Nov. 11, 1941. P. F. BOEYE 2,262,267

BOX

Filed Sept. 10, 1938

Fig. 3

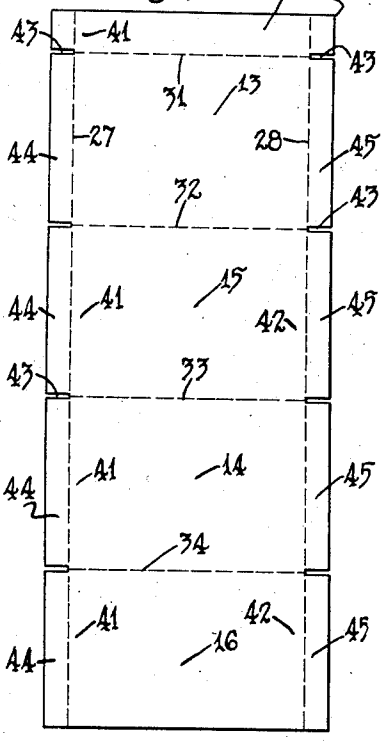


Fig 4

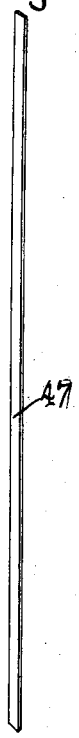


Fig. 2

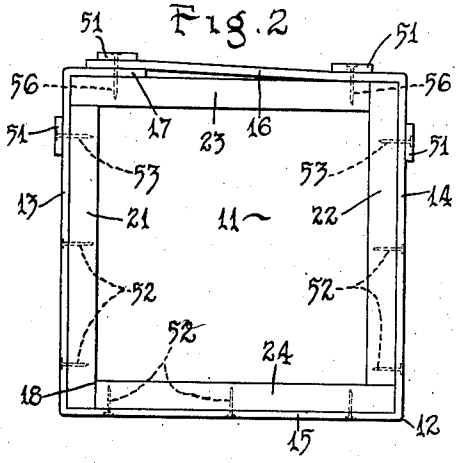
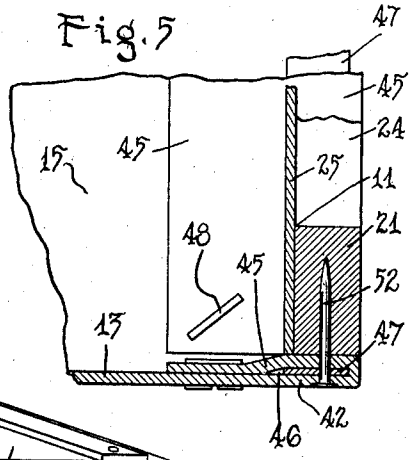


Fig. 5



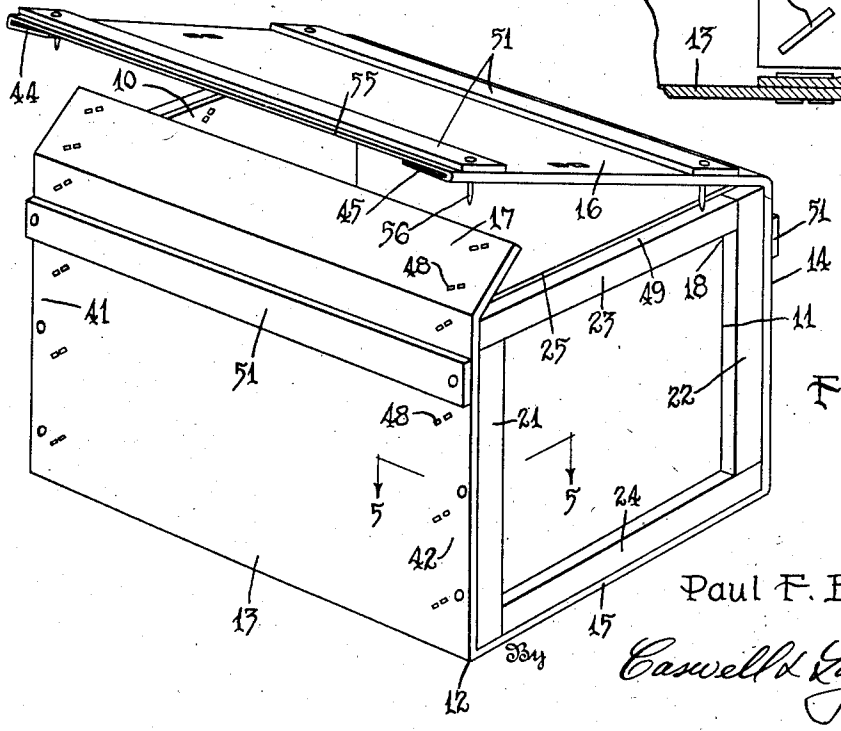


Fig. 1

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Patented Nov. 11, 1941

2,262,267

UNITED STATES PATENT OFFICE

2,262,267

BOX

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Application September 10, 1938, Serial No. 229,240

5 Claims. (Cl. 229—23)

My invention relates to boxes and has for an object to provide a box constructed principally of paper having extremely great strength and rigidity.

An object of the invention resides in constructing the box with end walls having nail or other fastener receiving edges and in providing a wall structure constructed from paper and forming the other walls of the box and secured to the edges of the end walls.

A still further object of the invention resides in providing flanges at the ends of the walls of said wall structure, said flanges being turned back upon the marginal portions of said walls to form facing pockets and in placing metal bands within said pockets.

Another object of the invention resides in utilizing nails for the fasteners and in driving the nails completely through said marginal portions, band and flanges of the walls of the wall structure and into the nail-receiving edges of the end walls.

A feature of the invention resides in constructing the end walls with wood frames which provide the nail-receiving edges.

Another object of the invention resides in constructing the flanges wider than the bands and in securing the same to the marginal portions outwardly of said bands as by gluing or wire stitches or staples.

A still further object of the invention resides in reinforcing the box with cleats extending from end to end of the box and from one marginal portion of the wall structure to the other and in driving certain of the nails jointly through the cleats, marginal portions, band and flanges of the wall structure and into the nail-receiving edges of the end walls.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a perspective view of a box illustrating an embodiment of my invention and showing the closure partly open.

Fig. 2 is an ned view of the structure shown in Fig. 1 illustrating the closure in closed position.

Fig. 3 is a developed view of the blank from which the wall structure of the invention is constructed.

Fig. 4 is a perspective view of one of the metal bands used with the invention.

Fig. 5 is a sectional detail view taken on line 5—5 of Fig. 1 and drawn to a larger scale.

In the use of paper boxes one of the greatest disadvantages lies in the fact that sufficient rigidity cannot ordinarily be produced where paper alone is used. The instant invention provides a construction whereby the desired rigidity can be procured without appreciably increasing the cost of manufacture.

My invention comprises two end walls 10 and 11 which have attached to them a wall structure 12, including a front wall 13, a rear wall 14, a bottom 15, a closure 16 and a flap 17 cooperating therewith. These parts will now be described in detail.

The end walls 10 and 11 are identical in construction and only the end wall 11 will be described in detail. This end wall consists of a frame 18 of wood which is constructed with stiles 21 and 22 and rails 23 and 24 connected therewith. These frame members may be secured together by mortising, rabbeting or by merely end nailing, as illustrated in the drawing, the strength depending somewhat upon the type of joint used. Such forms of joints being well known in the art it is readily comprehended that any type of joint may be employed. To the frame 18 is attached a panel 25 constructed of a sheet of paper of suitable thickness which is disposed upon the interior of the box.

The wall structure 12 is constructed from a blank 26 formed of paper of suitable thickness which is shown in Fig. 3. The blank 26 is formed with two longitudinal scores 27 and 28 and a number of transverse scores 31, 32, 33 and 34 which extend between the scores 27 and 28 and which, together therewith, divide the blank to form the front wall 13, the bottom 15, the rear wall 14, the closure 16 and the flap 17 which is connected with the front wall 13. The marginal portions of the walls 13, 14, 15 and 16 and the flap 17, which lie adjacent the scores 27 and 28, are indicated by the reference numerals 41 and 42. Outwardly of the scores 27 and 28 and in continuation of the scores 31, 32, 33 and 34 are formed in the blank 26 a number of slits 43 which, in conjunction with said scores 27 and 28, form flanges 44 and 45 issuing from said walls at the marginal portions 41 and 42 thereof. These flanges are adapted to be folded back upon said walls, as shown in Fig. 5, to form longitudinally extending pockets 46 between said flanges and the marginal portions 41 and 42 of the wall structure 12.

The invention contemplates the use of two

strips or bands 47 of sheet metal which are of a width substantially that of the edges of the frame 18 of the end walls 10 and 11. These bands are disposed within the pockets 46 when the blank is fabricated and the flanges 44 and 45 are secured to the marginal portions 41 and 42 of the blank by means of stitches or staples 48. These staples are applied outwardly of the bands whereby said bands are held in close proximity to the folds formed by the scores 27 and 28 so that, when the wall structure is assembled upon the end walls, the said bands substantially overlie the edges 49 of said frames 18.

To further reinforce the box a number of cleats 51 are employed which may be constructed of wood and which are of a length equal to the folded wall structure 12 and are adapted to extend completely across the same. As many such cleats as may be desired, may be utilized. These cleats are particularly useful at the open portion of the box and across the closure thereof. Four such cleats have been shown in Fig. 1, though it can readily be comprehended any number of cleats such as illustrated, may be employed.

The method of using the invention is as follows: In the formation of the blanks 26, the bands or strips 47 are applied to the blank and the flanges 44 and 45 folded over upon the marginal portions 41 and 42 of the walls of the blank and secured thereto, as previously described. This is all accomplished in the place of manufacture of the parts of the box and the blank with the flanges so folded is retained flat. The end walls are similarly completed and with the panels 25 attached thereto and the said end walls and wall structures shipped in flat form. When desired for use the end walls are mounted in a suitable assembling rack and the wall structure laid over the same with the front, rear and bottom walls in contact with the edges 49 of the frame 18. Nails 52 are next driven through the marginal portions 41 and 42 of the walls 13, 14 and 15 of the wall structure 12 through the bands 47 and through the flanges 44 and 45 and into the frame members 21, 22 and 24 of frames 18. In this manner, the wall structure is rigidly attached to the end walls through the bands 47, which is accomplished in an extremely simple and expeditious manner. If reinforcing cleats are employed along the front and rear walls, the same are next placed over the portions of the said walls 13 and 14 and other nails 53, somewhat longer than the nails 52, are driven simultaneously through the said cleats as well as the marginal portions 41 and 42, bands 47 and flanges 44 and 45 and into the frame members 21 and 22 of the frames 18. The box may now be removed from the assembling rack and the contents placed within the same. Thereafter the flap 17 is turned down and the closure 16 placed over the same. The two other cleats 51 may now be placed across the closure, one of said cleats preferably being disposed near the free edge 55 of the closure 16 and nails 56, similar to the nails 53, driven through the same and into the edges 49 of frame members 23 of frames 18. Additional nails may be used which, similar to the nails 56, pass jointly through the marginal portions 41 and 42 of the closure 16 and flap 17 and through the bands 47 and through the flanges 44 and 45. In this manner the closure is firmly attached to the end walls and the box becomes completely closed.

The advantages of my invention are manifest. A box constructed in accordance with my invention can be constructed at a cost slightly in excess of paper boxes of similar size and material. The parts of my invention may be readily shipped flat and are easily erected when desired for use. To erect the box all that is needed is a suitable assembly rack and nails and hammer. After the box has been filled, and the closure fastened, an extremely rigid and substantial structure results which will withstand far greater strains than the ordinary paper box. My invention does not weigh appreciably more than the ordinary paper boxes and weighs considerably less than other boxes of same strength so that economy in freight charges result by the use of my invention.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A box including a wall having a plurality of free edges, a wall structure formed of paper and including a plurality of walls all connected together and having continuous marginal portions, flanges issuing from the edges of said marginal portions and folded back upon said marginal portions to form an elongated pocket therebetween extending throughout the length of said marginal portions, a metal band disposed within said pocket, said marginal portions, band and flanges being disposed in overlying position relative to the edges of said first-named wall, said flanges being of a width greater than said band and being secured to the marginal portions of said wall structure outwardly of said band to close said pocket and fasteners extending jointly through said marginal portions, band and flanges and secured to said first-named wall.

2. A box comprising end walls having a plurality of free edges, a wall structure formed of paper and including a plurality of walls all connected together and having continuous marginal portions at the ends thereof, flanges issuing from the edges of said marginal portions and folded back upon said marginal portions to form facing elongated pockets therebetween extending throughout the length of said marginal portions at both ends of the wall structure, metal bands disposed within said pockets, fasteners extending jointly through said marginal portions, band and flanges and secured to said end walls, cleats extending across said wall structure from one marginal portion to the other and fasteners extending through said cleats, marginal portions, band and flanges and secured to said end walls.

3. A box including a wall having a plurality of nail-receiving edges, a wall structure constructed of paper and including a plurality of walls all connected together and having continuous marginal portions, flanges issuing from the edges of said marginal portions and folded back upon the marginal portions to form an elongated pocket therebetween extending throughout the length of the marginal portions, a metal band in said pocket, said marginal portions, band and flanges being disposed in overlying position relative to the edges of said first-named wall, cleats extending across said wall structure from one marginal portion to the other and nails extending jointly through said cleats, marginal portions, band and flanges and driven into the nail-receiving edges of said first named wall.

4. A box including a wall having a plurality of free edges, a wall structure formed of paper and including a plurality of walls all connected to-

gether and having continuous marginal portions, flanges issuing from the edges of said marginal portions and folded back upon said marginal portions to form an elongated pocket therebetween extending throughout the length of said marginal portions, a metal band disposed within said pocket, said marginal portions, band and flanges being disposed in overlying position relative to the edges of said first named wall, said flanges being of a width greater than said band, fasteners extending through said flanges exteriorly of the band and through the marginal portions of said wall structure to close said pocket, and fasteners extending jointly through said marginal portions, band and flanges and secured to said first named wall.

5. A box including a wall having a plurality of free edges, a wall structure formed of paper and including a plurality of walls all connected together and having continuous marginal portions, flanges issuing from the edges of said marginal portions and folded back upon said marginal portions to form an elongated pocket therebetween extending throughout the length of said marginal portions, a metal band disposed within said pocket, said marginal portions, band and flanges being disposed in overlying position relative to the edges of said first named wall, fasteners extending through said flanges and through the marginal portions of said wall structure to maintain the band within the pocket, and fasteners extending jointly through the band, marginal portions and flanges of the wall structure and into the first named wall.

PAUL F. BOEYE.