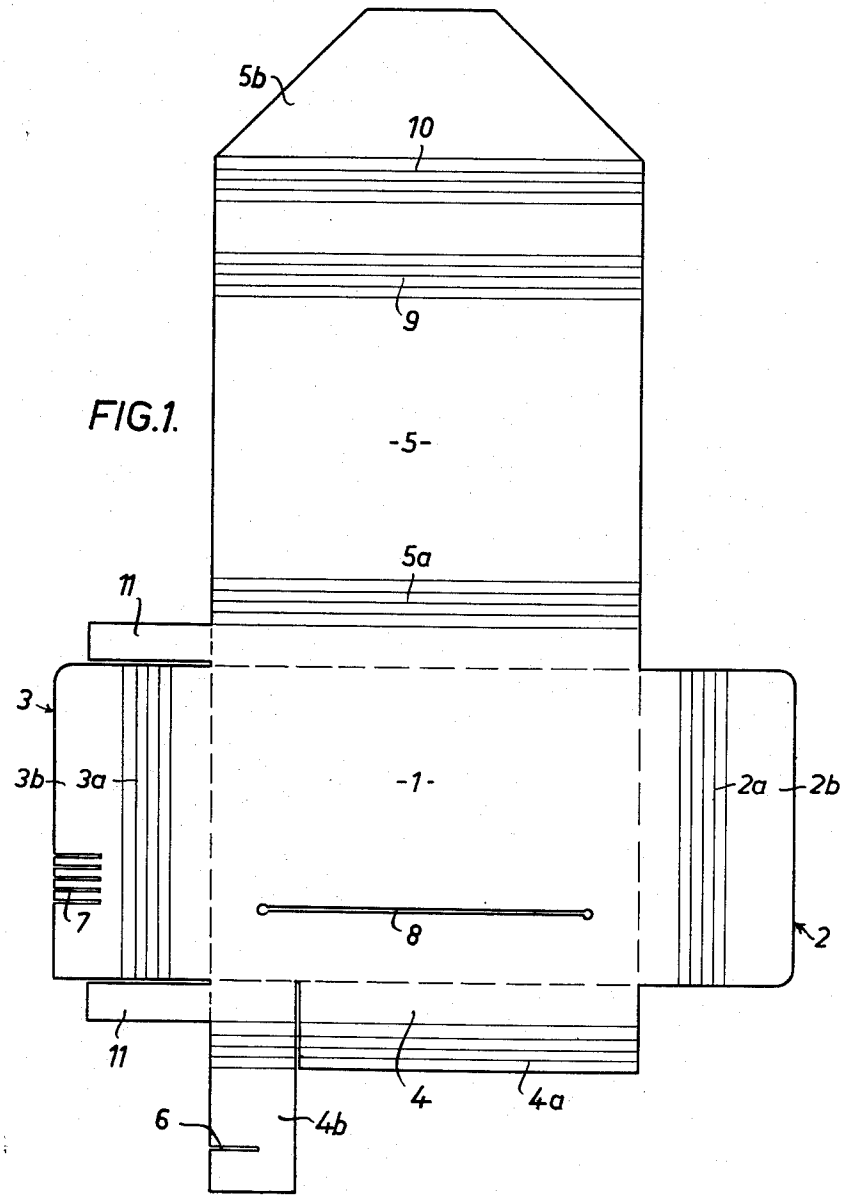
Dec. 17, 1963 U. ENGSTRÖM 3,114,492

EXPANDABLE DOCUMENT BOX

Filed Jan. 16, 1962 3 Sheets-Sheet 1

FIG.1.



Dec. 17, 1963 U. ENGSTRÖM 3,114,492

EXPANDABLE DOCUMENT BOX

Filed Jan. 16, 1962 3 Sheets-Sheet 2

FIG. 2.

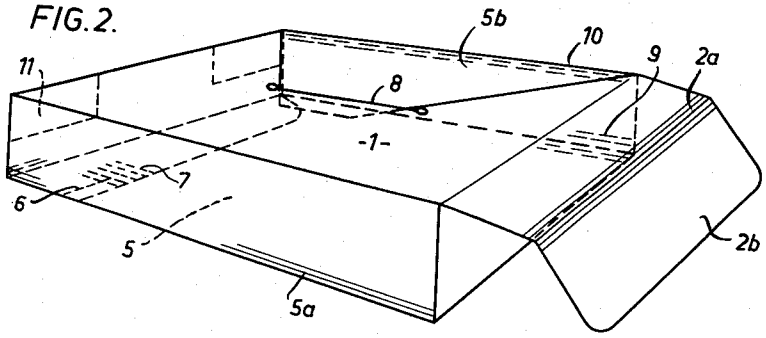


FIG. 4.

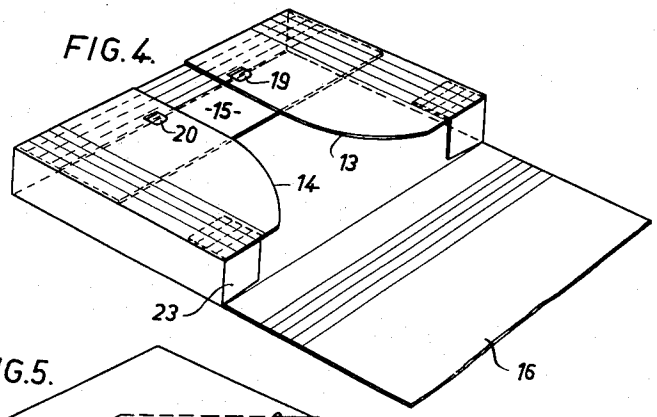


FIG. 5.

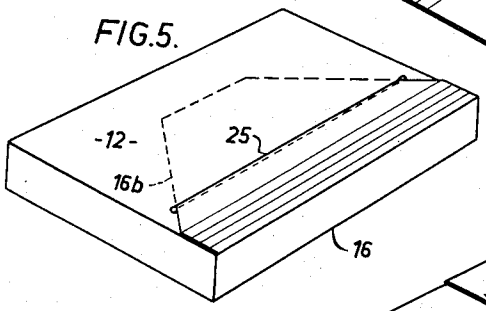
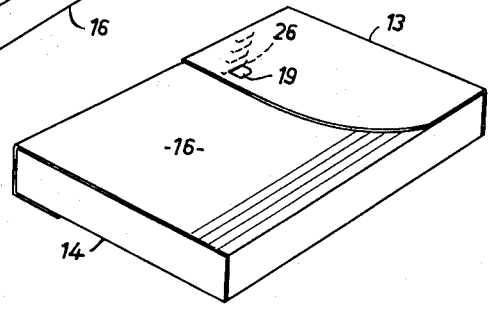


FIG. 6.

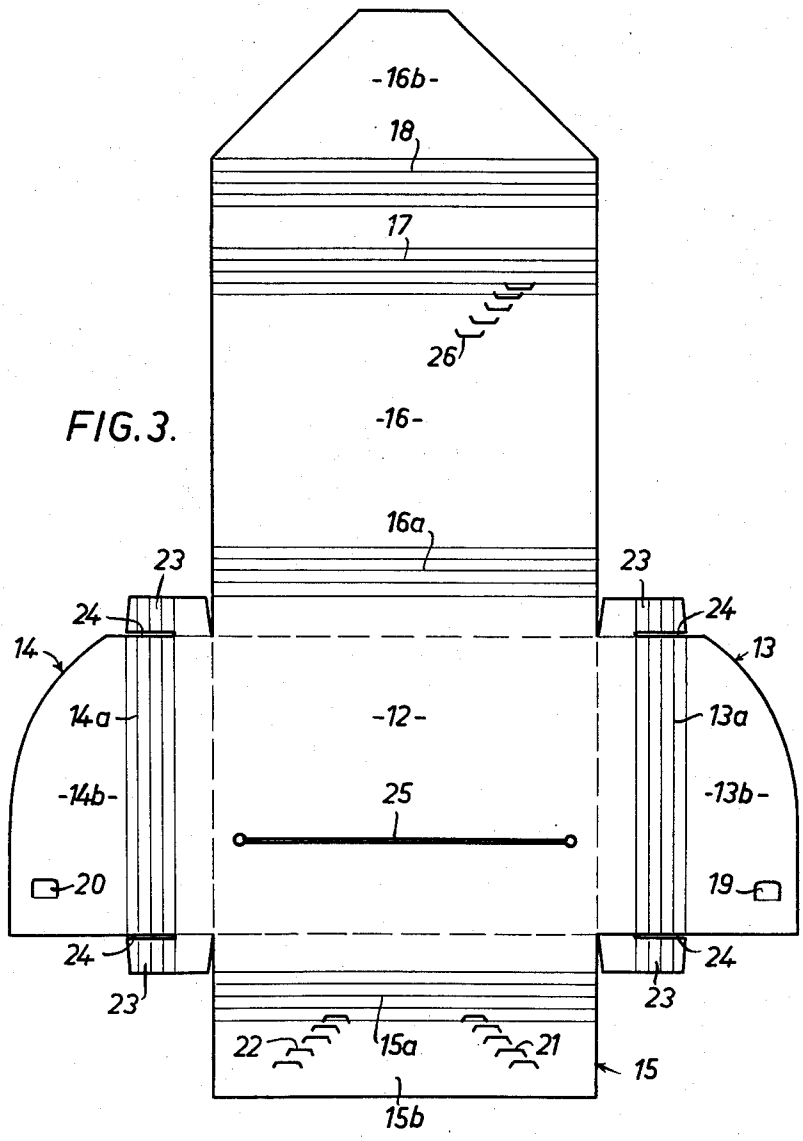


Dec. 17, 1963 U. ENGSTRÖM 3,114,492

EXPANDABLE DOCUMENT BOX

Filed Jan. 16, 1962 3 Sheets-Sheet 3

FIG. 3.



United States Patent Office 3,114,492 Patented Dec. 17, 1963

3,114,492
EXPANDABLE DOCUMENT BOX

Urban Engström, Umea, Sweden, assignor to Vasterbottens Tryckeri Aktiebolag, Skelleftea, Sweden, a corporation of Sweden

Filed Jan. 16, 1962, Ser. No. 166,562
Claims priority, application Sweden Jan. 19, 1961
4 Claims. (Cl. 229—16)

This invention relates to a document or file box of pasteboard or other sheet material for collecting documents or the like to be kept in file, especially for archives.

One object of the invention is to provide a standard blank from which such a file box of essential rigidity can be folded and kept in its finished shape without glueing or riveting.

Another object of the invention is to provide a standard blank from which a file box having a predetermined size and variable thickness may be folded and which thickness may be subsequently changed as required.

Still another object of the invention is to provide locking means keeping the box in its finished shape of any of its thicknesses and being so arranged as to increase its locking ability by the weight of the contents of the box.

The invention consists in certain features of construction as herein shown and described.

In the drawings:

FIG. 1 shows a blank for a file box forming the subject of the invention.

FIG. 2 shows in perspective a finished box from the blank of FIG. 1.

FIG. 3 shows a modified blank for a file box according to the invention.

FIG. 4 shows the blank of FIG. 3 in perspective and in partially folded form.

FIG. 5 shows in perspective a finished box from the blank of FIG. 2.

FIG. 6 shows in perspective a finished box from FIG. 3 folded in a modified manner with respect to that of FIGS. 4 and 5.

In archives the space for keeping documents in file has often proved insufficient and many proposals have been made to save space or utilize the available space in a more efficient manner. Further it has been found that file boxes of standardized size and thickness for collecting the documents will often be incompletely filled for instance due to the fact that one desires to have a reserve space and further said boxes will take up a large space when kept in stock for subsequent use.

The present invention aims to provide a blank that can be kept in stock in a flat unfolded form and in case of need be folded to a file box of desired thickness, which thickness can be varied in response to the amount of documents to be collected for the time being. Said folded file box having an essential rigidity may further be refolded for instance to a larger thickness as the contents of the box swell. Thereby a minimum of archive space will be wasted.

One embodiment of a blank according to the invention is shown in FIG. 1 of the drawings in which 1 designates a rectangular central area forming a first broad side wall of a file box according to the invention. Three short flaps 2, 3 and 4 and a longer flap 5 are provided at the edges of said central area and foldable with respect thereto. The three shorter edge flaps 2–4 should have a length exceeding the largest desired thickness of the box. In order to vary the thickness of the finished box a series of parallel score lines 2*a*–5*a* are uniformly spaced starting from the same distance from the edges of the central area 1. The short flaps 2–4 have portions 2*b*–4*b* respectively extending beyond the outermost of said score lines 2*a*–4*a* respectively.

According to embodiment described the portion 4*b* extends along its associated edge flap 4. Said extension 4*b* is provided with a locking slot 6 adapted to cooperate with corresponding locking slots 7 provided in the extension 3*b* of the adjacent flap 3. Although in the embodiment shown said locking slots 7 are of the same length, said slots 7 can also have a varying length of downwardly stepwise decreasing length each step corresponding to the uniform spacing between two score lines 2*a*–5*a*.

The longer flap 5 has such a length that in finished condition of the box besides over the adjacent edge side it extends over the opposite second broad side surface and the opposite edge side surface as well as partially over a portion of the outer surface of the first mentioned broad side surface and engages slidably a slot 8 in said first broad side wall 1. Besides the score lines 5*a* two further series of score lines 9 and 10 of the same spacing as score lines 2*a*–5*a* can be seen on the longer flap 5. The score lines of series 9 lie at a distance from corresponding score lines of series 5*a* corresponding to the width of the broad side wall of the box and the score lines of series 10 lie on such a distance from the score lines 9 that the flap 5 can be well adapted to the outer surface of first broad side of the finished box. The end portion 5*b* of the flap 5 engaging the slot 8 has suitably tapered side edges.

In order to stiffen the corners of the finished box flaps 11 may be provided at the side edges of said edge flaps.

When erecting the box the procedure is as follows.

The edge flaps 2, 3 and 4 are turned to right angles with the central area 1 and their outer portions are bent to parallel relation with said central area along one of the score lines 2*a*–4*a*, corresponding to the desired thickness of the box. Before that the stiffening flaps 11 have been bent inside the adjacent edge flap 3. At that bending of the edge flaps 3 and 4 the locking flap 6 is brought into engagement with an appropriate slot 7 in the outer edge portion 3*b* of the edge flap 3. After having bent the longer flap 5 along the selected one of said score lines 5*a*, 9 and 10 respectively corresponding to the selected thickness of the box, said longer flap 5 is folded over the opposite second broad side surface and opposite small edge surfaces of the box respectively, so that the outer end portion 5*b* of the flap can be slid into the locking slot 8. As is apparent from FIG. 2 an open edge of the side of the box is obtained and the associated flap 2 serves as a foldable cover.

In FIG. 3 a blank of a modified embodiment of a file box according to the invention is shown. Short edge flaps 13, 14 and 15 are foldable relative to a central area 12 forming a first broad side wall of the box. The longer edge flap 16 is provided between two opposite short edge flaps 13, 14. Score lines 13*a*–16*a* are provided on the flaps 13—15 in previously described manner. For the same purpose as the previously described score lines 9, 10 in FIGS. 1 and 2 score lines 17 and 18 respectively are provided at the outer part of said longer flap 16. Said longer flap 16 ends with a trapeziformed part 16*b*. In correspondence with previously described embodiment the portions of the edge flaps outside the score lines 13*a*–15*a* are designated 13*b*–15*b*.

For locking the edge flaps of the box in mounted condition tongues 19 and 20 respectively are punched in the outer portions 13*b*, 14*b* of the opposite short edge flaps 13, 14. Said tongues 19, 20 are adapted to engage one slot of an associated series of slots 21, 22 having a length corresponding to the respective tongues 19, 20 and being stepwise displaced in directions perpendicular to each other in correspondence with the spacing of the score lines 13*a*–16*a*. Said series of slots 21, 22 lie

thus in main direction forming an angle of 45° with the edge of the central area 12.

For stiffening the corners of the finished box foldable end portions 23 are provided at the ends of opposite short flaps 13, 14, said end portions 23 extending preferably over the region of all score lines and being separated from said edge flaps 13, 14 by a slot 24 extending over all score lines perpendicularly to the same. Thereby it will be possible to select the height of said end portions 23 in correspondence to the selected thickness of the box.

In FIGS. 4 and 5 a finished box of the last described embodiment of the file box is shown with the locking tongues 19, 20 engaging their respective slots 21, 22 in correspondence to the selected thickness of the file box. It should be noticed that in FIGS. 4 and 5 the box is seen from opposite sides and in FIG. 4 the cover of the box is opened for inserting papers to be collected. In FIG. 5 the end portion 16*b* of the longer edge flap is shown inserted in a slot 25 in the first broad side wall 12. In FIGS. 4 and 5 the finished box has further, its smallest thickness in which case the slot 25 in FIG. 5 corresponds substantially to the width of the trapeziformed end portion 16*b* of the longer flap 16. When selecting a greater thickness of the box said end portion 16*b* will be somewhat more drawn out from the slot 25. The finished box shown in FIGS. 4 and 5 is openable at its edge covered by the longer edge flap 16, said flap serving as a foldable cover.

However, it is possible to use one of the short edge flaps 13, 14 as a foldable cover in the same manner as shown in FIGS. 1 and 2. In the latter case the long flap 16 is considered to be permanently kept in place and the locking means according to the invention may be utilized for temporarily locking the shorter edge flap 13 serving as the foldable cover. This condition is shown in FIG. 6. For this purpose a series of slots 26 are provided in the long flap 16 as shown in FIG. 3. The distances between the slots 26 and their displacement relative to each other correspond to the spacing of the score lines. Finally it should be noticed that the arrangement of the locking tongue 19, 20 pointing parallelly to the score lines of the associated flap 13, 14 and away from the adjacent short edge of said flap involves a special advantage in that the weight of the documents collected in the box will tend to further increase the engagement between said locking members.

I claim:

1. A blank for a folded document or file box of predetermined size and variable thickness comprising a piece of sheet material having a central rectangular area of a standardized size for providing a side wall of the box and having at its edges flaps foldable along said edges to provide edge walls of said box, each of said edge flaps being provided with a series of uniformly spaced parallel score lines located at the same distances from the respective edge of said central area, two adjacent flaps having each an additional length foldable along any of the score lines of said series of score lines to overlap each other, a locking tongue in the additional length of one of said flaps and a series of parallel diagonally spaced slots in the other of said flaps, said slots being spaced in conformity with the spacing of said score lines, and one of the remaining flaps having an additional length long enough to extend over the side surface of the box opposite to that formed by said central area as well as over the opposite edge wall and the outer surface of the side wall formed of said central area with which it engages, said additional length having in the regions of the respective corners over which it is bent a series of parallel score lines of the same spacing as said previously mentioned series of score lines.

2. A blank for a folded document or file box of predetermined size and variable thickness comprising a piece of sheet material having a central rectangular area of standardized size for providing a side wall of the box and having at its edges flaps foldable along said edges to provide edge walls of said box, each of said edge flaps being provided with a series of uniformly spaced parallel score lines located at the same predetermined distance from the respective edge of said central area forming an unfoldable strip of substantial width adjacent said central area, two opposite edge flaps having each lateral extensions separated from the respective flap by a slit extending across said series of score lines, three adjacent flaps having each an additional length foldable along any of the score lines of said series of score lines to overlap each other at the corners of the box, a tongue provided in the additional length of each of the two opposite flaps and adapted to engage any slot of a series of diagonally spaced parallel slots in the additional length of the intermediate flap, the slots of each series being spaced in conformity with the spacing of said score lines, and one of the remaining flaps having an additional length long enough to extend over the side surface of the box opposite to that formed by said central area as well as over the opposite edge wall and the outer surface of the side wall formed of said central area with which it engages, said additional length having in the regions of the respective corners over which it is bent further series of parallel score lines of the same spacing as said previously mentioned series of score lines.

3. A blank for a folded document or file box as claimed in claim 2 the further feature of a series of diagonally spaced parallel slots provided in the additional length of said long flap and adapted to be engaged by one of said tongues.

4. A document of file box folded from a blank comprising a piece of sheet material having a central rectangular area of standardized size for providing a side wall of the box and having at its edges flaps foldable along said edges to provide edge walls of said box, each of said edge flaps being provided with a series of uniformly spaced parallel score lines located at the same predetermined distance from the respective edge of said central area forming an unfoldable strip of substantial width adjacent said central area, two opposite edge flaps having each lateral extensions separated from the respective flap by a slit extending across said series of score lines, three adjacent flaps having each an additional length foldable along any of the score lines of said series of score lines to overlap each other at the corners of the box, a tongue provided in the additional length of each of the two opposite flaps and adapted to engage any slot of a series of diagonally spaced parallel slots in the additional length of the intermediate flap, the slots of each series being spaced in conformity with the spacing of said score lines, and one of the remaining flaps having an additional length long enough to extend over the side surface of the box opposite to that formed by said central area as well as over the opposite edge wall and the outer surface of the side wall formed of said central area with which it engages, said additional length having in the regions of the respective corners over which it is bent further series of parallel score lines of the same spacing as said previously mentioned series of score lines.

References Cited in the file of this patent

UNITED STATES PATENTS

646,638	Cutler	Apr. 3, 1900
959,701	Blackman	May 31, 1910
1,194,440	Swortfiguer	Aug. 15, 1916
1,993,355	Beller	Mar. 5, 1935
2,159,737	Greve	May 23, 1939