

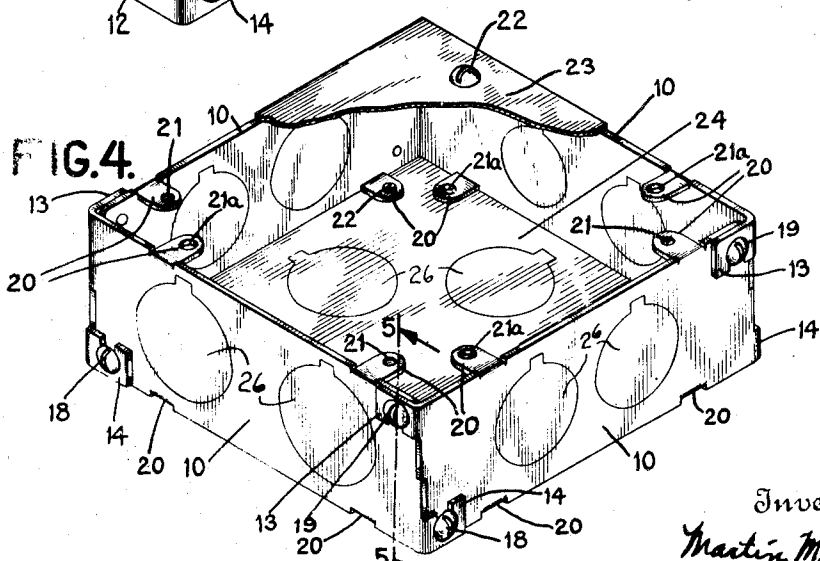
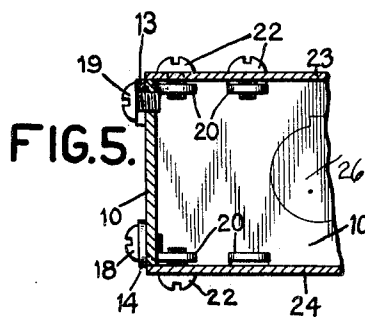
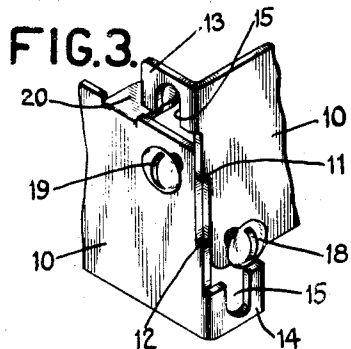
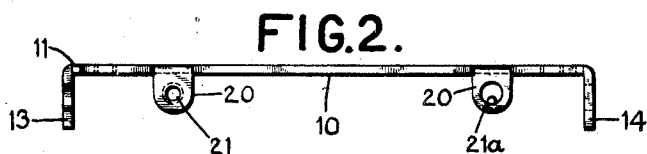
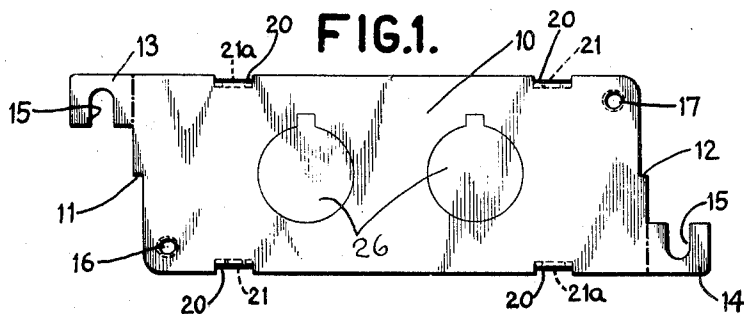
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KNOCKDOWN BOX

Filed June 28, 1929



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UNITED STATES PATENT OFFICE

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KNOCKDOWN BOX

Application filed June 28, 1929. Serial No. 374,386.

This invention relates to improvements in outlet boxes, switch boxes and the like which are to be used in electric wiring installations.

To properly meet and supply the demands of the trade, such boxes must be supplied in various types, forms and sizes to suit various building conditions and with each type or size of box there is a demand for a variety of arrangements of so-called knock-outs. Frequently such conditions call for provisions of special arrangements of these knock-outs which require special manufacture and, accordingly, there is frequently a considerable delay in building these special boxes.

The present invention has for one of its objects, the provision of an improved construction of box which is comprised of a few basic parts of like configuration instead of the multiplicity of specially shaped components heretofore used in such boxes. In this way the cost of tool equipment required to manufacture an extensive line of boxes is minimized.

A further object of the present invention resides in the provision of a box of knock down construction adapted to permit the manufacturer, jobber, or user, to selectively assemble component parts which are interchangeable insofar as fitting to each other is concerned, but which component parts may be varied in their arrangement of knock-outs, etc. In this way, various special boxes insofar as various knock-outs is concerned, may be made up without the necessity of having a special set of component parts for each special box, because certain parts are common to several boxes and are adapted to interchangeably fit the other component parts which may be special for such boxes.

Accordingly, a further object of the present invention resides in the provision of a box construction which will obviate the necessity of the manufacturer or user carrying a large stock of boxes of special sizes, types or kinds.

A further object of the present invention

resides in the provision of a construction which will readily permit variations in the sizes of the box and to provide for the making of multiple high boxes when desired from the same component parts. The same parts are adapted for assembly into extension rings to increase the size of depth of the box to any desired extent.

Further objects and advantages will be hereinafter set forth in the accompanying specification and claims and shown in the drawings, which by way of illustration show what I now consider to be a preferred embodiment of the invention.

In the drawings:

Figure 1 shows a side elevation of one of the component parts for one side of the box after the first step of fabrication has been completed, but before certain lug portions are bent out of the plane of the material of the part;

Fig. 2 is a bottom view of the part with the lug portions bent back at right angles to the main plane of the piece of sheet metal;

Fig. 3 is a fragmentary perspective sectional view showing the manner of assembling two side parts of the box together;

Fig. 4 is a perspective view of the complete box with certain of the cover portions broken away;

Fig. 5 is an illustrative sectional view taken on line 5—5 of Fig. 4.

The box comprises identical side portions each of which consists of a sheet metal plate member 10 having one end shaped to form a shoulder 11 and with its other end shaped to provide a shoulder 12 which is in complementary relation to shoulder 11 so that the shoulders 11 and 12 of two separate parts will mate and abut as shown in Fig. 4. Each part 10 has an extension or lug portion 13 and 14 at each end thereof. 13 is disposed at the top and 14 at the bottom as shown in Fig. 1 and both of such lugs are bent and turned at right

angles to the plane of the plate 10 as shown in Figs. 2, 3 and 4.

Fig. 1 shows the lugs 13 and 14 before they are turned or bent. Each of the lugs 13 and 14 is provided with a notch or recess 15 which recess opens downward on lug 13 and upward on lug 14. Each member 10 is also provided at its diagonal corners with tapped openings 16 and 17 adapted to receive screws 18 and 19 (see Fig. 4). The location of screw 19 is such that its shank will fit recess 15 of lug 13 and the screw 18 is so located that its shank will fit the recess 15 of lug 14 (see Fig. 3). The component side parts of the box are assembled by sliding them together at the corners until the shoulder 11 of one part abuts the shoulder 12 of the cooperating part. The screws 18 and 19 are then tightened and the side assembly of the box is complete.

It will be further noted that any component part for the side of the box is reversible, that is the part may be picked up and turned over so that lug 14 becomes a top lug and 13 a bottom lug. Irrespective of such reversal the side part will fit an adjacent part as before.

To provide for the reception of the bottom plates, cover plates, or to provide for the joining of a multiplicity of side sections 10 in superimposed relation so as to provide a two high, three high or greater height of box or to provide what is commonly termed an "extension ring construction" each of the members 10 at their upper and bottom marginal edges are provided with inwardly turned lug portions 20. Certain lugs are provided with tapped openings 21 to receive screws 22 and other lugs are provided with clearance holes 21a through which the screws may freely pass. It will be noted that on each piece 10, the upper left hand lug 20 is untapped and provided with a clearance hole 21a, and the lower left hand lug is tapped with a tapped opening 21. On each part 10 the upper right hand lug 20 is tapped as shown at 21, and the lug at the bottom right is provided with clearance hole 21a. The cover or bottom plates 23 and 24 can be secured in position by the screws 22. Preferably, the lug portions 20 are integral with plate 10, but this is not essential and such lugs can be made as separate parts and secured in any desired manner and in any desired way to member 10.

It will also be understood that the boxes can be assembled with multiple high side portions in which case it is only necessary to connect the bottom lugs of one plate with the upper lugs of another plate 10. In this case a screw is passed through the clearance opening 21a on one lug and engaged with the threaded opening 21 of the co-acting lug. By proceeding in this manner a box can be

provided with a so-called extension ring comprising one tier of side component parts or if desired, a multiplicity of such tiers can be provided to provide a multiple high box.

26 represent the knock-out portions of members 10, 23 and 24. It will be understood that the location of these knock-outs can be varied as desired. For example, in lieu of having two knock-outs in one side part, such part can be made with a single knock-out or if desired the knock-outs could be of variable dimensions. Obviously in the process of manufacture, the knock-outs have to be special according to the demands of the trade, but irrespective of the special disposition or size of the knock-outs it is possible to assemble the component side parts together interchangeably, and in this way special box constructions so far as knock-outs are concerned, can be built up to meet the required demand.

It will be understood for example that a manufacturer or jobber or user might stock a set of side parts, with variations in the arrangement, size and disposition of knock-outs according to trade demands which might arise. Then when a call came for a particular box it would only be necessary to select the desired components and assemble them together. Accordingly on account of the interchangeability of the components and because certain components may be commonly used in several different boxes it is possible to provide a greater variety of special boxes than the number of special components which are fabricated and stocked.

It will be further understood, that while the various parts of the box are shown as being fastened with screws, that the invention is not limited to any such method of fastening but the parts also might be secured together by riveting, welding or in any other suitable manner all within the scope of the present invention.

According to the present invention a single formed piece is used in multiple to build up the walls of a box and I desire to claim broadly the construction of a box wherein the wall portions are formed from identically shaped pieces.

It is also contemplated and within the scope of the present invention to provide, if necessary, side portions of different lengths. With such side portions of different lengths, the forming operations for the ends will be the same, but a different length of piece will be used. By proceeding in this manner a still greater variation in boxes may be obtained without undue expense.

What I claim is:

1. A sheet metal box comprising side portions formed of sheet metal with interengaging end portions upon one end thereof which are in complementary relation to the interen-

gaging end portions upon the other end thereof whereby each part is reversible with fastening means adapted for securing sheet metal parts for securing the sheet metal side portions together, said fastening means being

identically disposed upon the various parts for interchangeable fastening of said parts.

2. A side member for a sheet metal box adapted for assembly with other like side members, said side member comprising end portions at each end thereof which are identical in configuration but which are disposed in complementary relation to corresponding portions upon the other end of the side member with fastening means comprising lugs carried by one side part and cooperating screws carried by the other cooperating side part for fastening the sheet metal parts together.

9. A side member for a sheet metal box comprising a wall portion having end portions and upper and lower marginal edge portions, symmetrically disposed attaching means at each of the edge portions for the attachment of other parts thereto, and each end portion being shaped to interchangeably interfit another side part.

In testimony whereof I hereto affix my signature.

MARTIN M. CLAYTON.

3. An interchangeable side member for a sheet metal box comprising end portions shaped with shoulders at each end in complementary relation to each other and with extending lug portions also in complementary relation to each other.

4. A metal box including a plurality of interchangeably inter-fitting side portions adapted for selective interchangeable assembly one with another and with lugs provided with screw slots to serve as fastening means for the side portions as they are selectively interchangeably assembled.

5. An interchangeable side member for a metal box, said member having a shoulder at each end in complementary relation to the shoulder at the opposite end and having a lug portion at each end also in complementary relation to the lug at the opposite end, each said lug being provided with notches to receive a fastening means, and each part having a fastening means to engage the notch in the lug of an adjacent mating part.

6. A knock down sheet metal box having the side portions thereof constructed of a multiplicity of pieces which are of identical configuration so as to interchangeably interfit with each other said pieces each having a pair of turned over slotted lugs and a pair of screws to fit the slots of said lugs interchangeably for selected interchangeably fastening of the parts.

7. A sheet metal box formed of a multiplicity of pieces constituting the side portions of the box and each piece being identically shaped as regards its end configuration each end having a lug fastening portion for interchangeably securing any one side part to any other side part.

8. A sheet metal box formed of a multiplicity of separable parts which when assembled together constitute the sides of the box, each piece being identical in configuration with respect to the other pieces and each piece having attaching means at the mar-

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