Dec. 12, 1961 H. R. A. THIOLAT 3,012,705

FOLDABLE BOX

Filed May 8, 1959 2 Sheets-Sheet 1

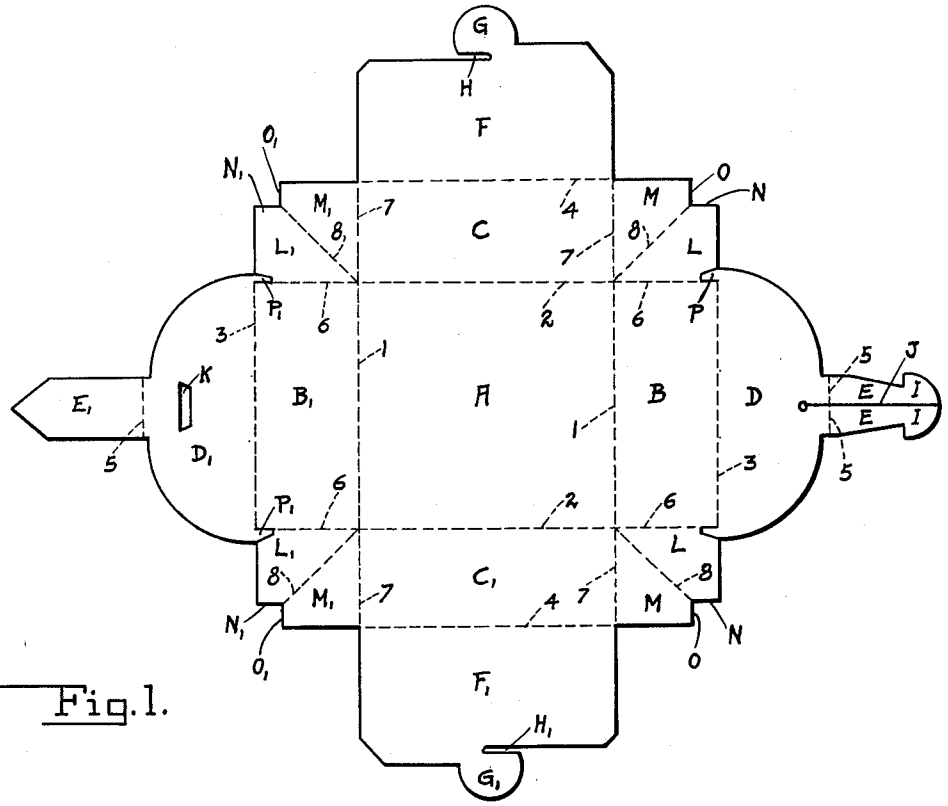

Fig. 1.

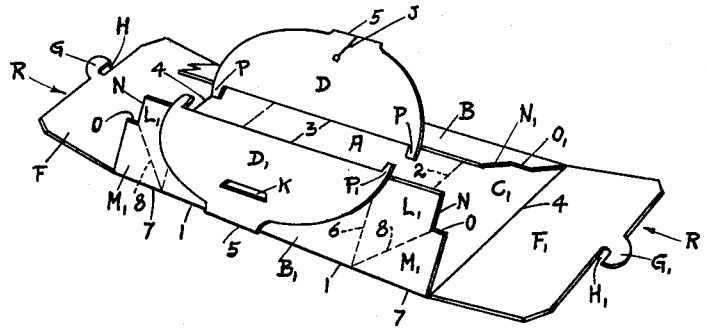

Fig. 2.

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Filed May 8, 1959 2 Sheets-Sheet 2

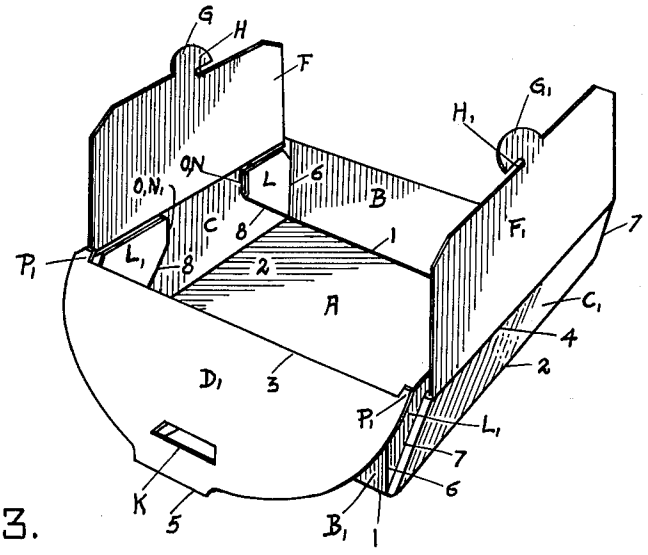

Fig. 3.

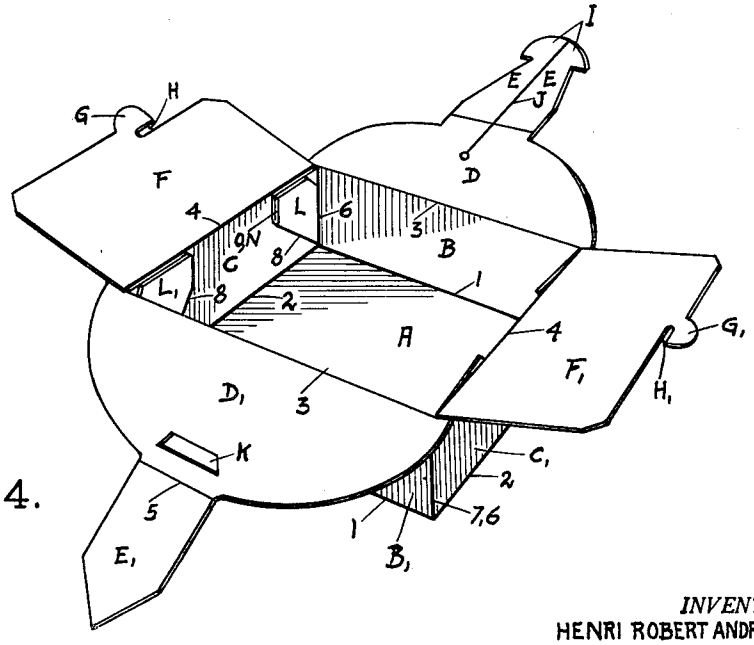

Fig. 4.

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United States Patent Office 3,012,705 Patented Dec. 12, 1961

3,012,705

FOLDABLE BOX

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Filed May 8, 1959, Ser. No. 811,976
Claims priority, application France Dec. 29, 1958
3 Claims. (Cl. 229—39)

The invention relates to a foldable box of square or rectangular shape, with or without a handle, comprising four flaps located around a part, of the blank, which forms the bottom of the box and furnished with extensions presenting a folding line at 45° to folding lines bounding the said flaps. According to the invention, cover parts extending the said flaps present tongues which are cut out on the outside of the folding lines separating the said flaps from the said parts and which engage behind the flaps forming the two other sides of the box when the four flaps are folded at right angles to the bottom, and the extensions are applied one against the other, following the bending at 45°, thus maintaining the box open for filling.

One embodiment of the invention by way of example is illustrated diagrammatically in the accompanying drawing, in which:

FIGURE 1 is a plan view of the blank before any folding,

FIGURE 2 is a perspective view of the box, as folded for transport, at the commencement of its unfolding, and

FIGURES 3 and 4 are similar perspective views, showing the box in the course of its erection, and open.

In FIGURE 1, the single transverse strokes (/) across the dotted folding lines indicate the folds whose convexity is directed downwardly in relation to the plane of the figure, whereas the double strokes (//) indicate the folds whose convexity is directed upwardly in relation to the said plane.

The blank of FIG. 1, made of cardboard or other suitable material, comprises a portion A defined by spaced score lines **1**, **1** and **2**, **2** and portions B_1, B, C_1 and C defined by score lines **3**, **3** and **4**, **4** which form the bottom and side walls of the folded box as seen in FIG. 4. At opposite sides of said blank and outwardly therefrom are portions D, D_1, E and E_1 defined by score lines **3**, **3** and **5**, **5**. At the top and bottom of said blank are portions F and G extending from fold lines **4**, **4**. These portions D, D_1, F and F_1 provide the cover for the box, as seen in FIG. 4. The portions F, F, are provided with lugs G and G_1 defined by slots H and H_1. The portions E and D are provided with a slit J. Portion D_1 has a slot K therein. The parts D, D_1 form two sides of the cover of the box and bear upon the elements F, F_1 after the box has been filled, the tabs E, E_1 forming a handle by the introduction of the head I of the element E, divided by a slit J, into an aperture K in the part D_1.

The several portions of the blank are defined by folding lines **1** to **5**. Additional folding lines **6** separate the flap portions B, B_1 from extensions L, L_1 and folding lines **7** separate the flap portions C, C_1 from extensions M, M_1. In accordance with the invention, the extensions L, M and L_1, M_1 respectively are separated by folding lines **8** at 45° to the lines **6** and **7**. Also the extensions present, at the ends of the lines **8**, cut-away portions N, N_1 and O, O_1 towards the outside. According to an essential feature of the invention, the flap portions D, D_1 have small tongues P, P_1 formed from the material of the extensions L, L_1 and separated from the said extensions by lines of cutting, parts of which coincide with extensions of the folding lines **6**.

To reduce the bulk of the box for transport and storage, the blank may be folded on the lines **1**, **4**, **5** and **7** in the directions indicated by the transverse strokes in FIGURE 1, so as to obtain the general result shown in FIGURE 2, which is convenient for transport and storage. Then, when the box is to be used, the blank is placed in the position of FIGURE 2 and the ends C, C_1 are raised by exerting pressure in the directions of the arrows R in FIGURE 2. The flaps C, C_1 turn about the folding lines **2**, which has the effect of raising the flaps B, B_1 similarly about the lines **1** and of applying the respective extensions L, M and L_1, M_1 one against the other along the folding lines **8**, until the tongues P, P_1 engage like hooks with the outside of the flaps C, C_1 or of the elements F, F_1, so that the box is formed and held open. To facilitate the hooking effect, the height of the flaps B, B_1 is slightly less than that of the flaps C, C_1. The elements, F, F_1 are then turned outwardly about the folding lines **3** and **4** respectively and the box can then be filled. Once it is full, the elements F, F_1 are folded back and are locked by engagement of the lugs G, G_1 into the slits H, H_1. The parts D, D_1 are closed, after which the heads I of the tab E are introduced, over the tab E_1, into the aperture K, so that a handle is produced.

If desired, after the blank has been folded as shown in FIGURE 2, lightly, the extensions M, M_1 and the corresponding parts of the flaps C, C_1 may be secured together by any suitable adhesive in order to facilitate further erection of the box.

According to a modification which is not illustrated, the box need not comprise a handle. In this case, the tabs E, E_1 are suppressed and may possibly be replaced by securing means such as the lugs G, G_1 and slits H, H_1. According to another modification, the elements F, F_1 and the lugs G, G_1 are suppressed and the parts D, D_1 are furnished either with tongues such as E, E_1 or with lugs such as G, G_1 co-acting with slits such as H, H_1. Thus they may be deprived of any closure means. In practice, however, the elements F, F_1 cannot be completely suppressed without the risk that the tongues P, P_1 may not find sufficient material for engagement with. Nevertheless, these elements can be considerably reduced, that is to say to dimensions just sufficient to permit the formations of the folding lines **4**.

Such suppression of the elements F, F_1 has the advantage of economy of material and therefore of weight, without practically affecting the solidity of the box.

It should be understood that the embodiments described have been given by way of example only and may be subjected to numerous variations without departing from the scope of the following claims.

I claim:

1. Foldable box made of a blank comprising a quadrangular middle part having four sides and four right angles defined by fold lines and intended to form the bottom of the assembled box, four flaps extending outwardly respectively from each side of said middle part and defined by fold lines, extensions forming externally with the fold line of said flaps a second quadrangular part concentric with said middle part, said second part having at each of its corners a cutaway portion and presenting a folding line at 45° to the folding lines bounding the said flaps, cover parts extending outwardly from two opposite sides of the said second quadrangular part and connected thereto by fold lines, and tongues which are cut out on the outside of the folding lines separating the said flaps from the said cover parts, whereby said tongues are intended to engage behind the flaps forming the two other sides of the box when the four flaps are folded at right angles to the bottom, and the extensions are applied one against the other, following the aforesaid folding at 45°, thus maintaining the box open for its filling.

2. Box according to claim 1, wherein two of the said

flaps are extended by inter-engageable tabs for forming a handle when the cover parts are folded toward each other.

3. Box according to claim 1, wherein the remaining two of said flaps have cover parts extending outwardly therefrom and each part provided with a lug separated from the respective part by a slit, the lug of each part being engageable in the slit of the other part for locking together the said latter cover parts in the closed position of the box.

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