

Sept. 18, 1934.

O. W. SHARP ET AL

1,973,932

BOX CONSTRUCTION

Filed Sept. 17, 1930

3 Sheets-Sheet 1

Fig. 1.

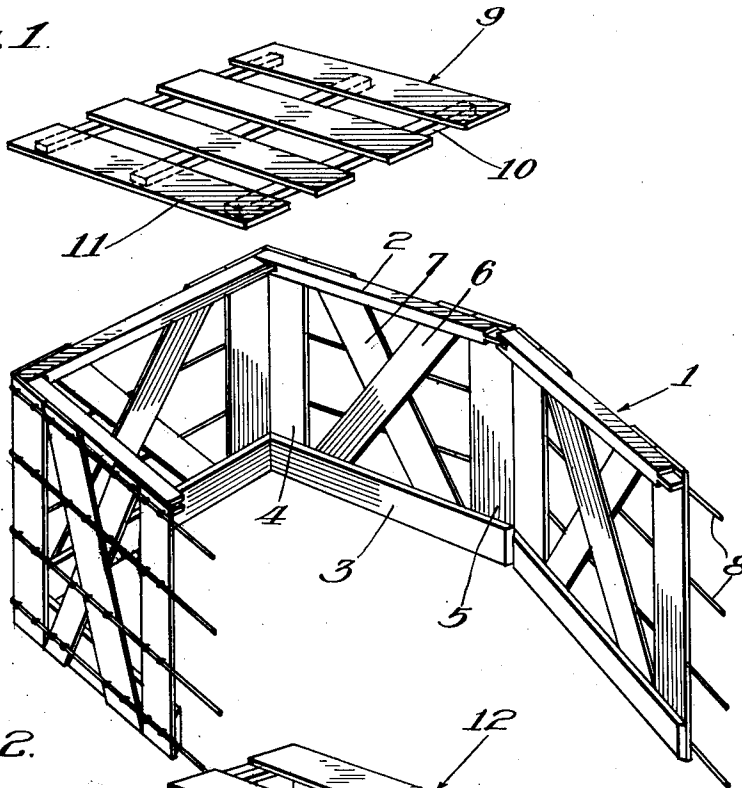
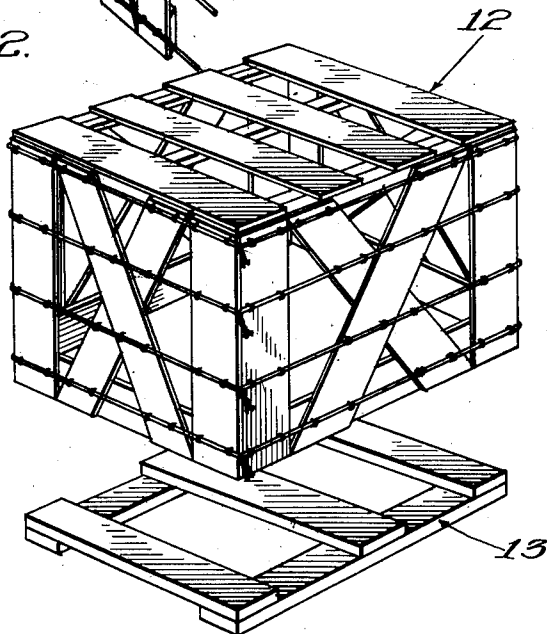


Fig. 2.



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3 Sheets-Sheet 2

Fig. 3.

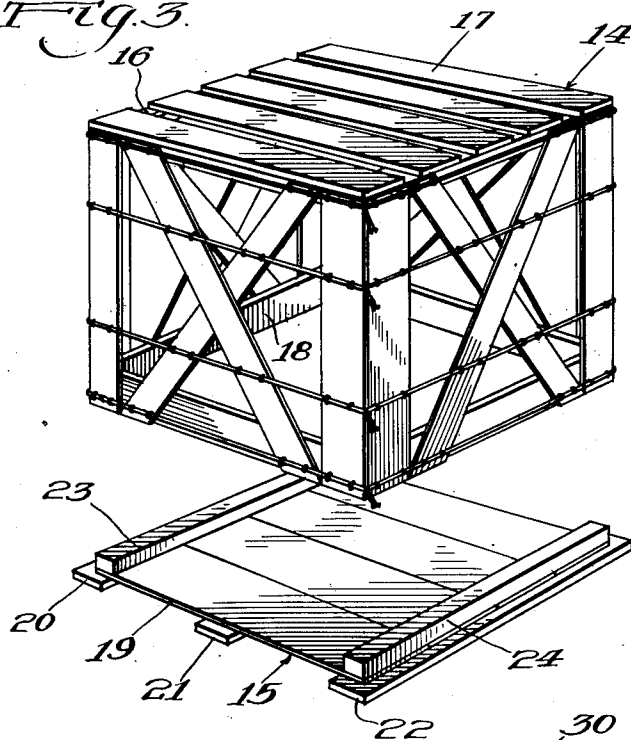


Fig. 4.

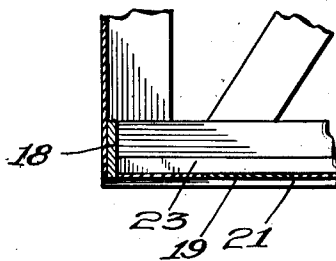
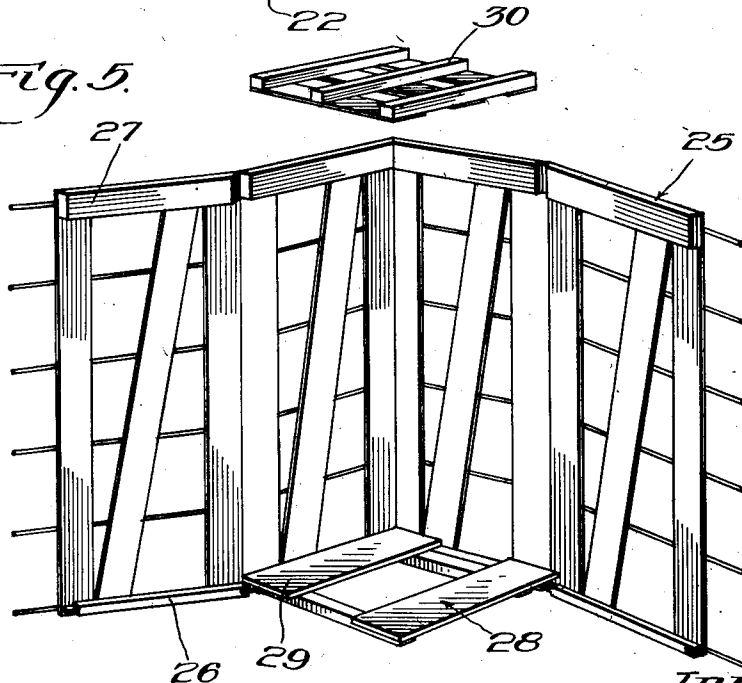


Fig. 5.



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3 Sheets-Sheet 3

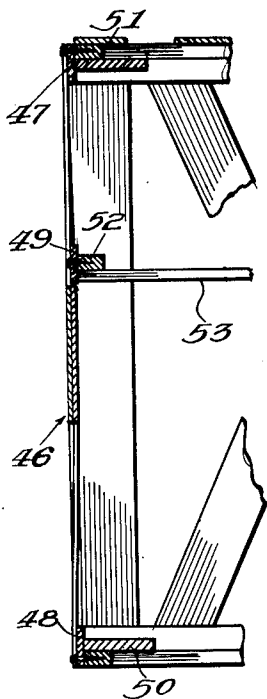


Fig. 8.

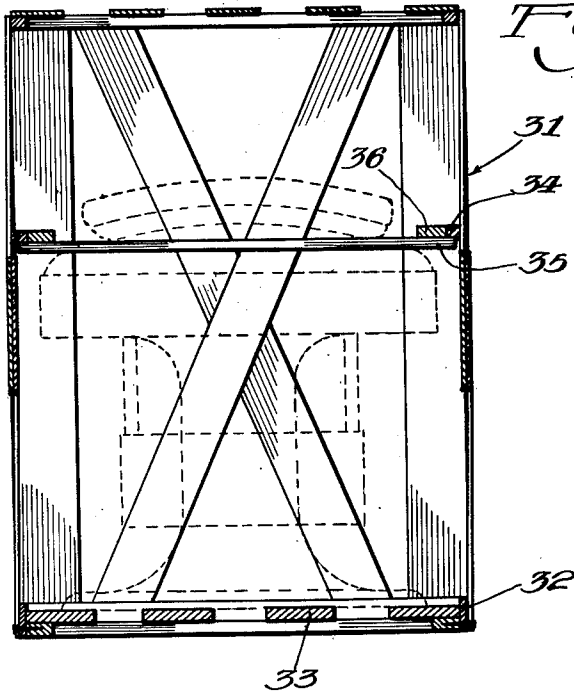


Fig. 6.

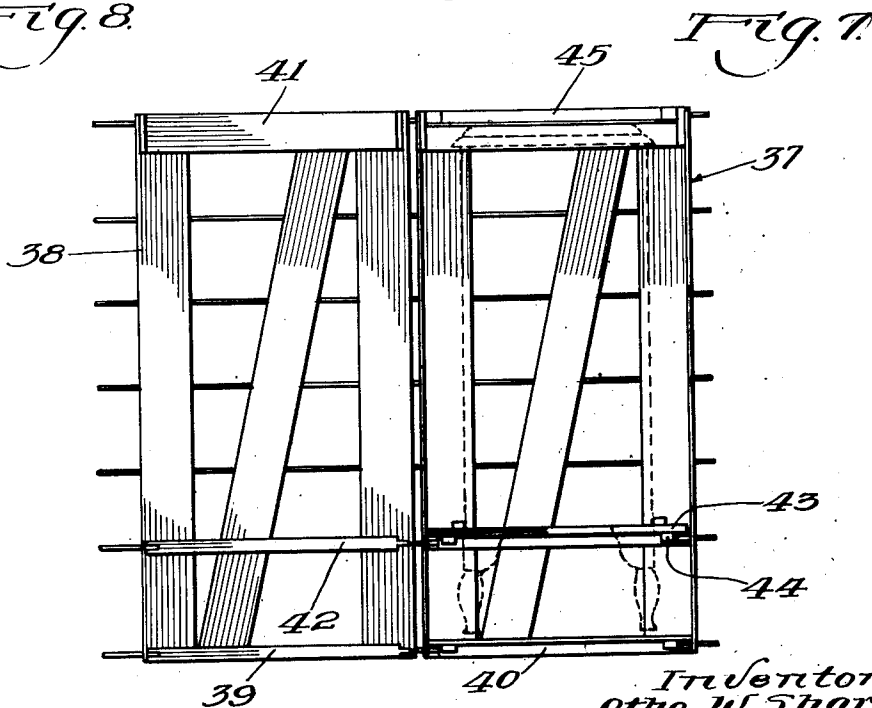


Fig. 7.

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UNITED STATES PATENT OFFICE

1,973,932

BOX CONSTRUCTION

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Application September 17, 1930, Serial No. 482,398

19 Claims. (Cl. 217—43)

The present invention relates to box constructions and more particularly to novel wire bound containers or boxes and novel methods for preparing articles for shipping, moving or storing.

Among the objects of the present invention are to provide a novel wire bound container or box which may be easily and readily assembled to provide an enclosure for an article which is being moved, shipped or stored.

Heretofore, it has been customary to provide wire bound box construction, wherein the sides thereof were wrapped around the article, and at which time an engagement thereof with the end or bottom panel was effected for supporting or securing the same to the sides. These foldable sides were delivered to the shipping room and were wrapped around the article, the bottom cleat, or the like, of the sides engaging in or with the end panel or base upon which the article to be packed was mounted or supported. If the article to be packed was being conveyed along a movable conveyor or the like, it was occasionally necessary to lower the same onto the floor or place it in a suitable position so that the wrapping of this foldable mat thereabout could be effected. Further, if a large amount of floor space was available, work could proceed without interruption, but oftentimes preparing articles in this manner is confined to a limited space. Under such conditions it was found that the wrapping of the foldable mat about the article required an excess of space and interfered with and interrupted with work of operators who were forming similar articles of packing in adjacent areas of the room, and again, in wire bound containers previously built or constructed, and in which the article or packing therefor contacted with the ends or end panels, adjustability of these ends in a longitudinal direction of the box or container was not possible, inasmuch as the edges of the same overlapped the cleats of the box assembly. The end or ends could only be placed in position by lateral movement thereof relative to the foldable mat of the container, and the enclosing of the article could be effected only by a wrapping of the foldable mat about the same, at which time the cleats thereof overlapped or engaged with the edges of the end or ends. It was therefor impossible to provide a construction in which the effective inside length could be varied for accommodating articles having variations in length so that the same could be firmly and substantially rigidly held in position with the container.

The present invention, therefore, contemplates box constructions, preferably wire bound con-

tainers, or boxes, which may be assembled and stored, or placed adjacent the area of the floor where the article or articles is or are to be packed, these assembled box constructions being removed, as desired, and placed over the article and for enclosing the same. In packing these articles, the same are mounted or supported upon a panel or base which is then secured to the sides of the assembled mat of the box construction, for providing a finished shipping package or container adapted to effectively protect the article when the same is being shipped, moved or stored.

The invention comprehends the idea of providing a wire bound box container, having an end panel adapted to slidably fit within and be secured to the end of the box assembly, and whether the foldable mat be wrapped about the article or be assembled and then placed thereover and which may be moved or forced into contact with the article or packing therefor, for firmly holding and positioning the article within the container and between the ends thereof to prevent its displacement. Such novel box constructions have been termed "compression packs".

It is a further object of the invention to provide a novel wire bound box container having an end or ends which, can be adjustably positioned within the box assembly by either a longitudinally or laterally sliding of the same relative to the assembly and secured thereto and whether or not the foldable mat be wrapped about the article or be assembled and then placed or slid thereover, or the enclosing of the article be effected in any other desire or suitable manner. Such novel construction provides means whereby the effective inside length of the container may be varied or is variable, thus adapting the same for articles of varying length, and for providing a compression pack.

In the embodiment selected to illustrate the invention, these compression packs are disclosed as being formed by wrapping the foldable mat about the supporting base for engagement therewith and around the article supported thereon, or as having been previously assembled and placed or slid over the article. In either or all of the disclosed compression packs, illustrative of the present invention, an end panel or panels or the like, has, or have been shown as slidably and/or adjustably fitting within an end or ends of the box assembly, whereby the same may be secured to the box assembly in a position to firmly hold the article in place.

The invention further comprehends the idea of providing cleats, bands, band cleats, or project-

ing members intermediate the ends of the foldable mat and which are adapted to support or engage the ends of cross members, or projecting portions of the article, extending therebetween, these cross members or projecting portions being in contact, engaging with, or forming a part of the packed article and being adapted to cooperate with the slidable end or ends for providing a rigid construction for firmly holding the article in place and between the same.

Other objects, features, capabilities and advantages are comprehended by the invention, as will later appear, and as are inherently possessed thereby.

Referring to the drawings:

Fig. 1 is a view in perspective of the foldable mat and a top of an embodiment of the present invention, the same being shown as partly assembled.

Fig. 2 is a view in perspective of the embodiment of the invention disclosed in Fig. 1, of the drawings, and showing the sides and top therefor in assembled relation and in a position to be placed over and around an end panel therefore, which end panel provides a support for the enclosed article.

Fig. 3 is a view in perspective similar to that shown in Fig. 2 of the drawings and disclosing another embodiment of the present invention.

Fig. 4 is a fragmentary vertical cross sectional view through the box of Fig. 3 of the drawings and disclosing the base or end panel thereof in a position to be secured to the sides of the foldable mat.

Fig. 5 is a view in perspective of a further embodiment selected to illustrate the present invention, and disclosing the same in an open position.

Fig. 6 is a vertical cross sectional view taken through another embodiment of the present invention, and disclosing in detail the novel means and construction for firmly holding the packed article in position and to prevent its displacement therein.

Fig. 7 is a side view in elevation of a still further embodiment illustrative of the present invention, and disclosing the same partially assembled.

Fig. 8 is a fragmentary vertical cross sectional view of still another embodiment of the present invention disclosing a construction wherein a plurality of panels adapted to slidably fit within band cleats of the foldable mat assembly are provided.

Referring now more in detail to the drawings, an embodiment selected to illustrate the invention is shown in Figs. 1 and 2 as comprising a foldable mat 1 having panels adapted to provide the sides of a box construction when the same is assembled, as clearly shown in Fig. 2 of the drawings. Each of these panels comprises a frame having an upper cleat 2 and a lower band member 3 connected together by upright members 4 and 5, which frame is further reinforced by the diagonal cross members 6 and 7. Each of these panels or sides are suitably fabricated or assembled, as by means of a nailing machine, or otherwise, and are secured to adjacent box sides by means of a plurality of wires 8 suitably secured as by means of staples, or the like. The ends of the cleat 2 are shown as being provided with a tongue and groove construction, while the bands are disclosed as having their ends mitered to provide a finished corner for the box when the sides are assembled, as likewise to reinforce and provide a rigid construction for the same. It is to

be understood, however, that any suitable construction may be provided whereby the sides may be easily and readily assembled for producing a finished box, as likewise to reinforce the corners and edges thereof.

A mat comprising the four sides of a box may be folded, as disclosed in Fig. 1 of the drawings and the edges of the end panel brought into contact, at which time the end of the wires secured thereto are twisted in any desired manner, to provide the assembly shown in Fig. 2 of the drawings. A top 9 is shown as comprising battens 10 to which are secured a plurality of slats 11. The battens 10 are spaced apart and are of a length so as to comfortably fit within the cleats 2 of the box sides, while the slats 11 are adapted to overlap and be supported by these cleats. Nails or the like are driven through the cleats 2 into the adjacent battens 10. If desired, additional nails may be driven through pieces 11 into cleats 2, or other fastening means than nails may, if desired, be employed for fastening the end or ends to the crate, container, or box assembly.

In Fig. 2 of the drawings, an assembly 12 comprising panelled sides having a top secured in the upper end thereof, is disclosed and is shown in a position above the base 13 therefor. This base 13 may be of any desired construction to provide a suitable support upon which may be mounted an article to be packed. This base is of a size and shape to fit within the open end of the box assembly 12 and between the band or band members 3 thereof. This box assembly 12 may be assembled and stored at an advantageous point in a packing room for instant use. The article to be packed is supported upon the base 13 and may be secured thereto, if desired. The box assembly is then placed over the article and is lowered into a position so that the case fits within the band members of the same. Nails, or other securing means, may then be driven through the band members for securing the base 13 to the lower end of the sides of the box assembly and to provide the finished package or container.

In Figs. 3 and 4 of the drawings, another embodiment of the present invention is disclosed, and is shown as comprising a box assembly 14 and a base or end panel 15 therefor. The box assembly 14 is similar to the assembly 12 of Fig. 2 of the drawings and is shown as comprising panelled sides having upper cleats 16 to which are secured a top or end panel 17 of similar construction to the top 9, as likewise having band members 18 secured to the lower end of the sides thereof. The base 15 is of somewhat different construction than the base 13 of the previously described embodiment, and comprises a sheet of material 19 which is supported upon and secured to the elongated members 20, 21 and 22. The ends of each of these members overlap or overhang the edges of the sheet of material 19, while the outer edges of the members 20 and 22 further overhang or overlap the edges of the sheet of material 19. Elongated members 23 and 24 are secured to the upper surface of the sheet of material 19 and adjacent opposite edges thereof, these members being adapted to be received between and within the band members 18 when the box assembly 14 is placed over the article and lowered onto the base.

In Fig. 5 of the drawings, is disclosed a further embodiment of the present invention, the same being shown as comprising a foldable mat 25, having panelled sides to provide the side walls

of the box construction. Each of these panels are provided with lower cleat members 26 and upper band members 27. This foldable mat 25 is adapted to be wrapped around a base 28, at which time the cleats 26 thereof engage with overlapping portions of slats 29 of the base 28. The article to be packed may be mounted and/or secured to the base 28 and is enclosed when the foldable mat 25 is wrapped around the same. A top or end panel 30 is provided and may be of any desired construction and of a shape and size to fit within the band members 27. This top or end panel 30 may be pressed or forced against the article, or the packing therefor, and may then be secured to the band members in this position, by any suitable means, such as nails or the like, which are driven through the band members 27 and into the outer members thereof. This provides a very suitable compression pack in which the article is firmly and securely held in position between the base 28 and the end panel 30.

If it be desired, the article to be packed or enclosed within the embodiment disclosed in Fig. 5 of the drawings may be placed, mounted or secured upon the end panel 30, the end panel 28 being placed on the top of the article, after which the mat 25, in an inverted position from that disclosed in Fig. 5 of the drawings, may then be wrapped around, or if assembled, be placed over the article. In this assembly the edges of the slats 29 are engaged by the cleats 26 of the mat, and after this mat is forced into contact with the article to be packed, or the packing therefor, nails or other securing means may be driven through band members 27 and the end panel 30, or if desired other means may be used for securing this end to the mat for providing a finished compression pack or container in which the article is firmly held therein.

In Fig. 6 of the drawings is disclosed another embodiment of the invention, the same being shown as of a similar construction to the embodiment of Figs. 1 and 2 of the drawings. This embodiment comprises a box assembly 31 having an assembled foldable mat to provide the side walls for the box or container, and to which is secured a top between the upper cleats thereof. This box assembly 31 is provided with lower band members 32 which are adapted to fit around a base 33 of any desired construction, and to be secured by means of nails, or the like thereto. In order to provide a "compression pack," cleats 34 are provided intermediate the upper and lower ends of the sides of the foldable mat, these cleats being adapted to engage with cross members, such as 35 and 36, these cross members 35 being adapted to contact with and rest upon the article enclosed within the assembly and as shown in dotted line. When this box assembly 31 is placed over the article these cleats 34 are in a position so that when a force is applied to the top of the same, the engagement of the cleats 34 with the cross members securely holds the article between the cross members and the base 33, when the band members 32 are secured to the same. These cross members may be secured together, if desired to provide a frame adapted to be placed over or engage with the article within the box or container. In this embodiment of the invention, the article to be packed is supported and held firmly in position between the cross members, such as 35 and 36, and the base 33, the upper part of the article projecting within the confined space above the cross members, such as 35 and

36, and between the same and the top panel of the box assembly 31.

Fig. 7 of the drawings discloses still another embodiment of the present invention. The construction of this embodiment is similar to that disclosed in Fig. 5 of the drawings, and comprises a box assembly 37 having a foldable mat 38 to provide the side walls of the box construction. This foldable mat, similar to the foldable mat of Fig. 5 of the drawings is provided with lower cleats 39 adapted to engage the overlapping edge or end of members of a base 40, and for supporting the base thereon.

Band members 41 are further provided at the upper end of the sides. As in the embodiment disclosed in Fig. 6 of the drawings, cleats 42 are provided intermediate the cleats 39 and band members 41, and are adapted, when the mat 38 is folded about the base 40 and the article to be packed, to engage the ends of cross members 43 and 44, the members 43 adapted to contact and engage with certain portions of the article shown in dotted lines. Furthermore, should the article have projecting parts or portions, these cleats may be positioned so as to engage therewith for holding the article firmly between the same and the top panel. It will be seen that the cleats 39 will engage with the overlapping portions of the base 40, while the cleats 42 will engage with the ends of the members 43 and 44. When the mat 38 has been folded and assembled, a top 45 of a similar construction to the top 30 of Fig. 5 of the drawings, is inserted or placed within the end of the assembly 37 and between the band members 41. This top 45 is then forced into contact with the article or the packing therearound, and the same is secured, by means of nails or the like, to the band members 41, when the same is in this position. This provides a "compression pack" in which the article is positioned and held firmly in place between the top panel 45 and the cross members 43 and 44 and in which there is a clearance provided between the lower part of the article and the base. This type of construction is particularly adapted for packing articles having pedestals, legs, or the like and when it is desired to transfer and transmit the weight thereof to the sides of the container. A still further embodiment of the present invention is disclosed in Fig. 8 of the drawings and comprises a foldable mat assembly 46 having upper and lower band members 47 and 48, respectively, as well as intermediate band members 49. In this embodiment, the article to be packed may be placed, mounted, or otherwise secured to the base 50 which is slidable within the band members 48 and may be secured thereto in any desired manner, while a similar top panel 51 adapted to slidably fit within the bands 47 is provided and is adapted to be secured thereto in any desired way. Cross members 52 and 53, which may, if desired, be secured or attached together, are likewise provided, these members or pieces being adapted to contact with parts or portions of the article to be packed, or the packing therefor, and to slidably fit within or between the band members 49. These cross members may be forced into contact with the article or portions thereof, and when in that position be secured by any suitable means to the band members 49. The top panel 51 may likewise be secured to the band members 47 when the same is in contact with the top of the article, or the packing therefor, in order to firmly hold or position the same within the container or box assembly.

In the embodiments illustrative of the present novel compression packs, it is of course understood that either one or both of the end panels may slidably fit within the box assembly, as like-
 5 wise any number of intermediate band members or cleats may be used for providing a compression pack for adequately and firmly positioning the article within the container.

While we have herein described and upon the
 10 drawings shown illustrative embodiments of the invention, it is to be understood that the invention is not limited thereto, but may comprehend other constructions, arrangements of parts, details and features without departing from the
 15 spirit of the invention.

Having thus disclosed the invention,

We claim:

1. A wire-bound box construction comprising an assembly of panelled sides, means carried by
 20 said sides for supporting an end for said box, and a panel for the other end of said box and slidable within said sides whereby to provide longitudinal adjustment thereof to accommodate articles of
 25 varying heights, and means for securing said end in any of its adjustable positions to said sides.

2. A wire-bound box construction for packing articles, comprising a base for support of said article, and an assembly of panelled sides and an
 30 end, said assembly adapted to enclose said article and to slidably engage with said base whereby to permit longitudinal adjustment thereof, and means for securing said base to said sides.

3. A wire bound container comprising a pre-folded mat having panelled sides, an end panel
 35 secured to an end of said sides, and another end panel slidably fitting within the sides whereby to permit longitudinal adjustment thereof, and means for securing said slidable end panel to
 40 said sides.

4. A wire bound container comprising a pre-folded mat having panelled sides, said sides being
 45 provided with cleats at an end thereof, an end panel for said container and engaging with said cleats, and another end panel slidably fitting within and at the other end of said sides and
 50 adapted to be adjusted longitudinally thereof, and means for securing said end to said sides.

5. A wire bound container comprising a foldable mat having panelled sides, said sides being
 55 provided with cleats at an end thereof, an end panel for said container and engaging with said cleats, band members at the other end of said sides, and another end panel slidably fitting within
 60 said members whereby to provide longitudinal adjustment thereof to accommodate articles of varying heights, and means for securing said end panel to said members.

6. A wire bound container for packing articles, comprising a base for support of said article, a
 65 folded mat having panels assembled to form the sides of said container, cleats at the end of each of said sides, a top adapted to be supported by and fitting within said cleats, band members at
 70 the other end of said sides, said members being assembled and fitted around and over said base and secured thereto for enclosing said article.

7. A wire bound container having a foldable mat to provide the side walls therefor, cleats at
 75 the lower end of said walls, an end panel for said box and adapted to be supported by said cleats, said panel providing a base for an article to be packed, band members at the other end of said sides, and another end panel slidable within said members whereby to permit longitudinal adjustment thereof to accommodate articles of varying

heights, and means for securing said end panel to said members.

8. A wire bound container having a foldable mat to provide the side walls therefor, cleats at
 80 the lower end of said walls, an end panel for said box and adapted to be supported by said cleats, said panel providing a base for an article to be packed, band members at the other end of said sides, and another end panel longitudinally slid-
 85 able within said members and adapted to contact with said packed article, and means for securing said end panel to said members when in contact with said article to prevent displacement of the same in said container.

9. A wire bound container comprising a foldable mat having panelled sides, said sides being
 90 provided with band members at the ends thereof, end panels longitudinally slidable and adapted to contact within said members, and means for securing said panels in any of their adjusted positions.
 95

10. The method of packing articles for shipment in a standardized crate construction adapted to receive and securely pack articles even
 100 though they may vary in their dimensions, comprising providing a crate assembled with wire bound sides, an end secured thereto and a band
 105 cleat of substantial width, mounting the article upon a base, placing the crate assembly over said article and base, and adjusting said base relative to said sides whereby to compensate for the difference in dimension of said article, and securing
 110 said sides to the base by passing fastening means through the band cleat into the edges of the base.

11. The method of packing articles for shipment, comprising the steps of forming a wire
 115 bound crate with an end panel and sides, providing an adjustable end panel for the open side, and adjusting said end panel to vary the capacity of the crate whereby to compress and retain the packed articles.

12. A wirebound container for packing articles, comprising wirebound sections consisting of thin
 120 material reinforced with binding wire, staples and cleats, one or more of said cleats of each section being of substantial width, so that when the sections are folded into assembled relation there is provided an internal band cleat of substantial
 125 width extending around the interior of the assembly substantially parallel to the binding wire, a member for supporting the article to be packed, said supporting member having its outer edges
 130 positioned adjacent the band cleat, and fastening means extending through the band cleat and into the supporting member.

13. A wirebound container for packing articles, comprising wirebound sections consisting of thin
 135 material reinforced with binding wire, staples and cleats, one or more of said cleats being of substantial width, so that when the sections are folded into assembled relation there are provided on the inner face of one or more of said sections
 140 a band cleat of substantial width substantially parallel to the binding wire, a member for supporting the article to be packed, said supporting member having its edge positioned adjacent the band cleat, and fastening means extending
 145 through the band cleat and into the supporting member.

14. A wirebound container for packing articles, comprising a base for support of said article, a
 150 preformed wirebound assembly consisting of sections of thin material reinforced with binding wire, staples and cleats, one or more of said cleats of each section being of substantial width, so that when the sections are folded into assembled rela-

tion there is provided an internal band cleat of substantial width extending around the interior of the assembly substantially parallel to the binding wire, and an end for said assembly, said assembly being placed over said article to enclose the same with the band cleat fitting around said base, and fastening means extending through the band cleat and into the base.

15. A wirebound container for packing articles, comprising wirebound sections consisting of thin material reinforced with binding wire, staples and cleats, one or more of said cleats of each section being of substantial width, so that when the sections are folded into assembled relation there is provided an internal band cleat of substantial width extending around the interior of the assembly substantially parallel to the binding wire, a pair of spaced supporting members between which the article is snugly held against longitudinal movement within the container, one of said supporting members being stationary and the other being slidable in the container and between the band cleats toward and away from the stationary member whereby it may be adjusted to accommodate articles of varying dimensions, and fastening means for securing the slidable member to the band cleat in any of its positions of adjustment.

16. The method of packing articles for shipment in a wirebound container comprising thin material reinforced with binding wire, staples and cleats, and having on its inner surface a band cleat of substantial width, mounting the article to be packed upon a supporting member, placing the container assembly over the article and supporting member and pressing on the container to cause the article to be snugly held between the supporting member and opposite end of the con-

tainer, and then fastening the band cleat to the edge of the supporting member.

17. The method of packing articles in a wirebound container formed of thin material, and having a band cleat of substantial width extending around its interior, which consists in mounting the article upon a supporting member, placing the container over the article, adjusting the container with relation to the article to cause the latter to be snugly held between the support and the opposite end of the container, and securing the band cleat to the edge of the support in such adjusted position.

18. A wirebound container for packing articles, comprising a base on which to mount an article to be packed, a shell-like member consisting of thin material reinforced with binding wire, staples and cleats, said shell-like member being adapted to be slid over said base, the lower inside cleat having such width as to permit adjustability therein of the base, and fastening means securing said lower inside cleat to the edges of said base to securely hold the base in adjusted position in the shell-like member.

19. A wirebound container for packing articles, comprising a supporting member on which to mount an article to be packed, a shell-like member consisting of thin material reinforced with binding wire, staples and cleats, said shell-like member being adapted to slidably receive said supporting member and having an inside cleat of such width as to permit adjustability therein of the supporting member, and fastening means securing said inside cleat to the edges of said supporting member to securely hold the latter in adjusted position in the shell-like member.

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