No. 858,846. PATENTED JULY 2, 1907.

H. ALEXANDER.

HOUSE WIRING CONDUIT SYSTEM.

APPLICATION FILED MAR. 22, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

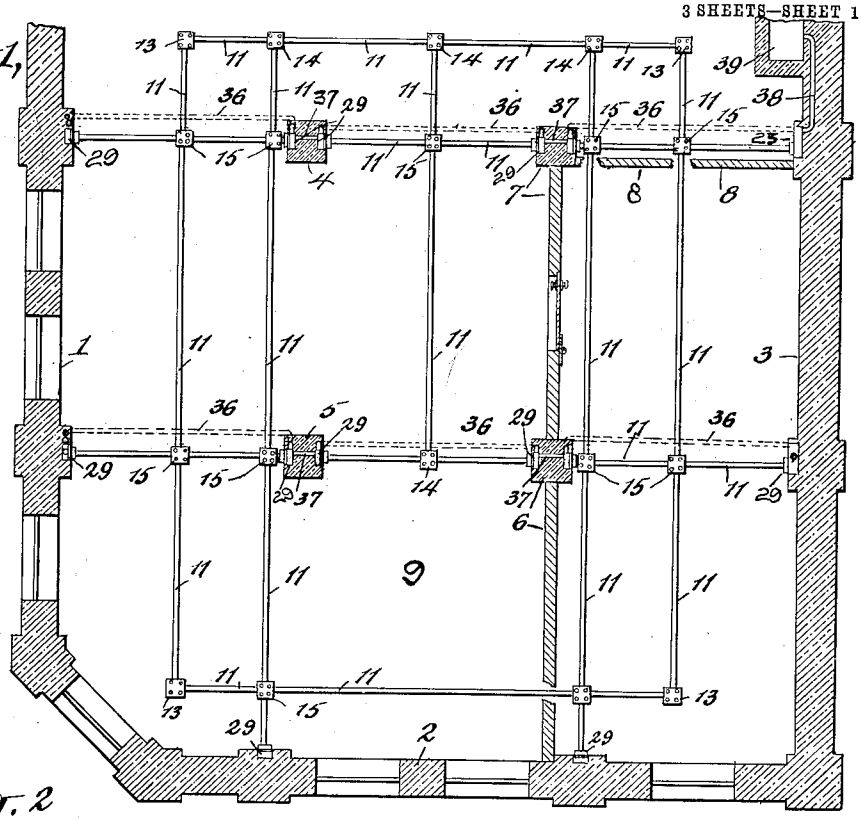
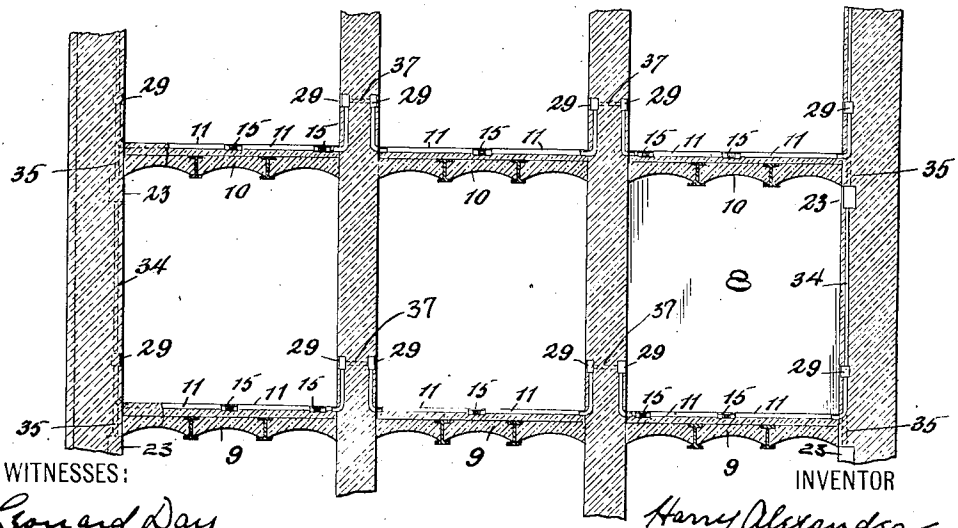


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

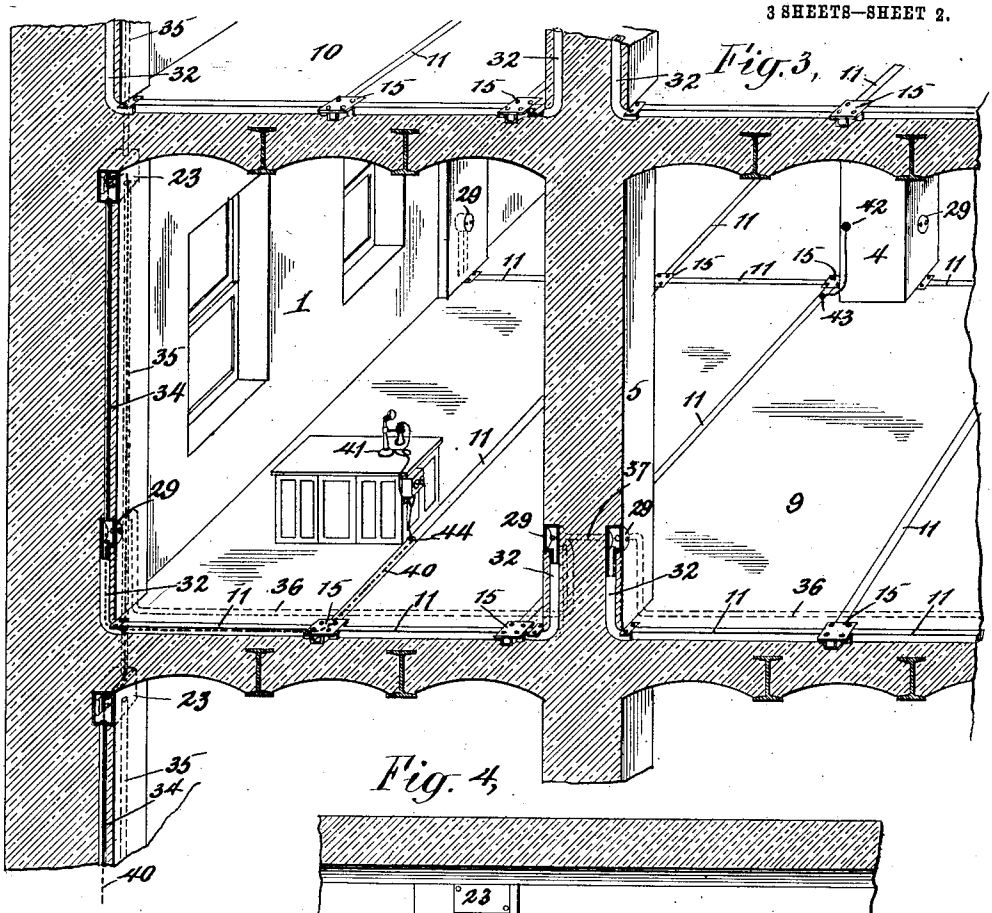


Fig. 4.

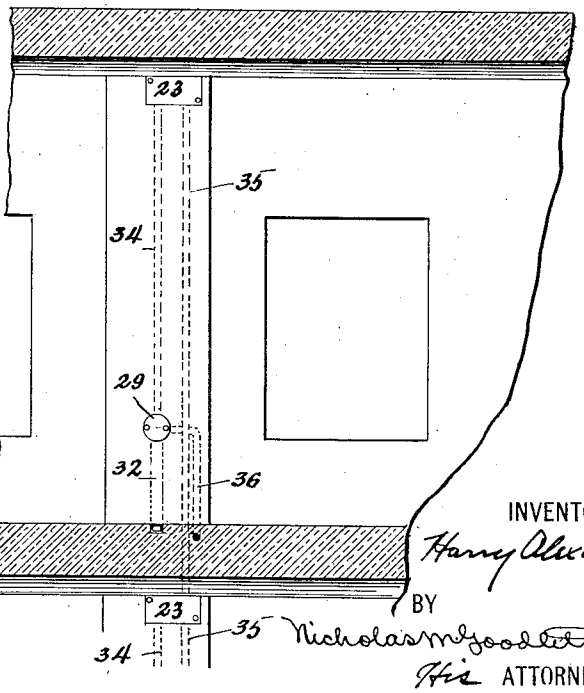
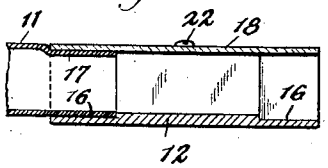


Fig. 5



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3 SHEETS—SHEET 3.

Fig. 6,

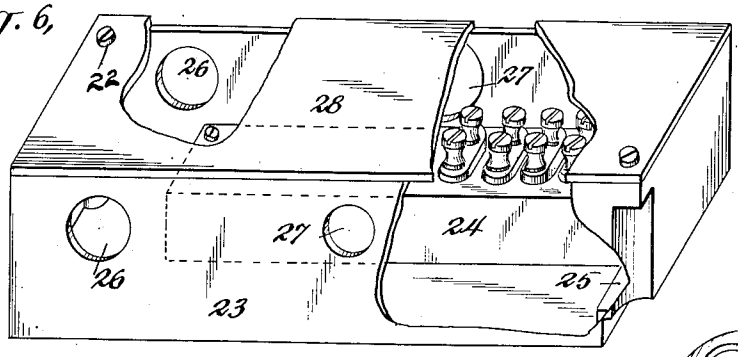


Fig. 7,

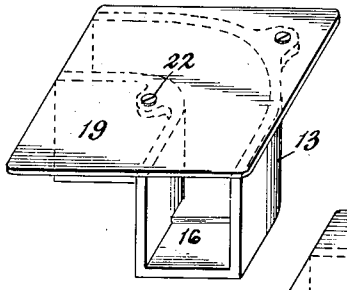


Fig. 8

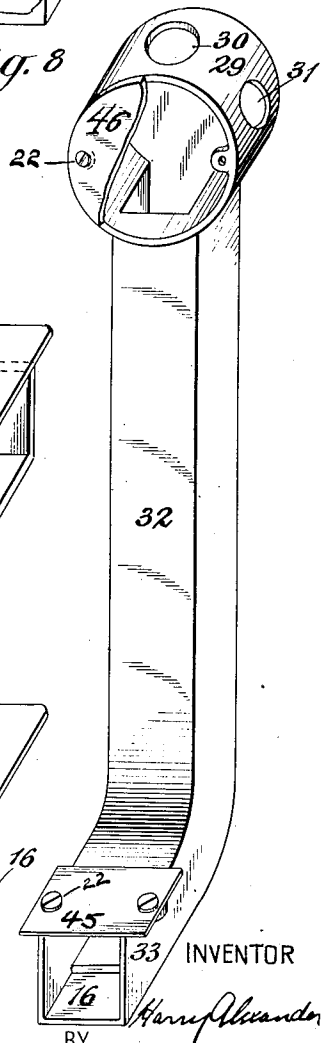


Fig. 9,

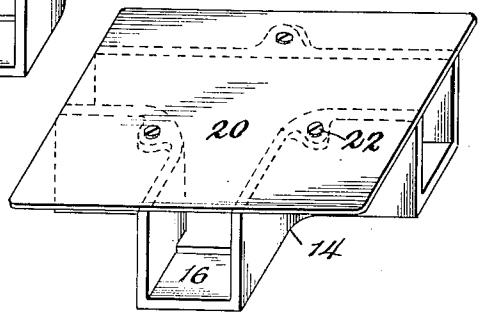


Fig. 10,

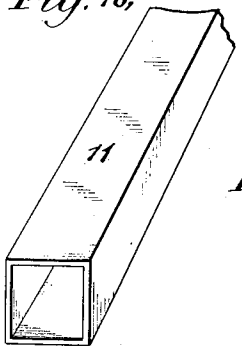
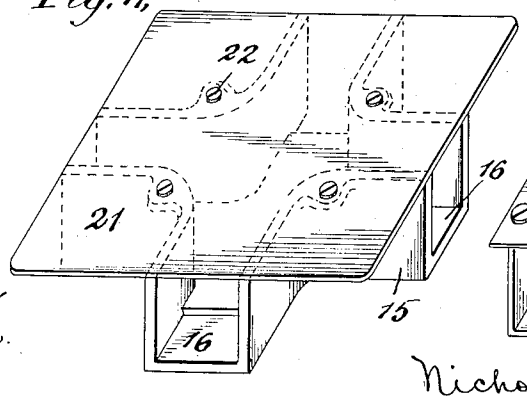


Fig. 11,



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UNITED STATES PATENT OFFICE.

HARRY ALEXANDER, OF NEW YORK, N. Y.

HOUSE-WIRING CONDUIT SYSTEM.

No. 858,846. Specification of Letters Patent. Patented July 2, 1907.

Application filed March 22, 1906. Serial No. 307,321.

To all whom it may concern:

Be it known that I, HARRY ALEXANDER, a citizen of the United States, and a resident of the borough of Manhattan, county, city, and State of New York, have invented certain new and useful Improvements in House-Wiring Conduit Systems, of which the following is a specification.

This invention relates to conduit systems for use in building and house wiring and more particularly to that type of systems which are installed in a building during its construction.

In general, an object of this invention is to provide a conduit system which will permit of the ready installation of and the concealment of work, for which the system is intended, and the introduction thereof at any locality throughout the extent of the system and the extension of said work therein to any second locality throughout the extent of said system, at which second locality an exit of the work may readily be made. These localities may, of course, be selected at will after the complete installation of the system and the complete construction of the building in which it is installed.

More particularly it is the object of this invention to provide a complete conduit system in a building which permits a wide range of flexibility for wiring; which contemplates many changes in the location of circuits and devices; and which provides for an intercommunicating system throughout the various compartments in a building.

This conduit system is not limited to one which must of necessity be wired only after the needs of the tenants in the building have been determined. It may be wired at any time and without regard to the needs of the tenants and then readily altered or supplemented at will.

A feature of the invention is that no alterations in the conduit system and consequent defacement or tearing up of a building are necessitated by a change in the electric wiring or in the location of electric devices, such as fixtures and instruments, after the system has been installed.

Heretofore buildings have been equipped with conduit systems interconnecting various outlet openings which have been predetermined and located before the construction of the buildings according to some general scheme governed by the architect's ideas of the probable location of furniture, business of occupants and the like.

It has been found that a room or a compartment is not always employed and furnished as was contemplated, in which case the necessary changes in the location of electric devices required either a relocation of all outlets with the necessary changes in the conduits connecting them, of the resort to unsightly and dangerous exposed wiring.

The present invention contemplates a solution of many of the problems unsolved by present conduit systems and is illustrated as embodied in a preferred form in the drawings forming part of this specification, in which like numerals designate corresponding parts and in which,—

Figure 1 is a horizontal section through the walls of a building showing a portion of the conduit system in plan. Fig. 2 is a vertical section through a building showing a portion of the conduit system in elevation, parts thereof being indicated in dotted lines. Fig. 3 is a fragmentary perspective view partly in section of a building provided with the conduit system. Fig. 4 is a detail vertical section showing the position of conduit boxes and illustrating their connecting conduits in dotted lines. Fig. 5 is a longitudinal section through a conduit and its connecting box. Fig. 6 is a perspective view, with parts broken away, of an interconnecting junction outlet box. Fig. 7 is a perspective view of an elbow conduit box. Fig. 8 is a perspective view of a terminal elbow outlet box with its integral throat piece. Fig. 9 is a perspective view of a T conduit connecting box. Fig. 10 is a fragmentary perspective view of an accessible conduit. Fig. 11 is a perspective view of a cross conduit connecting box.

Referring now more particularly to the drawings:— Figs. 1, 2, 3 and 4 illustrate a portion of a building divided by partitions 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 into various compartments. The term partition is used in its broad sense and is intended to cover the outside walls 1, 2 and 3; the floor partitions 9 and 10; the interior partitions or columns 4, 5, 6, 7 and 8; and, in fact, any portion of the building construction which separates one space in the building from another either within or without the building. For the purposes of this description the partitions 4, 5, 6, 7 and 8 may vary in extent in either direction at right angles to their surfaces so as to divide off more or less space within the building, as is illustrated in Fig. 1.

11 designates a series of conduits embedded in one or more of the various partitions. These conduits are illustrated as having flat exposed surfaces which are preferably substantially flush with the exposed surfaces of the partitions in which they are embedded, although in some cases they may be completely embedded near the surface of a partition, but accessibility is required. They are illustrated as rectangular in cross section. These conduits preferably extend in various directions over the face of a partition, and are interconnected to form a more or less complete network of accessible, intercommunicating conduits. The location of the various conduits is approximately along the loci of the probable localities of outlets which may be desired to provide for the wiring to exposed electric devices, such as fixtures, telephones, push but-

tons, call bells, lamps, motors, switches, or any electric apparatus requiring wires from one to another. These loci are quite readily determined before the completion of a building. For example—suppose desk lights, telegraphs, telephones, fixtures, and push buttons or other devices are to be extensively employed in one compartment of a building. In this case all the probable positions in which desks will be located can readily be determined from the floor plan of that compartment. The desired location for an outlet to provide for the wires leading to each desk is at the side of or underneath the desk. For one position of the desk this desired locality is some particular point on the floor, but, as the position of the desk is moved, this point moves and traces an imaginary path or locus which is the locus of the probable location for that desk outlet. Thus the objects of this invention may be furthered by locating an accessible conduit approximately along this locus. Then, when the desk is actually located, an outlet in the conduit may be made at the desired locality. To perfect the system various conduits, located as described, are interconnected in any suitable manner. The various loci are first determined and along all or only some of these loci, as desired, conduits are laid.

In the drawings the floor partitions 9 and 10 are illustrated as each provided with a series, 11, of these interconnecting accessible conduits embedded substantially flush with the finished floors. However, this specific location is for purposes of illustration merely, as the location of these conduits might be upon any desired surface of any desired partition, and they might be slightly covered by a partition.

The interconnection of the various conduits in each series may be accomplished by means of conduit connecting boxes, comprising joint boxes 12, elbow boxes 13, T boxes 14, and cross boxes 15, as specifically illustrated in Figs. 5, 7, 9 and 11. These boxes are trough shaped as illustrated and each mouth of each is provided with a ledge 16 depressed below the inner lower surface of each box an amount approximately equal to the thickness of the conduit shell. The conduit ends are provided with swaged portions 17, which the covers 18, 19, 20 and 21 of the connecting boxes 12, 13, 14 and 15, respectively, engage to clamp the conduits. These covers are clamped to the boxes by screws 22 and, preferably, come substantially flush with the exposed faces of the conduits and of the partitions in which they are embedded. These conduit connecting boxes, although primarily useful for connecting the conduits, may also be employed for the reception of safety devices of various descriptions which are well known in the art, and therefore are for some purposes junction boxes.

Although the separate series of conduits provide intercommunicating ducts throughout the extent of the particular partitions in which they are located, it is desired that they intercommunicate between one another and also between themselves and those on other partitions and especially with suitable conduit boxes, such as interconnection junction boxes and terminal outlet boxes. The interconnection junction boxes 23 are specifically illustrated in Fig. 6, which illustrates a box substantially rectangular in outline with a terminal interconnection strip 24 spanning the box from the supporting ledge 25 at one end of the box to a point short of the other end of the box, where it is supported from the box bottom in any suitable manner. The sides of the box parallel with the strip 24 are perforated with conduit openings 26 and 27 which are preferably symmetrically located to provide alinement. One or more of these openings may be closed if desired. It should be noted that an unobstructed passage through the box is provided between the openings 26 while a passage between the openings 27 may be had either above or below the strip 24. The box is closed by a cover 28.

The terminal elbow outlet box 29, illustrated specifically in Fig. 8, is provided with suitable conduit openings 30 and 31 and with an integral throat member 32 in the form of an elongated L, which laterally communicates with the box 29. The extremity of the member 32 is provided with a conduit connection 33 which is similar to those illustrated in Figs. 5, 7, 9 and 11. It comprises the depressed ledge 16 and cover plate 45, clamped down by the screws 22. The outlet box 29 is also provided with a cover 46 and clamping screws 22.

It is preferred to install the conduit boxes 23 and 29 in the walls of the various compartments and interconnect them with the various accessible series of conduits, although they might be installed on any partition which proved to be convenient. The preferred location for the boxes 23 is embedded in the walls at approximately the height for a picture molding while the preferred location for the boxes 29 is embedded in the walls in approximately vertical alinement with the respective boxes 23 and just enough above the floors to clear the base boards when they are installed in the building. These locations are occupied by the boxes as illustrated in the drawings with the exception of the box 23 connected to the trunk line conduit 39, as illustrated in Fig. 1. They are preferable, since it is then possible to lead out a wire and secure it along a molding or base board or in back of same without running across a blank wall space. The throat members 32 of the boxes 29 are just of sufficient length properly to position the boxes when their conduit connections 33 are substantially flush with the top faces of the conduits 11, which are directly connected therewith. In this way the series of conduits 11 are practically extended directly to the boxes 29. Conduits 34 interconnect the various sets of boxes 23 and 29 while other conduits 35 interconnect the various boxes 23, preferably entering the boxes through the holes 26, described.

36 are conduits which interconnect various of the boxes 29 as illustrated, while 37 are conduits likewise interconnecting various boxes 29.

38 is a main feeder conduit connecting a box 23 with a main trunk line conduit 39 of the building and may be located at any convenient elevation. Such a connection may be made at as many localities as desired.

The conduits 34, 35, 36, 37 and 38 are all preferably completely embedded in respective partitions and when so embedded permit the entrance or exit of a wire only at their extremities. It is quite the contrary however, with the conduits 11. One surface or face of each of these conduits lies substantially flush with or covered by only a thin layer of the exposed face of the

partition in which the conduits are embedded and each conduit is therefore readily accessible. If it is desired to lay the wires for any electric device, the nearest spot on one of the conduits 11, embedded in one of the partitions of the particular compartment in which the said electric instrument is situated, is selected. At this spot an opening is made in the exposed face of the conduit or through the thin layer of building material and then into the conduit if it is completely embedded and through this opening the work, for which the system is intended, such as suitable wires, is drawn.

In Fig. 3 dotted lines 40 indicate the course through the conduits over which wires are drawn from the telephone 41 to some other locality in the building. As may be traced, these wires first enter one of the conduit boxes 29 and then ascend to an interconnection box 23 where suitable connections are made with wires passing through the system of conduits 35, which may be termed branch conduits and thence into a second interconnection box 23 below the floor 9, where connection is made with wires descending through a branch conduit 34. This course 40 is merely illustrated as one of a variety of courses for possible wirings.

42 designates a push button, wires from which are led into one of the conduits 11. After a suitable hole has been made in the conduit selected and the wires are drawn in, all that is necessary to complete the installation at that locality is the application of a suitable bushing. Such bushings are designated by 43 and 44.

From the description of the conduits and the various conduit boxes connected therewith, it is evident that a complete intercommunicating conduit system is provided for the entire building, and that this system may be considered as being made up of a number of subsystems. Every individual compartment in the building may be provided with a sub-system or only a portion of each compartment may be provided with it, or still again, merely some particular compartments may be provided with systems. Furthermore, various methods of interconnecting the several sub-systems are contemplated, but the methods illustrated designate the several preferred modes of interconnecting various sub-systems.

While, but a single face of a single partition of each of the compartments illustrated is provided with accessible conduits, it might be found desirable to provide more than one face and more than one partition with these conduits and this is contemplated. The details of each particular installation are governed in a large extent by the requirements in each instance. The various conduits and conduit boxes illustrated are preferably made of metal such as iron.

Other specific details of the construction may be widely modified within the scope of this invention.

Although there has been described and illustrated what is considered to be the preferred embodiment of this invention, various modifications within the scope thereof are contemplated.

What is claimed and what is desired to be secured by Letters Patent is:—

1. A conduit system permanently located in a building; said system comprising a plurality of intercommunicating conduits embedded in a partition of a compartment, extending in various directions, and being readily accessible from the surface of the partition at any locality throughout the extent of said system; each of said conduits being located approximately along the locus of the probable locality for an outlet; said system providing for the introduction therein of the work, for which it is intended, at any locality throughout its extent and also providing for the extension of said work therein to any second locality throughout its extent, at which second locality an exit of the work may readily be made.

2. A conduit system permanently located in a building; said system comprising a plurality of intercommunicating conduits embedded in a partition of each of a plurality of compartments; said plurality of intercommunicating conduits for each compartment, extending in various directions, and being readily accessible from the surface of the partition at any locality throughout the extent of said plurality of conduits for each compartment; each of said conduits being located approximately along the locus of the probable locality for an outlet; suitable connecting ducts interconnecting the plurality of conduits for one compartment with the plurality of conduits for another compartment; said system providing for the introduction therein of the work, for which it is intended, at any locality throughout the extent of said pluralities of intercommunicating conduits and also providing for the extension of said work therein to any second locality throughout the extent of said system, at which second locality an exit of the work may readily be made.

3. A wiring conduit system permanently located in a building; said system comprising a plurality of intercommunicating conduits embedded in a partition of a compartment, extending in various directions, and being readily accessible from the surface of the partition at any locality throughout the extent of said system; each of said conduits being located approximately along the locus of the probable locality for an outlet; said system providing for the introduction therein of the wiring at any locality throughout its extent and also providing for the extension of said wiring therein to any second locality throughout its extent, at which second locality an exit of said wiring may readily be made.

4. A wiring conduit system permanently located in a building; said system comprising a plurality of intercommunicating conduits embedded in a partition of each of a plurality of compartments; said plurality of intercommunicating conduits for each compartment, extending in various directions, and being readily accessible from the surface of the partition at any locality throughout the extent of said plurality of conduits for each compartment; each of said conduits being located approximately along the locus of the probable locatity for an outlet; suitable connecting ducts interconnecting the plurality of conduits for one compartment with the plurality of conduits for another compartment; said system providing for the introduction therein of the wiring, for which it is intended, at any locality throughout the extent of said pluralities of intercommunicating conduits and also providing for the extension of said wiring therein to any second locality throughout the extent of said system, at which second locality an exit of the wiring may readily be made.

5. An article of manufacture, comprising a wall box and an elongated L shaped throat integral therewith and extending laterally therefrom, said L shaped throat provided at its exposed end with a conduit receiving socket open at one side and provided with a clamping plate.

6. An article of manufacture, comprising a wall box and an elongated L-shaped throat integral therewith and extending laterally therefrom; said L-shaped throat comprising an elongated depending portion terminating in a forward extension provided at its exposed end with a conduit receiving socket and open at one side and provided with a clamping plate.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HARRY ALEXANDER.

Witnesses:
LEONARD DAY,
IDA G. GILMORE.