

Jan. 22, 1946.

F. E. WENTWORTH

2,393,581

SWITCH BOXES AND THE LIKE AND CONNECTING NIPPLE THEREFOR

Filed Nov. 17, 1943

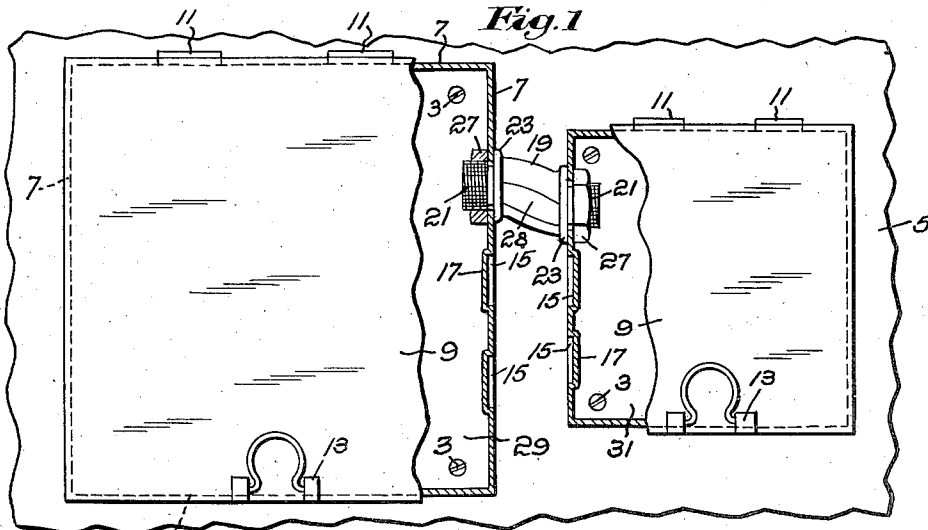
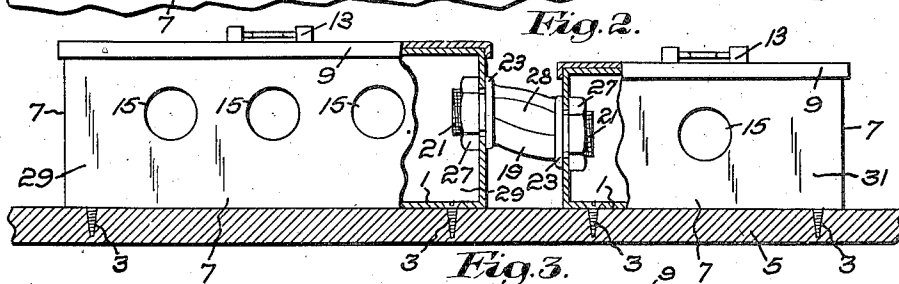
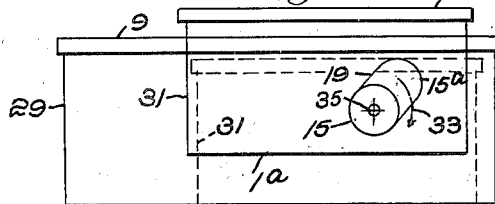
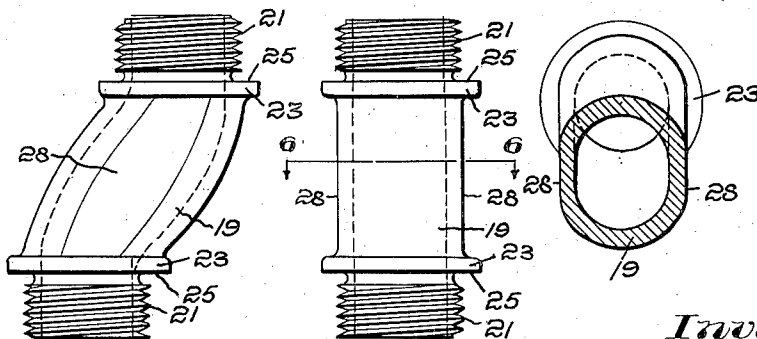


Fig. 4.

Fig. 5.

Fig. 6.



Inventor:
 Frank E. Wentworth,
 by Emory Booth Townsend Miller & Weidner
 Attorneys

UNITED STATES PATENT OFFICE

2,393,581

SWITCH BOX AND THE LIKE AND CONNECTING NIPPLE THEREFOR

Frank E. Wentworth, Exeter, N. H., assignor, by mesne assignments, to The Exeter Brass Company, Bridgeport, Conn., a corporation of Connecticut

Application November 17, 1943, Serial No. 510,644

4 Claims. (Cl. 220—3.3)

My invention relates to electric wiring, and more particularly to switch boxes and the like and to nipples for connecting adjacent boxes for forming a wiring conduit between them.

The invention has among its objects the provision of a nipple adapting the wiring outlet holes of adjacent switch boxes mounted on a common support to be readily connected when the boxes are of different size or the outlet holes of the two are otherwise out of alignment. The invention and its objects however will be best understood from the following description when read in the light of the accompanying drawing, while the scope of the invention will be more particularly pointed out in the appended claims.

In the drawing:

Fig. 1 is a plan of switch boxes or the like having wiring outlet holes connected according to the invention, with parts broken away;

Fig. 2 is an elevation according to Fig. 1, with parts broken away;

Fig. 3 is a schematic diagram illustrating the operation of the nipple according to the invention;

Fig. 4 is a plan of the nipple according to the invention;

Fig. 5 is a side elevation according to Fig. 4; and

Fig. 6 is a section on the line 6—6 of Fig. 5.

It will be understood by those skilled in the art that it is common practice to place the switches, fuses and other instrumentalities of electric circuits in metallic boxes, which latter in this specification and in the appended claims are for convenience in terminology termed "switch boxes." Such boxes are commonly of the form illustrated in the accompanying drawing, the box having a substantially flat bottom 1 adapted to be secured by screws or other suitable fasteners 3 to a support such as a panel or wall 5. The box is further provided with lateral walls 7, and with a lid 9 hingedly secured at its rearward edge to the upper edge of one of the lateral walls by a hinge construction 11, a releasable catch 13 customarily being provided for holding the lid in closed position. According to common practice, the lateral walls 7 of the box are so constructed as to provide wiring outlet holes 15 each normally closed by a frangibly secured portion 17 struck out of the material of those walls so as to provide so-called "knock-out" holes, thus enabling the closure portion 17 of one or more holes to be readily removed to provide the desired opening or openings for the wiring entering or leaving the box.

It is frequently necessary to mount one or more

switch boxes pertaining to the same electric circuit on a common support such as a panel or wall, and frequently necessary to employ for the purpose switch boxes which are of different size, or otherwise employ switch boxes having knock-out holes so positioned that the selected knock-out hole of one box will be at a different distance from the support than the selected knock-out hole of the other box. In such cases it has heretofore been necessary to build up the panel or other support, say by placing a block of wood under the smaller box, to position the smaller box from the panel at such distance as will bring its selected knock-out hole in alignment with the selected knock-out hole of the other box so as to enable those holes to be connected by use of a straight nipple forming a wiring conduit for the wires running from one box to the other.

According to the present invention, the nipple is so constructed as to permit the selected knock-out holes of the boxes to be readily connected when the boxes are of different size, or those holes are otherwise out of alignment, without building up the panel or other support to position the knock-out holes in alignment. As illustrated, the nipple according to the invention is constituted by a short tubular member 19 having relatively laterally offset, parallel, screw-threaded end portions 21, adjacent each of which latter is a collar 23 formed integrally with the nipple providing a shoulder 25 facing the screw-threaded portion. These screw-threaded ends are adapted to be rotatably received in the selected knock-out holes after the closure portions 17 of the latter are removed. Nuts 27 screw-threaded on the nipple ends serve to clamp the collars 23 against the outer sides of the lateral walls of the boxes after the latter are assembled on the panel. Conveniently the body portion of the nipple is formed with opposite flattened portions 28, or is otherwise constructed to permit application of a wrench thereto to hold the nipple against turning when the nuts are being tightened.

It will be understood that when the nipple ends are inserted in the selected knock-out holes of the two boxes and before the nuts 27 are tightened and both boxes secured to the panel the boxes and the nipple may be relatively rotated about the axes of the screw-threaded nipple ends. Hence under such conditions the boxes may be readily moved relative to each other to place their bottoms on the panel. This operation will be clear from Fig. 3, which diagrammatically illustrates the larger box 29 having a wiring outlet opening 15 connected by a nipple

19 to the wiring outlet opening 15^a of the smaller box 31. As shown in Fig. 3, the bottom 1^a of the smaller box is not in the same plane as the bottom 1 of the larger box. However, under such conditions the nipple acts as a link permitting the smaller box to be rotated in the direction of the arrow 33 about the axis 35 of the opening 15 to bring that box into its dotted line position in which its bottom 1^a is in the same plane as the bottom 1 of the larger box. Although in practice the boxes and nipple may be assembled on the panel in various ways, conveniently such operation may be performed in the manner just indicated, namely, the larger box may be secured to the panel and the smaller box connected to the larger box by the nipple, after which and before tightening the nuts the smaller box may be moved to place it against the panel, to which latter the smaller box may then be secured after the nuts are tightened. This operation is readily performed, and entirely eliminates the inconvenience and labor heretofore necessary incident to building up the panel beneath the smaller box accurately to position the selected knockout hole of that box in alignment with the selected knockout hole of the larger box.

It will be understood that within the scope of the appended claims wide deviations may be made from the form of the invention described without departing from the spirit of the invention.

I claim:

1. A nipple providing a wiring conduit for connecting unaligned wiring openings in facing lateral walls of switch boxes and the like comprising a tubular member having an elongated laterally offset body portion integrally provided with relatively parallel, laterally offset, exteriorly screw-threaded end portions adapted to be rotatably received in such openings and to carry clamping nuts interiorly of said boxes when so received, and means integrally carried by said body portion adjacent each end thereof providing shoulders facing the free end of each of said screw-threaded portions adapted to be drawn by such nuts against the lateral walls of the boxes at such openings.

2. The combination with a pair of switch boxes or the like adapted to be secured to a common support with a lateral wall of one box facing a

lateral wall of the other box in spaced relation thereto, each of which facing walls is provided with a wiring opening, the wiring opening of one box being farther from said support than that of the other box when said boxes are so secured, of a nipple providing a wiring conduit connecting said openings, said nipple having relatively parallel, laterally offset end portions adapted to be rotatably received by said openings whereby when said end portions are so received said boxes and the nipple may be relatively rotated about the axes of the nipple end portions so received to permit said boxes to be secured to said support.

3. The combination with a pair of switch boxes or the like substantially having flat bottoms adapted to rest against a common plane supporting surface with a lateral wall of one box facing a lateral wall of the other box in spaced relation thereto, each of which facing walls is provided with a wiring opening, said wiring openings being positioned at different distances from the bottoms of said boxes, of a nipple providing a wiring conduit connecting said openings, said nipple having relatively parallel, laterally offset, screw-threaded end portions adapted to be received by said openings and shoulder means adapted to engage the outer sides of said lateral walls at said openings, clamping nuts adapted to be screw-threaded on said end portions for securing the latter in said openings and for drawing said shoulder means against said lateral walls, said end portions being rotatable in said openings when received thereby and said clamping nuts are loose whereby under such condition said boxes and nipple may be relatively rotated about the axes of the nipple end portions to permit the bottoms of said boxes to rest on said surface.

4. A nipple according to claim 2 in which the shoulders are in the form of collars integral with the body of the nipple, the portion of the nipple between said collars being flattened at opposite sides of the medial plane in which the nipple body portion is offset to adapt said body portion between said collars to receive the jaws of a wrench for preventing turning of the nipple during the operation of tightening the clamping nuts for drawing said collars against the lateral walls of the boxes.

FRANK E. WENTWORTH.