

C. E. WRENSHALL.
 FOLDING BOX.
 APPLICATION FILED MAY 31, 1907.

Patented June 8, 1909.

3 SHEETS—SHEET 1.

924,410.

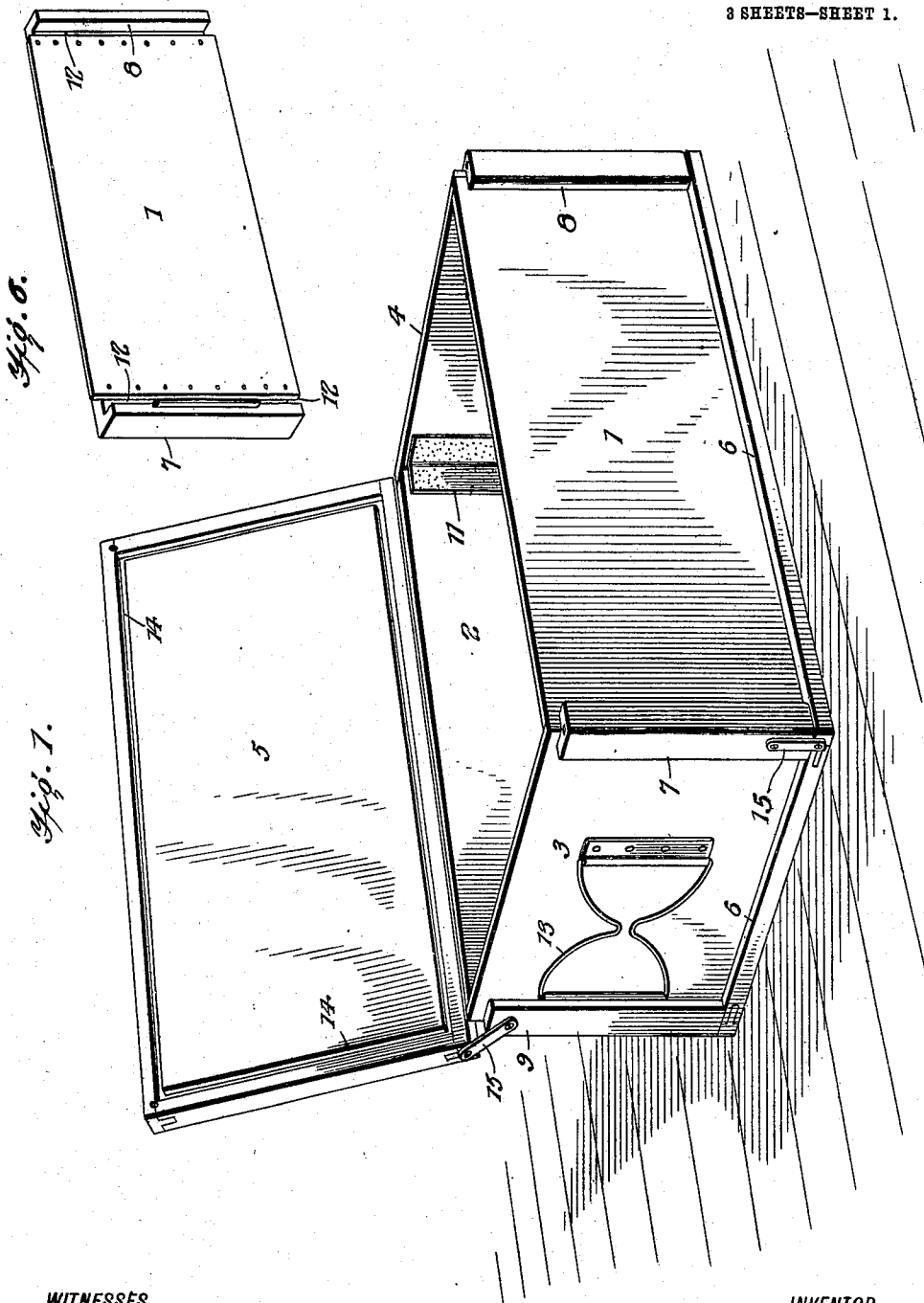


Fig. 6.

Fig. 1.

WITNESSES

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Amos Hart

INVENTOR

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BY *Winn & Co.*

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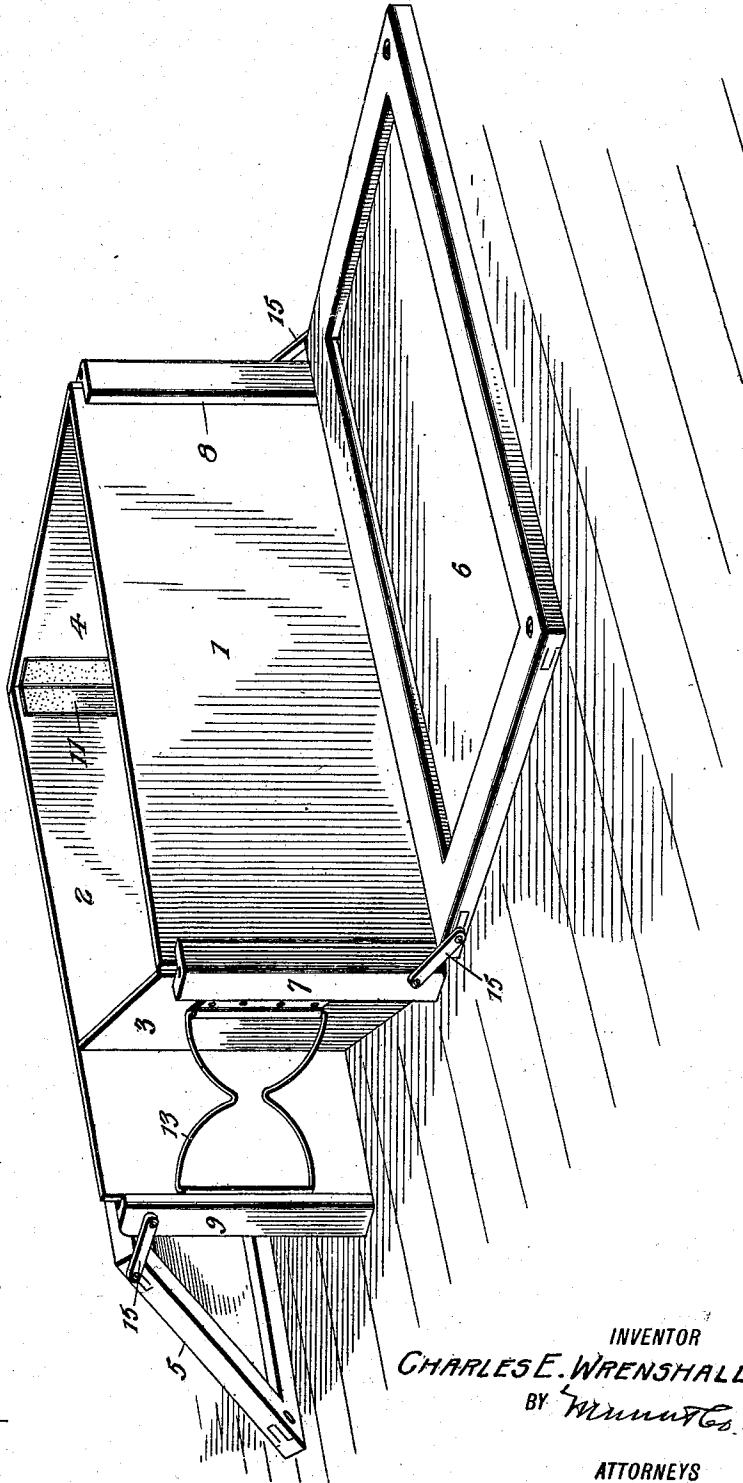
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3 SHEETS—SHEET 2.

Fig. 2.



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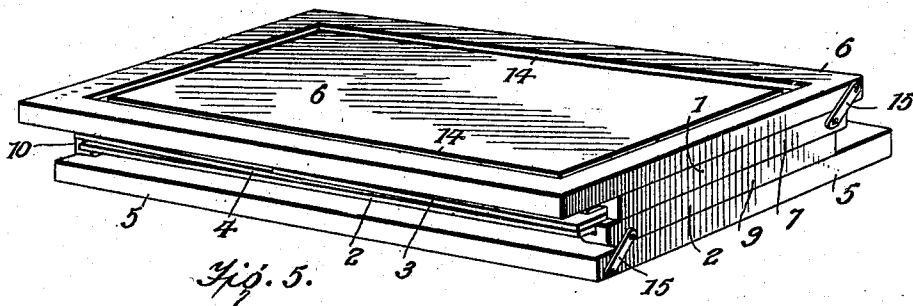
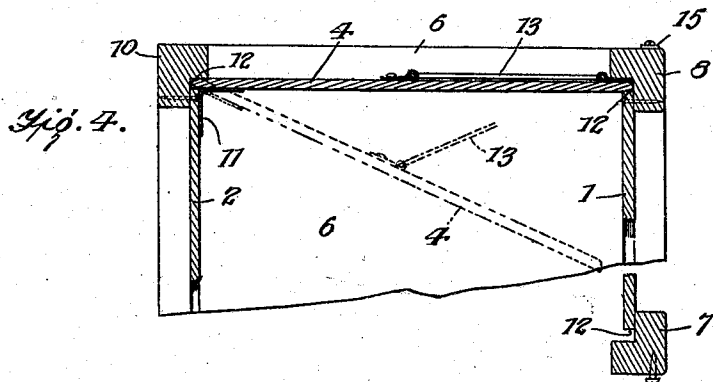
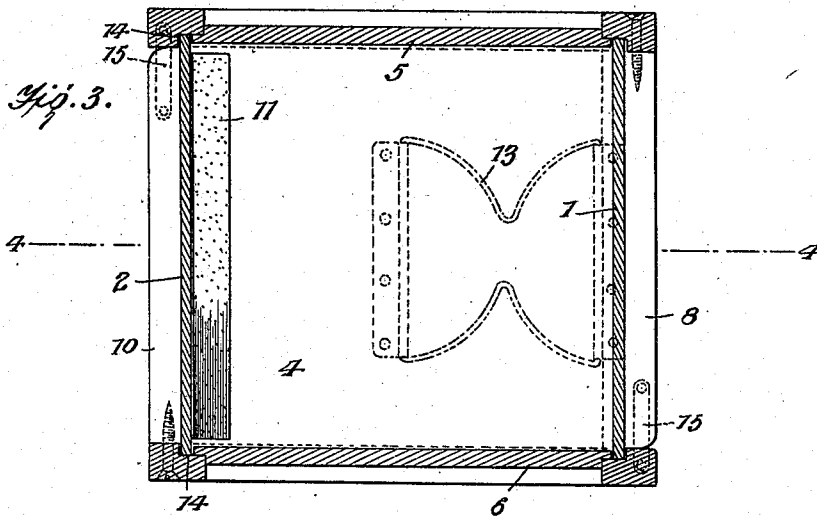
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CHARLES EDWARD WRENSHALL, OF OWEN SOUND, ONTARIO, CANADA.

FOLDING BOX.

No. 924,410.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed May 31, 1907. Serial No. 376,861.

To all whom it may concern:

Be it known that I, CHARLES EDWARD WRENSHALL, a subject of the King of Great Britain, residing at Owen Sound, Province of Ontario, Canada, have invented an Improvement in Folding Boxes, of which the following is a specification.

My invention is an improvement in folding or knock-down boxes whose sides and ends are hinged together or otherwise so connected as to lie parallel when folded.

The invention is embodied in the construction, arrangement, and operation of parts hereinafter described, and illustrated in the accompanying drawing in which—

Figure 1 is a perspective view of the box with the cover open. Fig. 2 is a perspective view of the box with the top and bottom open and one end partly folded. Fig. 3 is a transverse vertical section of the box. Fig. 4 is a horizontal section of one end of the box, on the line 4—4 Fig. 3. Fig. 5 is a perspective view of the parts of the box folded one upon another. Fig. 6 (Sheet 1) is a perspective view of one of the sides of the box.

The sides of the box are indicated by 1 and 2, the ends by 3 and 4, and the top and bottom by 5 and 6, respectively. There are four corner posts, indicated by 7, 8, 9 and 10, respectively. Each of the sides proper is formed of a board and it is attached by nails or screws to posts, as shown in Fig. 6. Thus the side 1 is attached to posts 7 and 8, and the side 2 is attached to posts 9 and 10. The posts are right-angular in cross section; or, in other words, they are grooved or rabbeted on the inner side, as shown in several figures; see particularly Figs. 3, 4 and 6. Each of the ends 3 and 4 is connected with one of the sides by means of a hinge 11; thus the end 3 is hinged to the side 1, and the end 4 to the side 2. The hinges are preferably formed of stout fabric, which is secured by glue or other means to the inner sides of the respective parts, so that the ends 3, 4, are adapted to fold inward, as indicated by full lines Fig. 2 and dotted lines Fig. 4.

As shown in Figs. 4 and 6, each side panel terminates short of the opposite portion of a post, thus leaving a groove 12, which is adapted to receive the side edge of the end 3 or 4. Each of the ends is connected by a wire spring 13 with one of the posts. The spring is of hour-glass shape, so that it is extensible longitudinally. Thus, in Fig. 1 such a spring 13 is shown hinged to the mid-

dle of the end 3 and to the edge of the post 9. In this case the end 3 is closed, but in Fig. 2 the end 4 is shown partly closed.

The top and sides 5 and 6 are formed of a frame and panel which is provided interiorly with a groove 14 near its edge. The function of this groove is to receive top or bottom edges of the sides 1, 2, and ends 3, 4, of the box, as will be understood by reference to Fig. 3. The top and sides are duplicates and each is connected with posts by means of pivoted links 15. Thus the top 5 is connected with posts 9, 10, and the bottom 6 is connected with the opposite posts 7 and 8. The box is rectangular and oblong, and it will be seen that the top and bottom being duplicates, either may form the top or either may form the bottom. The end portions are also duplicates, as will be readily understood.

Let it be supposed that the bottom 6 has been closed as shown in Fig. 1, which is effected by swinging it underneath the body formed of the portions 1, 2, 3, 4. In such case the bottom edges of the latter enter the groove 14 in the bottom 6. Screws are then inserted through the free edge of the bottom 6 to secure it to the posts 9 and 10. Then, upon closing the top 5, its groove 14 will similarly receive the upper edges of the parts 1, 2, 3, 4, and screws may be inserted through the corners of the top 5 for securing it to the posts 7 and 8. Thus the box will be firmly closed. By removing the screws from the top 5, the latter may be opened as shown in Fig. 1 for access to the interior of the box.

If it be desired to knock-down or fold the box as indicated in Fig. 5, the operation is as follows: First the free edge of each of the ends 3 and 4 is separated from the opposite side and post. Thus, in Fig. 2, the free edge of end 4 has been withdrawn from the groove in the opposite side and is swung partly to the closed position. This withdrawal of its edge from the groove is permitted by the elasticity of the spring 13. Then the other end is similarly withdrawn and folded inward, so that both ends 3, 4, lie parallel to the respective sides 1 and 2. Then each of the top and bottom portions 5 and 6 is turned back and lie parallel to the sides with whose posts they are respectively connected, so that all the parts lie parallel as indicated in Fig. 5. The tops of the posts 9 and 10 and the lower ends of the posts 7 and 8 are rounded on the outer side to enable the top and bottom 5 and 6 to swing over them. I thus

produce a knock-down box, which, when set up, is firm or rigid, but which may be easily knocked-down or folded to occupy the least possible space.

5 The box is well adapted for various uses and may be constructed in any size required.

What I claim is:

1. The improved folding box comprising duplicate sides and duplicate ends; the sides
10 being formed of a panel and corner posts that are permanently connected, a groove being left between the ends of the panel and the opposite portions of the posts; the ends being
15 hinged at one end and adapted to enter the grooves of the opposite sides of the box; expandible spring hinges connecting the ends with adjacent posts; and top and bottom
20 portions having interiorly a groove adjacent to the edge and which is adapted to receive the edges of the body of the box; and pivoted

links connecting such top and bottom with adjacent posts; as shown and described.

2. The improved folding box comprising duplicate sides and duplicate ends, the sides
25 being formed of panels and right-angular corner posts to which they are permanently attached in such manner that a groove is left between the ends of the panel and the adjacent ends of the posts; ends which are hinged
30 to the opposite sides; and extensible spring hinges which further connect them with opposite posts; and top and bottom portions having a groove interiorly adjacent to the
35 edge and adapted to receive the edges of the sides and ends of the box; as shown and described.

CHARLES EDWARD WRENSHALL.

Witnesses:

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S. F. V. CAMPBELL.