A. P. BEAUPRÉ.

BOX.

APPLICATION FILED MAR. 15, 1918.

1,317,752. Patented Oct. 7, 1919.

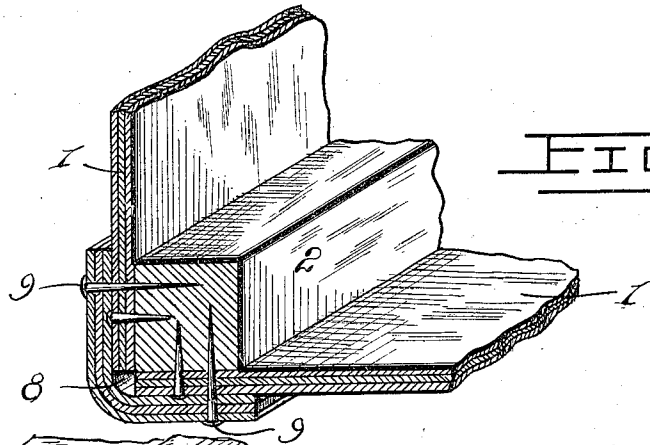


Fig. 1

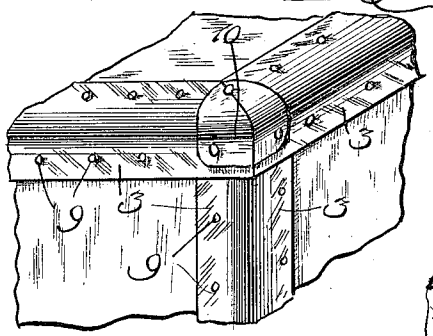


Fig. 2

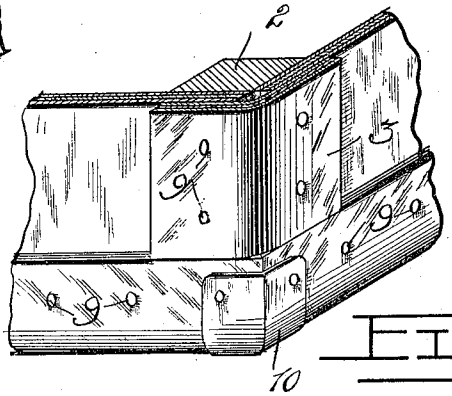


Fig. 3

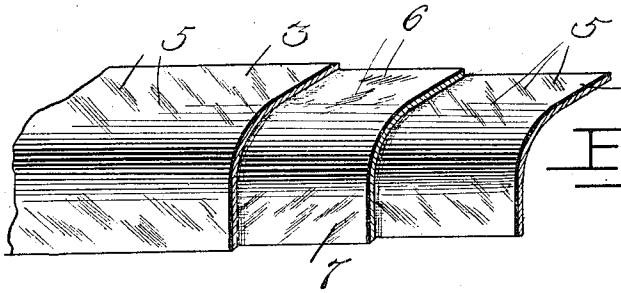


Fig. 4

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BOX.

1,317,752. Specification of Letters Patent. Patented Oct. 7, 1919.

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To all whom it may concern:

Be it known that I, ARTHUR P. BEAUPRÉ, a subject of the King of Great Britain, residing at Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Boxes; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to boxes made from thin light material consisting of laminated wood, that is, sheets or veneers which are laid and secured together to form a light and strong material for boxes, and more particularly to the corner bindings for said boxes which are used to protect and secure the meeting edges of the sections of the box which are joined together and which extend at angles to each other.

In United States patent to John E. Davidson, Number 1,087,530, dated February 17, 1914, a corner binding is disclosed which consists of a plurality of thin laminated sheets of wood having the grain of the wood in the different layers arranged in cross relation and the layers are formed with a sharp angle, so that the interior of the binding may fit closely to the corner of the box. In actual use of the box, I have found that such corner bindings are very unsatisfactory due to the fact that they are provided with sharp angles or bends, and in the process of manufacture of such binding the sheets naturally stretch in forming such sharp angles and therefore weakens the binding as a rupture takes place in one or more of the layers and such defects are not noticeable from the exterior of the box until the box has been undergoing additional strain during shipment. Also the corner binding as disclosed in this patent is still further objectionable due to the fact that the grain of the wood of the inner and outer sheets extends in a longitudinal direction and the grain of the intermediate sheet extends at right angles to the grain of the inner and outer sheets, and therefore when the grain of the wood extends in this direction the sheets are weakened, as the wood would readily break with the grain and in forming sharp corners to the bindings the sheets having their grain running in a longitudinal direction will be greatly weakened and in fact it is necessary to extend the grain of the wood in such directions to form such sharp corners or apexes of the angular corner bindings.

Metallic corner bindings have heretofore been extensively used, but owing to the great increased cost of metal at the present time such bindings are not desirable and therefore non-metallic bindings at the present time are in great demand; also boxes having these non-metallic bindings must be used for more than one shipment and for this reason very strong and durable corner bindings must be employed.

It is the purpose of the present invention to generally improve this class of boxes and provide a corner binding therefor, so as to increase the life of the box and still contain the qualities such as lightness, strength and durability which are especially desirable.

With the above and other objects in view which will hereinafter appear as the description continues, the invention consists of the novel features of construction, combination and formation of parts as will be hereinafter more fully described and particularly pointed out in the appended claim.

In the accompanying drawings has been shown a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details herein exhibited, but the right is hereby reserved to any changes, alterations or modifications to which recourse may be had that come within the scope of the claim without departing from the spirit of the invention or sacrificing the efficiency of the same.

In the accompanying drawings:

Figure 1 is a sectional perspective view of one corner of the box looking from the interior of the box;

Fig. 2 is a perspective view of one of the corners of the box;

Fig. 3 is a detail sectional perspective view of one of the lower corners of the box; and,

Fig. 4 is a detail sectional perspective view of the corner binding.

Referring now more particularly to the accompanying drawings wherein like and corresponding parts are designated by similar reference characters throughout the several views.

The sides, bottom and top of the box herein shown, which are indicated by the numeral 1, are each formed from built-up

veneers consisting of laminated sheets arranged in cross relation, secured together and permeated by cement and are formed by the use of the veneer machine of any well known or preferred construction. The grain of the inner and outer sheets are arranged longitudinally and in parallel relation with each other whereas the grain of the intermediate sheet extends at right angles to the grain of the inner and outer sheets, thereby greatly increasing the strength of the sections and such sections will have greater strength and durability than if the sections were made of a single sheet of wood of equal thickness.

The inner edges of the sections rest upon the rectangular cleats 2 which extend along the corners of the interior of the box. The adjacent edges of the sections terminate at the corners of the cleats, as better illustrated in Fig. 1 of the drawings, and it is therefore necessary to protect these corners with a binding.

This binding preferably consists of three sheets or veneers as better illustrated in Fig. 4. The inner and outer sheets 3 and 4 respectively are arranged so that their grain will extend parallel and in a diagonal direction as represented by the numeral 5, whereas the grain 6 of the intermediate section extends in a diagonal direction but opposite to or at right angles to the grain of the sections 3 and 4. In the prior bindings the grain of the inner and outer sheets runs in a longitudinal direction and therefore the strength of these sheets is greatly impaired, but by running the grain of the wood in a diagonal direction as disclosed in the present application the strength of the corner bindings is greatly increased. These corner bindings may contain three or more sheets of wood as will be obvious, to increase the thickness or strength if so desired and these corner bindings are formed by the use of a veneer machine in any well known manner. In forming such corner bindings, the strips are allowed to dry under heat and are then placed under the pressure of the molds, so that they are formed in the desired configuration. These corner bindings are, of course, angular in cross section, but in forming these angular bindings the bends or apexes are given a long curve so as to prevent stretching of the sheets or in any manner impair the strength at the bend. In the corners of boxes herebefore used and particularly that shown in the patent above referred to, the edges of the sections of the box overlap each other so as to from a contiguous point and therefore it is necessary to give the corner bindings of such boxes a sharp bend so that they will fit snugly upon such sharp edges. If the corner binding made in accordance with the present invention was applied to boxes having such sharp corners the long bend given to the corner bindings would be very undesirable, as it would not add to the strength or protect such corners. The adjacent edges of the sections of the box as herein disclosed terminate adjacent each other and thereby form the space 8 as shown in Fig. 1. Corner bindings having a long curve such as that set forth in the present application would extend over these spaces 8 and fully protect the corners of the box. As the sections of the box do not overlap one another, it is therefore necessary to provide the cleats 2, so that the sections may be connected together. In connecting the sections together and applying the corner bindings thereto, the nails 9 are employed which extend through the corner bindings, sections of the box and then into the cleats 2, thereby rigidly connecting the sections of the box together and employing only a single fastening element for connecting the sections of the box together as well as for fastening the corner bindings to the box. In Fig. 1 of the drawings I have illustrated wherein nails may be used for connecting the sections 1 of the box to the cleats 2, but these fastening elements are only used when metallic strips are secured to the corners of the box.

When it is desired a metallic clip or plate 10 may extend over the sharp corners of the box, as better illustrated in Figs. 2 and 3 for protecting these corners during shipment.

I have found by actual experiments extending over a long period during which containers made according to my invention have been shipped as far as to and from India that the provision of the space 8, adds greatly to the life of the container, by reason of the fact that the corner bindings are thereby rendered resilient. In shipping long distances the containers are frequently handled and consequently knocked about considerably. Most strains and impacts fall upon the corner edges as will be apparent, and consequently the resilient nature of the curved portion of the binder prevents premature fracture of the latter. Furthermore, from the arrangement of the cleats or stays 2 at the corners of the receptacle and the connection of the sides of the receptacle thereto, it will be appreciated that these sides will be rendered very strong and durable and that irrespective of the stress applied to the reinforcing elements 8, they will remain rigid, thus preventing damage to the receptacle contents. Any stress upon the reinforcing elements 8 will be taken care of by the same and by reason of the connection thereof with the cleats 2, such stress will be evenly diffused throughout the elements 8 and the cleats 2.

Having thus fully described my invention,

what I claim as new and desire to secure by Letters Patent is:—

A box comprising in combination side walls and a bottom, cleats arranged adjacent the corners of said walls and connected to the adjacent portions thereof, the adjacent marginal portions of the walls being spaced, and a resilient angular reinforcing element positioned exteriorly of the side walls and overlapping the corner portions of said walls, said element having its opposite portions connected to the cleat whereby to secure the same in position and to cause the transmission of stress to the cleats for diffusion therethroughout without affecting the rigidity of said side walls.

In witness whereof I have hereunto set my hand.

ARTHUR P. BEAUPRÉ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."