July 29, 1941. J. H. BURR 2,250,746

BOX

Filed March 1, 1940 2 Sheets-Sheet 1

Fig. 1

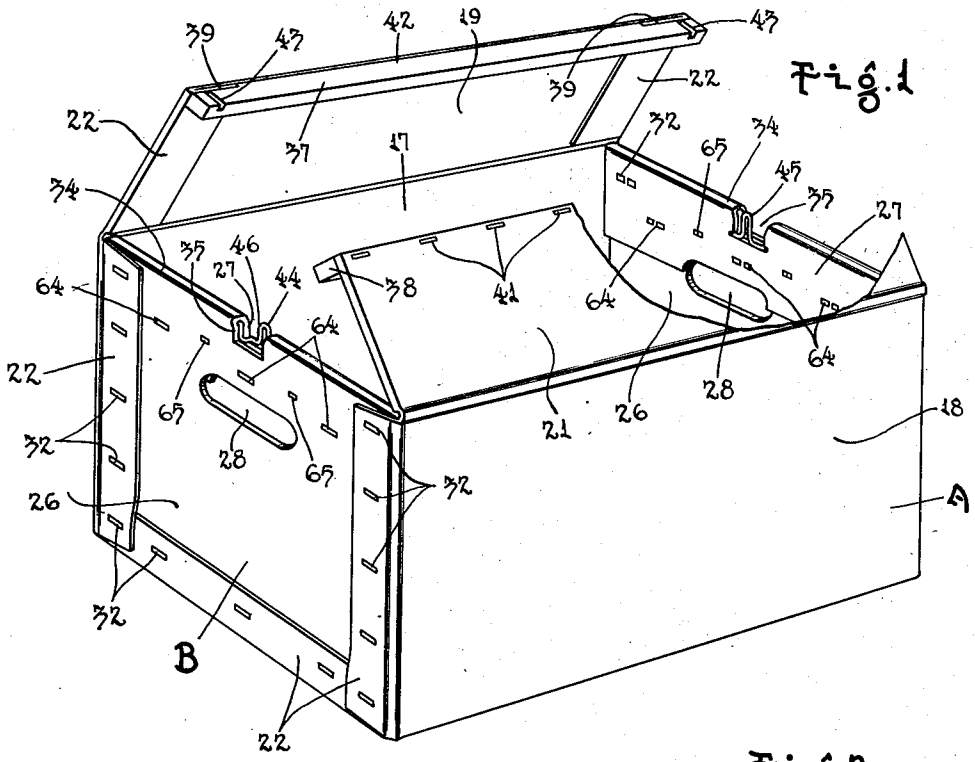


Fig. 3

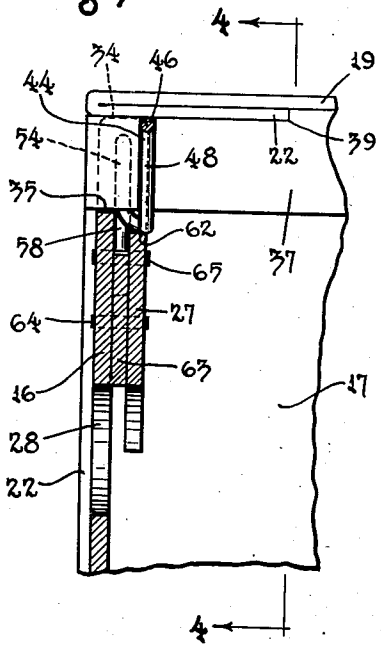
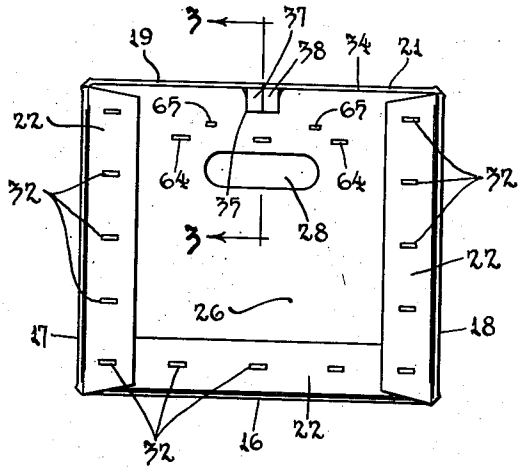


Fig. 2



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BOX

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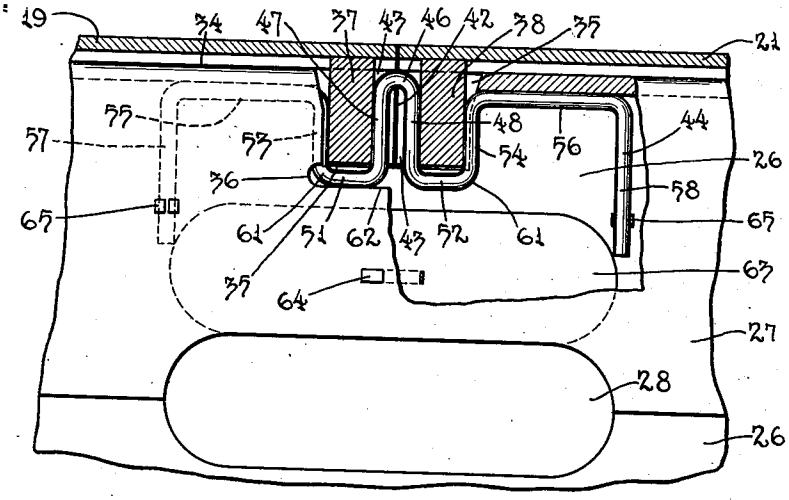


Fig. 4

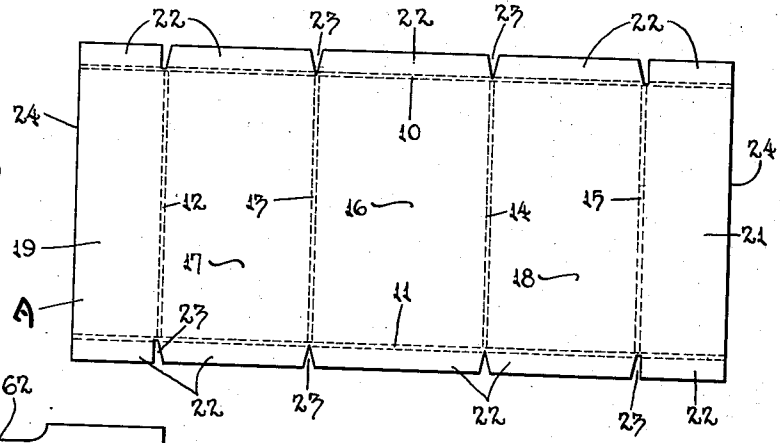


Fig. 5

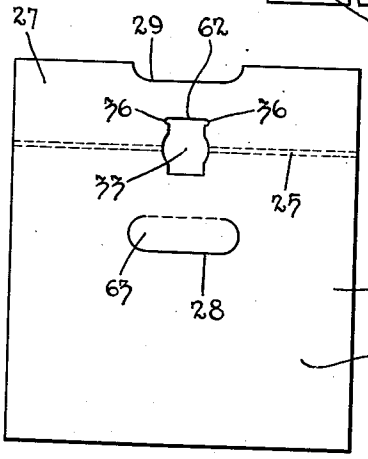


Fig. 6

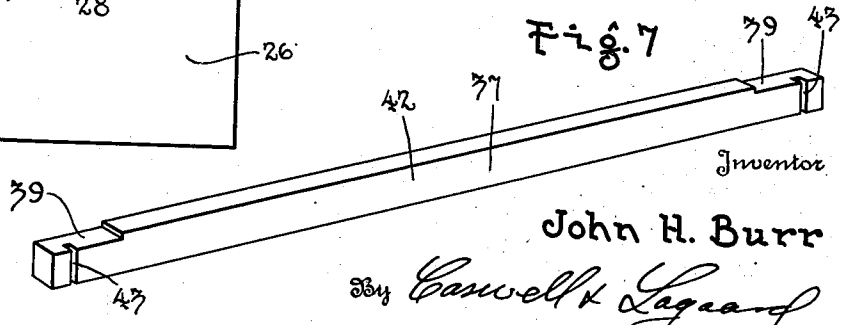


Fig. 7

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Patented July 29, 1941

2,250,746

UNITED STATES PATENT OFFICE

2,250,746

BOX

John H. Burr, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota

Application March 1, 1940, Serial No. 321,645

11 Claims. (Cl. 229—23)

My invention relates to boxes and has for an object to provide an extremely rigid and substantial construction capable of carrying bottles or similar heavy articles.

Another object of the invention resides in providing a cover for the box adapted to be frequently opened and re-closed.

A still further object of the invention resides in providing a box capable of sustaining appreciable weight applied to the cover thereof.

An object of the invention resides in constructing the cover with two flaps adapted to meet at the center of the box when in closed position and in constructing the box so that the closure formed by the flaps is extremely rigid throughout the meeting edges and along the center of the box.

A still further object of the invention resides in securing cleats to the meeting edges of the box and in supporting the cleats through the end walls of the box.

Another object of the invention resides in providing means for connecting one end of the box to the other through the cleats on the cover flaps.

Another object of the invention resides in providing a construction for preventing relative longitudinal movement between the cleats or cover flaps.

Another object of the invention resides in providing a box capable of being lifted by one end.

A still further object of the invention resides in providing in the cleats vertical slots in the meeting edges thereof and in further providing a wire engaging member on each end wall adapted to engage within the notches of the cleats to restrain relative movement of the parts.

Another object of the invention resides in constructing the engaging members with two parts, each adapted to engage one of the cleats on opposite sides thereof to frictionally hold the cleats in place and maintain the cover flaps in closed position.

Another object of the invention resides in constructing the engaging member in a manner to strengthen the cleat at the end thereof.

A feature of the invention resides in off-setting the portions of the engaging member engaging the cleats to bring the notches of the cleats inwardly of the ends thereof.

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 drawings:

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

Fig. 2 is an end elevational view of the structure shown in Fig. 1 with the cover flaps closed.

Fig. 3 is a fragmentary elevational sectional view taken on line 3—3 of Fig. 2 and drawn to a larger scale.

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 3 and drawn to the same scale as Fig. 3.

Fig. 5 is a developed view of the blank from which the bottom, side walls and cover flaps of the box are constructed.

Fig. 6 is a developed view of the blank from which the end walls of the box are constructed and drawn to a slightly greater scale than Fig. 5.

Fig. 7 is a perspective view of one of the cleats of the invention detached from the box.

My invention, which is best shown in Fig. 1, is constructed from fibreboard or any other suitable material and is formed from a body blank A and two end blanks B. These blanks are shown in detail in Figs. 5 and 6 in developed form and will now be described.

The blank A consists of a single sheet of fibreboard of a width sufficiently greater than the length of the box to form end flaps on the various walls of the box and of a length sufficient to form a bottom, side walls and cover flaps for the box. This blank is formed with two longitudinal scores 10 and 11 and a number of transverse scores 12, 13, 14 and 15 which divide the blank into a bottom 16, side walls 17 and 18 and cover flaps 19 and 21. In addition, the said scores form at the ends of the side walls 17 and 18, the bottom 16 and the cover flaps 19 and 21, end flanges 22. The various flanges 22 are separated by means of notches 23 situated at the ends of the scores 12, 13, 14 and 15, which permit of folding the walls of the blank into proper position. The flaps 19 and 21 are of such width that the free edges 24 thereof meet at the center of the box when the body blank is folded up and formed into the box.

The end blank B is constructed of material similar to that used in the construction of the blank A which is of a width equal to the width of the box and of a height somewhat greater than the height of the box. This blank has formed in it a transverse score 25 which divides the blank into an end wall 26 and an end wall flap 27. The end wall 26 has a hand hole 28 in it and the flap 27 has a cut away portion 29 adapted to register with the hand hole 28 when the said flop is folded into overlying position, as shown in Fig. 3.

In the erection of the box, the flaps 27 of the blanks B are folded over and secured to the end walls 26, as will be hereinafter more fully described. The blanks B are then assembled within the blank A with the side and bottom edges of these blanks adjacent the various flanges 22 of the blank A. The overlying said parts of the various blanks are then secured together through staples or wire stitches 32. In this manner the end walls 26 are rigidly attached to the bottom 16 and to the side walls 17 and 18 of the box.

The blank B has formed in it an opening 33 which is disposed medially of the lateral edges of the box and extends across the transverse score 25. This opening is directly above the hand hole 28. When the flap 27 is folded back upon the end wall 26 the opening 33 forms a recess along the folded edge 34 of the end wall 26, which recess is indicated by the reference numeral 35. The upper portion of the opening 33 is formed with two notches 36 which are disposed upon the interior of the box and are formed in the flap 27. These notches serve a purpose to be presently described in detail.

Attached to the under surfaces of the flaps 19 and 21 are two cleats 37 and 38. These cleats are identical in construction and only the cleat 37 will be described. The cleat 37 is shown in detail in Fig. 7. This cleat is constructed from wood, being rectangular in form and of a length equal to the length of the flap 19 between the scores 10 and 11 of the blank A. In the construction of the box the flanges 22 which issue from the edges of the flap 19 are folded inwardly and caused to overlie the under surface of the said flap. The cleat 37 is constructed with two rabbets 39 at the ends of the same and situated at the upper surfaces thereof, which receive the flanges 22 of the flap 19 and hold the same in place. The flap 21 and cleat 38 are assembled in the same manner. The cleats 37 and 38 are attached to the flaps 19 and 21 by means of wire stitches 41, or in any other suitable manner, as by gluing or the like. In the surface 42 of the cleat 37, which faces the other cleat 38 and near the ends of the cleats are formed two vertically extending grooves 43. These grooves are disposed inwardly of the ends of the cleat and extend only partly into the cleat. These grooves are similarly formed on the two cleats and register with one another when the closure flaps 19 and 21 are in overlying position.

Operating in conjunction with the grooves 43 of cleats 37 and 38 are two engaging members 44 and 45 which are attached to the end walls 26 of the box. Inasmuch as both of these engaging members are identical, only the engaging member 44 will be described, which is best shown in Figs. 3 and 4. This engaging member is constructed of wire which is bent to form at the center of the same an upwardly projecting tongue 46 having two spaced vertically extending reaches 47 and 48. These reaches have base portions 51 and 52 projecting outwardly therefrom. Issuing from the base portions 51 and 52 are uprights 53 and 54 which are formed at their upper ends with wings 55 and 56 having depending legs 57 and 58 at the outer ends thereof. The entire attaching member 44 is adapted to be disposed between the flap 27 and the end wall 26. When so arranged, the uprights 53 and 54, the wings 55 and 56 and the legs 57 and 58 lie between the said flap and end wall with the wings 55 and 56 at the bight formed by the score 25 in the end wall blank B. When the said engaging member is properly located the uprights 53 and 54 project partly into the recess 35, while the tongue 46 is disposed centrally in the recess and extends up to the edge 34 of the end wall structure.

The base members 51 and 52 are formed with off-set portions 61 which extend through the notches 36 in the blank B and cause the base members 51 and the tongue 46 to become off-set from the remainder of the engaging member. This causes the base members 51 and 52 to rest upon edge 62 of the flange 27, formed at the uppermost portion of the opening 33. At the same time the tongue 46 projects inwardly of the plane of the end wall 26. The grooves 43 in the cleats 37 and 38 are of such dimensions as to receive the uprights 47 and 48 of the tongue 46 when the closure flaps 19 and 21 are brought into closing position. The depth of these grooves is such that the uprights 53 and 54 engage the cleats upon the opposite surfaces thereof. In this manner each cleat is separately held between the tongue 46 and the opposite upright 53 or 54. The parts are designed so that sufficient friction exists between the tongues and uprights and the cleats to hold the closure flaps in closing position.

In the assembly of the engaging member 44 in the end wall structure, the slug 63 formed by making the hand hole 28 is utilized. This slug is disposed between the flap 27 and the end wall 26 and is of approximately the same thickness or a little less than the diameter of the wire from which the engaging member 44 is constructed. This slug is situated between the legs 57 and 58 and is held in place by one or more staples or stitches 64 which passes jointly through the end wall 26, flange 27, and said slug. Other staples 65 straddle the legs 57 and 58 of engaging member 44, and hold the engaging member in position. By means of the notches 36 the off-set portions 61 are held from lateral movement and by means of the base members 51 and 52 resting upon the edge 62 and the wings 55 and 56 engaged within the bight formed by the score 25, the engaging member is held from up and down movement.

In the use of the box the cover flaps are brought into closing position and the upper ends of the tongues 46 of engaging members 44 and 45 are brought into the grooves 43, formed in cleats 37 and 38. Due to the rounding of the tongues formed by bending the wire to provide the uprights 47 and 48 the tongues are easily inserted into the grooves 43 and the cover flaps brought into closing position. When the cover flaps are in closing position the cleats are held from relative endwise movement and are clamped in proper position relative to one another. Due to the construction of the engaging members the closure flaps may be independently opened and closed and are independently frictionally held in closing position. It will be noted that the end walls are connected one to another through the engaging members engaging the notches of the cleats in the closure flaps. This permits of handling the box by inserting the hand through one of the end walls and carrying the box by the portion thereof situated above the hand hole.

The advantages of my invention are manifest. An extremely simple and practical construction is provided whereby a highly serviceable box is produced. By means of the particular form of engaging member employed the cleats of the

cover flaps are independently clamped in position so that either cover flap may be opened without disturbing the other. By means of my invention sufficient friction may be applied to the cleats by the engaging member so as to hold the cover flaps in closing position. By offsetting the tongue on the engaging members the grooves in the cleats are brought inwardly from the ends thereof and thus greater strength is given to the cleat. Due to the fact that the engaging member engages the upper surface of the flap formed in the opening therein, and further engages in the bight of the end wall structure, the engaging member is held from movement by these parts independently of the fasteners used in conjunction therewith.

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 open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses on the facing surfaces thereof, and engaging members secured to said end walls, said engaging members having tongues adapted to enter said grooves to restrain movement of the cleats with respect to the walls of the box.

2. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses on the facing surfaces thereof, and engaging members secured to said end walls, said engaging members having tongues adapted to enter said grooves, and uprights for engagement with said cleats on the opposite surfaces thereof whereby the cleats are separately engaged on opposite sides to hold the cover flaps attached thereto, in closing position.

3. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses on the facing surfaces thereof, and engaging members secured to said end walls, said engaging members having tongues situated at the centers of said recesses and adapted to enter said grooves, said engaging members further having uprights situated at the margins of said recesses and adapted to engage said cleats upon the opposite sides thereof whereby said cleats are independently engaged on opposite sides to hold the cover flaps to which they are attached in closing position.

4. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and overlying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses, engaging members disposed between said last named walls and flaps and extending laterally of said cleats, and tongues formed on said engaging members intermediate the ends thereof and extending into said recesses and adapted to enter said grooves.

5. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and overlying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses, engaging members disposed between said last named walls and flaps, and tongues formed on said engaging members and extending into said recesses and adapted to enter said grooves, said tongues being off-set in a direction toward the interior of the box.

6. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein formed on the facing surfaces thereof and situated inwardly of the inner surfaces of said other walls and in proximity to said recesses, and engaging members attached to said recessed walls and disposed upon the inner surfaces thereof, said engaging members having portions off-set inwardly into the box to enter said grooves.

7. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and over-

lying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, and engaging members disposed between said last named walls and flaps, said engaging members being constructed with uprights disposed at the edges of said recesses and adapted to engage said cleats and other portions situated between said walls and flaps, said engaging members being constructed with off-sets at the ends of said uprights for causing said uprights to extend toward the interior of the box, and notches formed in said overlying flaps for the reception of said off-sets, said notches assisting in holding said engaging members in position between said walls and flaps, said uprights engaging the cleats and keeping the same from spreading.

8. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and overlying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses, engaging members disposed between said last named walls and flaps, said engaging members being constructed with uprights disposed at the edges of said recesses and other portions situated between said walls and flaps, said engaging members being constructed with off-sets at the ends of said uprights for causing said uprights to extend toward the interior of the box, and notches formed in said overlying flaps for the reception of said off-sets, said notches assisting in holding said engaging members in position between said walls and flaps, said uprights engaging the cleats and keeping the same from spreading, tongues formed on said engaging members and adapted to enter the grooves in said cleats.

9. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, flanges formed along the end edges of said closure members and turned inwardly upon the inner surfaces of said cover flaps, cleats secured to the inner surfaces of said cover flaps at the meeting edges thereof, said cleats having rabbets therein for the reception of said flanges, said other walls being constructed with recesses for the reception of the ends of the cleats, grooves formed in said cleats upon the facing surfaces thereof, and tongues attached to said last named walls and entering said grooves.

10. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and overlying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses, engaging members disposed between said last named walls and flaps, tongues formed on said engaging members and extending into said recesses adapted to enter said grooves, base members formed on said tongues and adapted to rest upon the edges of said wall flaps formed by said recesses, said engaging members including other parts disposed between said flaps and walls and engaging the bights formed between said flaps and walls.

11. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closed position to effect a closure for the box, cleats secured to said cover flaps upon the undersides thereof and situated at the meeting edges of the cover flaps, the other walls of the box having flaps turned inwardly from the upper edges thereof and overlying said walls upon the inner surfaces of the same, said last named walls and flaps having recesses formed therein for the reception of the ends of the cleats, said cleats having grooves therein at the locality of said recesses, engaging members disposed between said last named walls and flaps, tongues formed on said engaging members and extending into said recesses for engagement with said grooves, base members formed on said tongues and adapted to rest upon the edges of said wall flaps formed by said recesses, said engaging members including other parts disposed between said flaps and walls and engaging the bights formed between said flaps and walls, said flaps being formed with notches adjacent the bases of said engaging members, and off-sets at the locality of the ends of said bases extending into said notches.

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