture 29 and prevents further relative lateral movement between the trays. Thereafter, if sufficient lateral force is applied to the trays, the detent 25 by virtue of its rounded edges can be caused to ride out of the aperture 29 to permit the trays to be disconnected.

It should be mentioned that although only two trays are shown stacked in the drawings, any desired number of these trays may be stacked in the manner just described.

It may be seen, therefore, that the present invention provides trays which can be quickly and securely interlocked in stacked relation without use of accessories. In addition, these trays are stacked in vertical alignment so that they have no tendency to become unstable and to topple regardless of how many trays are present in the stack.

The invention has been shown and described in preferred form only and by way of example, and it is obvious that many variations may be made which will still be comprised within the scope of the invention. It is understood, therefore, that the invention is not limited to any specific form or embodiment except insofar as such limitations are set forth in the appended claims.

What is claimed is:

1. A desk tray adapted to be arranged in stacked relationship with other similar trays, comprising a floor, opposed side walls, a back wall, a rear flange extending over and parallel to said floor and attached to the upper edge of

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said back wall, lateral flanges also extending over and parallel to the floor and attached to the upper edges of said side walls, the floor being deformed directly beneath said rear flange to present a first set of spaced-apart gripping members, each of said members having a sidewise facing tongue spaced below said floor a distance about equal to the thickness of said flange, said rear flange having a plurality of spaced-apart apertures vertically disaligned from the gripping members and adapted to accommodate the gripping members of an upper tray when the side walls of said upper tray are vertically disaligned with the side walls of the lower tray, said apertures permitting sidewise sliding movement of one tray relative to the other to align the side walls of both trays and cause said first set of gripping members to move laterally within the apertures to gripping positions beneath said rear flange, said floor being also provided with a second set of gripping members lying forwardly of said first set adjacent to the side walls, each having a tongue facing in the same sidewise direction as the first-mentioned tongues, one of the side walls having an aperture where it joins the adjacent lateral

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flange, said aperture being positioned to receive one of said second set of gripping members and allow the tongue thereof to move beneath said lateral flange, the other one of said second set being positioned to engage beneath and grip the other lateral flange when a pair of trays are interengaged.

2. A desk tray as defined in claim 1, wherein said floor is also deformed to present a detent independent of said gripping members, and said rear flange is provided with an aperture adapted to accommodate the detent of the tray above it, said detent and aperture being so located that they come into registry only after the trays are moved into interengaged relation.

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