May 23, 1933. H. C. WAY 1,910,781

PACKAGING OR CRATING STRUCTURE

Filed March 5, 1931

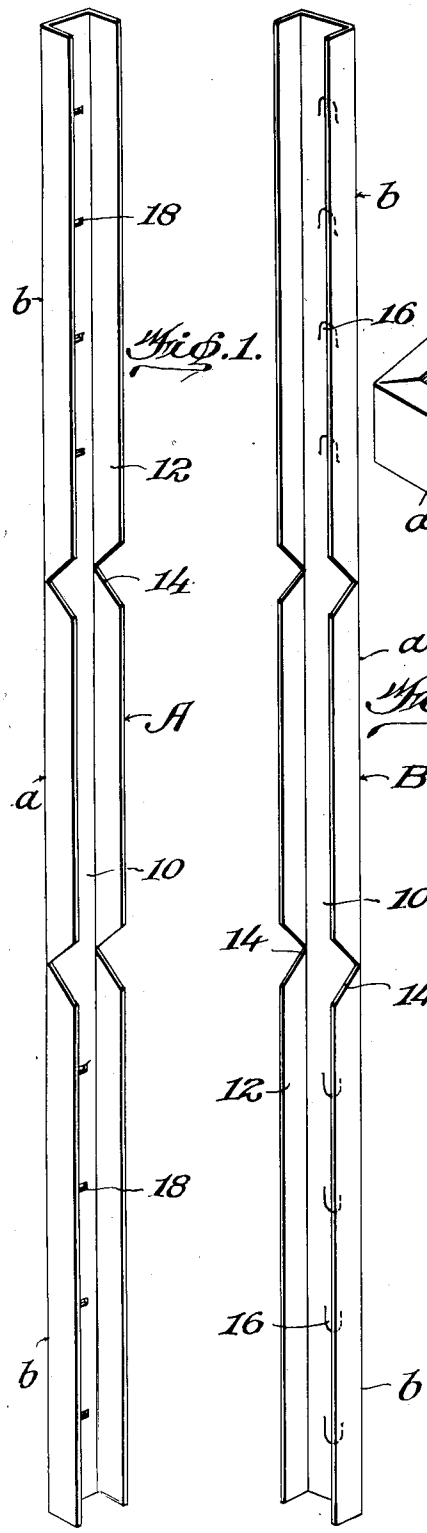


Fig. 1.

Fig. 2.

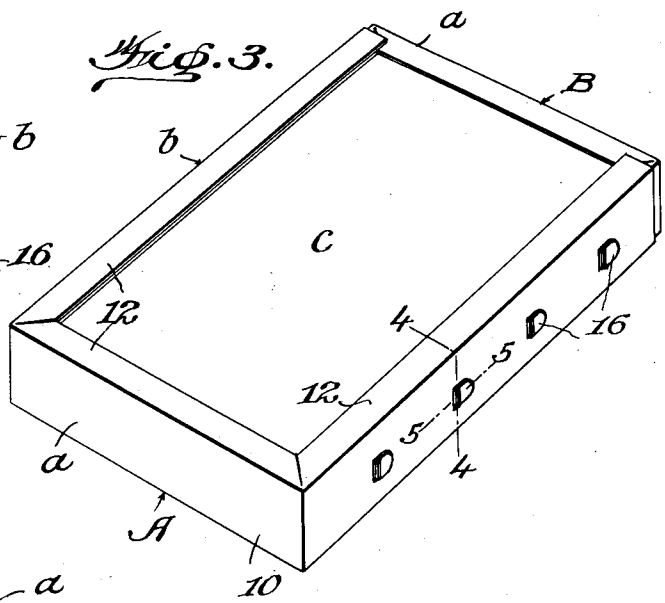


Fig. 3.

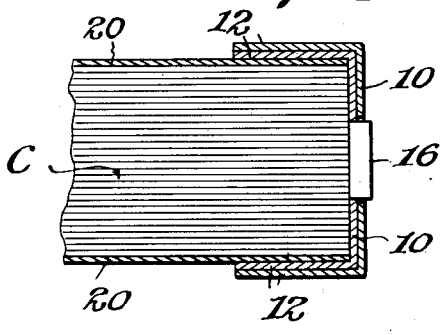


Fig. 4.

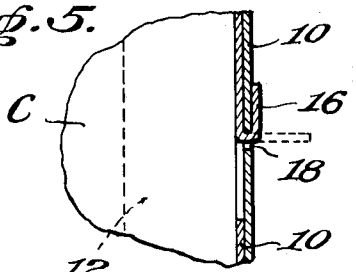


Fig. 5.

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UNITED STATES PATENT OFFICE

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PACKAGING OR CRATING STRUCTURE

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My present invention relates to the packaging of articles for transportation, storage and the like, and my purpose, generally speaking, is to provide a simple, inexpensive crating structure by means of which articles may be packaged or crated in a thoroughly efficient compact manner expeditiously and at relatively low cost.

With the foregoing and other purposes in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the drawing, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a perspective view of one of the elements of my improved packaging or crating structure.

Figure 2 is a similar view of the other element of said structure.

Figure 3 is a perspective view of a package or crate formed by means of the elements illustrated in Figures 1 and 2.

Figure 4 is a cross section on the line 4—4 of Figure 3; and

Figure 5 is a section on the line 5—5 of Figure 3.

Referring to the drawing in detail, it will be observed that my improved packaging or crating structure consists essentially of a pair of cooperating frame elements designated as A and B, respectively, which are rolled, pressed or otherwise formed from sheet metal into channel or U-shaped cross section and which may be of any dimensions desired, depending, of course, upon the nature of the articles to be packaged or crated.

Each frame element is inclusive of a side wall 10 and a pair of lateral flanges 12, 12, and in accordance with the invention one of said elements is formed of such cross sectional size as to fit snugly within the other.

For convenience in forming, storing and shipping the frame elements the same preferably are formed initially straight as illustrated in Figures 1 and 2, and the lateral flanges 12, 12 thereof are notched as indicated at 14 whereby the elements are adapted to be bent into shape for use at the place where the packaging or crating is to be effected. That is to say, the elements A and B are adapted to be bent into U-shape as illustrated in Figure 3, each to embrace an end and two sides of a number of articles C to be packaged or crated, and to this end the flanges 12, 12 of each frame element are notched as indicated at points suitably spaced to divide each frame element into a medial section *a* and two outer sections *b*, *b*, whereby the latter sections are readily adapted to be bent at right angles to the section *a* and parallel to each other with the flanges 12, 12 directed inwardly.

The frame elements A and B preferably are formed of a length and are notched at points such that when the same are bent into U-shape the sections *a* substantially equal the width of the articles C to be packaged or crated, and the sections *b*, *b* substantially equal the length of the articles, and, as is of course understood, the distance between the flanges 12, 12 is predetermined to substantially equal the height of the articles C.

As heretofore stated, one of the frame elements is formed of slightly less cross sectional size than the other so as to fit within the latter frame element, and in accordance with the invention the side wall 10 of the first mentioned or smaller frame element is provided at any desired number of points spaced along each of the sections *b*, *b* thereof with U-shaped slits forming tongues 16 which are adapted to be bent outward from said wall. On the other hand, the side wall 10 of the second mentioned or larger frame element is provided at points spaced along each of the sections *b*, *b* thereof with slots 18 to receive the tongues 16.

To effect packaging or crating of articles by means of a pair of the frame elements A and B constructed as described, the tongues 16 of the smaller frame element are bent to extend outward from the sections *b*, *b*, the said sections are bent at right angles to the section *a* to impart the aforesaid U-shape to

the frame element, and the same then is applied to the articles C with the section *a* disposed at one end of the articles, the sections *b*, *b* disposed at the sides of the articles, and with the flanges 12, 12 extending inwardly in overlying relation to the marginal top and bottom portions of the articles. The larger frame element then is bent into U-shape and applied to the articles in like manner with the section *a* thereof disposed at the opposite end of the articles and with the sections *b*, *b* thereof receiving and embracing the corresponding sections of the smaller frame element and with the tongues 16 of the smaller frame element extending through the slots 18 of the outer frame element. Finally, said tongues are bent over against the outer face of the side wall 10 of the outer frame element with the manifest result that the two frame elements are locked together one in embracing relation to the other and both in embracing relation to the articles C, whereby the latter are securely and effectively held in a packaged or crated relation.

By reason of forming the sections *b*, *b* of the respective frame elements to approximate the length of the crate or package, much greater strength and rigidity is imparted to the latter than would be afforded in the event the said sections *b*, *b* had only a relatively short amount of overlap at their ends, although the latter arrangement may be employed if desired. Moreover, by the use of a plurality of tongues 16 to connect each related pair of the sections *b*, *b* the strength and rigidity of the structure is increased over the employment of only a single tongue to connect each pair of said sections, and the provision of plural tongues and slots furthermore affords the very material advantage of permitting any given pair of the frame elements to be used for packaging or crating articles which may be of various lengths, since any one or more of the tongues may be engaged with different of the slots whereby the effective length of the crating structure may thus readily be increased or decreased.

Depending upon the nature of the articles C to be packaged or crated, the height of the side walls 10 and the width of the flanges 12, 12 of the frame elements may be varied within relatively wide limits, and as will be understood, of course, the use of protective sheets of stiff paper, cardboard or the like, as indicated at 20 in Figure 4, to cover the exposed faces of the articles and to be confined at their margins between the articles and the flanges 12, 12 is, in any particular instance, optional.

A package or crate formed by means of a pair of the present frame elements occupies only slightly more space than the articles composing the package or crate, the package or crate is capable of being formed readily and easily in an exceptionally short space of time, and is equally as readily and easily capable of being disassembled, the package or crate is strong and durable and fully capable of withstanding rough handling, and the frame elements serve effectively to protect the corners and edges of the packed or crated articles against damage.

From the foregoing description considered in connection with the accompanying drawings it is believed that the construction, manner of using and the advantages of my invention will be readily understood. It is desired to point out, however, that while only a single specific embodiment of my invention has been illustrated and described, the same is capable of embodiment in specifically different structural arrangements within the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. A structure for packaging or crating articles comprising a pair of U-shaped frame elements of inwardly opening U-shaped cross section each adapted to embrace an end and two sides of the articles to be packaged or crated, each frame element being inclusive of side sections and the side sections of one of said elements being formed to receive the side sections of the other of said elements in nested relation, the side sections of one of said elements each having a slot and the side sections of the other of said elements each having a tongue to be engaged through the slots of the other element, respectively, and to be bent over against the outer faces of the slotted sections of the first mentioned element to lock the frame elements in assembly with each other.

2. A structure for packaging or crating articles comprising a pair of U-shaped frame elements of inwardly opening U-shaped cross section each adapted to embrace an end and two sides of the articles to be packaged or crated, each frame element being inclusive of side sections and the side sections of one of said elements being formed to receive the side sections of the other of said elements in nested relation, the side sections of one of said elements each having a plurality of slots spaced therealong and the side sections of the other of said elements each having a plurality of tongues spaced therealong for selective engagement through the slots of the first mentioned element to adapt the elements to be locked in assembly with each other in embracing engagement with articles of different lengths.

3. A structure for packaging or crating articles comprising a pair of U-shaped frame elements of inwardly opening U-shaped cross section each adapted to embrace an end and two sides of the articles to be packaged or crated, each frame element being inclusive of side sections and the side sections of one of said elements being formed to receive the side sections of the other of said elements in nest-

ed relation, the side sections of one of said elements each having a slot and the side sections of the other of said elements each having a tongue to be engaged through the slots of the other element, respectively, and to be bent over against the outer faces of the slotted sections of the first mentioned element to lock the frame elements in assembly with each other, said frame elements each being formed initially straight and being notched to facilitate bending of the same into U-shape.

4. A structure for packaging or crating articles comprising a pair of straight channel elements each inclusive of a side wall and a pair of lateral flanges extending therefrom, one of said channel elements being formed of a cross sectional size for nested relation within the other, the lateral flanges of each frame element being notched to divide each frame element into a medial section and a pair of outer sections adapted to be bent at right angles to the medial section with the flanges of the sections directed inwardly, each outer section of the larger frame element having a plurality of slots in the side wall thereof, and each outer section of the smaller frame element having a plurality of integral tongue formations to be passed through said slots and to be bent over against the outer faces of the slotted sections to lock the frame elements in assembly with each other.

5. A structure for packaging or crating articles comprising a pair of U-shaped frame elements of inwardly opening U-shaped cross section each adapted to embrace an end and two sides of the articles to be packaged or crated, each frame element being inclusive of side sections and the side sections of one of said elements being formed to receive the side sections of the other of said elements in nested relation, and means for fastening the side sections of the respective frame elements together.

6. A structure for packaging or crating articles comprising a pair of U-shaped frame elements of inwardly opening U-shaped cross section, each to embrace an end and two sides of the articles to be packaged or crated, each frame element being inclusive of side sections and the side sections of one of said elements being formed to receive the side sections of the other of said elements in nested relation for sliding adjustments, and cooperating fastening formations on the side sections of said elements operable to fasten the same together in different relatively adjusted positions thereof.

In testimony whereof I hereunto affix my signature.

HARRY C. WAY.