H. B. COLLINS.

BOX, CRATE, AND LIKE CONSTRUCTION.

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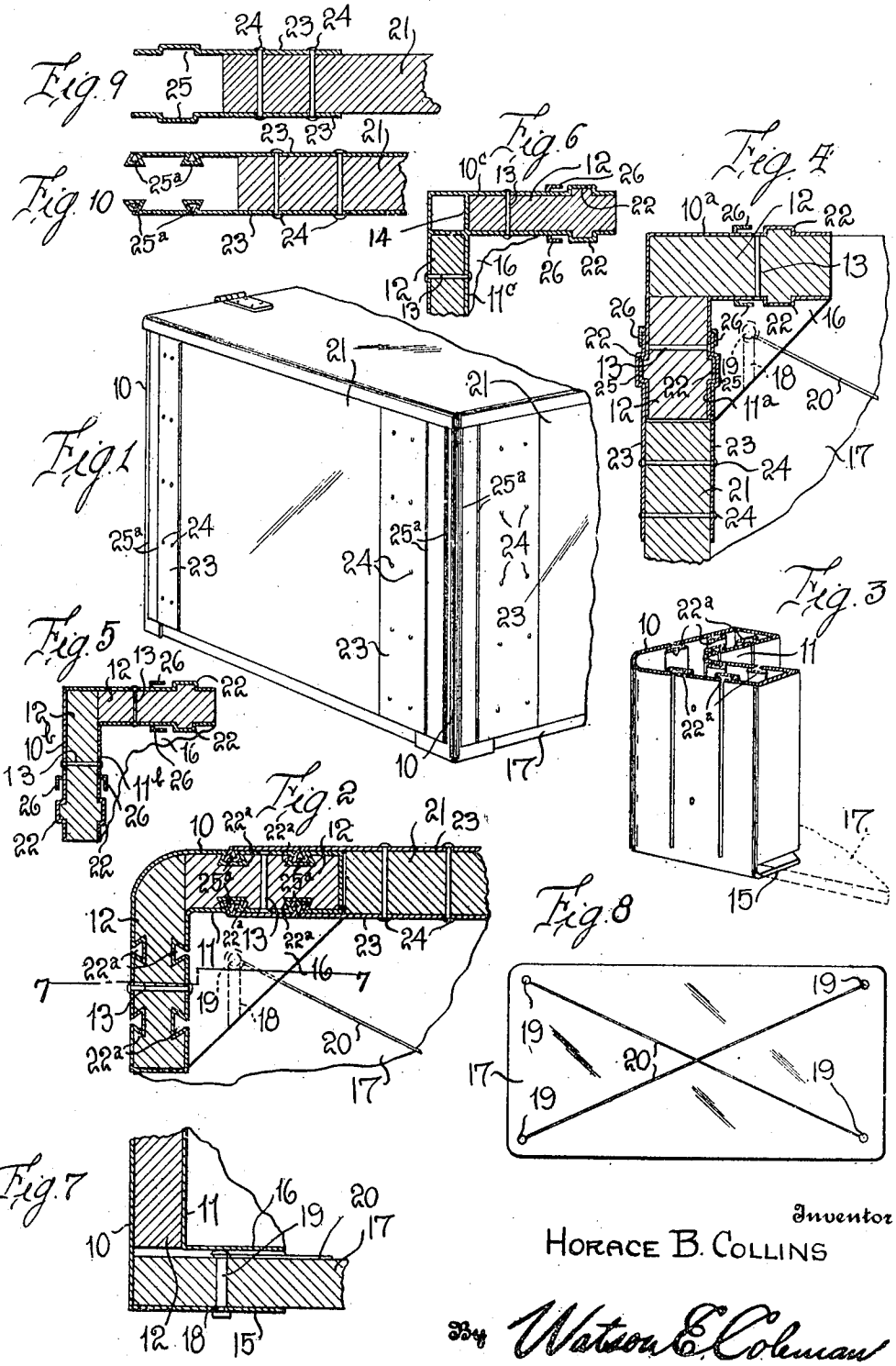

Inventor

HORACE B. COLLINS

By Watson E. Coleman

Attorney

UNITED STATES PATENT OFFICE.

HORACE B. COLLINS, OF OKLAHOMA, OKLAHOMA.

BOX, CRATE, AND LIKE CONSTRUCTION.

1,256,202. Specification of Letters Patent. Patented Feb. 12, 1918.

Application filed March 6, 1917. Serial No. 152,854.

To all whom it may concern:

Be it known that I, HORACE B. COLLINS, a citizen of the United States, residing at Oklahoma, in the county of Oklahoma and State of Oklahoma, have invented certain new and useful Improvements in Boxes, Crates, and like Constructions, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to the construction of boxes, crates, or like structures, wherein corner pieces are used so constructed that the sides, bottom and top of the crate may be readily connected thereto or disconnected therefrom so that the box, crate, or like article, may be readily shipped in a knock-down or disassembled condition and then be put together when it is desired to use.

One object of the invention is to provide improved means for connecting the sides of the box or crate to the corner pieces and in this connection to do away with the necessity of grooving the side walls of the box for insertion within and engagement with the corner pieces which grooving of the side pieces is a relatively expensive operation.

A further object in this connection is to provide the side walls of the box, crate, trunk, or like article, with projecting sheet metal strips at the ends adapted to fit over and have interlocking engagement with the corner pieces.

A further object of the invention is to so construct the corner pieces that they may be made of tubular material pressed out into proper shape to form the corner pieces;

And another object of this invention is to provide corner pieces of sheet metal, pressed or otherwise constructed, and reinforced by the insertion of filling blocks of wood or other material whereby to make the corner pieces light in weight and provide for their easy manufacture.

Still another object is to provide improved means for engaging the bottom of the box with corner pieces and to provide means for reinforcing the bottom of the box.

Other objects will appear in the course of the following description.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a fragmentary perspective view of a box or chest constructed in accordance with my invention;

Fig. 2 is a horizontal sectional view through one of the corner pieces and a portion of the side wall of the box;

Fig. 3 is a perspective view of the corner piece shown in Fig. 2;

Fig. 4 is a fragmentary section on the same lines as Fig. 2, but showing a modified form of corner piece and side piece interlocked;

Fig. 5 is a fragmentary sectional view through a corner piece of a modified form;

Fig. 6 is a fragmentary horizontal sectional view through another modified form of corner piece;

Fig. 7 is a fragmentary vertical sectional view on the line 7—7 of Fig. 2;

Fig. 8 is a plan view of the bottom of the box;

Figs. 9 and 10 are fragmentary sectional views through the side walls of the box showing modified forms of interlocking means.

Referring to the drawings, it will be seen that the box comprises side members, a bottom member and corner pieces connecting the side members with each other and with the bottom member. Referring to Figs. 2 to 6 it will be seen that the corner piece which is used in all four forms of the box comprises an outer transversely angular sheet or web of metal and an inner transversely angular web of metal disposed in spaced relation to the outer web. These corner pieces may be formed in a variety of ways. In Figs. 2 and 3 I have shown a corner piece in which the outer and inner walls 10 and 11 are integrally connected at the ends so that these corner pieces may be formed of a metallic tube of thin metal which has been pressed into the transversely angular shape required. These webs 10 and 11 are held spaced from each other by reinforcing blocks designated 12, held in place as by bolts or rivets 13.

In Fig. 4 I show a construction wherein the corner piece is formed of an outer web 10^a and an inner web 11^a of two separate pieces of material spaced from each other by blocks 12 and held to the blocks by rivets or bolts 13. In Fig. 5, I show another construction wherein the outer web of the corner piece 10^b is composed of two separate pieces of material and the inner web 11^b is also composed of two separate pieces of material, these four separate pieces of material being held in proper angular relation to

each other by the reinforcing blocks 12 and the rivets or bolts 13. In Fig. 6 the outer web 10^c and the inner web 11^c are of relatively thin metal integrally connected to each other at different points by integral webs 14, the thin metal however being reinforced and strengthened by the inserted blocks 12 held in place by the rivets or bolts 13.

The outer web of each corner piece in all of the figures extends down below the inner web of the corner piece. This is illustrated in Fig. 7 where the outer web 10 extends down below the lower end of the web 11 and is angularly bent to provide an end web 15 which is in spaced relation to the lower end of the web 11, this lower end of the web 11 being also formed with an inwardly turned or extended end web 16 parallel to the web 15. Thus a triangular socket is formed for the reception of the bottom board 17 of the trunk, case or box. Preferably the web 15 is formed with a slot 18 extending inward from the hypotenuse of the triangular web, which extends inward parallel to one wall of the box or case, and the bottom 17 is formed adjacent each corner with a pin 19 which engages in the corresponding slot 18 of the corner piece, thus locking the corner pieces to the bottom. Preferably, and for the purpose of stiffening and strengthening the bottom of the box, I provide strips or wires 20 which are crossed diagonally over the bottom of the box, stretched tightly and attached to the bolts or pins 19.

In order to connect the side walls 21 of the box to the corner pieces, I provide the corner pieces with interlocking tongues or interlocking grooves and provide the side walls 21 with metallic strips attached thereto, which project out beyond the edges of the side walls and which are formed with interlocking tongues or interlocking grooves to coact with the tongues or grooves on the corner pieces. In Fig. 4, I show the corner piece with its side walls outwardly deflected to form vertically extending tongues 22 and I show the side wall 21 as provided with the metallic webs 23 which are attached to the side walls as by means of bolts 24 or other suitable fastenings and which extend beyond the edges of the side walls 21, these extending portions being formed to provide vertically extending grooves 25 which are adapted to receive the projecting tongues 22 in a manner which will be clearly evident from Fig. 4. It will thus be seen that the side walls of the box may be readily engaged with the corner pieces by either springing them over the corner pieces or by sliding engagement therewith. Preferably, though not necessarily, the corners are formed with the return flanges 26 adapted to receive and extend over the edges of the webs 23.

While I have illustrated in Fig. 4 the corner pieces as provided with outwardly projecting tongues 22 which are rectangular in cross section, it will be obvious that these tongues and the grooves 25 might have other forms in cross section than that illustrated. In Fig. 2 I have illustrated a modified form of the interlock between the side and end walls of the box and the corner pieces and in this form the corner pieces are formed, not with outwardly projecting tongues 22, but with inwardly projecting portions 22^a, these inwardly projecting portions defining triangular or dove-tailed grooves extending inward from the front faces of the corner pieces and coacting with these corner pieces are the side pieces or boards 21 provided with the metallic webs 23, these webs however being formed with inwardly projecting triangular or dove-tailed beads or tongues 25^a which are adapted to have interlocking engagement with the grooves 22^a and which are adapted to be interlocked with each other by sliding engagement.

It will be seen that I have so changed the construction illustrated in my Patent No. 1,189,542, granted July 4, 1916, that I have very much cheapened the cost of construction. I have secured a more rigid engagement between the bottom of the box and the corner pieces than in my before mentioned patent and am enabled to make the corner pieces of as thin a material as possible with the construction illustrated in said patent and have so constructed these corner pieces that they may be pressed out of a cylinder or tube of metal. This was not possible to do with the construction illustrated in my prior patent, as in that prior construction the outer and inner webs of the corner pieces had to be opened at the side edges in order to receive the ends of the side and end pieces of the box. This necessity is done away with by the construction which I have described.

Having described my invention, what I claim is:—

1. As an article of manufacture, a corner stay for crates, boxes, and like constructions, having transversely angular outer and inner spaced webs, the outer web at the lower end extending below the inner web, both of said webs having end webs spaced from each other to form a socket for the reception of a bottom piece, one of said inwardly extending end webs having a slot extending at right angles to one wall of the web and parallel to the other wall thereof.

2. As an article of manufacture, a corner stay for crates, boxes, and like constructions, having transversely angular outer and inner spaced webs, the outer web at the lower end extending below the inner web, both of said webs having end webs spaced from each other to form a socket for the reception of

a bottom piece, one of said inwardly extending end webs having a slot extending at right angles to one wall of the web and parallel to the other wall thereof, and a bottom piece having a member projecting from its face and engaging with said slot.

3. As an article of manufacture, a corner stay for crates, boxes, and like constructions, having transversely angular outer and inner spaced webs, the outer web at one end extending beyond the inner web, both of said webs having inwardly turned end webs spaced from each other to form a socket for the reception of a bottom piece, the outermost inwardly turned end web having a slot extending at right angles to the stay and parallel to the other wall thereof, and a pin projecting from its space and connecting with said slot.

4. As an article of manufacture, a corner stay for crates, boxes, and like constructions, having transversely angular outer and inner spaced webs, the outer web at the lower end extending below the inner web, both of said webs having end webs spaced from each other to form a socket for the reception of a bottom piece, one of said inwardly extending end webs having a slot extending at right angles to one wall of the web and parallel to the other wall thereof, a bottom piece having a member projecting from its face and engaging with said slot, and side walls having interlocking engagement with the outer and inner webs.

5. In a crate, box or like construction, a stay and a side wall coacting with the stay, the side wall having attached to it spaced metallic webs projecting beyond the edge of the side wall and adapted to receive the margin of the stay, the stay and said wall being formed with interlocking corrugations and the stay being formed to hold the metallic webs from lateral outward movement away from the stay.

6. In a crate, box, or like construction, an angular corner stay having vertically extending corrugations or tongues on its outer face, the side wall having attached thereto spaced metallic webs projecting beyond the edge of the side wall and confronting the outer faces of the stay and formed with corrugations interlocking with the corrugations of the corner stay.

7. In a crate, box, or like construction, an angular corner stay, a side wall coacting with the stay, the side wall having spaced metallic webs attached thereto and projecting beyond the edge of the side wall to receive one margin of the corner stay between them, the corner stay and side webs being formed with vertically extending dove-tailed recesses and the other one with vertically extending dove-tailed tongues engaging in the said recesses and interlocking therewith.

8. A corner stay for crates, boxes, or like constructions, said stay being angular in form and having vertical side walls and vertical end walls, the outer faces of the side walls being formed with vertically extending corrugations in combination with side pieces for the crate each having spaced webs attached thereto and projecting beyond the edge of the side piece and embracing the corner stay and confronting the outer faces of the stay, said webs being formed with corrugations adapted to interlock with corrugations on the corner stay.

9. In a box, crate, or like construction, corner stays angular in cross section and formed to provide sockets at their ends extending at right angles to the length of the corner stays, one of the walls of each socket being formed with a slot, side walls having interlocking engagement with the stay and a bottom wall having pins adjacent its corners adapted to engage in the slots of the socket walls and interlock therewith, and reinforcing wires extending across the bottom board and attached to said pins.

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

HORACE B. COLLINS.

Witnesses:
ED. S. VAUGHT,
C. V. RUDGOST.