Aug. 11, 1964 F. W. FROMMGEN 3,144,134

LETTER TRAY

Filed Dec. 26, 1962

2 Sheets-Sheet 1

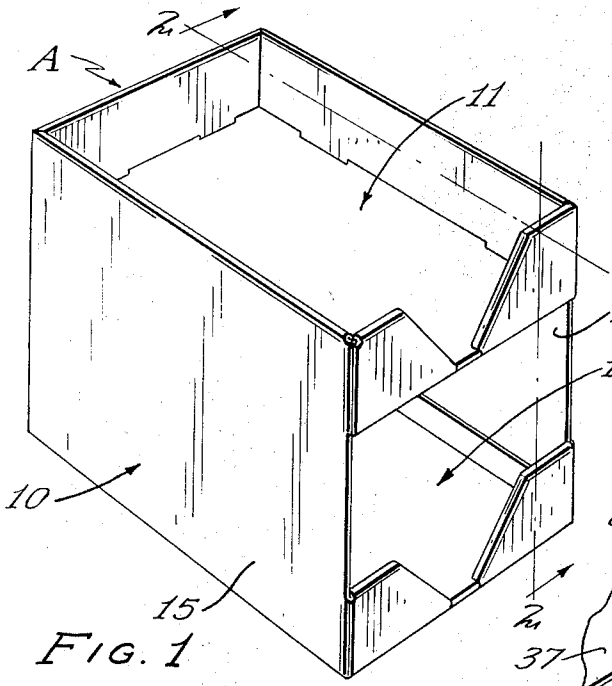


FIG. 1

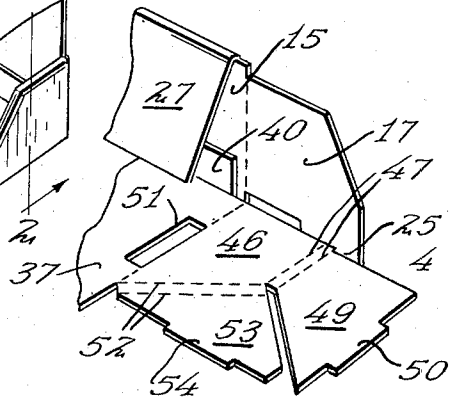


FIG. 3

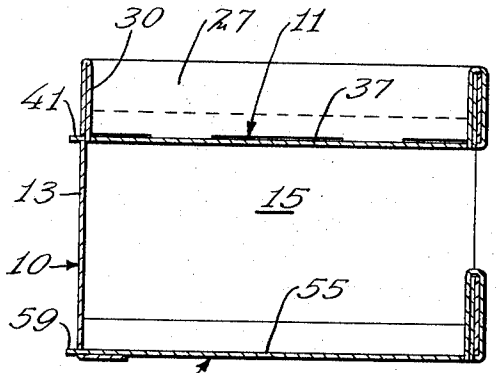


FIG. 2

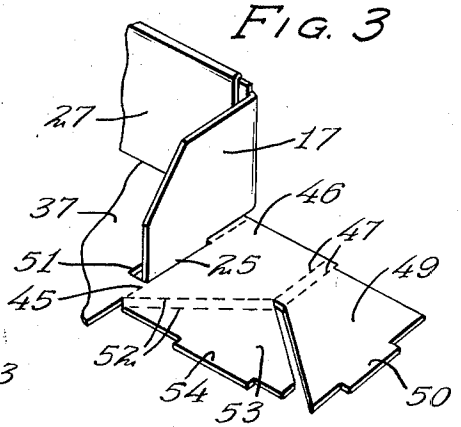


FIG. 4

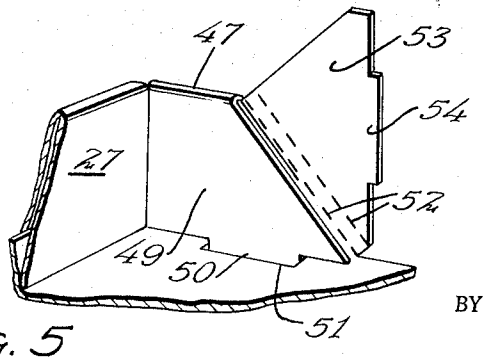


FIG. 5

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Aug. 11, 1964 F. W. FROMMGEN 3,144,134

LETTER TRAY

Filed Dec. 26, 1962 2 Sheets-Sheet 2

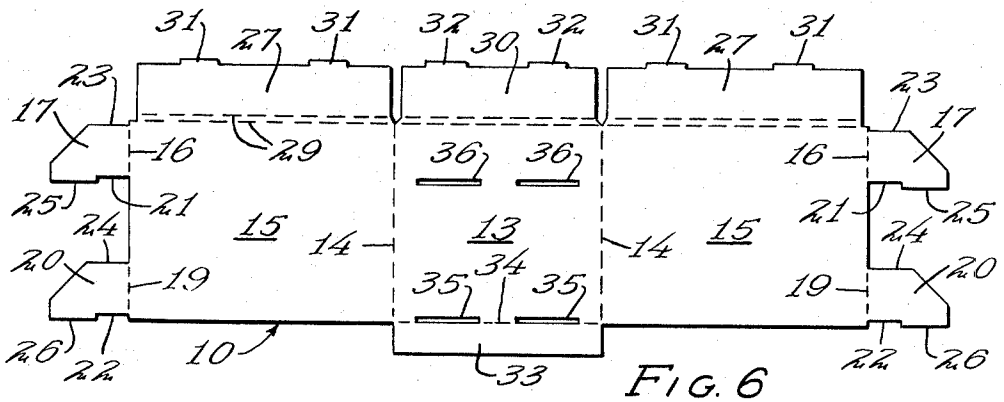


FIG. 6

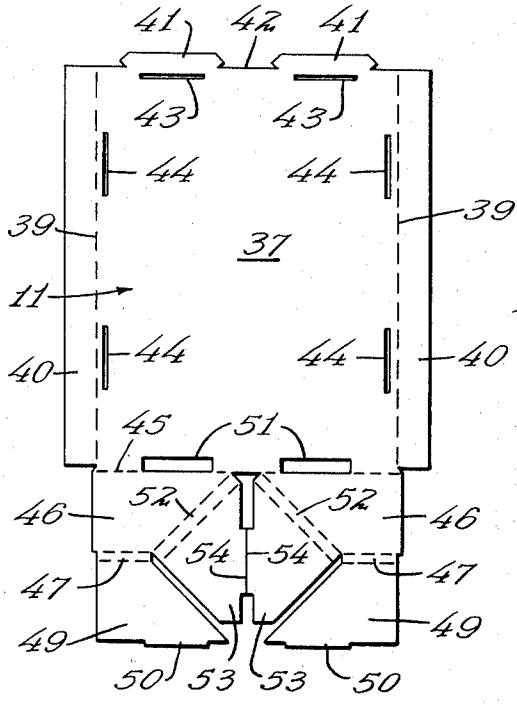


FIG. 7

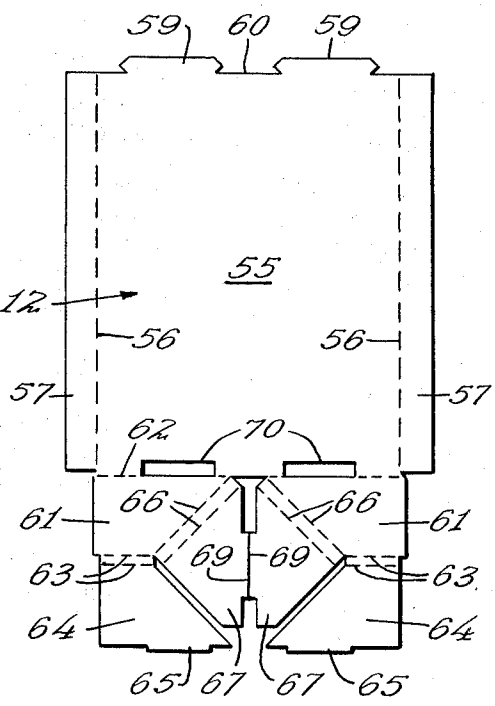


FIG. 8

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3,144,134

LETTER TRAY

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Filed Dec. 26, 1962, Ser. No. 246,950
9 Claims. (Cl. 211—126)

This invention relates to an improvement in letter tray and deals particularly with an inexpensive double deck tray of the type normally used for temporarily holding incoming and outgoing mail.

Letter trays are commonly used on office desks to temporarily contain incoming and outgoing mail. These trays usually include two vertically spaced tray sections, and are normally made of metal. In view of this fact, they are relatively expensive to use, and are easily bent in the event they are accidentally pushed off the side of the desk. It is an object of the present invention to provide a letter tray which is inexpensive to produce and which is less easily damaged than trays made of light weight sheet metal.

A further object of the present invention resides in the provision of a letter tray which may be formed of paperboard such as corrugated board or fiberboard, and which may be supplied in flat form. As a result, the storage required for the letter trays is very small as the trays may be folded into compact flat form.

A further feature of the present invention resides in the provision of a tray which may be set up in an extremely short period of time by persons unskilled in the art by following simple readily understandable directions.

A further feature of the present invention resides in the provision of a tray which preferably includes an outer shell which forms the walls of the tray, and two tray members which may be supported within the walls and readily locked into place.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification;

FIGURE 1 is a perspective view of the letter tray in its erected form.

FIGURE 2 is a sectional view taken on a vertical plane indicated by the line 2—2 of FIGURE 1.

FIGURE 3 is a perspective view of a corner of one of the trays showing a step in the erection of the letter tray.

FIGURE 4 is a view similar to FIGURE 3 showing a subsequent step in the folding operation.

FIGURE 5 is a view similar to FIGURES 3 and 4 showing a subsequent step in the folding operation.

FIGURE 6 is a diagrammatic view of the wall portion of the letter tray in blank form.

FIGURE 7 is a plan view of the blank from which the upper tray platform is formed.

FIGURE 8 is a diagrammatic view of the bottom platform forming structure.

The letter file A includes an outer wall portion which is indicated in general by the numeral **10**, a top platform structure which is indicated in general by the numeral **11**, and a bottom platform which is indicated in general by the numeral **12**. The wall portion **10** supports the upper and lower platforms in vertically spaced relation as best indicated in FIGURE 1 of the drawings.

The wall portion includes a back panel **13** which is hingedly connected along vertical parallel fold lines **14** to side panels **15**. The forward edges of the side panels **15** which are parallel to the fold line **14** are hingedly connected by fold line **16** to a pair of generally trapezoidal front flaps **17** which extend from the upper portions of the side panels. Panels **15** are also connected by fold lines **19** which are substantially aligned with the fold

line **16** to a second pair of generally trapezoidal front flaps **20**. As indicated, the lower edges **21** and **22** of the flaps **17** and **20** are longer than the upper edges **23** and **24** thereof, and locking tongues **25** and **26** extend downwardly from the lower edges **21** and **22** near the free ends of these flaps.

Side flanges **27** are foldably connected to the upper edges of the side panels **15** along a double score line **29** or a wide score line, and a back flange **30** is hingedly connected along the upper edge of the back panel **13** along this same fold line. Pairs of locking tongues **31** project from the free edges of the flanges **27**, and locking tongues **32** project from the free edge of the flange **30**.

A bottom back flange **33** is foldably connected to the lower edge of the back panel **13** along a fold line **34**, and tongue receiving slots **35** are provided in the back panel **13** just above the fold line **34**. A similar pair of locking slots **36** are provided in the back panel **13** spaced from the upper edge thereof, the purpose of the slots **35** and **36** being to receive projecting tongues on the lower and upper platform panels as will be described.

The top partition structure **11** includes a rectangular platform panel **37** which is of proper width to fit between the side walls **15** of the wall structure, the opposite side edges of the panel **37** being connected along fold lines **39** to platform side flanges **40**. A pair of projecting tongues **41** are provided on the edge **42** of the platform panel **37**, the tongues **41** being spaced similarly to the slots **36** in the back panel **13** so as to extend therethrough. Slots **43** are provided in the panel **37** inwardly of the locking tongues **41**, the slots **43** being spaced similarly to the tongues **32** on the back flange **30** to accommodate the same. Slots **44** are also provided in the platform panel **37**, the slots **44** being spaced inwardly of the fold lines **13** and spaced similarly to the projecting tongues **31** on the side flanges **27** to accommodate the same.

The forward edge of the platform panel **37** is hingedly connected along a fold line **45** to a pair of trapezoidal flaps **46** which follow the shape of the front flaps **17** on the side panels **15**, but are slightly larger so as to enclose the front flanges **17** and cover the entire forward surface thereof.

As is evident from the drawings, the lower edges of the flaps **46** which are connected along the fold line **45** to the partition **35** are considerably longer than the upper edges of the flaps which are connected along the wide score line or double score lines **47** to trapezoidal shaped flaps **49**. These flaps **49** are generally the same outline shape as the flaps **46** and are intended to fold inwardly therefrom. Projecting tongues **50** may be provided which are intended to extend into slots or apertures **51** in the partition panel **37** when the structure is assembled as will be later described.

The diagonally extending inner edges of the flaps **45** are hingedly connected along the double score lines **52** to locking flaps **53** which are provided with laterally extending tongues **54**. These laterally extending tongues **54** become downwardly extending tongues when the flaps **53** are folded inwardly of the flaps **49** and are also designed to extend into the apertures **51**.

The lower partition unit **12** is very similar in most respects to the unit **11**. The partition unit **12** includes a partition panel **55** generally similar in width to the back panel **13** and in length to the side panels **15**. The partition panel **55** is connected along parallel fold lines **56** to side flanges **57**. Tongues **59** project from the rear edge **60** of the panel **55** and are spaced similarly to the spacing of the slots **35** in the back panel **13** so as to extend therethrough in the assembled condition of the tray. Trapezoidal flaps **61** are hingedly connected to the forward edge of the panel **55** along a fold line **62**. The trapezoidal flaps are similar to the flaps **46** and are de-

signed to lie outwardly of the front flaps **20** on the side panels **15**. The relatively short upper edges of the flaps **61** are connected along double score lines **63** to trapezoidal liner flaps **64** having projecting tongues **65**. The diagonal inner edges of the flaps **61** are connected along the double score lines **66** to locking flaps **67** provided with projecting tongues **69**. The tongues **65** and **69** are designed to engage into properly spaced apertures **70** along the forward edge of the partition panel **55**.

The three parts **10**, **11**, and **12** may be quickly and easily assembled into the letter tray A illustrated in FIGURE 1 of the drawings. The wall portion **10** is folded along the fold lines **14** to fold the side walls **15** into parallel relation and at right angles to the rear wall **13**. The back flange **33** is folded forwardly into right angular relation to the back panel **13**, and the side flanges **57** of the bottom partition panel **55** are folded upwardly into right angular relation. The tongues **59** are then inserted through the slot **35**. The front flaps **20** on the side walls are folded inwardly into a common plane, and the forward portion of the lower partition panel is then folded to enclose these front flaps **20** in a manner which will be later described.

The flanges **40** of the upper partition panel **37** are then folded upwardly, and the partition panel is inserted between the side walls **15**, the projecting tongues **41** extending through the upper slots **36**. The side flanges **27** and back flange **30** of the wall portion may then be folded inwardly and downwardly, the locking tongues **31** of the side flanges **27** engaging into the slots **44**, and the locking tongues **32** of the back flange **30** extending into the slots **33**. The front flaps **17** at the forward edge of the side panels **15** are then in the position illustrated in FIGURE 3 of the drawings. These front flaps **17** are then folded into a common plane, the downwardly projecting tongues **25** then engaging into the slots or apertures **51** as shown in FIGURE 4 of drawings.

The three hingedly connected flaps on the forward edge of the partition panel **37** are then folded upwardly along the fold line **45** to lie in face contact with the forward surface of the flaps **17**, and the similarly shaped liner flaps **64** are then folded along the double score line **63** to lie in face contact with the inner surfaces of the front flaps **17** as indicated in FIGURE 5 of the drawings, the tongues **65** extending into the apertures **51**. As a final step of the assembly, the locking flaps **53** are folded along the double score line **52** to position the locking flaps **53** in face contact with the liner flaps **64**. When in this position, the projecting tongues **54** extend into the slots or apertures **51** to hold the structure assembled.

As the front flap structure of the lower partition panel **55** is substantially identical to that described, it is folded in the same manner. Normally, the front flap structure of the lower partition unit is assembled before the upper partition is inserted, but this is a matter of choice.

It will be noted that the assembled structure comprises two trays in superimposed relation, each of which includes, in effect, a V-shaped notch at the center of the forward wall so as to simplify the removal of papers therefrom. Due to the fact that the device is made of paperboard, it is relatively flexible and resilient, and may be dropped without injury. The letter tray is relatively inexpensive as compared to those made of sheet metal, and may be shipped and stored in a flat state.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in letter tray, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A letter tray including,

a wall portion including a back panel, a pair of side panels hinged to opposite edges of said back panel, and two pairs of vertically spaced front flaps folded into a common plane from the forward edges of said side panels,

a bottom platform including a bottom panel of proper width extended between said side panels, and platform flaps foldably connected to the forward edge of said bottom panel folded outwardly of the lower pair of said front flaps and including extensions foldably connected to said platform flaps and lying inwardly of said front flaps,

means securing the rear of said platform to said back panel,

an upper platform including a bottom panel of a width fitting between said side panels and including top platform flaps hinged to the forward edge thereof folded upwardly outwardly of the upper pair of front flaps, and flap extensions folded over and inwardly of these front flaps, and

means securing the rear edge of said top platform to said back panel.

2. The structure of claim 1 and in which said means securing said platforms to said back panel comprise tongues projecting through slots in said back panel.

3. The structures of claim 1 and in which said top platform bottom panel includes side flanges extending upwardly from the edges thereof inwardly of said side panels, and

side flanges on the upper edges of said side walls folded down inwardly of said platform side flanges.

4. The structure of claim 3 and including locking tongues on said side flanges on said side panels extending through slots in said top platform bottom panel.

5. The structure of claim 2 and including a back flange hingedly connected to the upper edge of said back panel, and locking tongues on said back flange extending through said top platform bottom panel inwardly of said tongues on said bottom panel.

6. A letter tray including

a wall portion including a back panel, a pair of side panels hinged to opposite side edges of said back panel, and two pairs of vertically spaced front flaps hinged to the forward edges of the side panels and folded into a common plane in opposed relation,

upper and lower platform panels extending from one side panel to the other, and from said back panel to said front flaps,

means securing the rear portions of said platform panels to the rear portions of said wall portions,

said front flaps being of trapezoidal shape, and wider along their lower edges than along their parallel upper edges,

trapezoidal flaps hinged to the forward edges of said platform panel and folded up into substantially contiguous relation to said front flaps on said side panels,

extension flaps hingedly connected to the upper edges of said trapezoidal flaps on said platform panels and folded over to extend inwardly of said front flaps, and

locking flaps hingedly connected to the inner inclined edges of said trapezoidal flaps and folded inwardly of said extension flaps and into locking engagement with said platform panels.

7. The structure of claim 6 and in which the platform panels include slots into which said locking flaps extend.

8. A letter tray including

a wall portion including a back panel, a pair of side panels hinged to opposite side edges of said back panel, and two pairs of vertically spaced front flaps hinged to the forward edges of the side panels and folded into a common plane in opposed relation,

upper and lower platform panels extending from one side panel to the other, and from said back panel to said front flaps,

tongues on the rear edges of said platform panels,

said back panel including slots through which said tongues extend,

said front flaps being of trapezoidal shape, and wider along their lower edges than along their parallel upper edges,

trapezoidal flaps hinged to the forward edges of said platform panel and folded up into substantially contiguous relation to said front flaps on said side panels,

extension flaps hingedly connected to the upper edges of said trapezoidal flaps on said platform panels and folded over to extend inwardly of said front flaps, and

locking flaps hingedly connected to the inner inclined edges of said trapezoidal flaps and folded inwardly of said extension flaps and into locking engagement with said platform panels,

side platform flanges on the upper platform panel extending upwardly in face contact with said side panels, and

side panel flanges hingedly connected to the upper edges of said side panels and folded inwardly of said side platform flanges into locking engagement with said upper platform panel.

9. The structure of claim 8 and including a back flange foldably connected to the upper edge of said back panel and folded inwardly of the upper portion of said back panel into locking engagement with said upper platform panel.

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