J. CAYLOR.

WIREBOUND PACKAGE.

APPLICATION FILED DEC. 2, 1919.

1,385,813. **Patented July 26, 1921.**

3 SHEETS—SHEET 1.

Fig. 1.

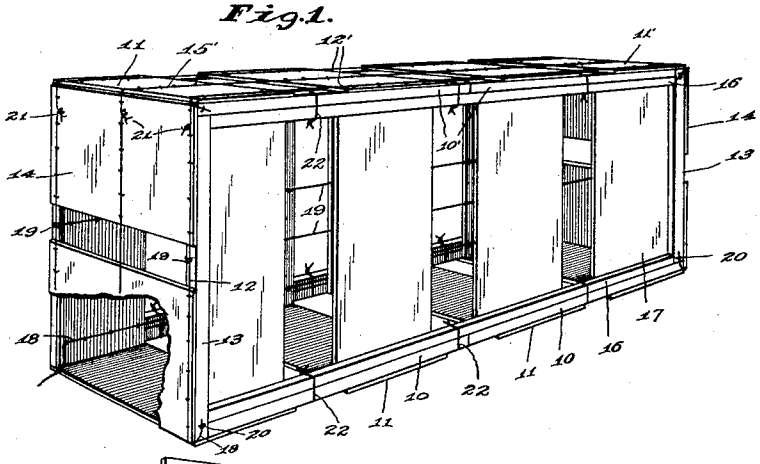


Fig. 2.

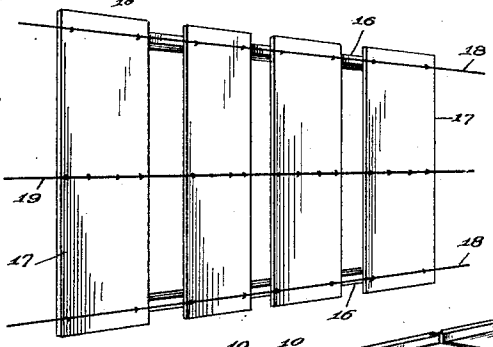


Fig. 3.

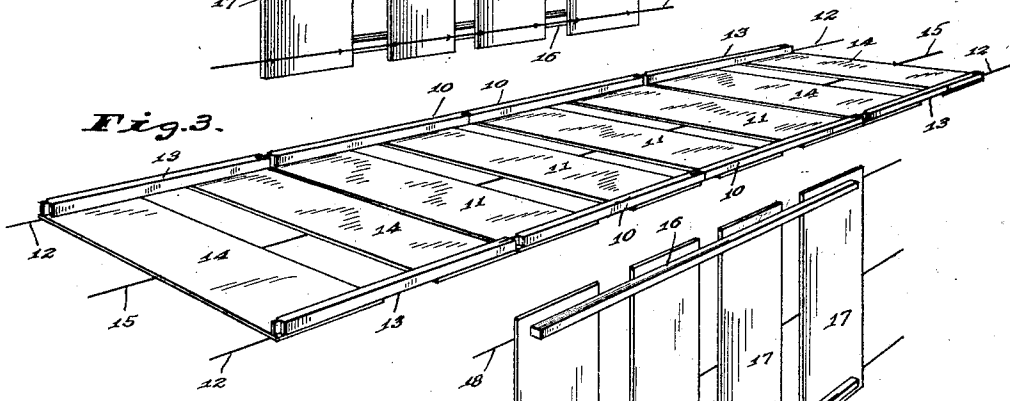
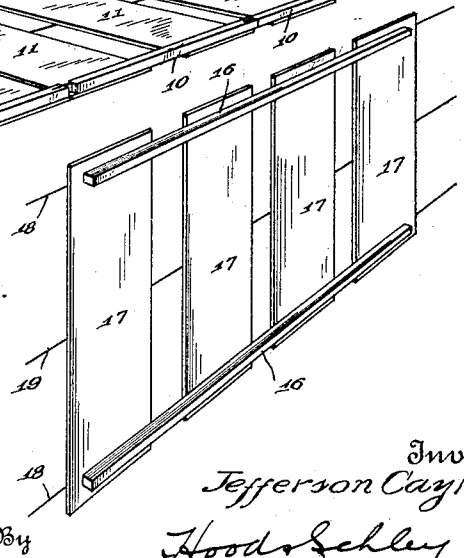


Fig. 4.



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3 SHEETS—SHEET 2.

Fig. 5.

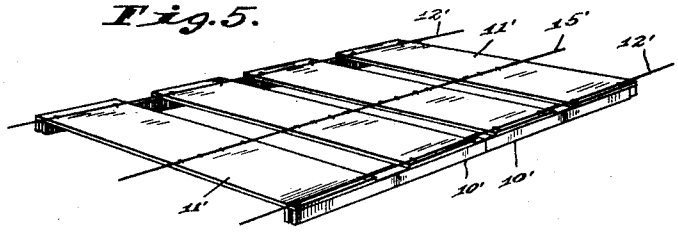


Fig. 6.

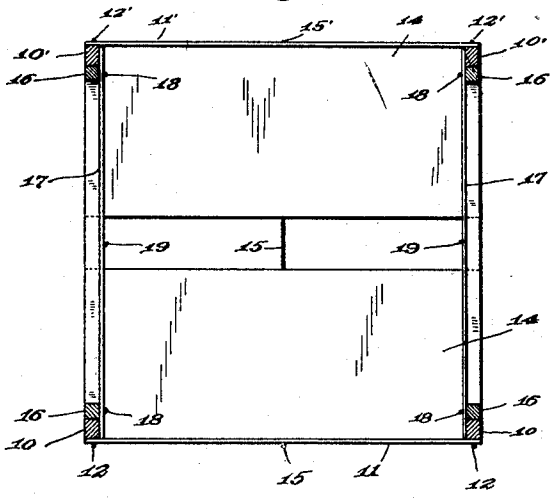


Fig. 7.

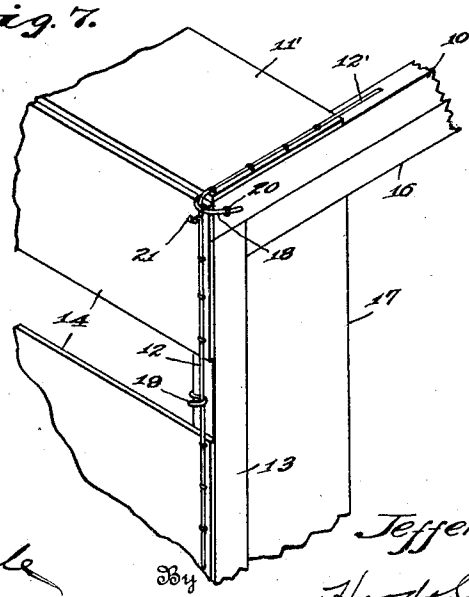


Fig. 8.

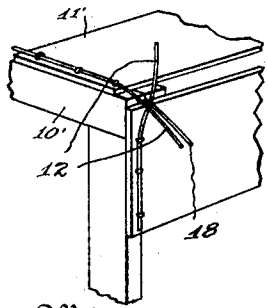
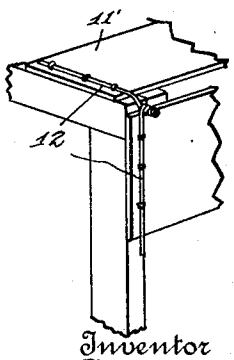


Fig. 9.



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3 SHEETS—SHEET 3.

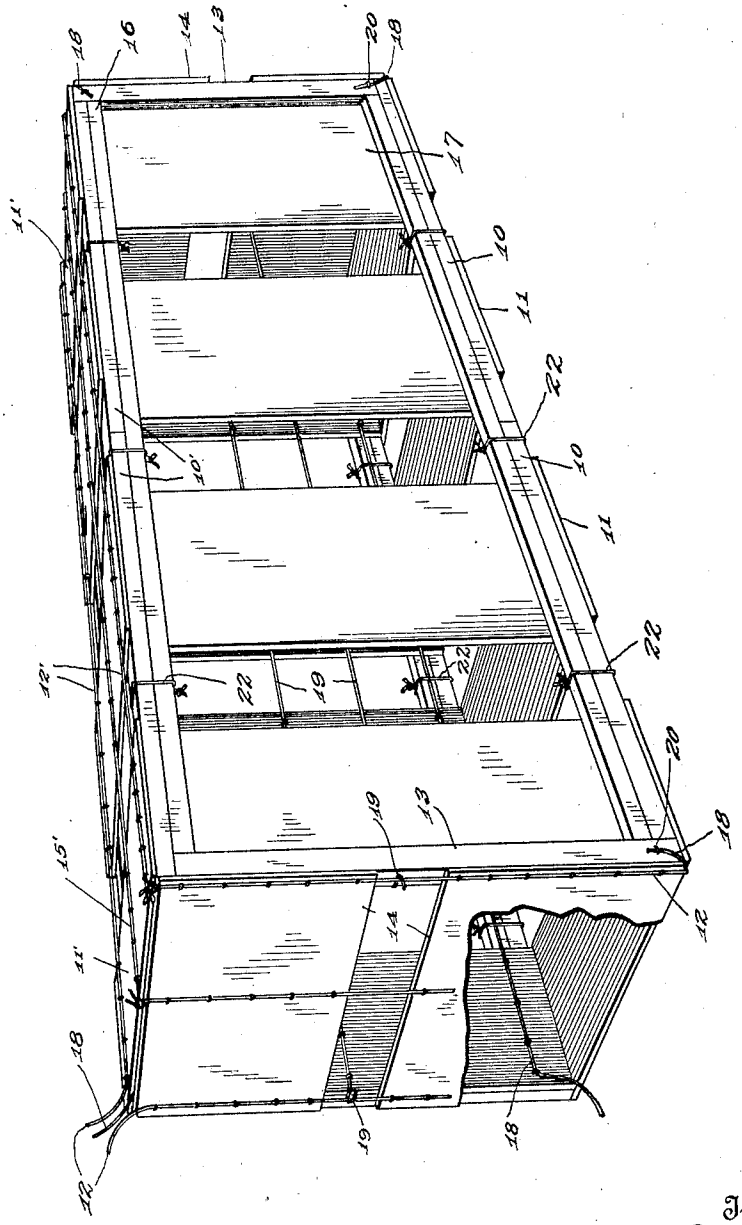


Fig. 10.

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UNITED STATES PATENT OFFICE.

JEFFERSON CAYLOR, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO PIONEER BOX COMPANY, OF CRAWFORDSVILLE, INDIANA, A CORPORATION OF INDIANA.

WIREBOUND PACKAGE.

1,385,813. Specification of Letters Patent. Patented July 26, 1921.

Application filed December 2, 1919. Serial No. 342,005.

To all whom it may concern:

Be it known that I, JEFFERSON CAYLOR, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Wirebound Package, of which the following is a specification.

The object of my invention is to produce a blank from which a very rigid but light wirebound shipping crate or package may be produced, the construction being such that the several sections may be readily produced by ordinary box-blank-making machinery; and also such that crates of considerable size, having dimensions greater than those within the normal capacity of blank-forming machines, may nevertheless be produced.

The accompanying drawings illustrate my invention. Figure 1 is a perspective of a crate or package embodying my invention, a portion of one of the siding sheets being broken away; Fig. 2 is a perspective of an inner face of one of the side sections; Fig. 3 a perspective of the extended blank comprising the bottom and adjacent end sections; Fig. 4 an outer perspective of the other side section; and Fig. 5 a perspective of the top section formed with spliced cleats; Fig. 6 a transverse section of the assembled package; and Fig. 7 a fragmentary perspective showing the manner of tying in the side sections; Figs. 8 and 9 fragmentary perspectives showing a desirable connection at the corners, and Fig. 10 a perspective view on a larger scale showing a package in nearly completed condition.

In the drawings, 10, 10 indicate cleats arranged in close series in lengths substantially equal to the desired length of the bottom of the completed package. These cleats are connected in parallel pairs by siding strips 11 which may be either spaced apart or arranged closely adjacent each other, edge to edge and fastened to the cleats by staples which straddle binding wires 12, in the usual well-known manner. If desired, single cleats 10 of full length may be used, but as the most convenient form of cleats is one in which one end of each cleat is provided with a tongue and the opposite end of each cleat is provided with a mating groove, there is a commercial maximum length beyond which cleats so formed cannot be readily produced and, therefore, as indicated in the middle of Fig. 3, where a crate of considerable length is desired, the cleats 10, 10, as previously stated, may be made up of short lengths (two being shown in the drawings), the tongue of one lying closely in the groove of the adjacent cleat.

Flanking each end of the bottom section (comprising the cleats 10 and facing strips 11) is an end section comprising cleats 13, 13 and connecting facing strips 14 which may be either spaced or arranged with their edges abutting, and these strips are attached to the cleats by the binding wires 12 and appropriate staples, in the usual well-known manner, the parts being so assembled that each end section may be folded up at right angles to the bottom section so as to bring the cleats 13 into mating relationship with the adjacent cleats 10 and so as to stretch the binding wires over the corner. One or more intermediate binding wires 15 may be attached to the various facing strips 11 and 14 in a common manner.

The sides of the crate comprise cleats 16, 16, facing strips 17 and binding wires 18, 18 and 19 attached to the facing strips and cleats by staples, as already described, said binding wires, as well as the binding wires 12 and 15, extending sufficiently beyond the ends of the blank to permit manipulation, as hereafter described.

In view of the fact that the cleats 16 may be square at their ends, and need no special formation, said cleats may be readily commercially formed of any desired length and are therefore solid from end to end and have a length substantially equal to the maximum length of a longitudinal series of cleats 10 less twice the length of one of the tongues of one of said cleats 10. Under some conditions, the cleats 16 might be spliced, as described in connection with cleats 10, but in that case the splicings should be staggered with relation to the splicings of cleats 10.

The top section, shown in Fig. 5, comprises two series of cleats 10′, 10′, facing strips 11′ and binding wires 12′ and 15′, so as to produce a section substantially identical with the bottom section of the blank shown in Fig. 3.

In order to assemble the parts, the blank shown in Fig. 3 is laid flat upon an assembly table and the cleats 16 laid upon cleats 10. The facing strips 17 are preferably of a length equal to the internal height of the

desired package and the cleats 16 are set in from their ends an amount equal to the height of cleats 10 so that when the side sections are assembled with cleats 16 lying upon cleats 10, the facing strips 17 will have their lower ends lying against the inner faces of cleats 10. The ends of the lower wires 18 are then tucked through between strips 11 and 14 at each end of the bottom section. Thereupon, the end sections are folded up at right angles to the bottom section and the ends of the upper wires 18 overlaid across the upper edges of the upper strips 14. These projected ends of wires 18 may be then temporarily bent downwardly and outwardly, respectively, so that various parts will be temporarily held in position, the lower wires 18 being preferably drawn tightly outwardly diagonally with relation to the corner of the package and then bent upwardly, as indicated at the lower corners of Fig. 1 and, if desired, tacked in place by staples 20. The ends of the middle wires 19 of the side sections are then passed outwardly under the wires 12, as indicated at the middle of Fig. 7, and, after being drawn tightly outwardly, may be either wrapped partially around the adjacent cleat 13, or, as shown in Fig. 7, may be bent inwardly over wire 12 and the end cut off, thus firmly uniting the parts at this point. After the contents of the crate have been placed in position, the cover, shown in Fig. 5, is applied and the upper wires 18 drawn outwardly diagonally, in a manner already described and tacked in place, as indicated at the upper corners of Fig. 1. If desired, the binding wires 12 and 15 may have their adjacent ends twisted together, as indicated at 21, Fig. 1, in the usual well-known manner and then, if desired, the upper wires 18 may be bent around the tightened wires 12 and 15, instead of being brought outwardly and tacked in place, as shown in Fig. 1.

In order to further stiffen the package, loops of wires 22 may be wrapped around cleats 10 and 16 and 10′ and 16, as indicated in Fig. 1, and this may be done whether the cleats 10 and 10′ are integral or spliced, the loops 22 being practically essential in case the cleats 10 and 10′ are spliced, as described.

I have found in practice that a package made in the manner described is exceedingly strong and rigid and is capable of carrying considerable loads. For instance, I have found it entirely practical to make crates capable of carrying several automobile fenders of pressed steel, out of quarter-inch wood veneer and cleats having a cross section of $1\frac{1}{2}$x$\frac{3}{4}$.

It will be readily understood that there may be some variation in the manner of assembly of the parts, without departing from my invention.

I have found in practice that at corners where the ends of a binding wire of the sides and top or bottom are to be twisted together, the adjacent wire of the separate side, as the wire 18, for instance, can be twisted together with said wire ends, as illustrated in Figs. 8 and 9, and that, by so doing, there is an exceedingly rigid connection established, which contributes heavily to the general rigidity of the completed package.

It will be noted that by uniting the end sections with the top and bottom sections, and by forming the side sections as separate members, the veneer material, *i. e.*, siding, whether in crate form or box form of comparatively short lengths may be utilized, whereas if the long sides (Figs. 2 and 4) were united with the top and bottom sections, with the binding wires embracing the top, bottom and sides, as distinguished from top, bottom and ends, the siding material would have to be full-length of the package. This is quite important in packages of extreme length, such as I find possible to produce and use for automobile fenders and other similar long heavy articles.

I claim as my invention:

1. A package comprising relatively foldable cleated sections flexibly connected by binding members; and a coöperating cleated section having flexible connector members projected therethrough and attachable to portions of the foldable sections.

2. A wirebound package comprising a foldable blank composed of cleated sections connected by binding wires, and a coöperating cleated section comprising binding wires having ends projecting beyond the section, the said ends being drawn tightly out through the foldable blank and attached thereto.

3. A wirebound package comprising a foldable cleated blank forming the bottom and two sides of the package and comprising connecting binding wires and spliced cleats; and cleated side sections carrying binding wires having ends extending beyond the sections, the cleats of said side sections being arranged to overlie cleats of one section of the foldable blank, the ends of the wires of the side sections being passed through adjacent portions of the foldable blank, drawn taut, and secured in place.

4. A wirebound package comprising a foldable cleated blank forming the bottom and two ends of the package and comprising connecting binding wires and spliced cleats; cleated side sections carrying binding wires having ends extending beyond the sections, the cleats of said side sections being arranged to overlie cleats of one section of the foldable blank, the ends of the wires of the side sections being passed through adjacent portions of the foldable blank, drawn taut, and secured in place; and binding

members embracing the cleats of the sides and the cleats overlaid thereby.

5. A wirebound package comprising a foldable cleated blank embodying binding wires and forming bottom and two sides of the package, a cleated wire connected top section, and coöperating side sections comprising cleats arranged to lie adjacent the cleats of the bottom and top sections and connecting wires having ends projected through the adjacent sections of the foldable blank and attached thereto.

6. A wirebound package, comprising detachable cleated and wire-connected sections, some of said sections comprising a longitudinal series of separate cleats, an adjacent cleated and wired section having its cleats arranged so as to closely parallel the aforesaid longitudinal series of separate cleats of the adjacent section so as to reinforce said series of separate cleats by overlapping adjacent ends of such separate cleats and having its wires adapted for interlacing engagement with adjacent package sections, and binding members embracing the parallel cleats.

7. A wirebound package comprising detachable cleated and wire-connected sections, some of said sections comprising a longitudinal series of separate cleats, and an adjacent cleated and wired section having its cleats arranged so as to closely parallel the aforesaid longitudinal series of separate cleats of the adjacent section so as to reinforce said series of separate cleats by overlapping adjacent ends of such cleats, and having its wires adapted for interlacing engagement with adjacent package sections.

8. A package comprising cleated sections having binding wires with projected ends, three of such sections being arranged to form a package corner and the three adjacent wire ends twisted together.

In witness whereof, I have hereunto set my hand at Crawfordsville, Indiana, this twenty-fourth day of November, A. D. one thousand nine hundred and nineteen.

JEFFERSON CAYLOR.