

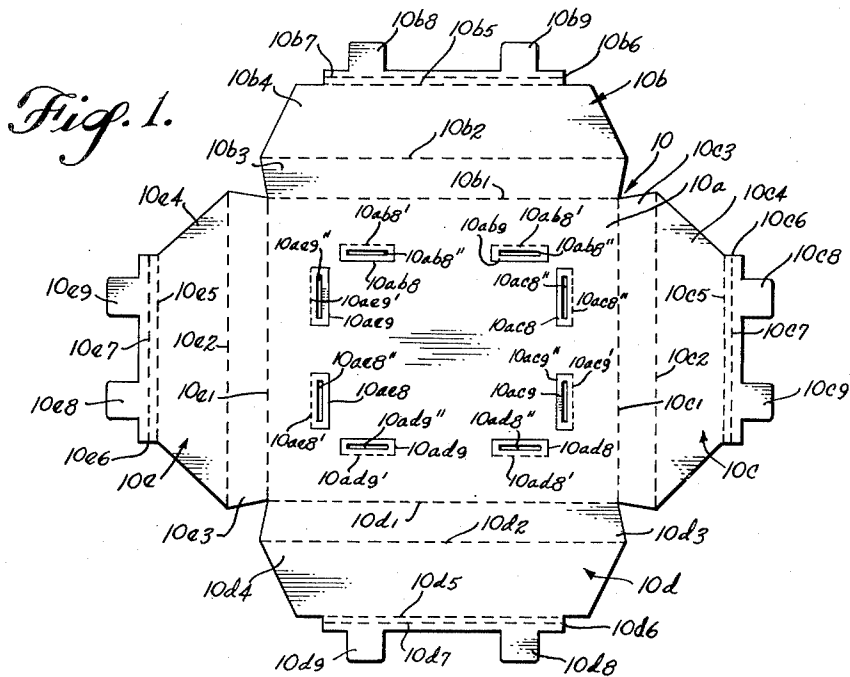
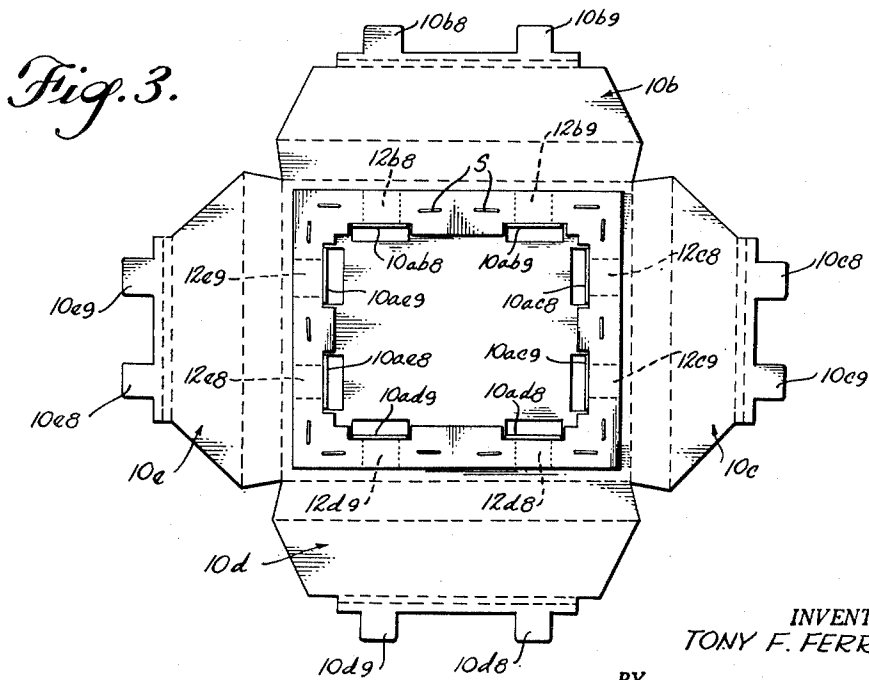
Dec. 4, 1956

T. F. FERRUCCI
CARDBOARD FRAMES

2,772,499

Filed July 18, 1955

2 Sheets-Sheet 1



INVENTOR.
TONY F. FERRUCCI

BY

Reynolds, Beach & Christensen
ATTORNEYS

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2 Sheets-Sheet 2

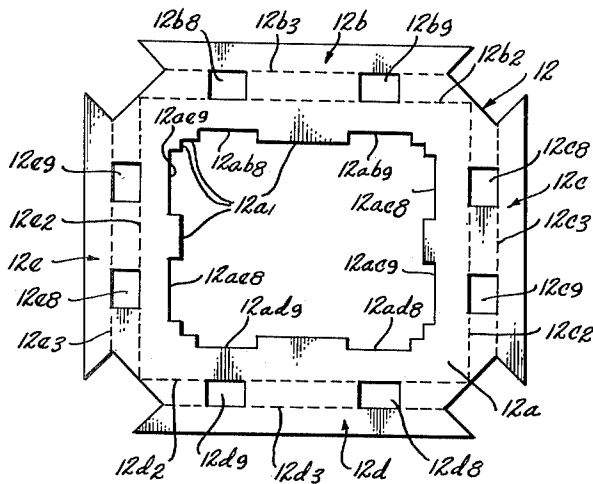


Fig. 2.

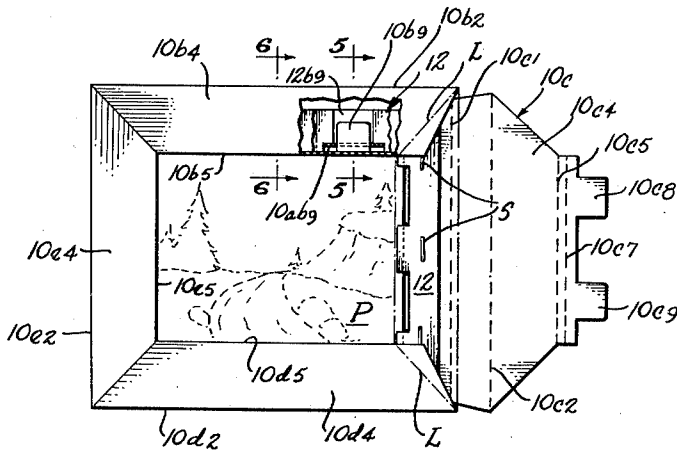


Fig. 4.

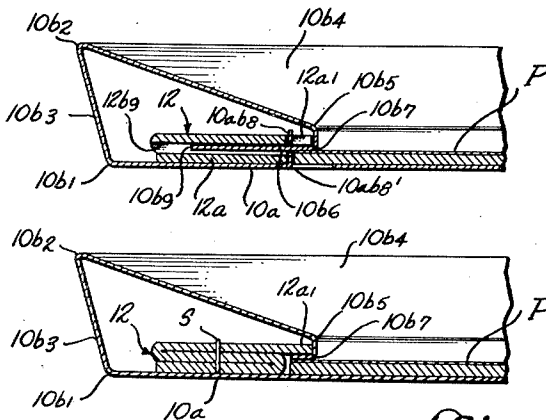


Fig. 5.

Fig. 6.

INVENTOR.
TONY F. FERRUCCI

BY

Reynolds, Reed & Christensen
ATTORNEYS

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CARDBOARD FRAMES

Tony F. Ferrucci, Seattle, Wash.

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12 Claims. (Cl. 40—154)

This invention relates to an improved collapsible picture frame or the like made from cardboard. The term "cardboard" as herein used includes a wide variety of flexible, foldable sheet materials usually comprising wood pulp or other fibrous materials but not necessarily limited thereto, suitable for the present purpose. The invention is herein illustratively described by reference to the presently preferred form thereof; however, it will be recognized that a number of variations and modifications therein are possible within the scope of the patentable subject matter. A general object of the invention is an improved collapsible cardboard frame suitable for the framing of pictures and the like.

A more specific object is such a frame which is inexpensive to make and relatively easily and quickly put together.

Another object is an improved frame of the described type which is of rugged and durable construction and retains its assembled form without appreciable tendency for the cardboard elements to become distorted or to become disengaged one from the other.

Another object is such a frame of neat and attractive form having no externally projecting elements which could be damaged or dislodged from secured position or which could be dust collectors. A related object is a frame which completely encloses all its components not essential to presenting the desired outward frame appearance.

A related object is such a frame which is capable of retaining pictures or like objects of different thicknesses, including heavy cardboard or "artboard" objects, and which incorporates its own backing.

These and other objects will be apparent from the detailed description which follows and from the accompanying drawings. From these it will be evident that a feature of the improved frame resides in the provision of tabs on the foldable flaps of the frame, which tabs engage in slotted bottom tabs struck up from the base piece or central portion of the frame with the flaps in folded condition. In this manner the maximum thickness of a picture or other object which may be accommodated in the frame (i. e. received between the frame molding and the adjacent face of the base piece) may be established by selecting the height of the bottom tab slots above such face, and that all of these basic portions of the frame structure are conveniently provided in a single sheet of material having the necessary score lines to fold the parts into assembled relationship. Such upstruck bottom tabs serve as positive stops engaging the side edges of a picture or other object dimensioned to be received snugly between such tabs, thereby to hold such picture centered in the frame and to provide reinforcement for the tabs. Moreover, during insertion of the edge tabs through the slits in the upstruck base tabs the shim means contacting the outside faces of such base tabs as described below support the latter in upright position to facilitate such insertion.

An additional important feature of the invention is

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the provision of shim means extending around the interior of the frame adjacent the upstruck bottom tabs to serve as a stiffener for the frame generally and for such bottom tabs in particular. Thus the upstruck bottom tabs are rigidly held in upright position between the opposing edges of the picture received in the frame and of the shim means extending therearound. In the preferred form such shim means comprises a multiple-layer collar structure between layers of which the ends of the edge tabs projecting through the bottom tab slits are received. The upper layer of such shim collar extends inwardly in width sufficiently that its inner edge fits snugly into the inside fold of the frame molding to stiffen the latter and hold it down against the face of a picture or other framed object. Preferably the shim collar is formed from a single cardboard sheet folded into three thicknesses which are stapled together or otherwise secured together at locations offset from the edge tabs. The intermediate thickness of the collar has gaps therein along its length which form spaces for receiving the projecting ends of the edge tabs in the folded condition of the frame.

These and other features and advantages of the invention, including certain details of construction of the preferred form thereof will become more clearly evident from the following description by reference to the accompanying drawings.

Figure 1 is a face view of the development of the cut and scored sheet constituting the frame proper.

Figure 2 is a face view of the development of the cut and scored shim collar sheet.

Figure 3 is a face view of the developed foldable frame proper upon which the folded and stapled shim collar is laid in operative position, with the bottom tabs of the base piece struck up into operative position preparatory to receiving a picture or other rectangular object in the space therebetween.

Figure 4 shows the frame proper, collar means and a picture assembled together with all but one flap folded into place, portions of the frame being broken away to show interior construction.

Figure 5 is a sectional view taken on line 5—5 in Figure 4, at an enlarged scale.

Figure 6 is a sectional view taken on line 6—6 in Figure 4, likewise at an enlarged scale.

The developed frame proper 10 shown in Figure 1 is of generally polygonal form, being a rectangle in the illustrated case. The central portion or base piece 10a is adjoined on its four sides by the projecting flaps 10b, 10c, 10d and 10e. The four edges or sides of the base piece 10a adjoined by the respective flaps are defined by the score lines 10b1, 10c1, 10d1, and 10e1, along which the flaps are to be folded relative to the base piece in erecting the frame.

The flap 10b has an additional score line 10b2 spaced outwardly from and parallel to the score line 10b1 by a distance corresponding to the desired frame molding maximum thickness, the marginal strip 10b3 between score lines 10b1, 10b2 becoming the outside edge face of the frame molding. A second marginal strip 10b4 adjoining the strip 10b3 is defined between the score line 10b2 and an additional score line 10b5 parallel thereto. The strip 10b4 becomes the exposed or frontal face of that side of the frame. A third marginal strip 10b6 is defined between the fold line 10b5 and the outer edge of the flap 10b and is preferably provided with an intermediate fold line 10b7 parallel to such edge and the first-mentioned fold line so as to impart appreciable or finite thickness, hence stiffness to the inner lip of the frame in its folded condition, i. e. the strip portion between the fold lines 10b5 and 10b7 becomes the inside edge face of the frame molding along that side of the frame. Edge securing tabs 10b8 and 10b9 project laterally edge-

wise from the flap near the respective ends thereof for a purpose to be described.

In case the outside edge faces of the formed frame are to be perpendicular to the bottom plane of the frame (i. e. the plane of the base piece 10a), the end edges of the flap 10b between the fold lines 10b1 and 10b2 will be perpendicular to such fold lines; in the example, however, it is desired to provide an outward flare to the frame in its folded condition (see Figures 5 and 6) wherein the outside edge faces on the sides of the frame diverge mutually outwardly thereof.

The appearance of perfectly mitered joints at the frame corners on the front face of the frame is more easily obtained if the adjoining face panels overlap one on the other than it is if an attempt is made to abut the end edges of such panels. Accordingly, the end edge of one flap at a corner is preferably mitered or, more exactly, cut at a 45° incline to its longitudinal dimension to become the uppermost or overlapping face panel, whereas the end edge of the face panel of the adjoining flap at the same corner is cut at a larger or more obtuse angle. Thus in the illustration the end edges of the intermediate strip 10b4 which becomes the face panel of that side of the frame, is cut at a larger angle than 45° to its longitudinal axis, whereas the adjoining end edges of the panels 10e and 10c are cut at 45°. The flap 10d is formed similarly to the flap 10b in all respects. The flaps 10c and 10e are likewise similar to the flap 10b except for the inclination angle of the end edges of their intermediate strips which become the face panels of the frame as described. To avoid duplicate description, therefore, the different flap elements of the flaps 10c, 10d and 10e are assigned reference numerals corresponding to those employed on flap 10b.

For each of the edge securing tabs 10b8, 10b9, 10c8, 10c9, 10d8, etc. there is cut in the base piece 10a a complementary bottom tab-forming flap which is slit parallel to its base to be engaged by the corresponding edge flap in the folded condition of the frame. The fold lines of the bottom tabs on each of the four sides of the frame structure are aligned or coincident, and lie on the four sides of a rectangle which is only slightly larger than the rectangular outline of a picture to be framed in the foldable frame structure. Thus the edge tab 10b8 engages the tab-forming cut flap 10ab8 suitably located for that purpose on the base piece 10a. In the example the tab-forming flap 10ab8 is of rectangular form cut through the sheet material on three sides of the rectangle and scored for convenience in folding on the fourth side, as indicated by the dotted line 10ab8'. A longitudinal slit 10ab8'' parallel to the fold line 10ab8' is provided to receive the tab 10b8. In like manner a flap 10ab9 is formed in alignment with the flap 10ab8 spaced inwardly from the edge line 10b1 by the same distance as the flap 10ab8 and aligned therewith. Bottom tab-forming flaps 10ac8, 10ac9, 10ad8, 10ad9, 10ae8 and 10ae9, are similarly formed in the bottom piece 10a to cooperate with the edge tabs 10c8, 10c9, 10d8, 10d9, 10e8 and 10e9, respectively.

The other major part of the combination foldable frame comprises the shim collar structure 12 illustrated in development or blank form in Figure 2. This part is preferably cut from a thicker and coarser, hence cheaper, cardboard than the cardboard of the frame proper illustrated in Figure 1. The latter is preferably a highly calendered cardboard presenting a nice exterior appearance, although it will be recognized that varying types of materials may be used to achieve different effects. The shim collar 12 is likewise of generally rectangular form and comprises a base or inner collar portion 12a, the outline edge of which is defined by the connected score lines 12b2, 12c2, 12d2 and 12e2, forming a rectangle of somewhat smaller dimensions than the rectangular base piece 10a of the frame proper (Figure 1). Flaps 12b, 12c, 12d and 12e project outwardly edgewise

from the four sides of the rectangular base piece 12a, which flaps have outside score lines 12b3, 12c3, 12d3 and 12e3 respectively, extending parallel to the base score lines previously described. The different score lines become fold lines in the shim collar, and when the latter has been folded into the condition in which it is installed in the frame proper as later described, the outside strips, i. e. those lying between the outside edges of the flaps and the respective outside fold lines 12b3, 12c3, 12d3 and 12e3, become the uppermost layer or strip in the multiple-layer shim collar, relative to the base piece 10a, and the intermediate strips (i. e. between the fold lines 12b3, and 12b2 in the case of flap 12b and between corresponding fold lines in the cases of the other flaps), become the intermediate or interposed strips or layers of the folded shim collar. The inner strip portions representing the four connected sides of the collar means base 12a become the bottommost strips, which contact the upper face of the frame base piece 10a.

The collar means base piece 12a has a rectangular opening defined by the inside edge 12a1 of such base piece. The rectangle dimensions of this opening are only slightly larger than the corresponding rectangle dimensions of the folded frame structure molding (i. e. the inner lip of the frame molding which overlaps the picture held therein, as explained more fully later herein). The four sides of the rectangular inside edge formation 12a1 are notched at side locations 12ab8, 12ab9, 12ac8, 12ac9, 12ad8, 12ad9, 12ae8 and 12ae9, corresponding to the perimetral locations of the respective tab-forming flaps bearing similar subscript reference numerals in Figure 1. That is, the inner edges of the shim collar 12a are notched to receive and accommodate the upstruck tabs 10ab8, 10ab9, etc., of the frame proper base piece 10a. Likewise, the intermediate strips of the shim collar (i. e. those between the fold lines of each flap) each have two gaps therein extending at least part way across the width of such strips, which gaps are designated respectively 12b8, 12b9, 12c8, 12c9, 12d8, 12d9, 12e8 and 12e9. These pairs of gaps in the intermediate shim collar strips provide spaces accommodating the inturned edge tabs on the pairs of flaps 10b, 10c, 10d and 10e. At each corner of the shim collar blank as seen in Figure 2 the material is cut at a 45° incline perpendicular to the intersecting diagonal of the rectangular blank, such inclined edge extending between the outside fold lines at the corner. From the intersections of the latter and the inclined edge referred to, the cut edge of the blank at each corner extends outwardly at 90° to such inclined edge to form acute angle tips of 45° with the straight outer side edges of the blank.

In Figure 3 the shim collar 12 has been folded along the different score lines thereof to form a multiple-layer collar of three times the thickness of the sheet material from which the shim collar is cut as in Figure 2. Staples S are used to staple together the layers of the shim collar at locations offset from the tab-receiving slots or spaces defined by the gaps in the intermediate layers so that staples will not interfere with the insertion of the ends of the edge tabs of the frame proper into such spaces. The assembled shim collar is laid on the base piece 10a to surround the upstruck bottom tabs thereon as illustrated, such bottom tabs being accommodated in the notches forming the inside edges of the shim collar as previously explained. The frame structure is now ready to receive the picture panel or other object to be framed, which object will be accommodated snugly in the rectangular space defined by the upstruck bottom tabs.

In Figure 4 the frame has been assembled around the picture with the exception of the flap 10c, which remains to be folded into place. Referring to this figure and also to Figures 5 and 6 it will be noted that in the folded condition of the flaps the side strip, that is the first marginal strip adjoining the base piece 10a projects outwardly from the latter (at an angle other than 90° in the example), the second marginal strip adjoining the first, projects inwardly

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over the base piece 10a and downwardly toward the same at a desired face angle for the frame, then folds reversely back upon itself, preferably in two steps, at fold lines 10b5 and 10b7 (Figure 5) to dispose the edge tab 10b9 parallel to the face of the bottom piece 10a so as to project through the slit in the corresponding bottom tab 10ab8 and into the receiving space 12b9 formed in the shim means between the upper and lower layers thereof, as shown. It will be noted that the outer edge of the picture P abuts the inside face of the upstruck tab 10ab8, whereas the inner edge of the upper and lower layers of the shim collar 12 abut the inside face of the bottom tab both above and below the edge tab projecting through the slit in the latter. Thus tab 10ab8 is maintained in upright position to facilitate insertion of the edge tab 10b8 therein and to maintain a rigidly locked frame structure. Likewise it will be noted that the marginal edge 12a1 of the upper layer of the shim collar abuts against the inside groove representing the fold forming the inside lip of the frame molding (between fold lines 10b5 and 10b7) in order to stiffen the latter fold and to hold the material down against the face of the picture or other object P held in the frame. It will also be noted that the base piece 10a serves as a backing for the frame structure. In Figure 6 the stapling is illustrated. In this same figure it will be evident that the inside lip of the frame structure molding receives considerable stiffening from the upper layer of the shim collar.

In Figure 4 the broken line L illustrates the final position of the flap 10c in folded condition to complete the frame assembly with the picture P contained therein.

A further point to be noted about the improved frame structure as illustrated particularly in Figures 5 and 6 is the considerable spacing in thickness or depth afforded between the marginal strip 10b6 and the adjacent face of the base piece 10a, to accommodate picture panels P of appreciable thickness. The maximum thickness that may be accommodated approaches a thickness of two layers of the shim collar cardboard material, since tab 10b9 and the other corresponding edge tabs lodge directly beneath the upper layer of the shim collar as shown. Preferably the picture panel P is made as thick as possible so that the edge strip 10b6 will be squeezed rather snugly or tightly between the overhanging edge of the upper layer of the shim collar and the underlying base piece 10a, further tightening the fit between the interengaged parts.

I claim as my invention:

1. A frame comprising a base piece of polygonal form, first marginal strips foldably joined to the respective edges of said base piece to extend along the length of such latter edges, second marginal strips foldably joined to the respective first marginal strips along fold lines extending parallel to the respective fold lines between the latter and the base piece, and third marginal strips foldably joined to the respective second marginal strips along fold lines extending parallel to the respective fold lines between the first and second marginal strips, said third marginal strips having securing tabs projecting edgewise therefrom transversely to their length to extend generally parallel to said base piece with said first strips folded relative to said base piece to extend generally laterally therefrom, with said second strips folded relative to said first strips to extend generally laterally therefrom to overlie said base piece, and with said third strips folded back on said second strips likewise to extend generally parallel to said base piece and disposed between the latter and said second strips respectively, said base piece having secured thereto a plurality of slotted securing tab elements projecting upwardly therefrom at relative locations corresponding to the respective first-mentioned securing tabs with said strips folded as defined above, to receive the latter tabs in the slots thereof for holding said first, second and third strips in said folded relationship, whereby a sheet-like object may be held between said base piece tabs beneath said third marginal strips.

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2. The frame defined in claim 1, and shim means comprising a plurality of elongated strip portions sandwiched between the respective marginal strip tabs and the base piece, said strip portions respectively abutting the upwardly projecting base piece securing tabs.

3. The frame defined in claim 2, wherein the shim means comprises a continuous polygonal collar free of the base piece and locked in fixed position thereon by encirclement of the upwardly projecting base piece securing tabs and by being sandwiched between said base piece and the marginal strip tab ends projecting through the slots in said base piece tabs.

4. The frame defined in claim 1, and shim-collar means encircling and abutting the upwardly projecting base piece securing tabs, said shim collar means having openings formed in the edges thereof abutting such tabs, such openings being located in such edges respectively to receive therein the ends of the marginal strip tabs projecting through such base piece tabs.

5. The frame defined in claim 4, wherein the collar means comprises two cardboard layers of continuous collar form mutually superimposed and relatively separated to receive the marginal edge tabs.

6. The frame defined in claim 5, and a third cardboard layer sandwiched between the first-mentioned two layers, said third layer having gaps therein forming the tab-receiving openings between said first two layers.

7. The frame defined in claim 5, wherein the cardboard layer uppermost from the base piece has an inwardly projecting lateral width on all sides of the collar to fit the inner edges thereof snugly inside the fold formed between the respective second and third marginal strips, thereby to stiffen such fold.

8. Collapsible cardboard frame means for the framing of pictures and the like, comprising a continuous cardboard sheet having a polygonal central portion, folding side flaps projecting edgewise outwardly from all sides of said central portion, scored fold lines substantially coinciding with said central portion sides to establish the base edges of such flaps, at least two scored fold lines in each flap extending parallel to the base-edge scored fold lines thereof to permit folding of said flaps first upwardly from said sheet central portion, then inwardly and toward the adjacent face thereof, and then outwardly on themselves along such face toward such base edges to form a frame molding from said flaps extending around and overlying said central portion, edge-securing tabs projecting outwardly edgewise from said flaps, and bottom securing tab-forming flaps cut in said sheet central portion to be struck up therefrom by folding one one edge and having tab-receiving slits formed therein parallel to such folding edges thereof, said bottom securing tabs being located relatively on said sheet central portion at positions spaced inwardly from the sides of said central portion for receiving in their slits the respective securing tabs of said marginal flaps in the folded condition of the latter, thereby to lock said flaps in such folded frame-forming condition.

9. Collapsible cardboard frame means for the framing of pictures and the like, comprising, in combination, a continuous cardboard sheet having a polygonal central portion, folding side flaps projecting edgewise outwardly from all sides of said central portion, scored fold lines substantially coinciding with said central portion sides to establish the base edges of such flaps, at least two scored fold lines in each flap extending parallel to the base-edge scored fold lines thereof to permit folding of said flaps first upwardly from said sheet central portion, then inwardly and toward the adjacent face thereof, and then outwardly on themselves along such face toward such base edges to form a frame molding from said flaps extending around and overlying said central portion, edge-securing tabs projecting outwardly edgewise from said flaps, and bottom securing tab-forming flaps cut in said sheet central portion to be struck up therefrom by folding on one edge and having tab-receiving slits formed

therein parallel to such folding edges thereof, said bottom securing tabs being located relatively on said sheet central portion at positions spaced inwardly from the sides of said central portion for receiving in their slits the respective securing tabs of said marginal flaps in the folded condition of the latter, thereby to lock said flaps in such folded frame-forming condition, and shim collar means of similar polygonal form of a size slightly smaller than said polygonal central portion and having an inside perimeter closely encircling said upstruck bottom tabs, said collar means having portion lodged between said edge tabs and the underlying face of said central portion.

10. Collapsible cardboard frame means for the framing of pictures and the like, comprising, a continuous cardboard sheet having a polygonal central portion, folding side flaps projecting edgewise outwardly from all sides of said central portion, scored fold lines substantially coinciding with said central portion sides to establish the base edges of such flaps, at least two scored fold lines in each flap extending parallel to the base-edge scored fold lines thereof to permit folding of said flaps first upwardly from said sheet central portion, then inwardly and toward the adjacent face thereof, and then outwardly on themselves along such face toward such base edges to form a frame molding from said flaps extending around and overlying said central portion, edge-securing tabs projecting outwardly edgewise from said flaps, and bottom securing tab-forming flaps cut in said sheet central portion to be struck up therefrom by folding on one edge and having tab-receiving slits formed therein parallel to such folding edges thereof, said bottom securing tabs being located

relatively on said sheet central portion at positions spaced inwardly from the sides of said central portion for receiving in their slits the respective securing tabs of said marginal flaps in the folded condition of the latter, thereby to lock said flaps in such folded frame-forming condition, and cardboard multiple-layer shim collar means of similar polygonal form of a size slightly smaller than said polygonal central portion and having an inside perimeter closely encircling said upstruck bottom tabs, said collar means having a bottom cardboard layer lodged between said edge tabs and the underlying face of said central portion, and an upper layer overlying said edge tabs, said layers being interconnected at locations offset from said edge tabs received therebetween.

11. The frame means defined in claim 10, wherein the upper cardboard layer of the shim collar means has an inside perimetral fitting snugly in the folds at which the respective flaps are turned outwardly on themselves to form the inside edges of the frame.

12. The frame means defined in claim 11, wherein the shim collar means has a third cardboard layer interposed between the bottom and upper layers, said third layer having gaps therein at the edge tab locations, thereby forming spaces to receive the respective edge tabs projecting through the bottom tab slots.

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