Aug. 11, 1959 L. JAMES 2,899,120

KNOCK-DOWN SET-UP BOXES

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Fig. 1.

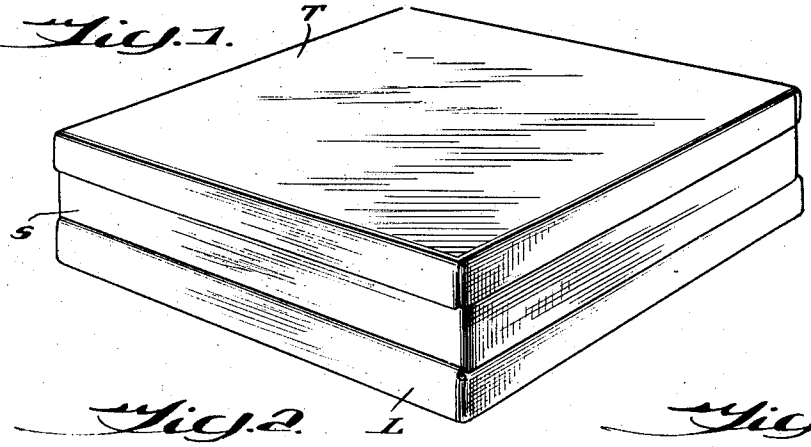


Fig. 2.

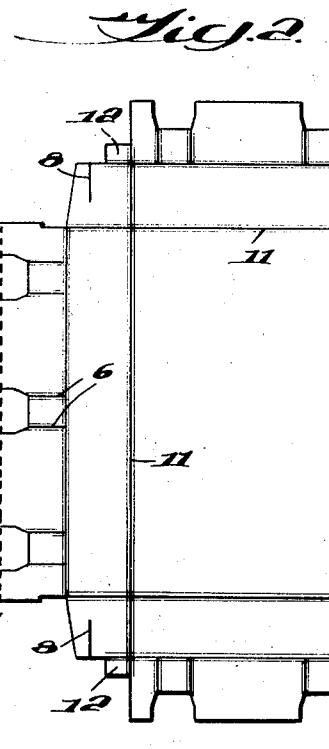


Fig. 4.

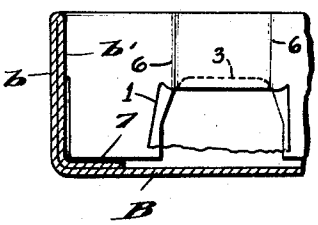
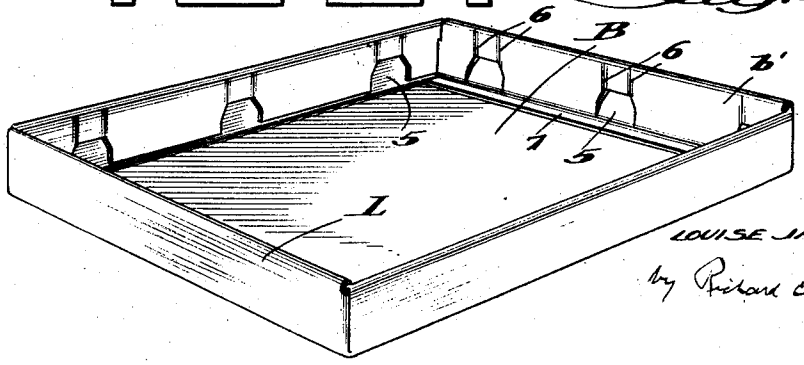


Fig. 3.



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Fig. 5.

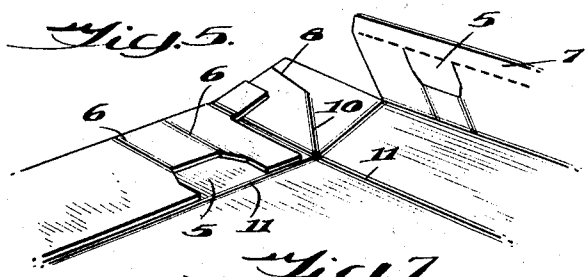


Fig. 6.

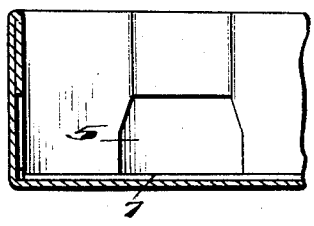


Fig. 7.

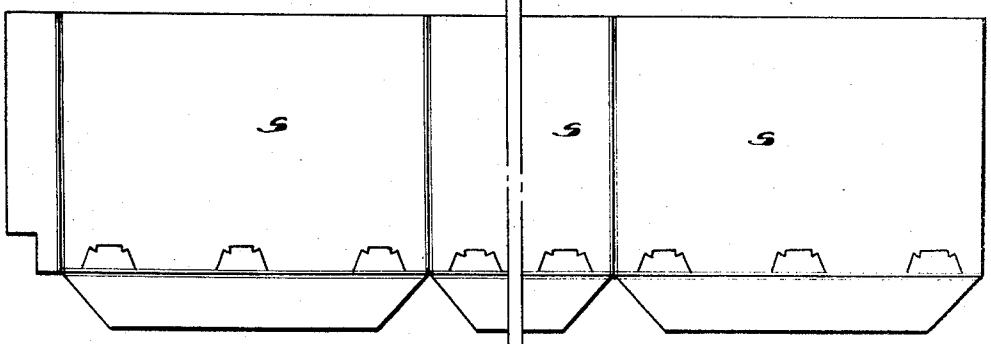


Fig. 8.

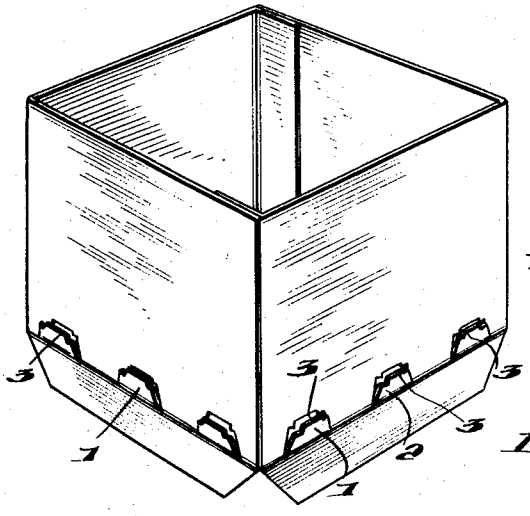


Fig. 9. Fig. 10.

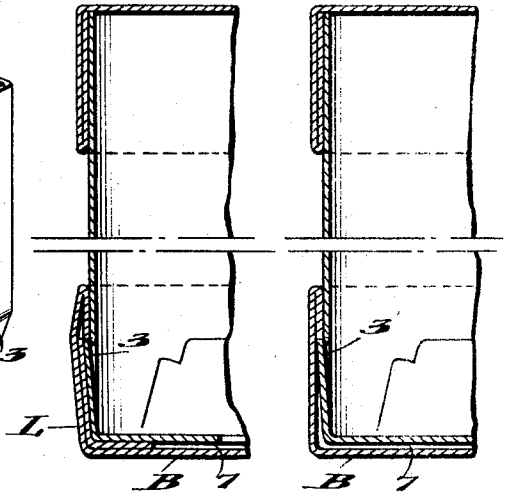
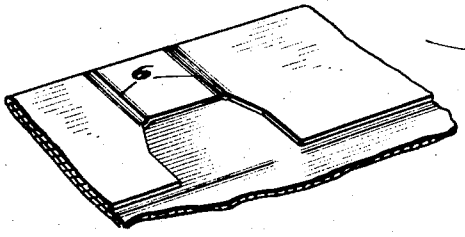


Fig. 11.



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Fig. 12.

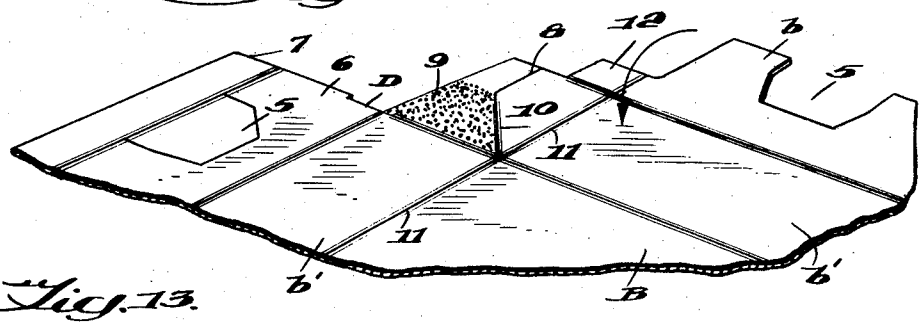
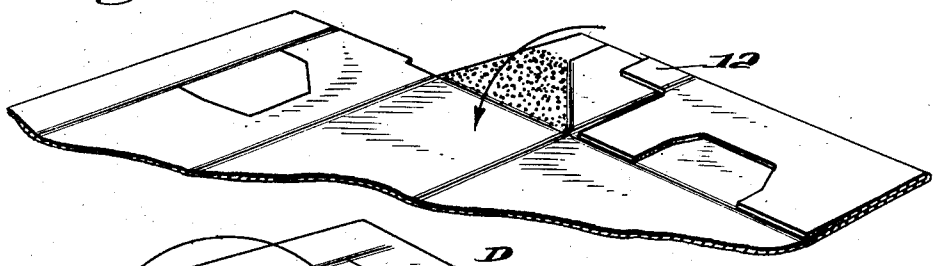


Fig. 13.



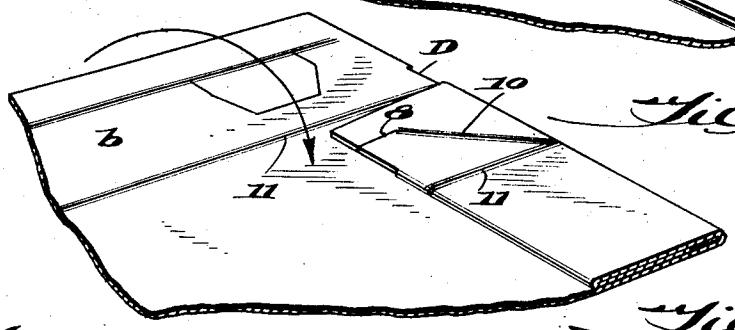
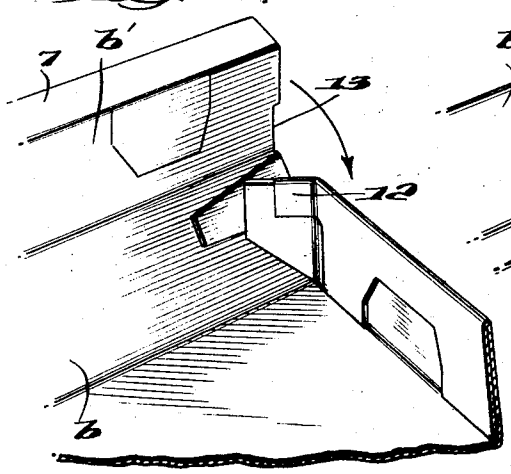
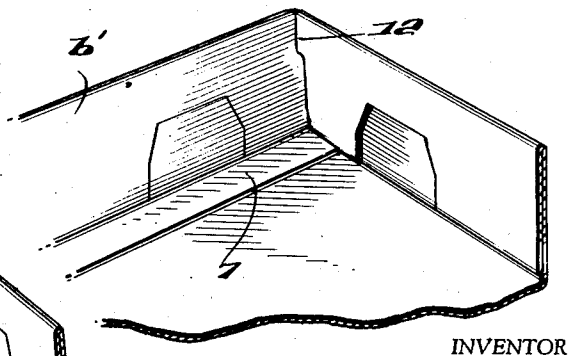


Fig. 14.

Fig. 16.

Fig. 15.





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United States Patent Office 2,899,120 Patented Aug. 11, 1959

2,899,120

KNOCK-DOWN SET-UP BOXES

Louise James, New Orleans, La.

Application January 9, 1957, Serial No. 633,345

2 Claims. (Cl. 229—23)

This invention relates to that type of box wherein the box is comprised of three sections, being the top, the body, and the bottom, and is primarily concerned with an interlocking construction of the side sections and the bottom section.

This invention is an improvement on my Patent No. 2,577,248, granted to me on December 4, 1951.

In this present invention I am particularly concerned in obtaining a structure whereby the interlocking parts of the bottom section and body section are such that an appreciably lighter weight of material may be used for the bottom section B and the side section S than has heretofore been considered practical, and this applies particularly where the side section or body section is of considerable height.

Another consideration is to so construct the cooperating portion of the body as to facilitate the quick reception of the upper portions of the locking tongues between the overhanging material of the inner lap *b'* of the lip L so that the upper portions of said tongues will act to hug the lips of the bottom B closely to the end portion of the sides S, and so that a portion of the upper edge portions of the edge of the tongue will positively engage with the edges of the openings, windows, or sockets and so prevent separation of the side section and the bottom section B of the box against any pull or tension exerted in the direction of the height of the body section.

In the manufacture of such boxes it becomes a matter of extreme importance to cut the manufacturing costs to the lowest possible figure. Also it is of even possibly more importance to turn out a cheap box with the greatest possible eye-appeal, or appeal to the aesthetic sense, and it is the purpose of this invention to reconcile these two primary conditions to result in an extremely strong box, all to the end that it may be sold on a large quantity production basis by automatic stamping, gluing, and semi-assembling machines.

A still further consideration or object of the present invention is to so construct the bottom B and its lip L by suitable scored lines and adhesive that when shipping or storing the bottom the lip will lie substantially parallel to the upper face of the bottom B whereby said bottom pieces may be flattened out to be practically as flat as a sheet of paper, so that in the present instance the bottom B with its lip L would be comparable to two sheets of paper or paper-board stacked flat together in a stationery storage drawer or cabinet.

In the accompanying drawings:

Figure 1 shows a perspective view of a box embodying my invention, the body portion being broken away to indicate they may be of any desired height;

Figure 2, a top plan view of the bottom section B, all spread out flat;

Figure 3, a top perspective view of the bottom section B before associated with the body or side section S;

Figure 4, a cross-sectional view on the line 4—4 of Figure 3, looking in the direction of the arrows;

Figure 5, a fragmentary corner portion of the bottom B in an intermediate stage of being assembled;

Figure 6, a cross-sectional view taken on the line 6—6 of Figure 3, looking in the direction of the arrow;

Figure 7, a side elevation of the body or side portion, broken through;

Figure 8, a perspective view of the body or side section S in assembled condition but prior to being associated with either the bottom or the top section;

Figure 9, a sectional view through the entire box taken on a line corresponding to the section line 9 of Figure 3;

Figure 10, a similar view taken on a line corresponding to line 10—10 of Figure 3;

Figure 11, a fragmentary plan view of the bottom section B parimarily to show clearly and on an enlarged scale the sockets and scored or pressed lines at the upper corners of the socket to facilitate the entrance of the upper portions of the locking tongues between the outer portion *b* and the inner portion *b'* of the lip L; and

Figures 12 to 16, inclusive, are perspective fragmentary detail views of one corner of the bottom B, Figure 12 showing the bottom blank spread out flat like a sheet of paper and from that state or condition the several views show the blank as passing through the several stages to erection, it being noted that Figure 14 shows the blank partially folded over in its commercial knock-down state wherein it is comparable to two sheets of paper lying flat against each other.

The purpose of the construction, broadly speaking of the three-part box, is to avoid the necessity for the use of costly space to store really a very small number of boxes, relatively speaking, so that a large number of box parts or units may be stored in the conventionally small cabinet, and the body or side portion S of the desired height of box may be quickly selected and erected right on the spot.

Referring now in detail to the drawings, T represents the top, S the sides or body portion, and B the bottom portion or section.

In general, the construction and operation of the box, or the assembly of the box, will be very much as shown in my Patent 2,577,248 above mentioned, with the exception however that the locking tongues 4 of said patent are not notched out at their upper or free end corners as are the locking tongues 1 of the present invention, as indicated at 2, to leave an intermediate holding portion 3 between said notches. In assembling the bottom B and the sides S the holding extension 3 will fit behind the material of *b'*, while the upper converging side edges 4 of the sockets 5 will engage with the shoulders 2 of the respective tongues 1, so that when the side portion or section S is fully received by the lip L of the bottom B, said side portion or body S will be held very tightly and snugly against endwise separation, while at the same time the upper extensions 3 will engage with the outer face of the inner lap *b'* of lip L to hold the latter against outward sag or gaping to hold lip L neatly and closely adjacent to the body or side section S to make a very neat-appearing but at the same time quite cheap box. Put differently, it will result in a very neat and attractive box that will not have a cheap appearance, but nevertheless would be cheap to manufacture on a large quantity production basis.

Considering my invention in one of its narrower aspects, the material of the inner lap *b'* will be scored or have scored lines or depressions 6 formed in it at right angles to the free or upper edge of the lip L, extending from the upper edge of the latter to the respective upper corners of the sockets 5.

This will cause the material above the sockets 5 and between the scored lines 6 to kind of pucker out, away slightly from the outer lap *b* of lip L, to facilitate the entry of the upper extensions 3 of the tongues 1 into the space between the outer lap *b* and the inner lap *b'*, to

press against the outer face of said inner lap *b'*, to hug the latter close to the side section or body section S.

However, the corner constructions of the box of the present invention differ quite noticeably from those shown in my said patent in that I cut the end tabs on a common line parallel to the line of fold of the end portions of the lip L at a point approximately one-third of the length of said end tabs as at **8**, and said cut will extend from the laterally outer edge of each said tab for approximately three-fourths of its width.

The upper or inner faces of that portion of said tab beyond the said cut **8** is covered on its upper or inner face with an adhesive, whereby on its being folded to its final position it will be permanently secured to the opposed face of the adjacent end portion of said lip L.

With the parts formed, cut, scored, and pasted as above described, the side portions of the lip will lie substantially flat against the upper face of the bottom and the upper faces of the end lip portions are substantially so, to the end that it may be filed or stored or stacked in the same manner as a sheet of paper is.

When it is desired to erect the lip to receive the bottom portion of the body portion or sides S, the parts will move through the intermediate stages of assembly as illustrated in Figures 12 to 16 until the lip is finally erected into vertical position as shown in Figures 3 and 4.

In this connection it is to be noted that the cut line **8** will extend from the edge of the lip portion to the inner end of the scored lines **10** which extend from said inner end of the cut **8** on about a 45 degree angle to the outer or lower end of the scored line **11**, which extends at right angles to the upper or lower edges of the side portion of the lip, said scored lines there facilitating the end fold of the lip, to the end that the lip may be assembled and held or locked in a vertical position at right angles, or substantially so, to the upper face of the bottom portion B.

It will be noted that the adhesive portion **9** extends from the inner edge portion of the side portion to the lower or outer side of the lip and also from the inner or lower end of the cut **10** to the outer or lower end of the scored line **11** at the point where the slanting scored line intersects the right angle scored line and the outer edge of the lip.

In making up the bottom with its collapsible lip, the portion of the end tabs being covered with adhesive in a moist state will be raised through a 45 degree angle as shown in Figure 14. With the side portions being erected to a 45 degree position, the inner portions of the end portions of the lip will be moved to swing about their upper edges until they lie flat against the outer portions *b'* of the lip L.

With the parts in this intermediate stage the lock stub **12** is in posiion to be received in the notched-out socket **13** of the adjacent side portion of said lip L.

To complete the manufacture of the bottom B, the side portions of the lip L will be completely swung over inward until they rest flat against the upper face of the bottom B, and the end portions coated with adhesive will be firmly pressed against the adjacent end of the portion *b* and will be left in this position preferably until they firmly adhere thereto, as shown in Figure 14. It is at this stage that they are to be stored or filed in the cabinet, convenient for use as needed. Now to erect the lip L to receive the lower end of the side portion S, it will simply be necessary to pull outward the side portions until they are substantially vertical and then fold the portion *b'* of the end portions of the lip L down and over the adhesive anchored ends of the side portions of the lip L and to paste the inner marginal adhesive coated anchor piece **7** to the face of the bottom, in which stage the lugs **12** will be received by the notches **13** to contribute to the firm corner lock of the lip L.

Considering my invention from a broader and further aspect, the upper or outer edge portions of the tongues **1** need not be notched, but the side edges of the tongues and of the sockets would be upwardly or outwardly inclined and the scored lines **6** might still be used so that the material between the two adjacent scored lines kind of pucker or bag out and form an easy entry for the upper end of tongue **1**.

Also it might result in certain desirable manufacturing operations and manufacturing advantages if the scored lines **6** are formed in materials along two opposing inner faces of the lip L and were omitted entirely from the other two sides of the lip.

Of course, in the six-panel or eight-panel box the scored lines might be in every alternate panel in the octagonal form, and the same might be used also in the six-sided form.

I have referred to light-weight board such as pasteboard or paper board without giving any indication of what I consider light-weight paper board or pasteboard, so that I wish to supplement my statement by saying that it might be of .025 caliper. I would not wish to be held too definitely to this weight of material as often there could be a variation within the board itself, so that I think that this statement should be considered as merely approximate and not a definite limitation.

I claim:

1. Locking means for securing a pair of sheet material box sections in assembled relation against a disassembling force applied thereto in a given linear direction, one of said sections including a marginal upstanding lip having an inner lap connected to said lip at the free marginal edge of the lip only and disposed generally parallel to said lip, said lap being formed with a locking recess spaced from said marginal edge and with indented relatively spaced score lines extending from said recess normally to said edge, said score lines abutting against said lip to space the material of said lap between the score lines away from the lip and thereby to define a pocket opening toward said locking recess, the other of said box sections being disposed within and parallel to said marginal lip and including a locking tongue of greater width than said recess spanning said recess, said locking tongue having a free end directed toward the opening of said pocket and including a relatively narrower extension at its free end projecting into said pocket, the tongue having shoulders on opposite sides of said extension abutting against and in locking engagement with said material at the opening of said pocket at locations in substantial registry with the respective score lines.

2. Locking means for securing a pair of sheet material box sections in assembled relation against a disassembling force applied thereto in a given linear direction, one of said sections including a marginal upstanding imperforate lip, and sheet material means secured to said lip over and parallel to the inner face of said lip, said sheet material means being formed with projections abutting against the inner face of said lip for maintaining said means in spaced relation to said lip and with said lip defining a pocket opening away from the free marginal edge of the lip, the other of said box sections including a locking tongue, extending adjacent and generally parallel to said lip and having a free end directed toward said free edge of the lip, said tongue being of greater width than the said pocket and having a relatively narrower free end extension operatively received in said pocket, the free end of said tongue abutting in locking relation against said sheet material means on opposite sides of the pocket.

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