No. 874,996. PATENTED DEC. 31, 1907.

J. F. SCHOEPPL.

KNOCKDOWN CRATE.

APPLICATION FILED OCT. 22, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

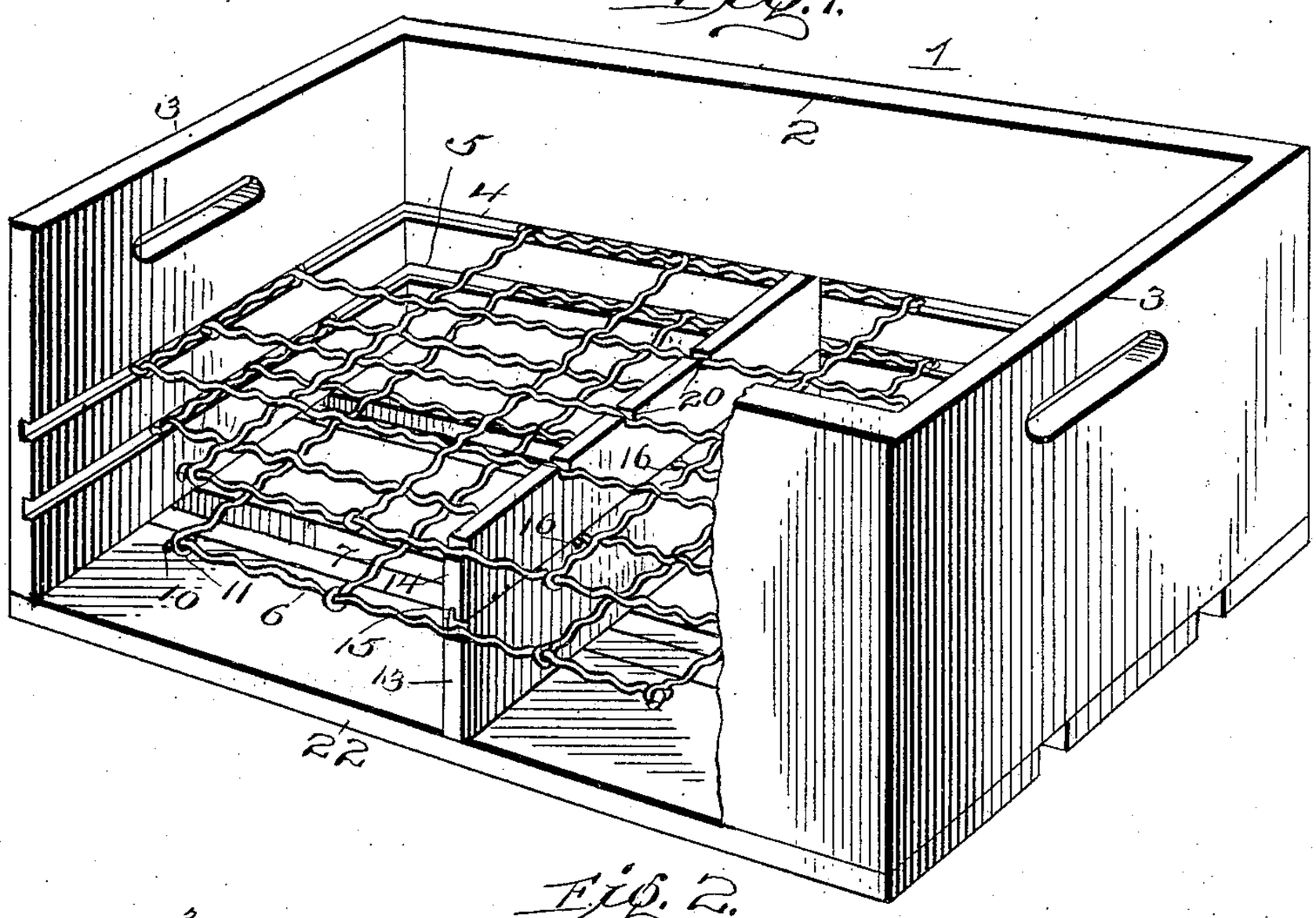
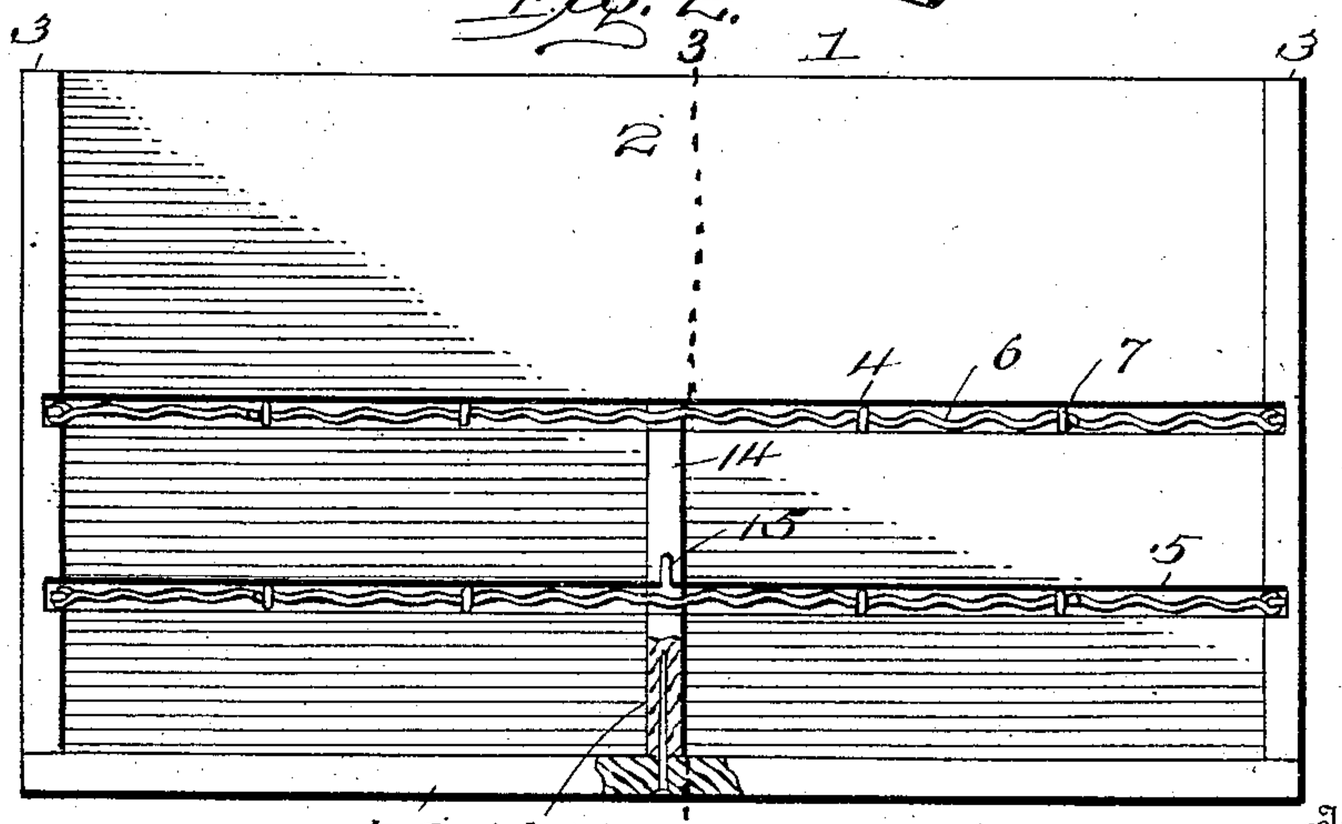


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 8.

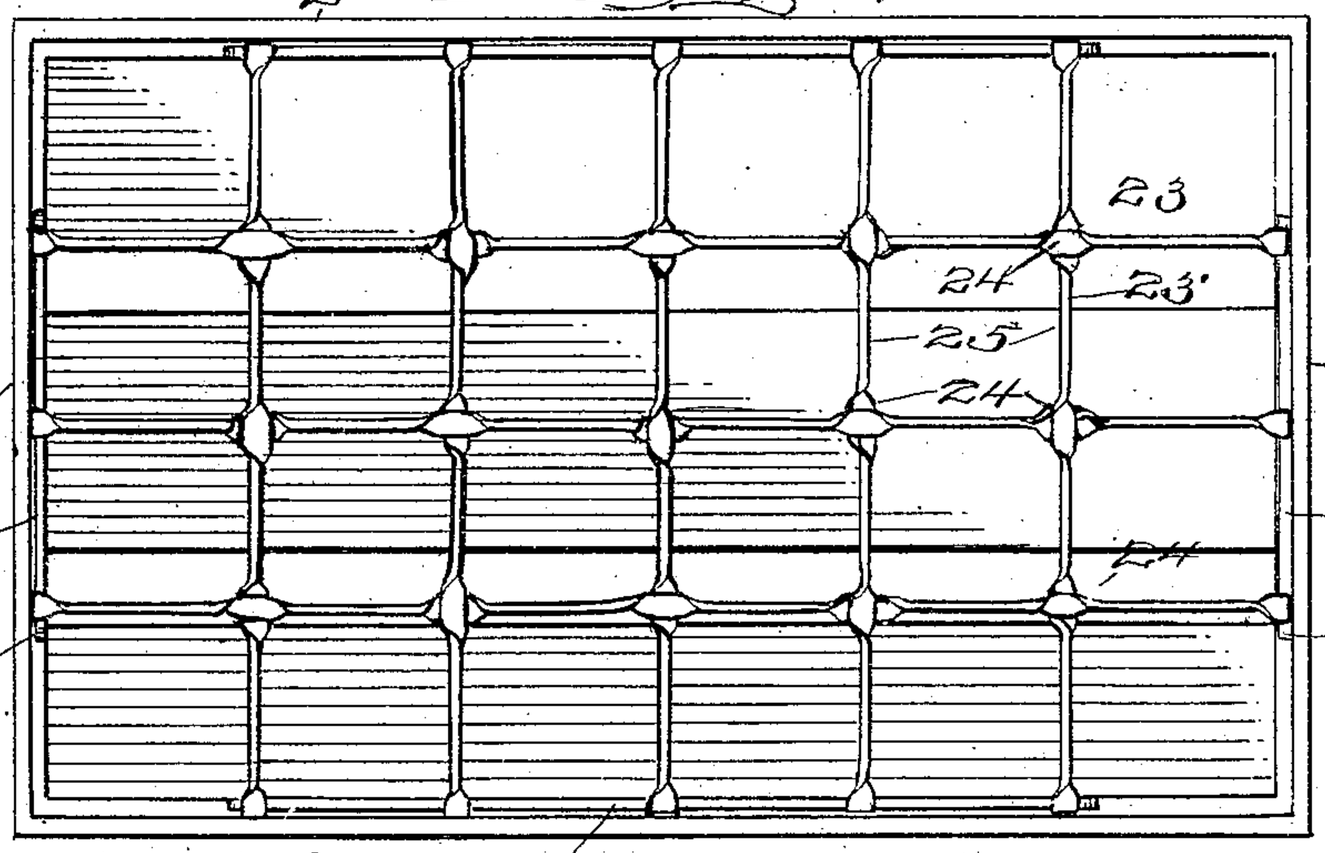


Fig. 3.

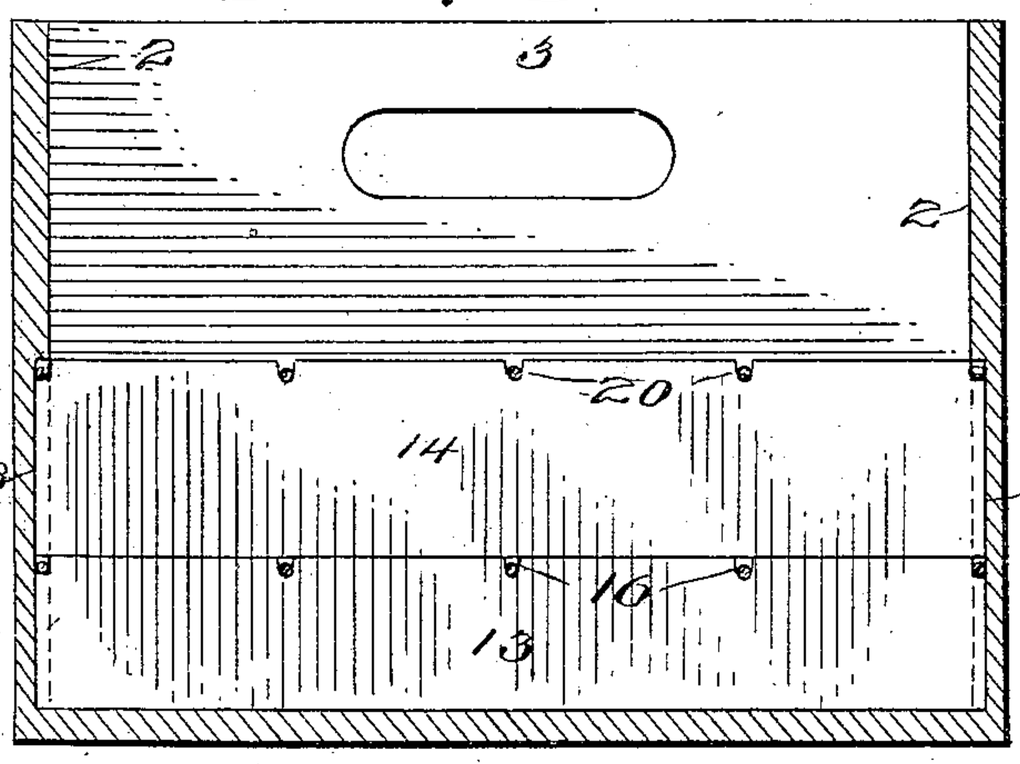


Fig. 4.

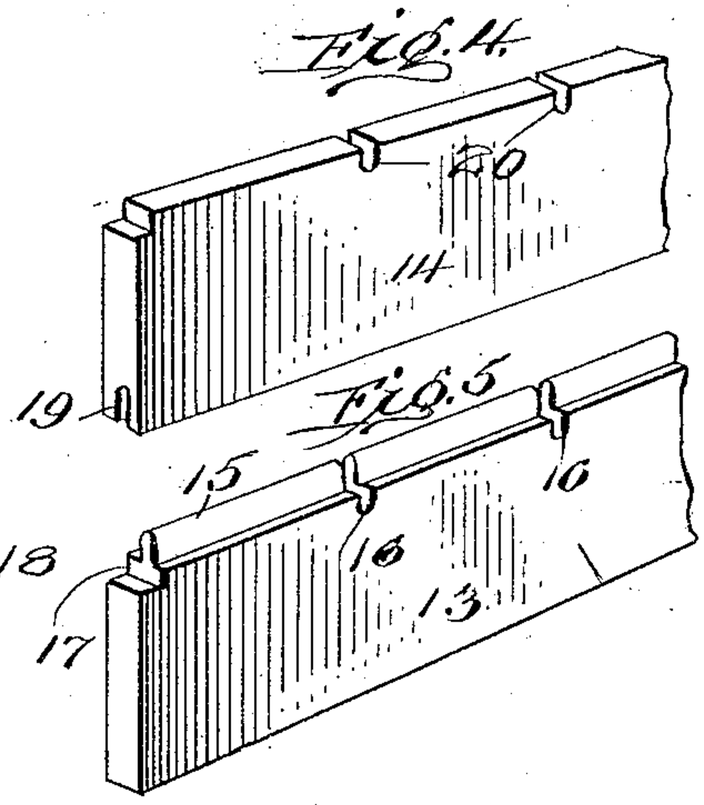


Fig. 5.

Fig. 6.

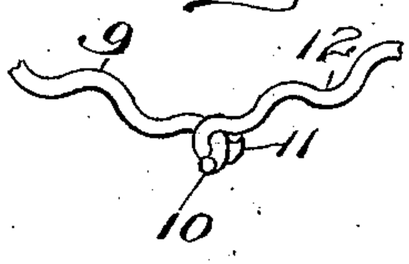


Fig. 7.

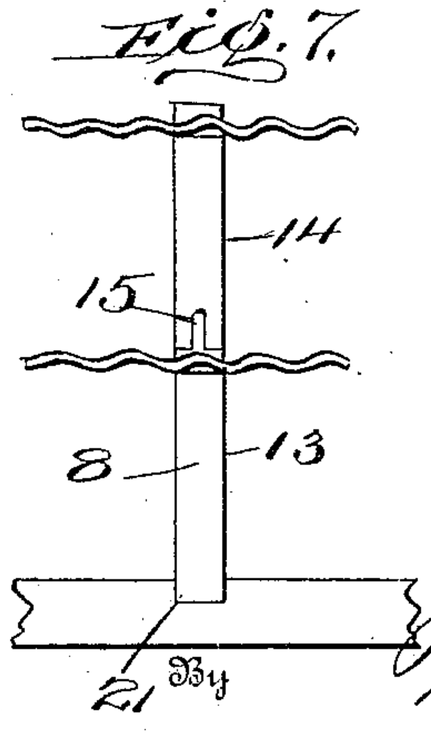
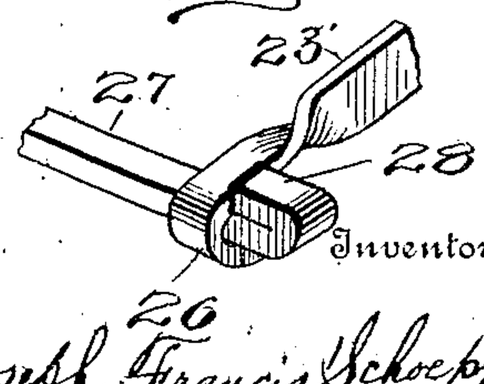


Fig. 9.



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UNITED STATES PATENT OFFICE.

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KNOCKDOWN CRATE.

No. 874,996. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed October 22, 1906. Serial No. 340,062.

To all whom it may concern:

Be it known that I, JOSEPH FRANCIS SCHOEPPL, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Knocked-Down Crates; and I do hereby declare the following to be 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.

This invention relates to improvements in crates, and more particularly to crates for receiving and holding bottles and the like slightly separated.

The invention comprises the production of a suitable box, partitioning means positioned in said box, and means for firmly supporting said partition in place.

The object in view is the production of a box of comparatively light weight and yet of considerable strength that is adapted to receive bottles and the like and hold the same firmly in position and slightly separated from each other.

Another object in view is the production of a crate having a plurality of partitions positioned therein and means for holding said partitions firmly in position.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawing:—Figure 1 is a perspective view of a crate embodying the features of the present invention. Fig. 2 is a side elevation of a crate formed according to the present invention, one side of the crate being removed. Fig. 3 is a vertical cross-section of Fig. 2 on line 3—3. Fig. 4 is a detail, perspective view of one of the bracing members forming a part of the present invention. Fig. 5 is a bracing member used in connection with the bracing member shown in Fig. 4 and forming a part of the present invention. Fig. 6 is an enlarged, detail, perspective view of the end of one of the wires used in the wire grating forming a part of the present invention. Fig. 7 is a detail, fragmentary end elevation of the partition and surrounding mechanism forming a part of the present invention, the same being a modification thereof. Fig. 8 is a top plan view of a slightly modified form of wire grating forming a part of the present invention. Fig. 9 is an enlarged, detail, perspective view of a corner fastening of the grating used in Fig. 8.

In the construction of a crate according to the present invention I provide a suitable box 1, having sides 2—2 and ends 3—3. Formed in the sides and ends of the box 1 are a plurality of slots, as 4 and 5, which are made of such a size as to firmly impinge against or grasp the ends of the wires of the grating to be hereinafter more fully described. It will be observed that the slots 4 and 5 are made entirely around the box, but this is not absolutely necessary as the slots may be only long enough to accommodate the wires that are adapted to be inserted therein. In the manufacture of a crate according to the present invention it is more desirable to make the slots entirely around the box as the same may be done somewhat cheaper than if they fall short of going entirely around the box. Positioned within the grooves 4 and 5 are wire nettings or gratings 6 and 7. The wire nettings or gratings 6 and 7 are preferably made from corrugated wire, the corrugations being adapted to stiffen the same. The wire used in the formation of the grating may be made of comparatively small wires as the grating is firmly held in operative position by the ends and sides of the grating resting in the slots 4 and 5 and by being supported centrally by a supporting member, as 8. The grating is woven in the usual manner of gratings, and has the ends of the various wires that form the wire 9 bent, as at 10. The end 10 is simply bent slightly over and substantially at a right angle to the balance of the wire 9 in order to form an end that will not pull through the hook 11 formed on the end of the wires 12. In this way the ends are so arranged as not to pull out of the hook 11 and yet the labor for bending the same into a hook is not required, but an equally strong joining is secured.

Supporting the gratings 6 and 7 preferably centrally thereof is a support 8 which is made in parts, as 13 and 14. The part 13 is made with a tongue or ridge 15 and has formed therein at proper intervals openings or recessed portions 16 for accommodating the wires of the grating 7. In the manufacture of crates according to the present invention it is preferable to leave out the central wire and to place the member 13 centrally of the box and allow the wires to rest

in the grooves 16, as clearly seen in Fig. 3 of the drawings. A notched-out portion, as 17—17 is formed on each end of the member 13 in which fits the wires 9—9 on opposite sides of the box. The wires 9—9 that are located on the ends of the grating are adapted to fit within the grooves 4 and 5 respectively. Formed in the sides 2—2 of the box 1 are grooves 18—18 into which fit the ends of the member 13. As will be clearly seen from Fig. 3 of the drawings, the ends of the member 13 is adapted to fit in the slots 18—18 but the tongue 15 and part of the body portion of the member 13 simply comes substantially flush with the inner surface of the sides 2—2. The wires 9—9 lying within the slot or groove 5 is thus firmly held in place by having the shouldered portions 17—17 positioned flush with the sides of the box. This will effectually prevent any accidental displacement of the wires 9—9, and will at all times firmly hold the wires 9—9 and connecting wires in proper shape. The remaining wires that run in the same direction as the wires 9—9 are adapted to fit in the various grooves or slots 16 and are supported therein.

Mounted above member 13 is another member 14 which is made exactly like the member 13 with the exception that instead of being provided with a ridge as 15 it is provided with a slot or groove 19 which is adapted to inclose the tongue or ridge 15. By thus providing a tongue upon the member 13 and a groove upon the member 14, the member 14 is firmly held in position above the member 13 and in turn firmly holds the upper grating 6 in position. The various wires of the upper grate 6 running parallel with the wires 9—9 are adapted to rest within the notches 20 in the same manner to the wires resting in the notches 16. By providing a support, as 8, formed of a plurality of parts, the gratings 6 and 7 are easily placed in position, but are firmly held in position when so assembled. The member 8 also forms a strong firm support for the central portion of the gratings and the grooves or ways 4 and 5 form strong end and side supports.

In certain instances it has been found desirable to place the lower member 13 of the partition 8 in a groove, as 21, as clearly seen in Fig. 4 of the drawings. This groove is used to assist in preventing any accidental displacement laterally of the member 13. In the preferred construction, nails or other securing means are passed through the bottom boards 22 of the box and upward into the member 13.

In referring more particularly to Fig. 8 of the drawings it will be observed that in that modification of the present invention a slightly differently constructed grating is provided. The grating 23, as shown in Figs. 8 and 9, is made from flat strips of metal and is twisted at the point of crossing as at 24, for firmly holding the various strips in position. The parts 25 of the grating 23 are positioned vertically and are adapted to thus form a stronger grating than if the strips were all positioned horizontally as at 24. By using this form of grating the size of the box is lessened in comparison to the size of the box when using the round wire, by reason of the thinness of the strips which take up less space than the round wire. In connection with the twisting and crossing of the strips 23′ it will be noted that in placing bottles and the like in the openings between the strips that the bent portions will not in the least interfere with placing a bottle in said space, the bent portion 24 only partially filling the corner of the openings in which the bottles are adapted to be placed. The outer corners of the grating 23 is secured together preferably by having the strips 23′ bent into a hook, as 26, and the strip 27 running at substantially a right angle to the strips 23′, is also adapted to have a hook portion 28 that is adapted to engage the hook 26, as clearly seen in Fig. 9 of the drawings. The hook portion 28 is made very short and is bent down upon the strip 27 until it is in contact therewith, thus forming an obstacle or lug that firmly engages the hook 26. This will firmly keep the ends of the wires or strips 23′ and 27 from becoming loose or displaced. It will also be noted that when using the form of grating 23 that the slots or grooves 4 and 5 may be made considerably smaller than in the preferred construction, as the same need only to be made sufficiently wide for accommodating the hooks 26 and 28. In connection with the modified forming of grating 23, I usually use the support 8 but I find that it is not always necessary. In some instances, I find it preferable to form a crate without the use of the support 8 when using the grating 23, as the same is made of flat strips of metal so bent as to strongly resist pressure. In the manufacture of small crates it is especially desirable to leave out the partition 8 so as to lighten the weight and lessen the size as well as cheapen the manufacture. This may be done without destroying the strength of the box when the modified form of grating 23 is used.

Crates made according to the present invention may be made of any size so as to accommodate any number of bottles that may be desired. In assembling the crate it is preferable to secure together the two ends and one side, place the gratings 6 and 7 in position, and at the same time place the members 13 and 14 in position and then secure in place the other side. After the sides and gratings have thus been placed into position, the bottom boards 2 are

secured in position and securing means passed therethrough into member 13 of the partition 8. This is the preferred way of assembling the crate, but as it will be evident the crate may be assembled in various other ways as may be desired. In forming a crate according to the present invention it will be noted that the same is made extremely strong even with the use of comparatively light wires by means of having the ends and sides of the grating firmly supported and also by having the central portion of the grating supported. In cases where very large crates are desired, it may be sometimes desirable to place more than one partition 8 in the box and in that case the various partitions 8 will be distributed at substantially equal intervals in the box so as to give a firm support to all parts of the gratings at all times.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a crate, the combination with a boxing, of a plurality of grates mounted in said boxing, means for supporting the ends and sides of said grates, and means for supporting the central portion of said grates, said means comprising an upper and lower member formed with notches therein for accommodating the wires of said grating, and a plurality of shouldered portions for firmly holding the sides of said gratings in engagement with the side supports of said gratings.

2. A crate, comprising a boxing formed with a plurality of grooves extending entirely around the same, a plurality of grooves positioned centrally of the sides of said boxing and at right angles to said first mentioned grooves, gratings mounted within said grooves, said gratings being formed with side and end members that are designed to rest in said first mentioned grooves, said side members being formed with hooked portions for preventing any longitudinal movement thereof, and a plurality of supporting members secured in said second mentioned grooves for rigidly supporting the central portions of said gratings, one of said supporting members being formed with a tongue and the other of said separating members being formed with a groove for holding the said supporting members in proper relation to each other, each of said separating members being formed with notches for engaging the wires of said gratings for preventing any lateral movement thereof, and shouldered portions on each of said separating members and engaging said side members for holding the same in some of said first mentioned grooves.

3. A crate comprising a housing formed with a plurality of horizontal grooves and a vertical groove on each side of said housing, grating mounted in said horizontal grooves and supporting members mounted in said vertical grooves for supporting and holding in position said grating, said supporting members comprising a plurality of members formed with notches and shoulders, said notches being designed to engage the central wires of said grating and said shoulders being designed to accommodate the side wires of said grating whereby the said side wires will be confined in said horizontal grooves.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH FRANCIS SCHOEPPL.

Witnesses:

JOHN L. FLETCHER,

A. L. KITCHIN.