M. ROBINSON & H. S. NEALE.

BOTTLE CRATE RACK.

APPLICATION FILED MAY 10, 1909.

962,671.

Patented June 28, 1910.

2 SHEETS—SHEET 1.

FIG. 1

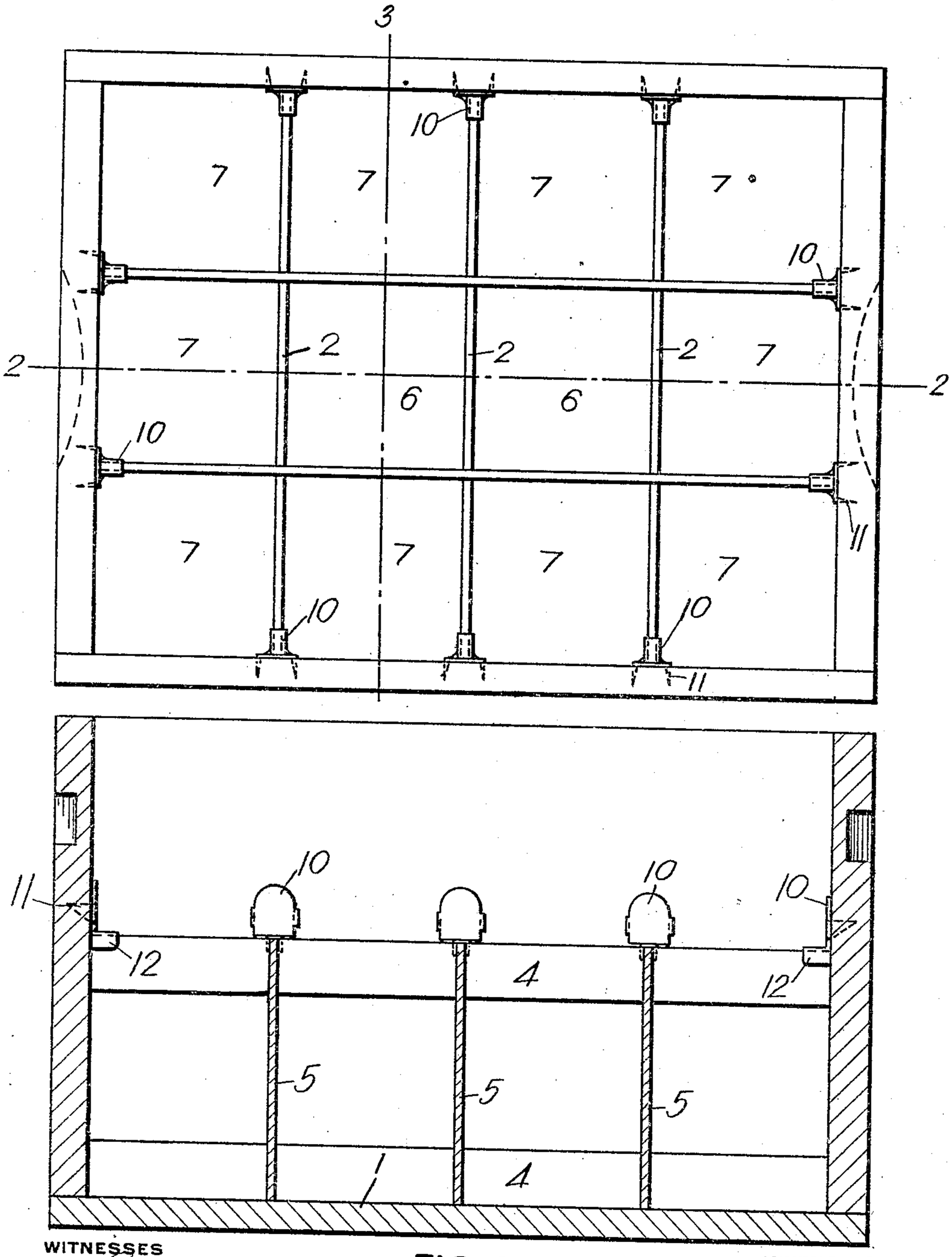


FIG. 2

WITNESSES

Chas. Sopkeman

Estelle M. Johnson.

INVENTORS.

Maurice Robinson &
Herbert S. Neale
By Fred'k H. Hunter
Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

M. ROBINSON & H. S. NEALE.

BOTTLE CRATE RACK.

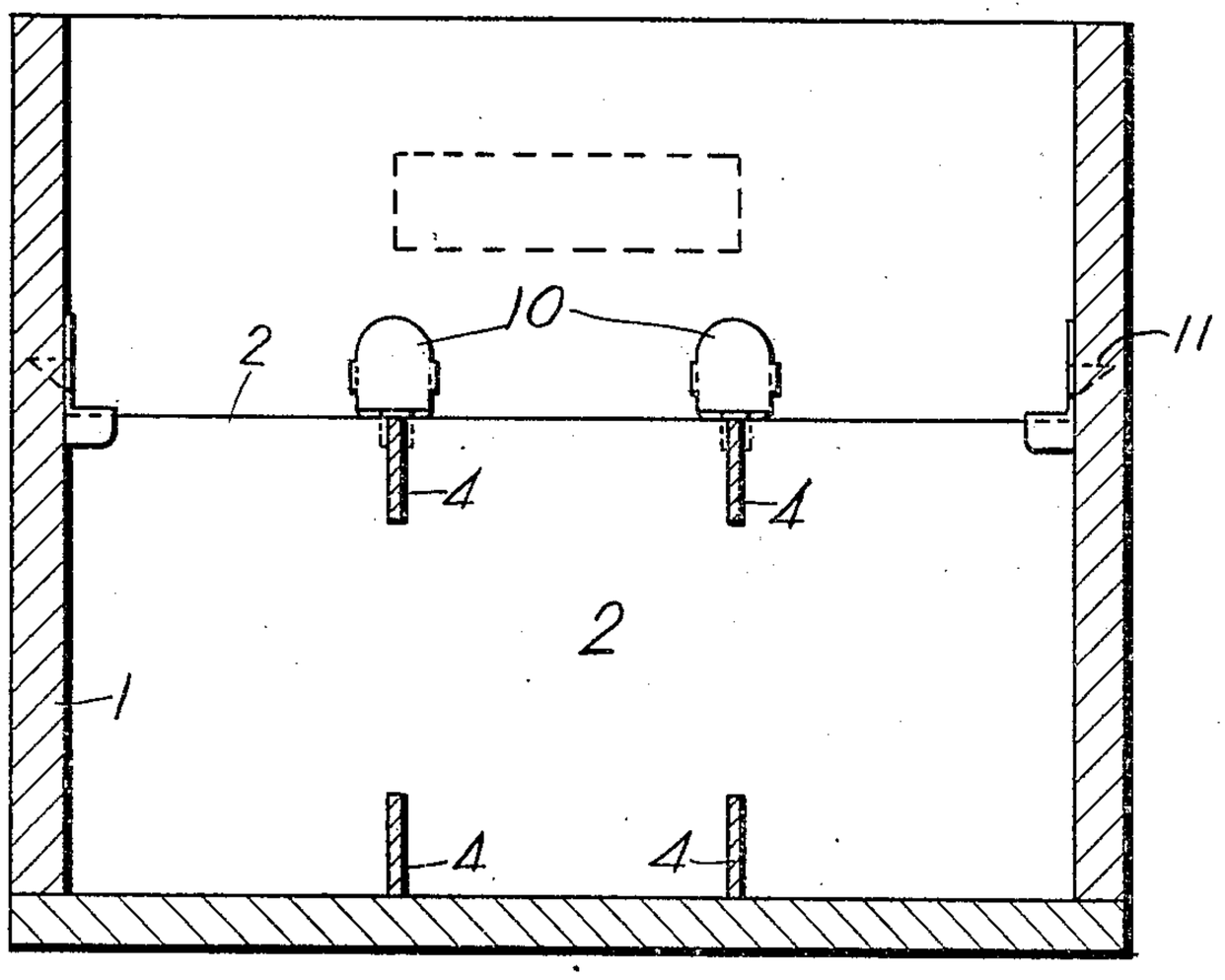
APPLICATION FILED MAY 10, 1909.

962,671.

Patented June 28, 1910.

2 SHEETS—SHEET 2.

FIG. 3



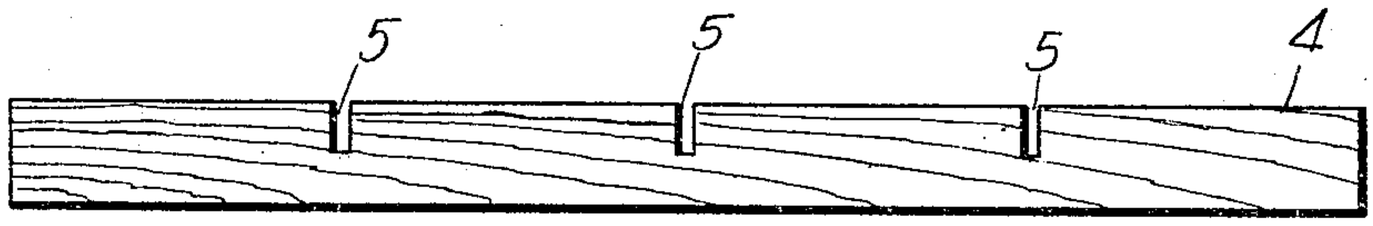


FIG. 5

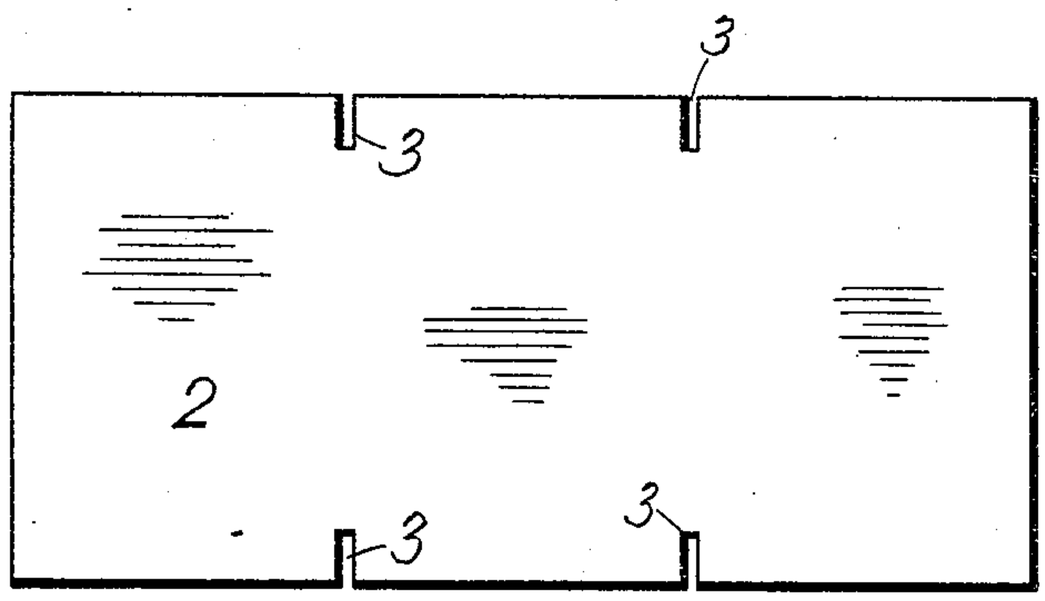
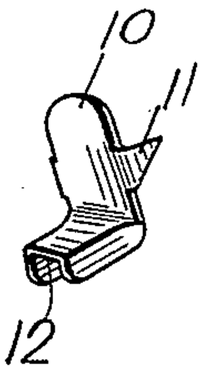


FIG. 4

FIG. 6



WITNESSES

Chas. Foderman

Estelle M. Johnson

INVENTORS.

Maurice Robinson &

Herbert S. Neale

By Frank W. Hunter

Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MAURICE ROBINSON AND HERBERT S. NEALE, OF PITTSBURG, PENNSYLVANIA.

BOTTLE-CRATE RACK.

962,671. Specification of Letters Patent. **Patented June 28, 1910.**

Application filed May 10, 1909. Serial No. 495,037.

To all whom it may concern:

Be it known that we, MAURICE ROBINSON and HERBERT S. NEALE, both residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Bottle-Crate Racks, of which the following is a specification.

This invention relates to racks or frames for packing cases, for packing bottles and similar breakable articles.

The object of the invention is to provide a rack for this purpose which is cheaper to manufacture than prior racks for a similar purpose, and which will greatly reduce the breakage of bottles or other articles held thereby.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a plan view of a case with our rack therein; Fig. 2 is a vertical longitudinal sectional view thereof on the line 2—2, Fig. 1; Fig. 3 is a vertical transverse sectional view on the line 3—3, Fig. 1; Fig. 4 is a detail view of one of the cross pieces; Fig. 5 is a similar view of one of the longitudinal strips; and Fig. 6 is a perspective view of one of the clips employed.

In the drawings the numeral 1 indicates a packing box or case of any suitable construction. This may either be of metal or wood, being shown as an ordinary rectangular wooden box. The bottle holding rack comprises cross pieces 2 all of which are alike and provided both in their upper and lower edges with kerfs 3 formed at regular intervals apart, and longitudinal strips 4 provided with kerfs 5 in one of their edges and which engage the kerfs 3 on the cross pieces 2, said longitudinal strips and cross pieces interlocking at the points of crossing in a well understood manner. Longitudinal strips are provided both at their top and bottom edges of the cross pieces as will be apparent from the drawings. In assembling these pieces the kerfs 3 in the bottom and top edges of the cross pieces 2 are engaged with the kerfs 5 of the longitudinal strips 4, and when fully assembled the edges of the longitudinal strips are in substantially the same plane as the edges of the cross pieces. The frame so formed is then inserted in the box and secured therein in a manner hereinafter described. The particular frame shown is adapted to hold a dozen bottles, and it will be observed that there are only three cross pieces 2 and only two pairs of longitudinal strips 4, these bounding the substantially square bottle receiving spaces 6. The ends of the cross pieces 2 project beyond the last pair of longitudinal strips a distance substantially equal to one side of a bottle holding space 6, and the ends of the longitudinal strips likewise project beyond the outermost cross pieces for a substantially equal distance, said projecting ends of the cross and longitudinal strips forming with the walls of the box outer bottle receiving spaces 7 similar to the spaces 6 inclosed by the longitudinal and cross pieces, these outermost bottle spaces being formed in part by the rack and in part by the walls of the box. By this manner of construction a very large saving is effected in manufacture, as it requires a much less number of pieces to construct a rack for holding a given number of bottles, thereby requiring not only lesser amount of material but also effecting a saving in labor in fabricating and assembling.

The longitudinal strips and cross pieces are made of thin light material, but by the interfitting connections at their points of crossing they form rigid rectangular spaces. The projecting ends, however, must be secured to the walls of the box to prevent them from yielding sidewise, as otherwise they would allow adjacent bottles to come into contact and break. The means shown for this purpose comprises clips 10, one for each projecting end of a cross or longitudinal strip. These clips are preferably formed of thin sheet metal bent to shape and provided with prongs 11 or other suitable means for securing the same to the walls of the box, and at their lower ends with an inturned channel shaped portion 12 which rests on and embraces the top edge of the strip composing the rack, and serves to hold the same not only against rising but also against any material sidewise movement, and forming of the end portions just as stiff and rigid a rack as of the intermediate portions. These clips can be very readily applied by driving the prongs into the wood of the box in the manner of driving a nail. A separate nail or brad may be used. They occupy only slight space at the corners of each of the rectangular bottle spaces and do not interfere with the bottles,

and therefore enable the box to be made shorter than heretofore where cleats have been used at the ends of the rack for holding the same against rising. The box can also be made of less width, due to the fact that the usual side strips of the rack, which lie adjacent to the side walls are omitted, and the box can be narrowed to the extent of the spaces occupied by the side strips of the rack and the projecting ends of the cross pieces.

The practice heretofore has been to form these racks from thin lumber substantially one eighth of an inch thick. With such thin lumber the strips and cross pieces, and particularly the cross strips, are likely to split off between the kerfs, thus destroying the same and making it necessary to throw such piece away. The actual manufacture of these devices shows that the loss due to splitting is substantially forty percent. To overcome this we propose to make the pieces composing the rack, and more particularly the cross pieces, of some fiber having no grain and which will not split. Various forms of fiber board which adapt themselves to this purpose are well known, but the cheapest and most convenient is ordinary paste or paper board formed of pulp or of sheets of paper, or in any other suitable way. Such board has the necessary stiffness and rigidity for the purpose intended and is without grain so that it does not split and prevents the large waste due to this cause. The fiber board can be easily worked, can be cut to the desired width and length by ordinary slitting shears, and the kerfs can be formed by punching, so that the labor cost is very low, and the first cost of such strips is less than that of the high grade of lumber which it has been found necessary to use for this purpose.

The rack described is of very simple construction and can be fabricated at a very materially less cost than racks heretofore used, and is so constructed and held in the box that it can not yield and permit adjacent bottles to come into contact. These racks greatly reduce the amount of breakage over the ordinary wooden racks used for this purpose.

What we claim is:—

1. The combination of a packing case and a rack comprising a plurality of cross pieces of paper board having kerfs in their upper and lower edges, and top and bottom longitudinal strips having kerfs in one edge, said cross pieces and longitudinal strips interlocking at their points of crossing and inclosing rectangular spaces, the ends of the cross and longitudinal strips extending beyond the last crossing strip and forming with the latter and with the walls of the case rectangular spaces corresponding to those inclosed by the longitudinal and cross strips, and clips secured to the walls of the case and engaging the ends of the upper longitudinal strips at their top edges and arranged to hold the same from rising, a separate clip being used for each of the longitudinal members.

2. The combination of a packing case and a rack comprising cross pieces having kerfs in their upper and lower edges, and top and bottom longitudinal strips having kerfs in one edge and interlocking with the kerfs of the cross pieces, said cross pieces and longitudinal strips inclosing rectangular spaces and the ends thereof extending beyond the last crossing strip and forming with the latter and the walls of the case rectangular spaces corresponding to those inclosed by the cross and longitudinal strips, and clips secured to the walls of the case and engaging the ends of the upper longitudinal strips at their top edges, a separate clip being used for each longitudinal strip.

3. The combination of a packing case and a rack comprising a plurality of cross and longitudinal strips formed to interlock at their points of crossing, the ends of said strips extending beyond the last crossing strip, and clips provided with means for attachment to the walls of the box and provided with grooved portions resting on the tops of the strips and embracing the sides thereof.

In testimony whereof, we have hereunto set our hands.

MAURICE ROBINSON.
HERBERT S. NEALE.

Witnesses:
HOWARD NEELY,
F. W. WINTER.