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CONCRETE FORM STRUCTURE

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1 Claim. (Cl. 25—118)

This invention relates to concrete and concrete form structure and more particularly to a form structure and a method of providing a conduit outlet at the face of concrete structure which is substantially flush with the face.

In erecting the concrete form work and installing the conduits in the forms prior to pouring the ceilings, it has been usual to bend the ends of the conduits and turn them down so that they will protrude from the finished concrete ceiling surface. In erecting the panels of the concrete forms it is necessary to cut holes in the panels at the location of the conduits to allow the downwardly protruding ends of the conduits to pass through the panels below the ceiling level and this spoils the panels for further use. When the concrete has been poured and after it sets and the form is stripped from the concrete, these conduits protrude downwardly from the ceiling in odd lengths. Thereafter in continuing the conduits to switches, outlets or junction boxes, which are usually set at predetermined height from the floor in a given building, it is necessary to measure and fit each individual extension of the conduit and to connect it to the conduit end which protrudes from the ceiling. This involves time and labor because of lack of uniformity. Furthermore, if two or more conduit ends protrude crookedly due to faulty bending of the pipe before pouring the concrete, these ends protruding through holes cut in the panel prevent stripping of the form unless the panel is further damaged by enlargement of the holes or until the crooked ends are straightened. All these disadvantages increase the cost of the usual methods of forming such structures.

It is often desirable to change the lead or direction of the conduit at the point where it emerges from the finished face of the ceiling. This may be due to the fact that the conduit has been set crooked and needs straightening, or because of a change of design, it is desired to change the lead of the conduit after the concrete has set. In ordinary practice, since the concrete in the finished ceiling structure fits closely around the conduit at the face, it is necessary to chip away a large amount of concrete in order to form an enlarged opening to allow bending of the conduit and this requires time and effort.

It is the object of the present invention to provide a structural combination and method of installing conduits in ceilings which, when the concrete has been stripped, provides conduit outlets which are flush with the finished face of the ceiling so that all extensions of the conduit to junction boxes, outlets and switch boxes at a predetermined level will be of the same length and can be prefabricated and rapidly fitted. A further object is to avoid the cutting of holes in the concrete form panels so that the latter can be preserved for reuse. A further object is to provide means for forming an aperture which has a lip or shoulder which can be readily chipped away so that the aperture can be

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quickly enlarged to provide room to bend the conduit with a minimum amount of concrete chipping work.

Further objects and advantages of the invention will be apparent from the following description thereof together with the accompanying drawings in which:

Fig. 1 is a cross section in elevation showing a concrete ceiling with the conduit and concrete form assembly of the invention.

Fig. 2 is a view similar to Fig. 1 showing the form panel removed and a conduit extension fitted into the structure of the invention.

Fig. 3 is a view similar to Fig. 1 showing a method and structure for removing the flared fitting so that the conduit may be bent and straightened up as desired.

Fig. 4 is a view of the concrete ceiling similar to Fig. 1 showing the flared structure removed.

Fig. 5 is a view similar to Fig. 1 showing the concrete chipped away so that the pipe can be bent.

Fig. 6 is a view similar to Fig. 5 showing the conduit after it has been bent.

Fig. 7 is a cross section of the flared attachment for the conduit.

In the drawings, Fig. 1 shows a plywood panel comprising part of a concrete form 10 upon which concrete 12 is poured to form a ceiling structure with a finished surface 14. An electric conduit 15 is installed to run through the concrete and it is provided with an elbow 16 or ordinary bend forming a portion 17 normal to the finished concrete face 14 and running to the face 14 to allow the conduit to be connected to protrude below the face 14.

The end of the conduit portion 17 is threaded at 18 adjacent the concrete face 14. Screwed on to the threaded end 18 of the conduit is a flared attachment 20 having a reduced portion 21 and an enlarged portion 24 flared toward the inner face of the panel 10 which forms the finished face 14 of the concrete. The attachment 20 has a threaded hole 19 to engage the threaded portion 18 of the conduit to secure the attachment to the conduit with a concrete proof joint and to which an extension 30 having a threaded end 31 may be fitted as seen in Fig. 2. The enlarged portion 24 has a face 22 which rests against the inner face of the panel 10 and forms a concrete proof joint which prevents wet concrete from flowing into the interior of the conduit 17 and of the attachment 20. For this purpose a gasket 25 may be inserted between the face 22 of the attachment 20 and the panel 10. The attachment 20 is provided with means to secure it to the panel 10 which in the illustrative embodiment comprises a pair of holes 28 through which nails 29 are driven into the panel 10.

When the structure is assembled as shown in Fig. 1, the concrete may be poured against the panel 10 and around the conduit 17 and attachment 20. After the concrete sets, the form 10 may be stripped away from the face 14 of the concrete leaving the conduit 15—17 and the attachment 20 embedded in the concrete with the outer face 22 of the attachment 20 substantially flush with the concrete face 14, as shown in Fig. 2. The nails 29 may be cut off flush with the face 22.

The conduit extension or riser 30 may now be fitted in the threaded portion 19 of the attachment 20.

Fig. 3 shows a device for removing the attachment 20 in case it is desired to chip away some concrete from around the conduit extension 17 in order to bend it and change its lead. This device is a wrench or spanner assembly which comprises a threaded insert 35 which is screwed into the threaded portion 19 of the flared attachment 20, and which for convenience has a rod 36 through one end forming a handle so that it can be turned by hand. Loosely fitting on the insert 35 is a spanner 38 having a handle 39 and a pair of pins 40

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which are engaged in blind holes 42 which have been previously drilled in the face 22 of the attachment 19. The spanner 38 is held solidly up against the attachment 20 by a threaded nut 44 on the insert 35 having a handle 45 and which is set up on the insert 35 against the spanner 38 to hold the pins 40 in the holes 42. The attachment 20 can thus be easily started and removed by hand from the conduit 17 and the concrete leaving an aperture 50 having a sharp shoulder 52, as shown in Fig. 4. By breaking off the shoulder 52 with a chipping device, the aperture 50 can be easily and quickly expanded, as shown in Fig. 5 at 50a, in order to make room to bend the exposed end of the conduit 17, as shown in Fig. 6. Attachment of a conduit extension or riser can then be made on the threaded end of the conduit 17 seen in Fig. 6, conveniently by an ordinary coupling and then the aperture 50a can be pointed up by troweling.

While I have shown and described a particular embodiment of the invention, I do not intend to be limited in the scope of my claim to the details shown, since my invention comprises any structure and method of the class described for forming a concrete proof joint between the exposed end of a conduit and the form so that the end of the conduit is substantially flush with the finished concrete face with means for attaching an extension and without the necessity for any holes in the form panels for accommodating the conduit. At the same time the invention provides means for forming an aperture in the concrete having a shoulder so that the aperture can be quickly enlarged for bending the end of the conduit as desired. Furthermore, the invention is not limited to electric wire conduits protruding from ceilings. It includes provision for conduits for other purposes and which protrude from other concrete surfaces in which the surface is established by a form.

I claim:

Concrete form structure providing, in the concrete

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moulded in the form, a conduit having an outlet which has a screw threaded coupling terminating substantially flush with the finished concrete face moulded by said form, said form structure comprising, in combination, a form panel for moulding the concrete face, a conduit on the side of the panel on which the concrete is moulded, said conduit having an exteriorly threaded end portion approaching substantially normal to the panel, a unitary attachment for said threaded end portion, said attachment having an outwardly flared portion forming a flange having a flat face and an interior threaded passage extending from one end of the attachment to the other, said flat face extending radially inwardly from the outer periphery of the flange to said passage, and part of which passage engages said threaded end portion and another part of which passage is arranged to receive a threaded conduit extension when the panel is removed from the said concrete face, said flat face portion abutting the panel and thereby being positioned flush with the concrete face formed by the panel, and means in said flange for securing the said attachment to the panel.

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