March 8, 1949. A. C. ANDERSON 2,463,586

BOX

Filed June 4, 1945

Fig. 3.

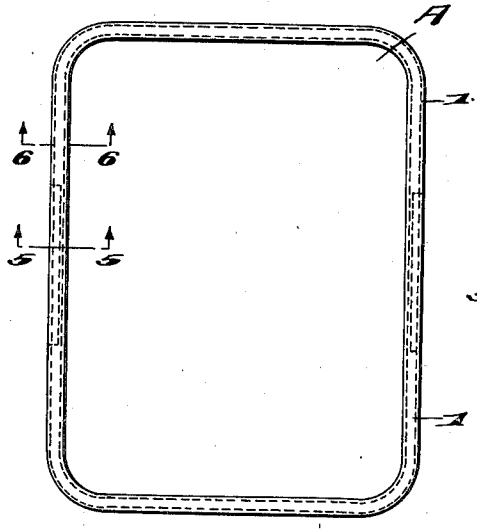


Fig. 4.

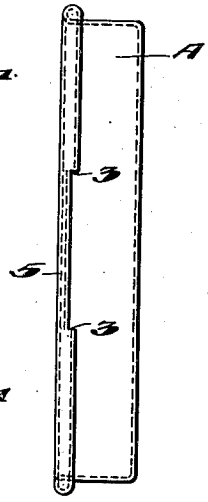


Fig. 5.

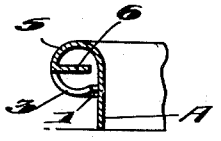


Fig. 6.

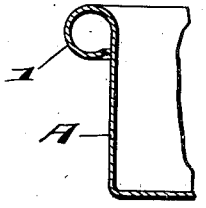


Fig. 7.

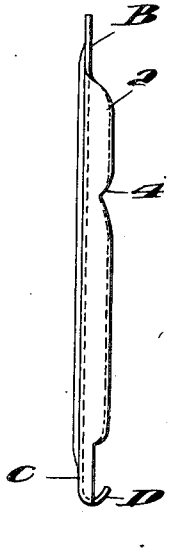


Fig. 1.

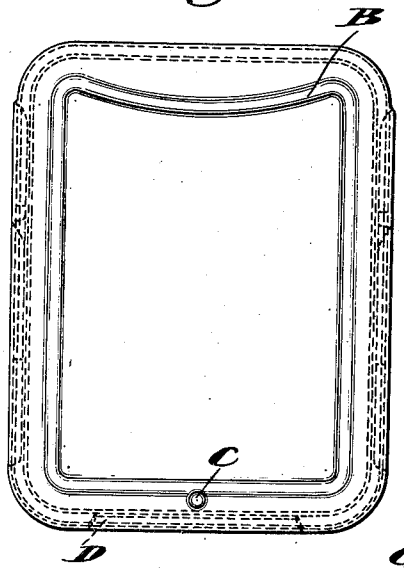


Fig. 2.

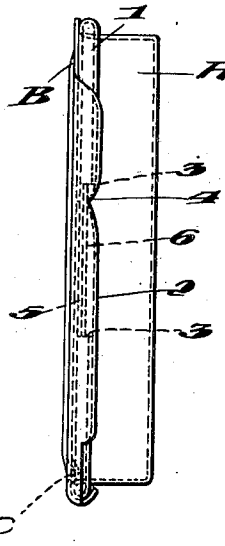
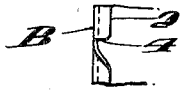


Fig. 8.



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UNITED STATES PATENT OFFICE

2,463,586

BOX

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Application June 4, 1945, Serial No. 597,397

4 Claims. (Cl. 220—41)

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The present invention relates to metal boxes of the sliding cover type and constitutes an improvement on the boxes shown in the Seymour Batdorf box patents as follows: 2,064,241 granted December 15, 1936, 2,083,356 granted June 8, 1937 and 2,093,508 granted September 21, 1937.

In such slide boxes having a two-diameter bead or curl on the top edge or margin of the body or tray and formed with sharp abrupt shoulders constituted by the ends of the large diameter portions of the bead or curl cooperating with opposed sharp shoulders formed by cutting out portions of the depending side flanges of the cover in practice it was found that, where the box parts were produced on a large production basis, many of the parts, as they dropped into receiving baskets in the course of manufacture, would be scratched and marred by the sharp edges or corners of the shoulders of the one part cutting or scratching the lithographed finish or other special finish of other of such parts, and that as assembled in finished boxes there was a tendency of the two parts of a given box to twist or cant relative to each other when partially opened to such extent that the ends of the side flanges of the cover or top were disposed between the stop shoulders of the top curl or bead of the body or tray due to the smaller diameter of the curl or bead between said stop shoulders, as shown in Batdorf 2,064,241.

To avoid such difficulties the reduced diameter bead or curl portions were bowed or bent laterally outward, except at their extreme end portions, all as shown and described in Batdorf 2,083,356, which construction has proved quite satisfactory so far as preventing marring or injury during manufacture and preventing twisting or canting during use and so far as durability and functioning or service are concerned, but it has been found costly of manufacture in that the lateral swells or bosses or enlargements on the dies by which the trays are formed up are subject to excessive wear and chipping, resulting in a very short life for a given die, so that a given die will only produce a comparatively small number of box bodies or trays.

The present invention has been developed with the above considerations in view and has for its primary object to provide a slide box of this type which will avoid the risk of scratching or marring of some box parts by other such parts during the process of mass production and which will also guard against the tendency of the parts of a given box to twist or cant relative to each other during use by forming the body or tray top edge

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bead or curl with a smooth continuous surface which projects to a uniform distance laterally outwardly from the sides of the body or tray at all points of the extreme laterally outer portions of the side portions of said bead, this being accomplished in the embodiment illustrated by forming the curl or bead of uniform diameter throughout the length of each side of the body or tray, the medial portion of the bead or curl on each side of the body being made semi-circular in cross-section and preferably with a portion extending laterally inward preferably approximately perpendicularly to the side of the box body or tray from the lower and outer point of the semi-circle, while forming the end portions of the curl or bead of circular form in cross-section, whereby sharp abrupt raw sheet metal cutting edge body stop shoulders will be provided at the respective ends of the respective semi-circular intermediate side portions of the bead or curl, said shoulders extending downward and inward from a horizontal plane adjacent to and preferably coincident with or slightly below a horizontal plane intersecting the axis of said bead or curl.

In the accompanying drawings:

Figure 1 represents a top plan view of a box embodying my invention;

Figure 2, a side elevation thereof;

Figure 3, a top plan view of the tray or body A thereof;

Figure 4, a side elevation of said tray or body A;

Figure 5, a sectional view on the line 5—5 of Fig. 3, looking in the direction of the arrows;

Figure 6, a sectional view on the line 6—6 of Fig. 3, looking in the direction of the arrows;

Figure 7, a side elevation of the sliding top or cover B; and

Figure 8, an enlarged fragmentary bottom plan view of one of the side flanges 2 of the cover or top to show the detail form of the top or cover stop shoulders 4 and the rounded corners of the adjacent parts of said flange.

Referring now in detail to the drawings, A designates the body or tray of the box; B, the sliding top or cover; C, the usual snap catch lug or latch stamped down or inward in the top B to engage and ride up over the end edge curl as the top B is shoved toward closed position and, as soon as the top B reaches closed position, snapping down by the resiliency of the top B and fitting inside of and engaging the adjacent end face of body A to hold the top B closed against accidental or unintentional displacement, but being adapted to similarly ride up over the top of the curl or said

end face to permit the top or cover B to be opened on pressure being applied in the reverse direction to open the box; and D, a hook type form of stop adjacent the little lug or catch C to engage the end of the box body or tray A or the adjacent portion of the end edge curl or bead to prevent sliding movement of the top or cover B beyond closed position.

The body A has its top edge portion formed into a uniform diameter bead or curl of which the end portions 1 are circular in cross-section, as shown in Figure 6, and the side intermediate portions 5 are preferably semi-circular in cross-section, as shown in Figure 5, the length of said intermediate portions 5 substantially corresponding to or preferably slightly exceeding the permissible length of movement of the top or cover B, and the end portions 1 respectively preferably extending about the respective end portions of the body A and partially lengthwise of the sides of the body A and having sharp abrupt preferably raw sheet metal edge body stop shoulders 3 at the points of juncture of the respective ends of the respective end portions 1 of the bead or curl with the respective ends of the respective intermediate portions 5 of said bead or curl, the respective stop shoulders 3 extending preferably from immediately below a horizontal plane intersecting the axis of the curl or bead, that is to say respectively from the lower faces of the respective bracing and guard flanges 6, to the extreme lower and inner portions of said bead or curl end portions 1, the upper portions of said stop shoulders 1 preferably extending in a vertical direction substantially perpendicularly to said axis of the bead or curl.

The above described and illustrated construction of the top curl or bead results in the end portions 1 and the respective intermediate portions 5 on each side of the body or tray A providing a bead or curl of uniform diameter or extending laterally from the body A on each side thereof a uniform distance at its extreme laterally outer point from end to end of the body A, thus eliminating the tendency of the body A and top or cover B to twist or cant relative to each other and provides on each side of the box or body A and at each end of the respective intermediate bead or curl portions 5 stop shoulders 3 formed by the respective end edges of the respective circular in cross-section end portions 1 of the bead or curl and extending respectively through an arc of substantially 90° or slightly less from the extreme laterally outer point of the bead or curl portions 1 downward to their extreme inner portions, whereby all portions of the sharp abrupt body stop shoulders 3 will lie inward of the extreme laterally outer portions of the respective intermediate portions 5 and of said end portions of the curl or bead and will thereby be prevented from scratching or marring the lithographed or other special finish of other similar box parts on which a given box body or tray may fall as it drops or is ejected from the stamping or forming machine into a collecting basket or receptacle during the manufacture of the box by usual mass production methods.

The sliding top or cover B will preferably be slightly arched in form preferably both lengthwise and cross-wise with an outwardly and downwardly inclined marginal panel or panels extending completely around it and will preferably be springy or resilient as a whole preferably cross-wise and preferably also lengthwise and at its side portions will be formed with downwardly

depending inwardly curved side flanges 2 to fit below, and respectively slidably receive, the respective side portions of the respective bead or curl end portions 1 and the respective intermediate curl or bead portions 5.

Said flanges 2 have their respective lower inner portions cut out or notched or interrupted in such form and manner preferably as to form on corresponding sides or ends of the respective notches or interruptions a short straight vertically extending portion disposed substantially perpendicularly to the axis of the body bead or curl in the assembled relation of the box parts, the lower portions of the respective flanges 2 on each side of the cuts or interruptions being cut away or having their sharp corners rounded off or radiused to eliminate sharp points, and said respective sharp abrupt perpendicularly extending portions or edges of the respective flanges 2 being bent inward to form top or cover stop shoulders 4, see Figures 1 and 8, to respectively engage the cooperating opposed faces of the respective body stop shoulders 3.

Such shoulders 4 will be so disposed lengthwise of the flanges 2 that in the closed position of the top or cover B they will lie between the shoulders 3 and closely adjacent to said shoulders 3 of one bead or curl end portion 1 and, in the open position of the top or cover B will positively engage with the shoulders 3 of the other bead or curl end portion 1, any pressure exerted on the top or cover B in an attempt to force it open beyond this point simply serving to force the opposing faces of the shoulders 3 and 4 into tighter biting or cutting engagement effectually preventing any riding of the one set of stop shoulders or faces beyond the other and cooperating set of stop shoulders or faces.

If for any reason desired or preferred, the intermediate portion 5 of the bead or curl and corresponding stop shoulders 3 may be provided on only one side of the body or tray A with only the corresponding flange 2 of the top or cover B provided with a cooperating stop tongue or shoulder 4, the end portions 1 of circular cross-section being extended uninterruptedly for the full length of the other side of the body or tray A and the other flange 2 of the top or cover B not being formed with a stop tongue or shoulder 4 but being continuous and uninterrupted from end to end, or if preferred both of the flanges 2 of the top or cover B may be formed with such stop shoulders 4 so that it may be applied to the body or tray A from either end thereof in any position of the top or cover B and operatively cooperate with the stops or shoulders 3 of said body.

In practice, after the body or tray A and top or cover B have been formed as above, one side flange 2 of the top or cover B will be applied to or hooked under the side portions of the bead or curl end portions 1 on one side of the body or tray A with the stop tongue or shoulder 4 of said flange 2 disposed between the body stop shoulders 3 on said side of the body or tray A, the other side flange 2 of the top or cover B will be brought to rest on top of the top surface of the bead or curl portions on the other side of the body or tray A, and then pressure will be applied gently, as by hand, to cause the latter flange 2 to snap about and under said curl portions on said other side of the body or tray A, whereupon the assembly of the box will be complete.

The foregoing is the preferred mode of assembly, though of course the box may be assembled by any mode found practical.

Preferably the top or cover B will be so formed and of such size that when closed the inclined marginal portion will yieldingly press against the opposed upper face or portion of the bead or curl preferably throughout, and at all points of, the length of the sides of said curl or bead of the body A in accordance with the teaching of the Batdorf Patents Nos. 2,064,241 and 2,083,356.

The cross-sectional forms of the end portions 4 and the intermediate portions 5 are of no great importance and they may be of any cross-sectional form so long as they result in providing the continuous upper and extreme laterally outer face portions flush with each part of their respective upper and laterally outer surfaces at all points throughout the length of the sides of the body or tray A and are of such construction as to provide, or of such construction that they may be formed or added to provide, the body stop shoulders 3 located and protected or hooded substantially as shown and described.

I claim:

1. A slide cover type box comprising a body formed with a uniform diameter top edge curl having end portions of circular cross-section and medial portions respectively extending lengthwise of the respective sides of said body from the respective ends of one end portion to the respective opposed ends of the other of said end portions of said curl and constituting therewith a continuous smooth upper and outer curved surface extending to the extreme laterally outer points of said curl on opposite sides of said body, said intermediate curl portions being approximately semi-circular in cross-section and formed respectively with flanges extending respectively from their respective lower and outer portions inward toward the sides of the body, and the lower and outer ends of the respective end portions presenting abrupt sharp edge stop shoulders respectively extending through arcs of approximately ninety degrees from approximately the axis of said end portions at the juncture of the respective end portions and medial portions and respectively disposed in planes approximately perpendicular to the axes of the respective end portions, in combination with a sliding cover arched cross-wise and formed of resilient material, side flanges integral with said cover and curved downwardly and inwardly to snugly slidingly engage about and under the respective outer faces of said top edge curl, sharp abrupt shoulders respectively extending inwardly and upwardly from the respective flanges and so located lengthwise thereof as to be disposed between the body stop shoulders on the respective sides of said body and to be respectively presented in opposition to the respectively cooperating body stop shoulders when said cover is applied to said body.

2. A slide cover type box comprising a body formed with a uniform diameter top curl having end portions of circular form in cross-section and an intermediate portion extending lengthwise of one side of said body between the opposed ends of said end portions on that side of the box and being of semi-circular form in cross-section, the lower and outer portions of the respective opposed ends of said end portions at the respective ends of said intermediate portion constituting abrupt body stop shoulders, in combination with a sliding cover, side flanges on said cover, and a sharp abrupt cover stop extending inwardly from one of said flanges and so located lengthwise thereof as to be disposed between said opposed body stop shoulders and to be presented in opposition to one of said body stop shoulders to engage the same when said cover is moved in a given direction.

3. A slide cover type box comprising a body formed with a uniform diameter top curl having end portions of circular form in cross section and side portions extending lengthwise of said body and merging with said end portions, one of said side portions constituting an intermediate portion of semi-circular form in cross-section, the lower and outer portions of the respective ends of said end portions at the respective ends of said intermediate portion being raw sheet metal edges constituting sharp abrupt body stop shoulders, in combination with a sliding cover, side flanges depending from said cover and a sharp abrupt cover stop extending inwardly from one of said flanges and so located lengthwise thereof as to be disposed between said opposed body stop shoulders and to be presented in opposition to one of said body stop shoulders to engage the same when said cover is moved in a given direction.

4. A slide cover type sheet metal box comprising a body formed with a top edge bead extending about the top margin thereof and having its extreme top crest all lying in the same horizontal plane and on each side extending laterally outward to a uniform distance throughout the length of each side and having end portions and side portions, one of said side portions constituting an intermediate portion of non-circular form in cross-section with its lowest part lying in a plane above the respective lower parts of said respective end portions to leave the lower and outer portions of the respective ends of said end portions at the respective ends of said intermediate side portion as exposed raw sharp abrupt sheet metal edges constituting body stop shoulders, in combination with a sliding cover, side flanges depending from said cover, and a sharp abrupt cover stop shoulder extending inwardly from one of said flanges and so located lengthwise thereof as to be disposed between said opposed body stop shoulders and to be presented in opposition to one of said body stop shoulders to engage the same when said cover is moved in a given direction.

ALBERT C. ANDERSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,064,241	Batdorf	Dec. 15, 1936
2,083,356	Batdorf	June 8, 1937
2,093,508	Batdorf	Sept. 21, 1937