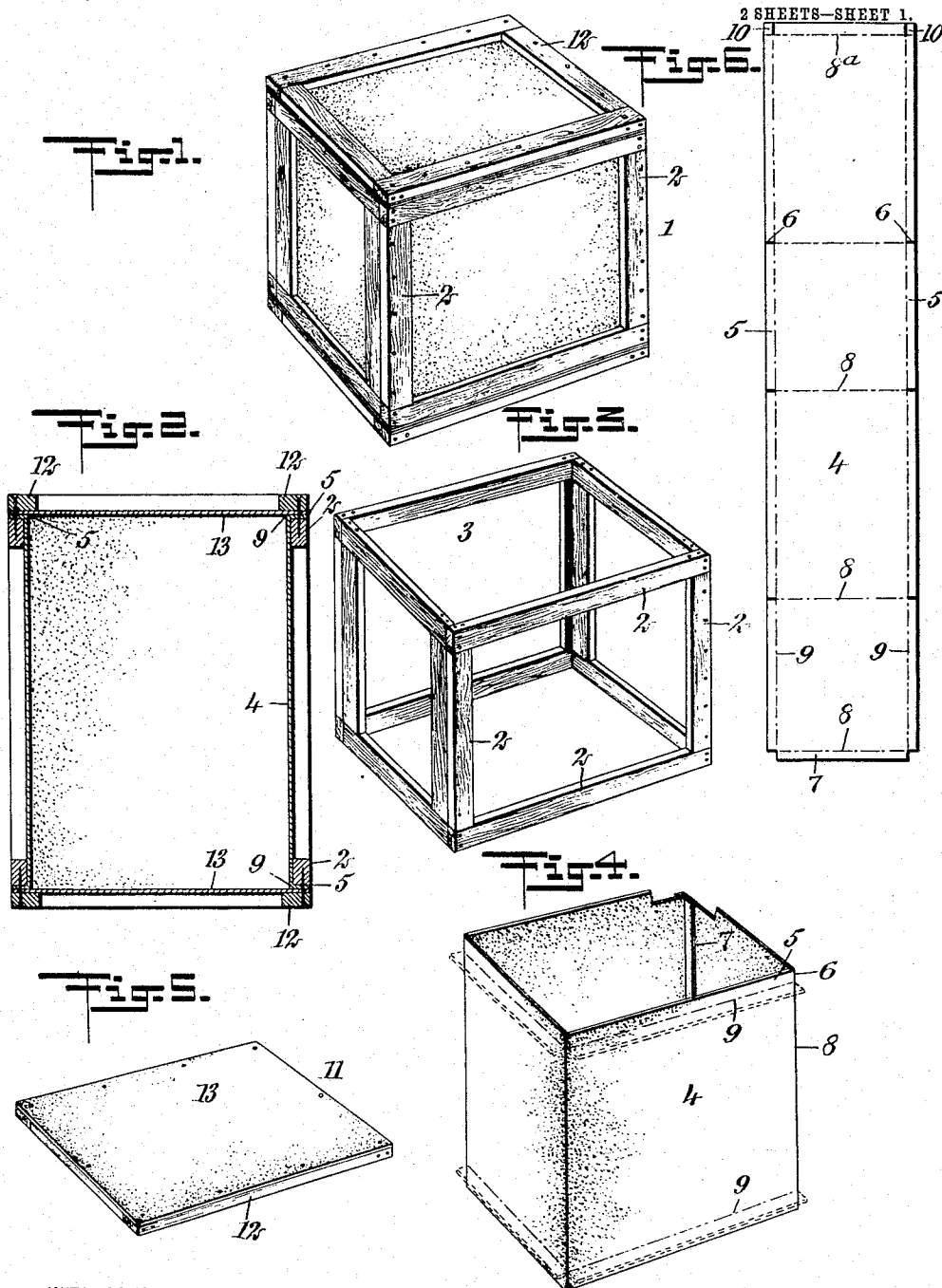


W. L. HOWLAND.
KNOCKDOWN BOX.
APPLICATION FILED DEC. 16, 1908.

939,026.

Patented Nov. 2, 1909.

2 SHEETS—SHEET 1.



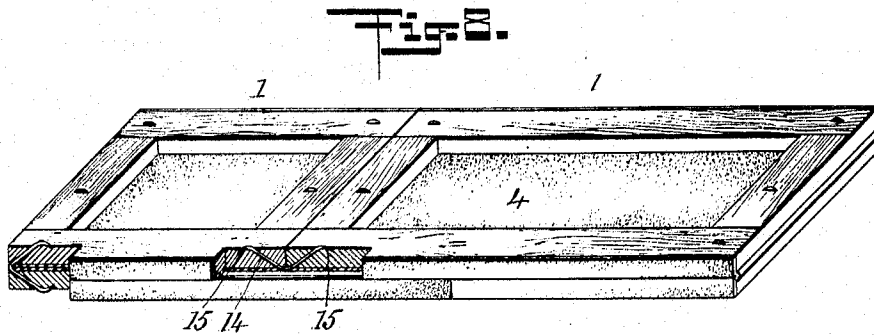
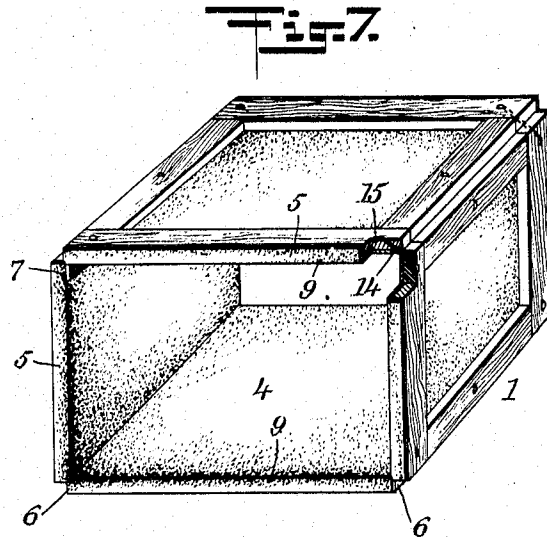
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UNITED STATES PATENT OFFICE.

WILLIAM L. HOWLAND, OF CEDAR RAPIDS, IOWA.

KNOCKDOWN BOX.

939,026.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed December 16, 1908. Serial No. 467,744.

To all whom it may concern:

Be it known that I, WILLIAM L. HOWLAND, a citizen of the United States, and a resident of Cedar Rapids, in the county of Linn and State of Iowa, have invented a new and Improved Knockdown Box, of which the following is a full, clear, and exact description.

My invention relates to boxes, and it has for its object to provide a hollow box frame, open at the top and bottom, close around the inner sides of which is disposed a continuous piece of material, the material projecting beyond the top and bottom of the frame and having its projecting portions cut and bent down against the top and bottom of the frame, so that when the top and bottom members are secured in place, the continuous piece of material will be held close to the inner sides of the frame, while it may be readily removed by removing the top and bottom members.

Another object of the invention is to hinge the members of the frame together so that they may be folded for shipment.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, but it will be understood that I do not limit myself thereto, as I consider myself entitled to all forms and embodiments of the invention which may be held to fall within the scope of the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, in which—

Figure 1 is a perspective view of the complete box; Fig. 2 is a transverse sectional view thereof; Fig. 3 is a perspective view of the hollow frame; Fig. 4 is a perspective view of the continuous piece of material which has been folded to be inserted in the hollow frame; Fig. 5 is a perspective view of a top member; Fig. 6 is a plan view of the continuous piece of material, after it has been machined, but before it has been folded; Fig. 7 is a perspective view showing a modified form of the hollow frame, the members

of the hollow frame being hinged together; and Fig. 8 is a perspective view showing the modified construction folded for shipment.

By referring to the drawings, it will be seen that the frame of the box is composed of a plurality of side frame members 1, each of which is constructed by mortising, or otherwise securing four strips 2, together, to make a rectangular or side member 1. In the construction shown in Figs. 1, 2 and 3 of the drawings, these rectangular side members 1 are nailed together, forming a hollow frame 3, best shown in Fig. 3. In this hollow frame 3 is inserted a continuous piece of pulp board 4, which has been machined so that surfaces 5 will project above and below the hollow frame 3, and they are creased so that they may be readily bent over against the top and the bottom of the frame respectively. The projecting portions 5 of the continuous piece of pulp board 4 are also cut transversely at distances apart equal to the lengths of the side members 1, the transverse cuts 6 not extending beyond the creased portion of the projecting portions 5. The pulp board 4 is creased by machine between the cuts 6 so that it may be readily folded to be inserted in the hollow frame 3. One end of the pulp board 4 has a projecting portion 7 near a transverse crease 8 and this projecting portion 7 does not extend beyond longitudinal creases 9, beyond which the lateral projecting portions 5 extend. The other end of the pulp board 4 has longitudinal cuts 10 therein which extend to the transverse crease 8^a, this transverse crease 8^a extending to the extreme sides of the pulp board 4. When the pulp board 4 is folded as is shown in Fig. 4, to be inserted in the hollow frame 3, the projecting portions 5 are bent down and the pulp board 4 is then bent at the transverse creases 8 and 8^a, the projecting portions 7 fitting the other terminal of the pulp board up to the transverse crease 8^a and the projecting portions 5 at other sides of the cuts 10 extending along the top and bottom of the frame respectively, so that the projecting portions 5 will be disposed completely around the top and bottom of the hollow frame 3. When the continuous piece

of pulp board 4 has been inserted it is held in place by top and bottom members 11 which are shown in Fig. 5, these top and bottom members being constructed of frame strips 12 which are nailed together and to which a piece of pulp board 13 is secured. The pulp board 13 is secured to the top and bottom members 11, so that the pulp board will be disposed next against the projecting bent portions 5 of the continuous piece of pulp board 4. When the top and bottom members 11 have been nailed in place, it will be found that the pressure of the top and bottom members against the projecting portions 5 of the pulp board, holds the continuous piece of pulp board 4, which forms a lining, in place within the hollow frame 3, and when tacks or nails are used, which pass through the projecting portions 5 of the pulp board into the side frame members 1, the tacks or nails will assist in holding the continuous piece of pulp board 4 in position. As the box is constructed, it may be shipped to purchasers in a knock down form, it being merely necessary for the purchaser to tack together the side frame members 1, when the continuous piece of pulp board 4, which has already been machined, may be quickly inserted in the hollow frame 3. If in packing the box, or in its use, the pulp board should become punctured, it is unnecessary to throw away the box, as the user may quickly substitute another piece of pulp board 4, for the one which has been punctured; and in the same way the pulp board 13, forming with the frame 12, the top and bottom portions of the box, may be quickly replaced.

In order to make it more convenient for the purchaser, I have devised the modification shown in Figs. 7 and 8, in which the side frame members 1 are hinged together by means of wire 14, which connects the adjoining edges of the frame members 1, the wire having its terminals 15 bent over one within each of the adjoining side frame members. As shown in the drawings, I propose to use two wires 15 for each of the adjoining edges, but as may be readily understood, three or more of these wires may be used when the boxes are to contain heavy weights or when the box is unusually long. When these wires 14 are used, the side frame members may be secured together before they are shipped, in a knock down form, as

the side frame members may be folded together as shown in Fig. 8.

If desired, the continuous piece of pulp board 4 may be disposed in place before the side frame members 1 are folded.

The lapped ends of the continuous piece of pulp board 4 may, if desired, be fastened together with glue, or they may be stitched or riveted together.

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

1. In a knock down box, a box frame consisting of side frame members secured together at angles to each other open at the top and bottom, a continuous piece of material disposed close against the inner sides of the box frame, the sides of the piece of material projecting beyond the top and bottom of the box respectively, the projecting portions of the material being cut at the corners of the box and being bent over the top and bottom of the side frame members with the terminals of the continuous piece of material lapped over each other at one of the corners of the box, and top and bottom frame members which are secured to the top and bottom of the side frame members respectively and which hold the continuous piece of material in place against the side members with its lapped terminals bent at an angle.

2. In a knock down box, a box frame consisting of side members, wires in the side members, the wires passing obliquely from the abutting end of one side member to the abutting end of a neighboring side member, the terminals of the wires being turned at an angle to the body of the wires respectively, a continuous piece of material disposed against the inner sides of the box frame, the sides of the piece of material projecting beyond the top and bottom of the box, the projecting portions of the material being bent over the top and bottom of the side members, and top and bottom members which are secured to the top and bottom of the side members which hold the continuous piece of material in position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM L. HOWLAND.

Witnesses:

RAY C. FOLSOM,
J. M. PETTIT.