Oct. 12, 1926. 1,602,783

W. SANDS

SHIPPING BOX

Filed Nov. 30, 1923 2 Sheets-Sheet 1

Fig. 1

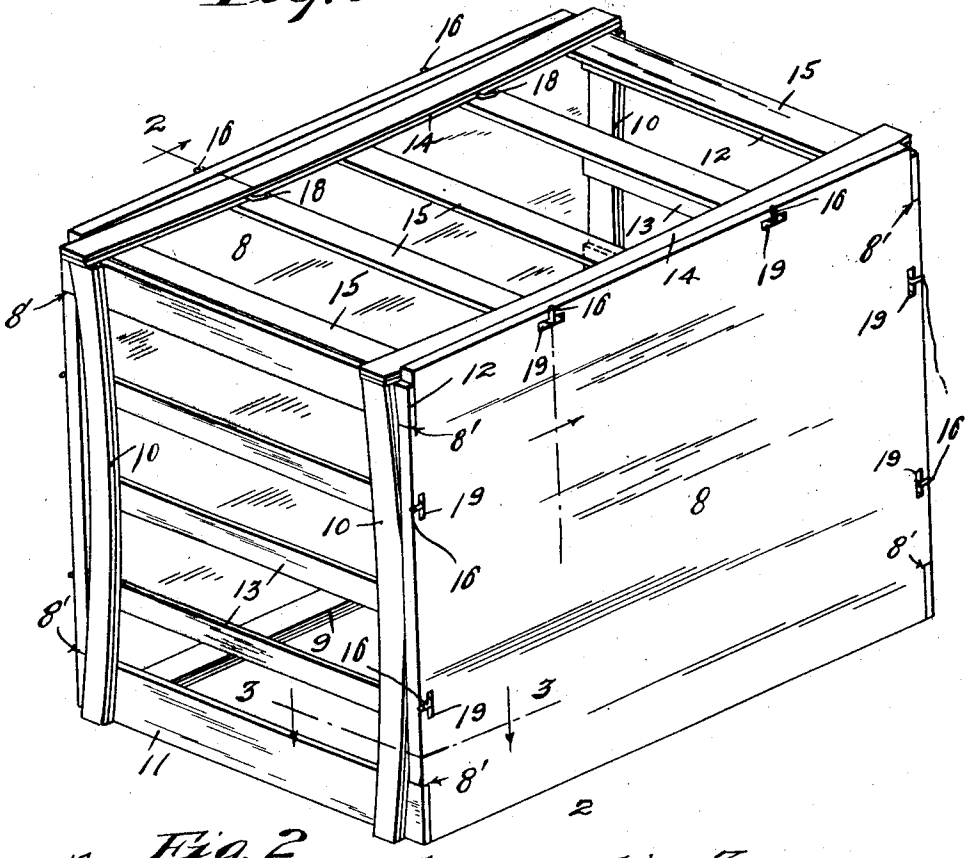


Fig. 2

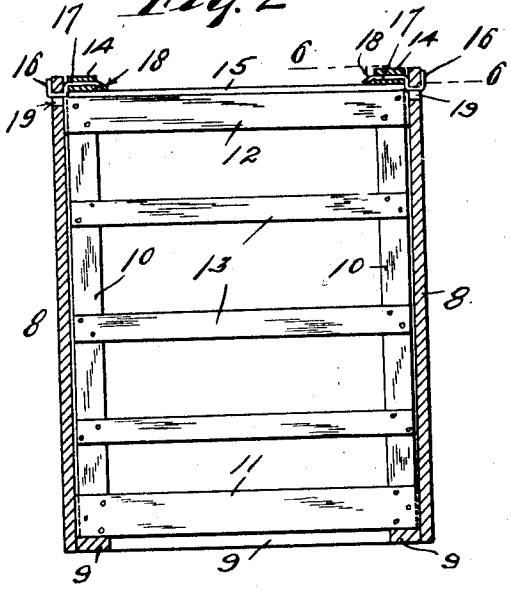
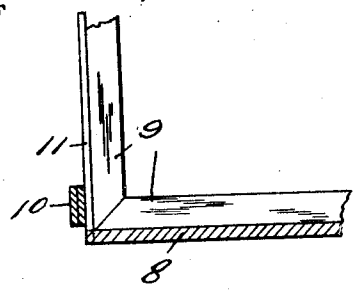


Fig. 3



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Oct. 12, 1926. 1,602,783

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SHIPPING BOX

Filed Nov. 30, 1923 2 Sheets-Sheet 2

Fig. 4

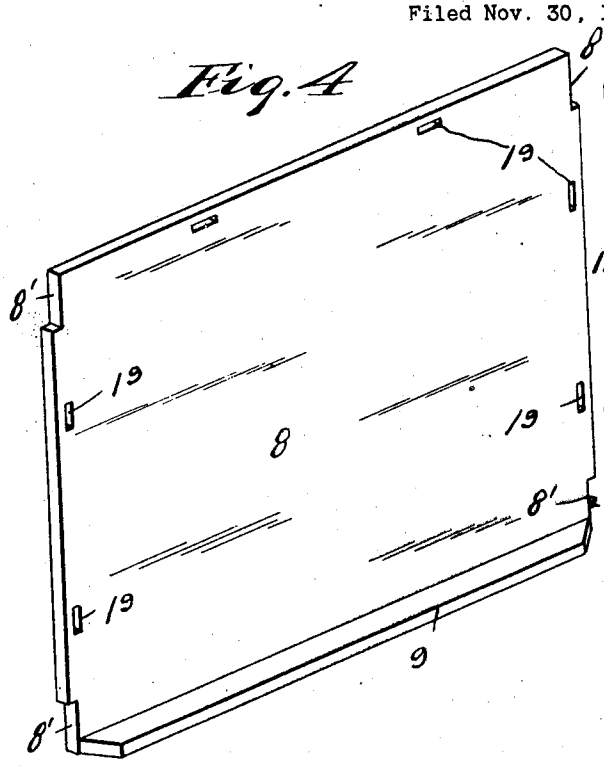


Fig. 5

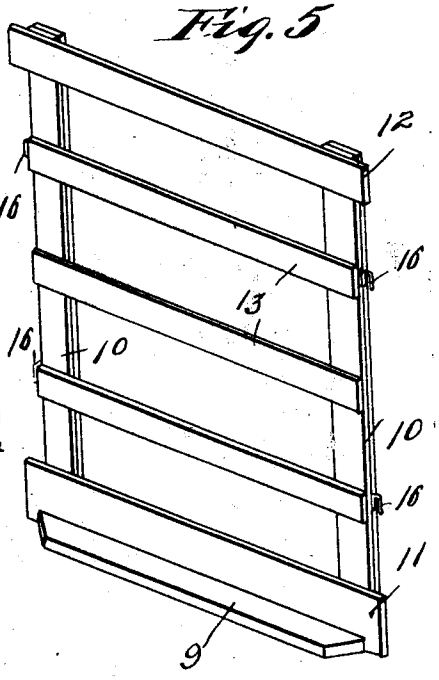


Fig. 7

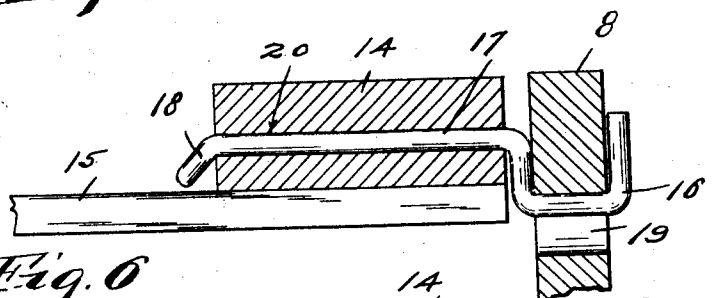
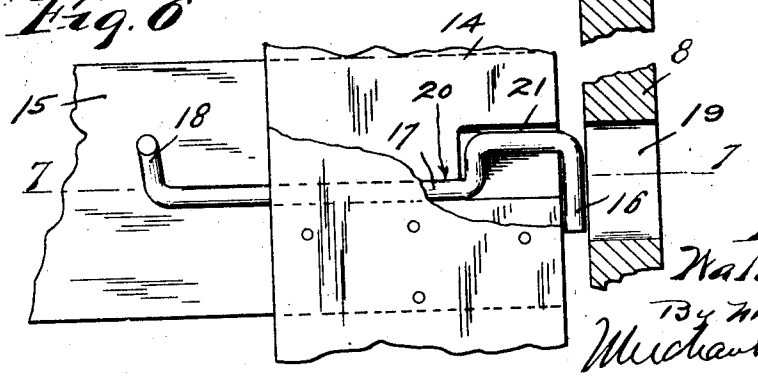


Fig. 6



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Patented Oct. 12, 1926. 1,602,783

UNITED STATES PATENT OFFICE.

WALTER SANDS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF FIVE ONE-HUNDREDTHS TO CORNELL FLAGSTAD, OF MINNEAPOLIS, MINNESOTA, AND NINETY-FIVE ONE-HUNDREDTHS TO FOLDING CRATE & BOX COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

SHIPPING BOX.

Application filed November 30, 1923. Serial No. 677,657.

My invention provides an improved shipping box, the term "box" being used in a broad sense to include crates, and, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

Particularly, the invention relates to collapsible or knock-down shipping boxes, such as are capable of being returned empty in compact form so as to obtain the advantages of cheap freight rates. A salient feature of the invention is the provision of locking cranks applied to one of the box members and arranged for interlocking engagement with an adjacent box member, and securely held interlocked therewith against accidental displacement. The improved locking cranks may be applied in various different ways and to boxes of different character, but a further important feature of the invention consists in an arrangement in which all six of the box members, to wit: The four sides, top and bottom, are made entirely separable by the use of the locking cranks.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a perspective view showing a complete box embodying my invention;

Fig. 2 is a transverse section taken through the box on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary horizontal section on the line 3—3 of Fig. 1;

Fig. 4 is a perspective view showing one of the sides of the box;

Fig. 5 is a perspective showing one of the ends of the box;

Fig. 6 is an enlarged fragmentary view partly in plan and partly in horizontal section on the line 6—6 of Fig. 2, some parts being broken away; and

Fig. 7 is a section on the line 7—7 of Fig. 6, but with the locking crank released.

In a broad sense, the box has six sides, but for convenience of description, these six elements will be hereinafter referred to as the front side, the back side, the ends, the top, and the bottom. Shipping boxes of the crate type are usually made of slats, but in the drawings, the front and rear sides 8 are shown as rectangular flat board structures. The box illustrated is especially designed for the shipment of sewing machines or the like, which have legs with spreading feet that are at least as wide as the widest portion of the body of the machine. Hence, for this particular purpose, the only bottom that the box requires may be afforded by supporting cleats 9 secured to the lower inside portions of the front and rear sides 8 and end members. These end members are made up of vertical slats 10, lower and upper cross slats 11 and 12 and intermediate cross slats 13. Moreover, the vertical slats 10 are preferably made up each of two wooden strips nailed or otherwise secured together. The top and bottom slats 11 and 12 project beyond the vertical slats 10 and the corner portions of the front and rear sides 8 are provided with notches 8′ to receive said ends.

The top or cover of the box is made up of parallel horizontal main slats 14 and cross slats 15 nailed or othewise rigidly secured thereto at their ends. The slats 14 are so spaced that they will fit freely between the upper edges of the side members 8 and the top slats 12 of the end members are located far below the upper edges of the sides, so that said slats 14 will normally lie approximately flush therewith. The ends of the slats 14, however, project so that they will rest on the upper edges of the end members, as clearly shown in Fig. 1. Moreover, the slats 14 are made up each of two wooden strips nailed or otherwise rigidly secured together.

The locking cranks 16 are approximately U-shaped and they are carried by the outer ends of stems 17, which, at their inner ends, have laterally bent operating handles or ends 18.

In the box illustrated, these locking cranks are used to lock both of the end members and the top member or cover to the front and rear sides, and the front and rear side members 8 are provided near their upper and vertical edges with slots or openings 19 to receive said locking cranks. The said locking cranks are applied to the horizontal slats 14 of the top member and to the vertical slats 10 of the end members at points intermediately of their ends, so that their

positions may be shifted in respect to the slots 19 by spring of the slats to which they are applied. The preferred manner of applying these locking cranks to the said slats 10 and 14 is to provide one of the strips of each slat with a stem-receiving groove 20 and a crank-receiving cavity or enlargement 21, as best shown in Fig. 6. This secures the cranks to the said slats 10 and 14 with freedom for endwise sliding movements and for rotary movements, so that they may perform the locking and releasing operations now to be noted.

When the locking cranks are retracted and drawn into the recesses 21, as shown in Figure 6, the top and end members may be freely placed in working position in respect to the sides 8 or separated therefrom. When the said top and end members are positioned for coupling to the sides 8, the locking cranks 16 will be turned parallel with the slots 19, but will be slightly outward thereof, and to align the said cranks with said slots so that they may be slid therethrough requires first that the slats 10 and 14 be intermediately sprung inwardly, as shown in Fig. 1, and thereupon, said cranks may be slid through the aligned slots 19. When the ends and top are free from external pressure, they will be sprung outward as far as permitted and this outward spring movement will throw the cranks into interlocking positions shown in Figs. 1 and 7 and the said cranks will then be so securely held interlocked to the sides 8 that they cannot possibly become accidentally disconnected or unlocked therefrom. To unlock the cranks from the sides requires first that the sides or ends be sprung inward far enough to permit the cranks to be turned parallel with the slots 19 and then that the said cranks be drawn inward to the releasing positions shown in Fig. 6, and this is an operation that cannot possibly take place by accident. The box members are, therefore, very securely locked together, but it is made a very easy matter to disconnect the same or to reassemble and lock the said sections together.

In the drawings, I have illustrated an extreme case where all of the box members are separable, but this scheme may be carried out to a greater or less extent. For many purposes other than shipping machinery, such as noted, a solid bottom will be required and such may, of course, be set loosely on the abridged bottom-forming cleats 9, or the said bottom may be locked to the sides or ends in the same or similar manner in which the top member of the box described is applied. When the front and rear side members are not made solid but in skeleton form, as are the illustrated ends and top, then, in lieu of the slots 19, there would naturally be larger openings through which the locking cranks would be inserted, but, nevertheless, the said cranks would have the same character of interlocking engagement with said front and rear side members. Of course, the locking cranks may be disposed on the different members in various different ways.

What I claim is:

1. A box having a removable member provided with U-shaped locking cranks arranged to oscillate and slide axially into and out of interlocking engagement with an adjacent member of the box, the box member to which said locking cranks are applied being sprung and thereby put under tension and holding said locking cranks oscillated to interlocking positions.

2. A box having a removable member provided with locking cranks arranged to oscillate and slide into and out of interlocking engagement with an adjacent member of the box, the member to which said locking cranks are applied having stems seated therein and formed with recesses into which said cranks may be slid by axial movement when in releasing positions.

3. A box having a removable member provided with locking cranks arranged to oscillate and slide into and out of interlocking engagement with an adjacent member of the box, the member to which said locking cranks are applied having stems seated therein and formed with recesses into which said cranks may be slid by axial movement when in releasing positions, the box members to which said locking cranks are applied being sprung and thereby put under tension and holding said locking cranks oscillated to interlocking positions.

4. A box having a removable member provided with locking cranks arranged to oscillate and slide into and out of interlocking engagement with an adjacent member of the box, the members to which said locking cranks are applied having slats made up each of two wooden strips, one of which has a groove to receive the stem of said crank and a recess to receive said crank when the latter is slid axially to a releasing position, the said crank having a stem, the inner end of which is bent to form an operating handle.

In testimony whereof I affix my signature.

WALTER SANDS.