Nov. 6, 1934. G. A. LUTZ 1,979,804

MULTIPLE PASSAGE WIRING DUCT

Filed Feb. 16, 1932

FIG.1.

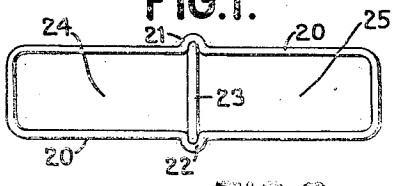


FIG.2.

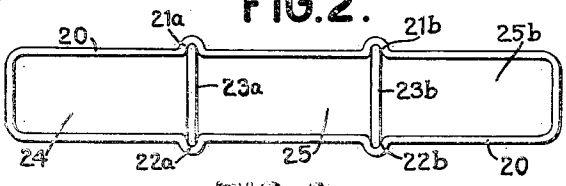


FIG.3.

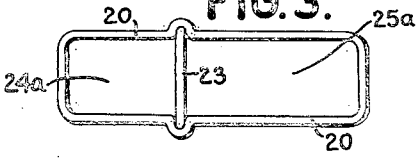


FIG.4.

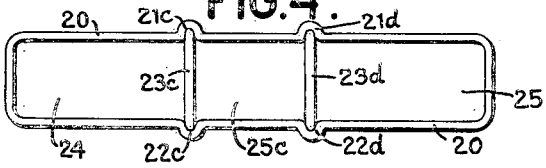


FIG.5.

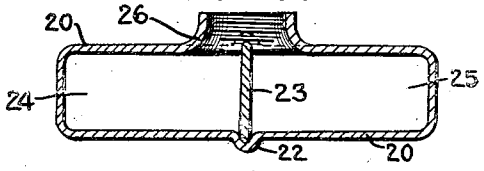


FIG.7.

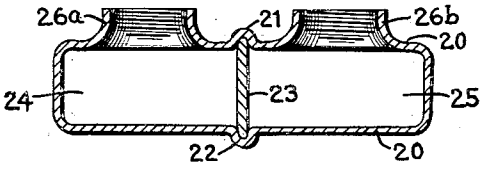


FIG.6.

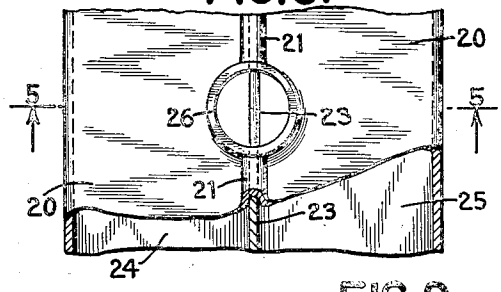


FIG.8.

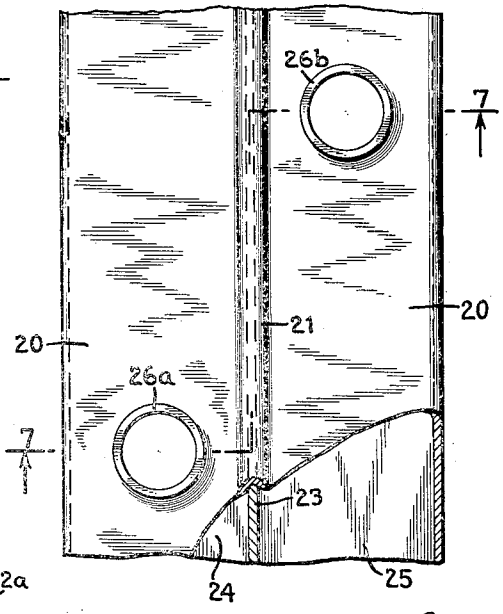


FIG.9.

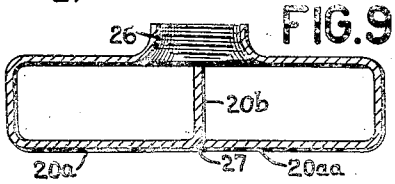
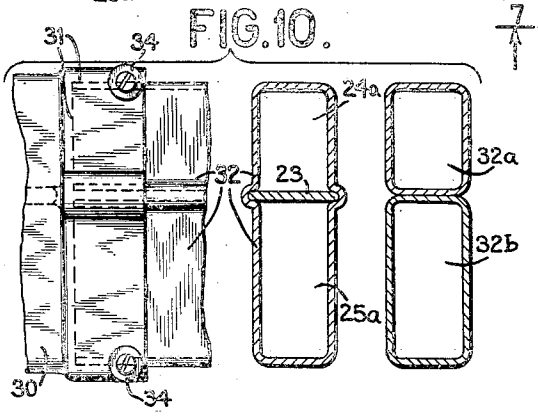


FIG.10.



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MULTIPLE PASSAGE WIRING DUCT

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Application February 16, 1932, Serial No. 593,256

8 Claims. (Cl. 247—32)

This invention relates to improvements in ducts providing raceways for electrical wiring and more particularly to ducts which are intended to be buried in a floor, which are commonly known as underfloor ducts.

With present methods of electrical wiring it is the common and well established practice to provide separate ducts for circuits of different potential so that low potential circuits may be positively and definitely separated and kept away from possible contact and possible short circuiting with high potential circuits. Such separate ducts are frequently installed side by side in parallel relationship and such separate ducts may be of the same size or may differ in size. Such ducts are also provided with outlets in the form of outlet necks which are provided at frequent intervals along the ducts. Often times and usually, more outlets are provided than are required and such unused outlets increase the cost of the ducts. Furthermore separate ducts as heretofore used must be individually installed in the floor and individually fitted in boxes and fittings.

One object of the present invention resides in the provision of a single duct with one or more distinctly separated passages or raceways therein, with a common exterior wall for all of the various passages or raceways whereby the use of separate ducts to provide the separate passages may be obviated.

Another object of the present invention resides in the provision of a tubular multiple passage duct with dividing partition means therein to separate the duct into multiple passages.

Another object of the present invention resides in the provision of a multiple passage duct of a configuration which requires far less material than is required for separate ducts of equivalent size.

A further object of the present invention resides in the provision of a multiple passage duct which is adaptable for mounting in the floor and for securing in fittings and boxes in the same manner as a single passage duct. In this way the number of duct supporting means and the number of entrances in junction boxes with their multiplicity of duct securing means may be materially reduced.

A further object of the present invention resides in the provision of a multiple passage duct with outlet means therefor which may be common to two passages in the multiple passage duct or individual to such passages.

Further and incidental objects of the present invention reside in the provision of a duct and duct system which is more compact as to width; which requires less space; which is required for the entrance of the duct into junction boxes, etc.; which eliminates the necessity of handling extra ducts in the course of manufacturing and finishing and the cutting off and installing of multiple ducts upon the job and generally in the provision of a duct which is cheaper to manufacture and install than previous ducts.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and claims and shown in the drawing which by way of illustration shows what I now consider to be the preferred embodiment of my invention.

In the drawing:

Figures 1, 2, 3 and 4 are end views of ducts incorporating features of the present invention. Fig. 1 shows a multiple passage duct with two pairs of passages of the same size. Fig. 2 shows a three-passage duct with the different duct passages of the same size and Figs. 3 and 4 respectively show a two-passage duct with the passages of different size and a three-passage duct in which two of the passages are larger in size than the third passage;

Fig. 5 is a cross-sectional view of a two-passage duct, the section being taken substantially along the line 5—5 of Fig. 6;

Fig. 6 is a top plan view of the duct shown in Fig. 5;

Fig. 7 is a sectional view of a different form of two-passage duct with distinctive outlets, one set of outlets being provided for each passage. This section is taken substantially along the line 7—7 of Fig. 8;

Fig. 8 is a top plan view of the duct shown in Fig. 7;

Fig. 9 is a sectional view of a modified form of duct of the general type shown in Fig. 5; and

Fig. 10 shows several views which delineate the manner of use of a multiple passage duct in a single entrance junction box which box is adaptable also for use to receive two separate single passage ducts.

According to the present invention multiple passage ducts are constructed in tubular form from strip sheet metal with a single exterior wall portion 20, which exterior wall portion may be provided with curved up portions defining inwardly facing opposed grooves 21 and 22 which receive a strip 23, such strip forming the common dividing wall between two separate passages 24 and 25 (see Fig. 1). By constructing

the duct in this manner there is a material saving in duct material over that required for two separate single passage ducts, since in lieu of requiring four side wall portions for bounding each single passage duct, making eight wall portions in all, only four side wall portions and a dividing wall portion are required. This gives a saving of material substantially equivalent to that of one side wall portion of a single passage single duct. The grooves 21 and 22 may be disposed centrally of the duct along the horizontal center line to provide equal sized passages such as are shown in Fig. 1, or the grooves may be disposed off the central line of the duct to provide unequal sized passages 24*a* and 25*a*. Also in place of having a single pair of grooves 21 and 22 such as are shown in Figs. 1 and 3 a multiplicity of pairs of such grooves may be provided (see 21*a*—22*a*, 21*b*—22*b* [Fig. 2]) adapted to receive two dividing strips 23*a* and 23*b*. With such an arrangement a three-passage duct is provided. Obviously any number of dividing strips can be used depending upon the number of passages which are desired. In Fig. 4 the multiple grooves are designated 21*c*—22*c* and 21*d*—22*d* and these grooves are adapted to receive dividing strips marked 23*c* and 23*d*.

From the foregoing it will be understood that the location and numbers of grooves may be varied according to the size and number of passages which are required in each duct. According to the embodiment shown in Fig. 2, three equal sized passages 24, 25 and 25*b* are provided and according to the embodiment shown in Fig. 4, two equal sized passages 24—25 and one smaller sized passage 25*c* are provided.

Multiple passage ducts can conveniently be provided with integral outlet necks 26. Such necks it will be understood are disposed at intervals along the necks. Such necks 26 can be provided disposed as shown in Figs. 5 and 6, that is directly over the dividing wall. By disposing the outlet necks in this manner a single outlet will afford access to two passages. By disposing the outlet necks in this manner a saving is made in outlet cost since a single outlet serves for both passages.

In place of having a common outlet for a pair of passages, individual outlets for the individual passages can be provided as shown at 26*a* and 26*b* (Figs. 7 and 8). Such outlets are preferably disposed in staggered relation as shown.

In lieu of using the separate dividing strip 23 and the grooved portions 21 and 22 a multiple passage duct with a pair of separate passages may be constructed from a single strip of metal in the manner shown in Fig. 9. Here the outer wall portion 20*a* has an extension 20*b* which forms the dividing wall for the duct. The portion 20*aa* of the outer wall preferably has its terminating end welded to the bent up portion 20*b* as indicated at 27.

Fig. 10 illustrates the manner in which a junction box 30, provided with a single entrance opening or socket 31 is adapted to alternatively receive a multiple passage single duct 32 or two separate single passage ducts 32*a* and 32*b*. The socket 31 is provided with set screw passage means 34 which are adapted to hold either multiple single ducts 32*a* and 32*b* or the single multiple passage duct 32.

It will be appreciated that the use of ducts incorporating the principles of the present invention will afford numerous economies and advantages. In place of manufacturing, handling and installing two or more separate single passage ducts, one multiple passage duct only need be manufactured, handled and installed. Less material is also required for a single multiple passage duct than for a multiplicity of separate single passage ducts which afford multiple passages of equivalent size.

It will be understood that the ducts are provided with the multiplicity of outlets along a wall portion thereof and that such outlets with any of the various forms of duct can be so located that each outlet affords access to a pair of distinctively separated passages in the duct or the outlets can be so located as to be individual to each duct passage. Furthermore, the number and relative size of the multiple passages may vary according to the use to which the duct is to be put.

In all embodiments of the invention a common partition means is provided to distinctively separate the tubular duct into separate passages. The use of such common sheet metal partition affords a saving of material and of cost over separate ducts because the material of one side wall portion is dispensed with. The ducts are preferably made of steel strip shaped into tubular form and welded in any desired manner.

What I claim is:

1. A duct which comprises a tubular member divided by common partition means into two or more passages in each of which passages electrical wiring may be installed and upstanding outlets upon and integral with a wall of said tubular member, each outlet being located upon said wall to provide access to more than one passage in said duct.

2. A tubular steel duct including a longitudinal strip incorporated in said duct to divide the same into completely separated passages in which electrical wiring may be installed, and outlet means upon the wall thereof which outlet means are integral with the outer wall of the steel duct and upstanding therefrom and disposed to provide access to both of the aforesaid passages by each of the outlet means.

3. A wiring duct formed as an integral structure from a single piece of sheet metal shaped to form a hollow duct generally rectangular in external configuration with one marginal edge of the single piece of sheet metal bent up perpendicularly from the wall portion and extending across the interior of the hollow duct to divide the same into two separated longitudinal passages, said other terminating edge of the one piece wall portion being welded to the bend of the bent up portion.

4. The invention set forth in claim 3 in which the wall of the duct opposite the wall from which the portion is bent up is provided with upstanding outlet means which are integral with the duct wall and which provide access to both of the separated passages of the duct.

5. A sheet metal multiple passage wiring duct formed with a single piece outer wall portion forming the complete housing for the duct with the opposite walls on the interior duct provided with inwardly passing grooved portions and sheet metal partition means received in said grooved portions to divide the duct into a plurality of separated passages.

6. A tubular sheet metal duct including a one-piece sheet metal wall portion forming a complete outer housing for the duct and partition means dividing the duct into distinctly separated longitudinal passages, said partition means

being integral and formed as a single thickness edge-extension of the one-piece sheet metal wall portion.

7. A tubular sheet metal duct including a one-piece sheet metal wall portion forming a complete outer housing for the duct and common partition means dividing the duct into distinctively separated longitudinal passages, said common partition means comprising a separate sheet metal strip secured in the duct by inwardly facing grooved portions of the one-piece sheet metal wall portion.

8. A tubular sheet metal duct including a one-piece sheet metal wall portion forming a complete outer housing for the duct, a common partition means dividing the duct into distinctively separated longitudinal passages, and outlet means upon the wall portion upstanding therefrom and integral therewith, said outlet means being disposed so that a single outlet affords access to a multiplicity of separated passages.

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