

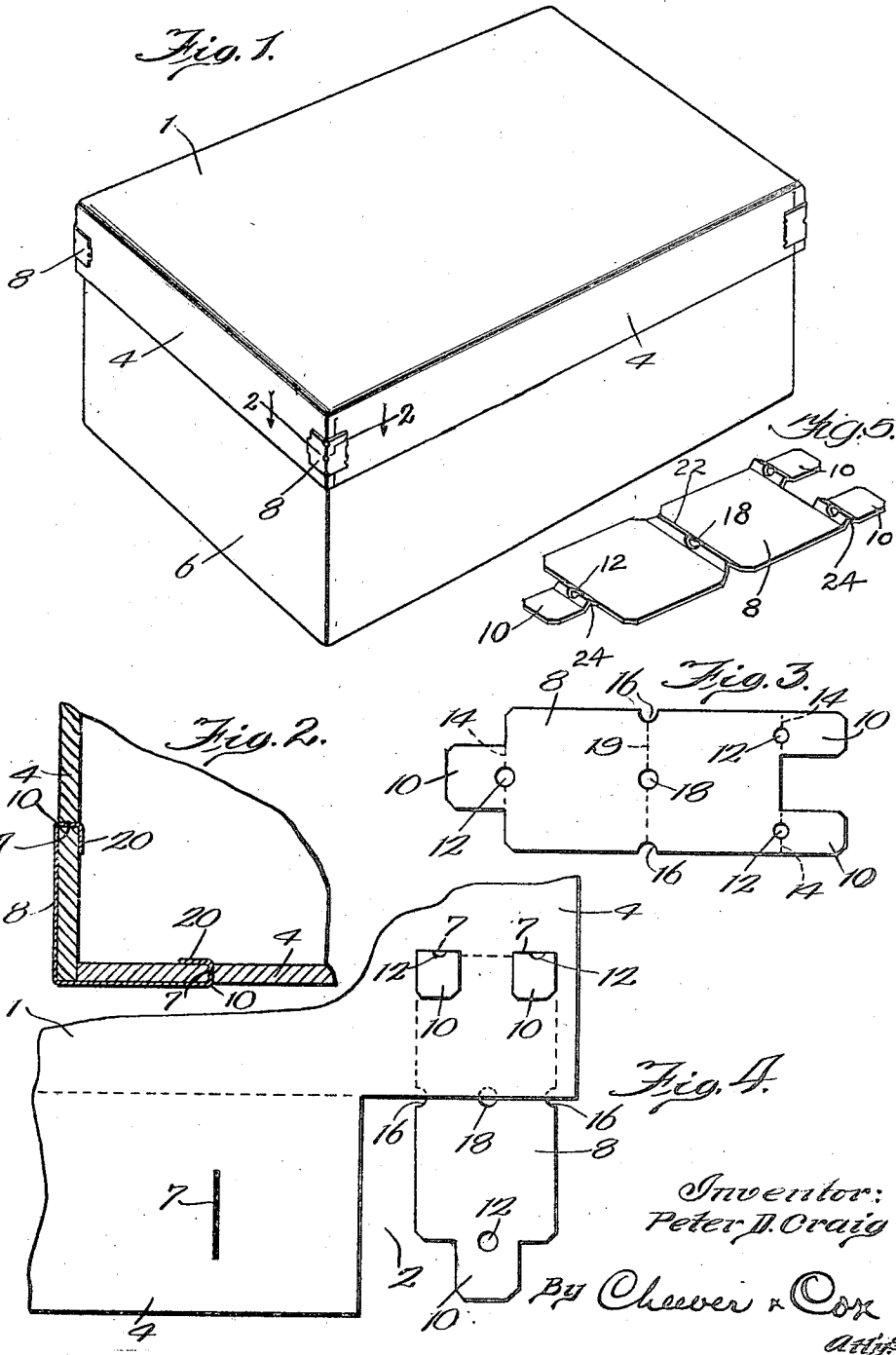
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P. D. CRAIG

BOX CORNER

Filed March 3, 1923



# UNITED STATES PATENT OFFICE.

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## BOX CORNER.

Application filed March 3, 1923. Serial No. 622,477.

*To all whom it may concern:*

Be it known that I, PETER D. CRAIG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Box Corners, of which the following is a specification.

My invention relates to the method of making boxes and to box corners employed in such method. One of the objects of the invention is to provide a metallic box corner which may be shipped in the flat, and which is so formed that when it is to be used and the user applies bending strains to it, it will itself define the lines of bend. In other words, it is my purpose to provide a plate which the operator may bend when he is ready to use, and which will assist him in bending along the proper lines so that it will locate itself properly on the box when it is being applied thereto. In practice, the box walls are slotted at certain distances from the corner for receiving the tongues of the plate and the plate is weakened at certain points so that the plate will naturally bend along the correct lines and thus when applied to the box will bring the tongues into register with the slots. Another object of the invention is to provide a method of making boxes in which a plate having the above described characteristics may be employed.

I obtain my objects by the construction illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of a box embodying my invention.

Figure 2 is a plan section on the line 2—2, Figure 1.

Figure 3 is a face view of the metallic race or corner after it has been blanked out; and

Figure 4 is a fragmentary view showing the box blank in flat condition and the box corner also in flat condition, except that the tongues at one end have been inserted into the proper box wall and clinched over. This figure illustrates, among other things, that the line of weakening of the plate registers with the box corner and consequently will bend in the right place when the parts are assembled.

Figure 5 shows a modified form in which the plate is creased as well as weakened.

Like numerals denote like parts throughout the several views.

This invention is intended primarily for boxes made of so-called fiber or fibrous material which includes paper-board, fiber-board, and similar material, which is bendable to a certain extent and is employed among other things for making cartons, boxes and other containers for shipping purposes and the like. So-called "corrugated" sheets are also frequently employed for the purpose, and I shall employ the term "fibrous material" as including any and all of the sheets of this or analogous material. It will be understood that such sheets can be cut and slotted for the production of blanks and can be bent at right angles so as to configure the rectangular boxes and containers.

In practicing my invention I first produce a box blank by taking a sheet 1 of such fibrous material and cutting away the corners as, for example, at the point 2 in Figure 4. By making a rectangular cutout as illustrated, the marginal portions 4 of the blank may be bent at right angles to the body of the sheet to form either a box or a box cover. The terms "box" and "box cover" are practically synonymous for it will be understood that two interfitting covers may themselves make a box or container. For the sake of clearness I have illustrated my invention as applied to a box cover and am omitting a description of the formation of the lower portion 6 of the container illustrated in Figure 1. It will be understood, of course, that in practice some means are provided for holding the walls of the lower section together, but I have omitted to illustrate such means in order more clearly to distinguish my invention. It may be said, however, that my invention may be applied to the body of the box as well as to the cover.

In a definite position on the flanges or side walls of the cover I form slots 7. These may be short or long, or single or multiple, depending upon the form of plate or box corner which is to be employed and which I will now describe.

The corner plate or "box corner" is shown in blank in Figure 3 in which 8 represents the body of the plate. It is of bendable sheet metal, by which I mean metal which

may be bent (for example, by the hands of the user) and when bent will maintain the configuration to which it is brought. In other words, the metal is not resilient in the sense of being able to spring back to its original form after the pressure exerted by the operator is released.

At the ends of the plate are tongues 10 which may be broad or narrow, single or multiple, depending upon the slots 7 into which they are to be inserted. At the base of these tongues a portion of the metal is cut away to weaken the plate at that point. In the illustrated form, Figure 3, the metal is weakened by apertures 12; hence the line of bend will be coincident with the dotted lines 14 shown in Figure 3. Between the ends of the plate, usually about the middle, a portion of the metal is cut away to weaken it and thus define a line of bend to correspond to the corner of the box when the parts are assembled. In the present instance I have illustrated a plate having notches 16 at the edges and an aperture 18 at the center which cause the bending to occur along the dotted line 19, Figure 3.

In practice both the box blank and plate are shipped in the flat. When the operator is ready to form the container he bends up the marginal portions of the fiber sheet 1 to form side walls 4. This brings the adjacent ends of the side walls into contiguity as illustrated in Figures 1 and 2. The operator then bends the tongues 10 at right angles to the plate and bends the two sections of the body of the plate at right angles along the center line 19 whereupon he is by slight manipulation, able to insert the tongues into the slots 7. The parts will now fit because the blanking of the fibrous sheet is done accurately by machine and the blanking of the strip is also done accurately by machine (speaking in accordance with usual commercial practice) and as the slots 7 are in definite position and the corner plate will bend along definite lines, it follows that the operator will not have to exercise any particular care in making the bends. They will automatically come at the proper positions.

After the tongues have been inserted into the slots 7 they may be clinched over on the inside as shown at 20 Figure 2. This produces a structure which is most rigid and secure, and which presents a neat appearance as will be evident by reference to Figure 1.

It will be understood that the method of assembling the parts after they are formed may be varied, and it is possible to proceed in the manner illustrated in Figure 4, in which the tongues 10 will be inserted into one of the side walls, and the tongues clinched over at the factory. The parts can then be shipped in the flat, but with the

plate attached at one end to one of the side walls. In this case the bending of one set of tongues will have been already accomplished. The operator will merely have to bend the other elements to carry out the principle of the invention. This has one advantage, viz., that the boxes will always be accompanied by the correct number of corner plates and a portion of the work will have been done at the factory. On the other hand, these plates sometimes become damaged in shipment when they are thus assembled beforehand and some customers prefer to have the fibrous sheets and the plates shipped separately.

In Figure 5 I have shown an additional characteristic according to which the plate in addition to the notches and apertures has a center crease 22 and also end creases 24 at the base of the tongues. These creases make it still easier for the operator to cause the plate to bend at exactly the proper point—in fact, the creases themselves may be regarded as incipient bends which the operator completes when he applies the plate to the box.

It will be evident that my device is not only strong and durable when assembled, but that it presents a neat appearance and is readily applied without the aid of any special tools.

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

1. A box construction in which the box walls are of fibrous material and have slots formed in them near the corners, and a metallic corner plate adapted to pass around the corner of the box and having tongues at the ends adapted to penetrate the slots in the box walls for holding them in position, the metal being partially cut away between the ends of the plate and at the base of the tongues for thus defining the lines of bend and causing the plate to be self adjusting in the sense of bringing the tongues into register with the slots when the parts are assembled.

2. The method of making boxes consisting in cutting out the corners of a sheet of fibrous material, bending the sheet to produce a top or bottom to the box and side walls whose adjacent edges are contiguous, slotting the side walls at a definite distance from the corners of the box, blanking out a plate of bendable metal with tongues at the ends for penetrating the slots, cutting away a portion of the metal at the base of the tongues and also at a point approximately midway between the ends of the plate and then bending it along the lines where the same is weakened, and inserting the bent tongues into the slots for holding the walls together.

3. A plate for securing box walls together

at the corners, said plate consisting of bend-  
able metal and having tongues projecting  
at the ends for insertion into slots in the  
walls of the box, the plate being weakened  
5 by removal of a part of the metal at the base  
of the tongues and near the middle of the  
plate, the plate also being creased at the  
middle and at the base of the tongues to as-  
sist the operator to cause the completed  
bends to come at the correct points on the 10  
plate.

In witness whereof, I have hereunto sub-  
scribed my name.

PETER D. CRAIG.