Aug. 20, 1929.

M. R. KONDOLF

1,725,524

KNOCKDOWN BOX

Filed March 28, 1923

2 Sheets-Sheet 1

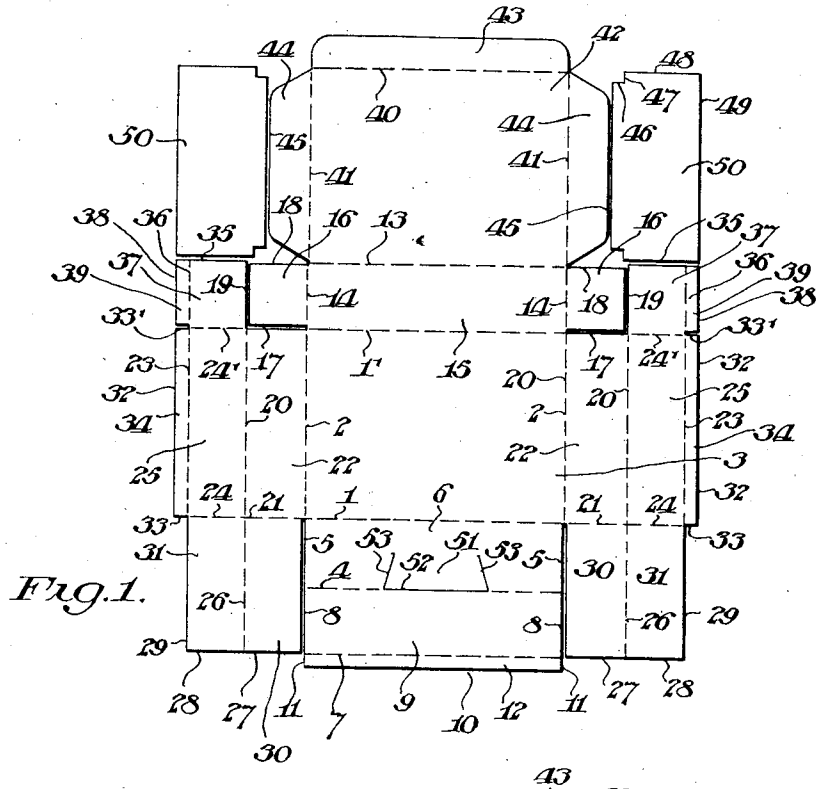


Fig. 1.

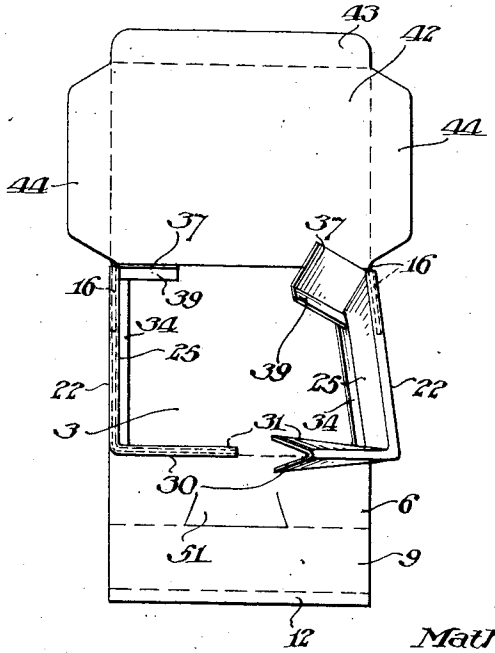


Fig. 2.

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Aug. 20, 1929. M. R. KONDOLF 1,725,524

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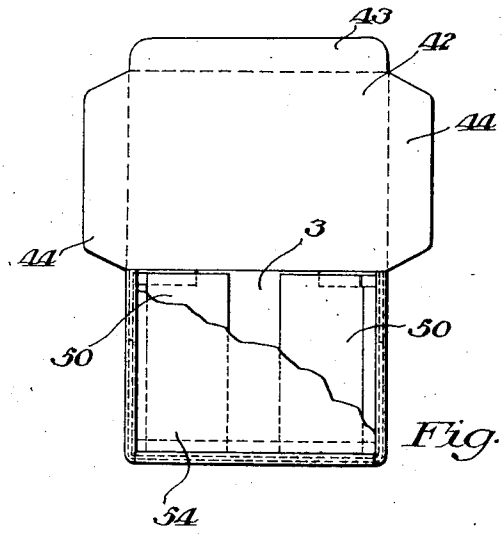


Fig. 3.

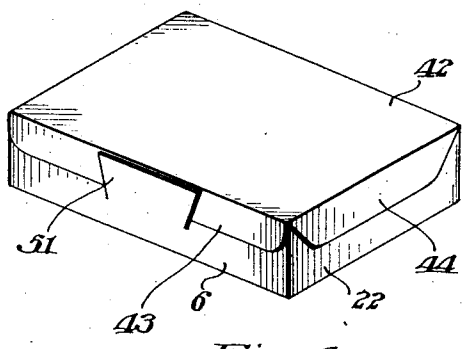


Fig. 4.

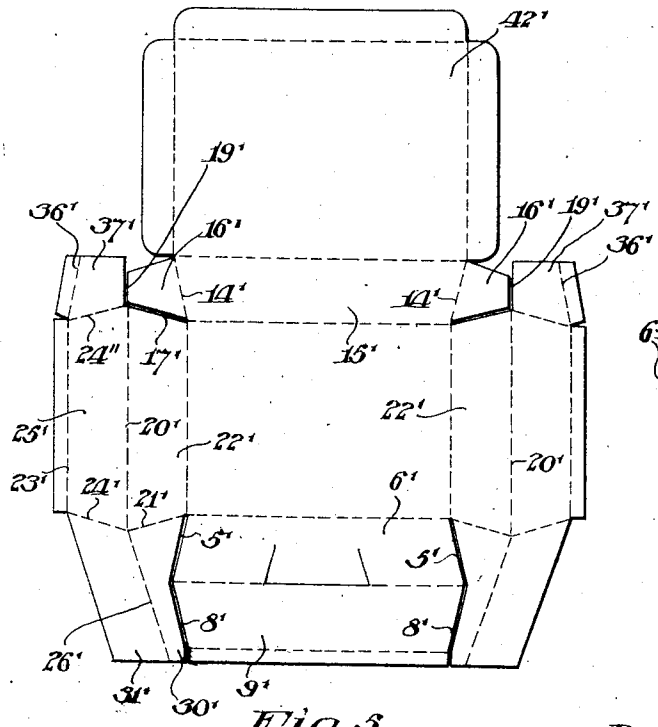


Fig. 5.

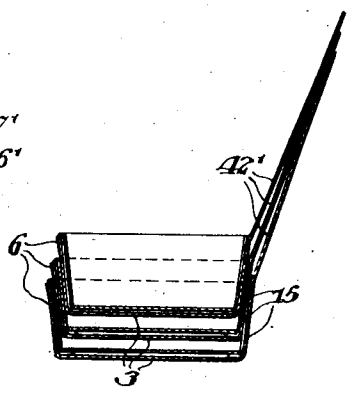


Fig. 6.

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Patented Aug. 20, 1929. 1,725,524

UNITED STATES PATENT OFFICE.

MATHIAS R. KONDOLF, OF CYNWYD, PENNSYLVANIA, ASSIGNOR TO BOXBOARD PRODUCTS COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

KNOCKDOWN BOX.

Application filed March 28, 1923. Serial No. 628,166.

My invention comprises a fiber board blank cut and scored so that it can be erected readily to provide a convenient and strong collapsible box having interlocking parts whereby the erected construction is maintained with the parts held in the desired relation and superior strength is secured.

My improvements are adapted for the construction of boxes having the form of truncated pyramids that can be nested conveniently for handling and use, as well as boxes having sides disposed at right angles to their bottoms.

In the preferred construction, the erected box has double ends with front extensions folded transversely thereto between the laminated sections forming the front side, the rear side or back is provided with extensions folded transversely thereto between the laminated sections forming the ends, and the inner sections of the front, and the ends as well as the rear extension of such end sections are provided with members adapted for engaging the bottom parallel thereto and for engagement in interlocking relation with parts that strengthen the structure as well as hold the laminated sections in position. But it will be understood that this preferred construction may be modified within the scope of the claims.

In the accompanying drawings, Fig. 1 is a plan view of an integral blank, cut and scored so that it can be erected to produce a box, together with separate parts adapted for use in interlocking and strengthening the construction by means of material that would otherwise be wasted; Fig. 2 is a plan view of a box in process of erection; Fig. 3 is a plan view of the open erected box, with the auxiliary bottom that may be used broken away to show the interlocked relation of the parts; Fig. 4 is a perspective view of the closed box; Fig. 5 is a plan view of a modified form of blank adapted for producing a box having the form of a truncated pyramid, and Fig. 6 is a sectional view of nested boxes produced from blanks like that shown in Fig. 5.

As illustrated in Figs. 1 to 4 inclusive, a fiber board sheet is provided with the parallel scores 1 and 1′ and with the parallel scores 2 at right angles thereto, to form the rectangular bottom 3. The score 4 parallel to the score 1 and the free edges formed by through cuts 5 at right angles thereto form the front section 6 hinged on the line 1. The score 7 parallel to the score 4 and the free edges 8 at right angles thereto in line with the respective edges 5, provide the inner front section 9 hinged to the section 6 on the line 4. And the free edge 10 parallel to the line 7 together with the free edges 11 at right angles thereto, in line with the respective edges 8, outline the foot or bearing 12 hinged to the part 9 on the line 7 and adapted to engage the bottom 3 when the part 9 is folded in against the part 6 and the part 6 is turned to its position at right angles to the part 3. A score 13 parallel to the line 1′ and scores 14 at right angles thereto in line with the respective scores 2 form the back section 15, this section having the ends 16 hinged on the scores 14 and provided with the free edges formed by through cuts 17, 18 and 19 respectively in line with the scores 1′ and 13 and at right angles thereto. Scores 20 parallel to the lines 2 and scores 21 at right angles thereto in line with the score 1 together with the through cuts 17, form the end sections 22 hinged on the respective lines 2. Scores 23 parallel to the scores 20 and scores 24 and 24′ at right angles thereto, in line with the respective scores 1 and 1′, form the end sections 25 hinged to the respective sections 22 on the lines 20. Scores 26 in line with the respective scores 20 together with the cuts 5—8, cuts forming ends 27—28 in line with the score 7 and cuts forming edges 29 in line with the scores 23 provide the extensions 30 and 31 hinged together on the lines 26 and to the respective end sections 22 and 25 on the lines 21 and 24. Free edges formed by through cuts 32, parallel to the lines 23, and 33 and 33′ in line with the respective scores 24 and 24′ provide feet 34 hinged to the sections 25 on the lines 23. The through cuts 19 together with the through cuts 35 at right angles thereto and the scores 36 in line with the scores 23 form the end extensions 37 and the scores 36 together with the through cuts 33′ and 38 form the feet 39 on such extensions. Scores 40, parallel to the score 13, and 41 in line with the scores 14, form the top 42 having thereon the flaps 43 and 44 hinged on the respective lines 40 and 41. Through cuts 35, 45, 46, 47, 48, and 49 provide free

sections 50 adapted for use as braces and locks, formed from corner sections of the board otherwise wasted. A dove-tail lip 51 is formed in the section 6 by the cuts 52 in the line 4 and the transverse cuts 53.

In erecting the box from this blank, the parts 6, 9, 15, 16, 22, 25, 30, 31 and 37 are brought to position at right angles to the bottom 3, with the parts 16 lying between the laminated parts 22 and 25, the laminated parts 30 and 31 lying between the laminated parts 6 and 9 and the parts 37 lying against the inner surface of the part 15. The parts 12, 34 and 39 lie against the bottom 3 with their adjacent ends overlapped. The sections 50 are now placed in the box against the ends of its bottom with the reentrant angles formed by the line 46 and 47 in the corners thereof in interlocking relation with the parts 12, 34 and 39. That is to say, when the ends of the parts 34 lie under the corresponding ends of the parts 12 and 39, the edges 45 of the parts 50 will be under the parts 34 and the edges 48 will be above the parts 12 and 39.

An auxiliary bottom 54, rectangular in form and fitting the interior of the box, may be laid therein on the parts 50 for additional strength.

As the widths of the parts 6, 9, 15, 16, 22, 25, 30, 31 and 37 are preferably approximately the same, the inlaid parts will frictionally engage the bottom and provide struts or stiffening members for the sides and ends of the box.

As illustrated in Figs. 5 and 6, a box having the form of a truncated pyramid can be formed from a blank by the use of the bottom 3′ having the modified front sections 6′ with the diverging free ends or edges 5′, and 9′ with the converging free ends or edges 8′; the back section 15′ with the diverging end scores 14′; the end sections 22′ with the diverging free ends or edges 17′ and scores 21′ and 25′ with the converging end scores 24′ and 24″; the tapered extensions 16′ on the ends of the section 15′; the extensions 30′ and 31′ hinged on the scores 26′ angular to the scores 20′, and the end sections 37′ having the free edge 19′ and the edge scores 36′ angular to the scores 23′. These boxes, when erected, can be stacked with their lids 42′ laminated in a relation convenient for use.

The terms side and sides as used in the claims are to be construed as generic to the ends or shorter sides as well as the longer sides of a box.

Having described my invention, I claim:

1. A box comprising a bottom having hinged thereto laminated sides, the inner sections of said sides being provided with feet lying parallel with said bottom, and a bracing member lying parallel with said bottom and engaged in interlocking relation with said feet so as to underlie one and overlie another thereof.

2. A box comprising a bottom having hinged thereto laminated sides whose inner sections are provided with overlapping feet lying parallel with the bottom, and a bracing member lying parallel with the bottom and having an edge engaged under one foot and another edge overlapping a foot transverse to and overlapping the foot last named.

In testimony whereof I have hereunto set my name this 20th day of March, 1923.

MATHIAS R. KONDOLF.