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L. A. WHITLOCK
HOLE FORMING DEVICE
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2,684,518

Fig. 1

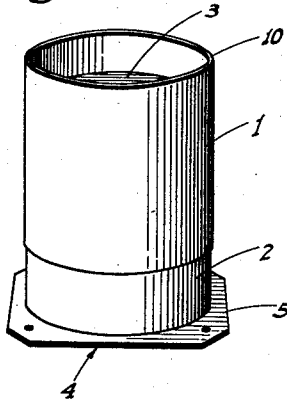


Fig. 2

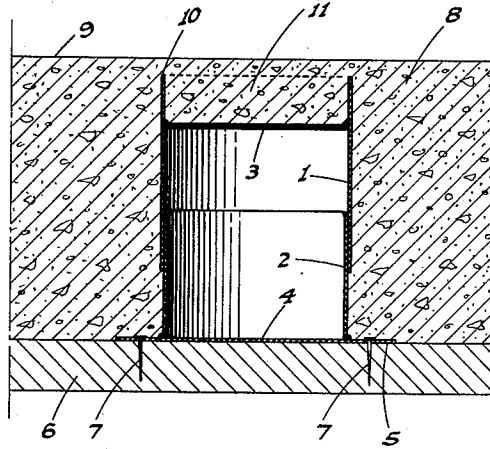


Fig. 3

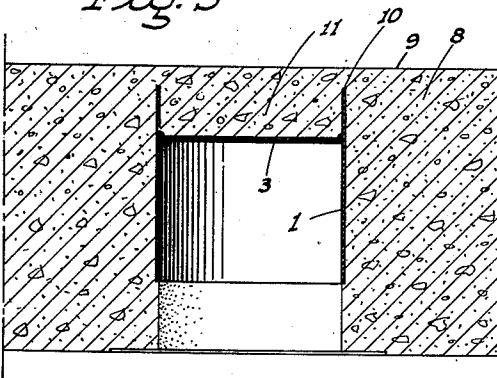


Fig. 4

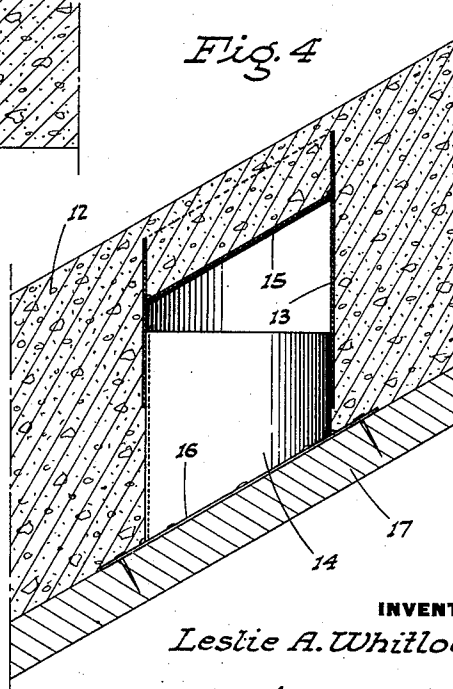
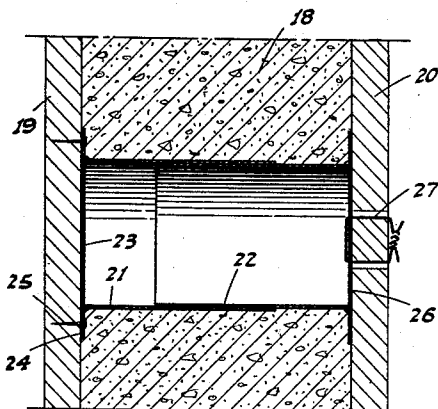


Fig. 5



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HOLE FORMING DEVICE

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2 Claims. (Cl. 25—128)

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This invention is directed to, and it is a major object to provide, a novel device for forming holes in concrete slabs, such as floors, roofs, and walls, when the same are poured, and are of the type backed by a removable form.

Another object of the invention is to provide a hole forming device which is especially designed, but not limited, to produce holes in concrete slabs for utility conduits, outlets, or the like.

A further object of the invention is to provide a device, as above, which is secured to the form preparatory to pouring of the concrete slab; the device including separable parts—at least one of which is adapted to be removed from the slab with the form.

A still further object of the invention is to provide a hole forming device which, in one embodiment, is operative to produce a hole, in a concrete slab, which is closed or blind at one end and thus not initially exposed through the corresponding slab surface; the device being designed so that a plug of concrete may be punched out to open the blind end of the hole to said surface. In this manner the hole is unseen until it is desired for use.

An additional object of the invention is to provide a hole forming device, of the type described, which is easy and convenient to use; the device being capable of quick attachment to the form, and also is adjustable for concrete slabs of different thicknesses.

It is also an object of the invention to provide a hole forming device which is designed for ease and economy of manufacture; the device being of all-metal construction and comprised of parts which are readily fabricated.

Still another object of the invention is to provide a practical and reliable hole forming device, and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a perspective view of the device, detached.

Fig. 2 is a sectional elevation of the device as in use, but before stripping of the form.

Fig. 3 is a similar view, but shows the form stripped, and the male sleeve removed.

Fig. 4 is a sectional elevation of a modification of the device in use in a slab which comprises, for example, an inclined roof; the view being taken before stripping of the form.

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Fig. 5 is a sectional elevation of a further modification of the device, as in use for a concrete slab, such as wall poured between spaced forms; the view being taken before stripping of said forms.

Referring now more particularly to the characters of reference on the drawings, and at present to the embodiment of Figs. 1-3 inclusive, the device comprises, of metal, a female sleeve 1 and a male sleeve 2 adjustably telescoped therein.

Adjacent but short of its outer end the female sleeve 1 has a baffle disc 3 secured therein, while at its outer or free end the male sleeve 2 is affixed centrally to a flat attachment plate 4; the latter projecting beyond the periphery of said sleeve 2 to provide a securing flange 5.

When this embodiment of the invention is in use, the attachment plate 4 is engaged flush against the inner face of the form 6 at the proper point, and then the flange 5 is secured to said form by nails 7.

After the device is so secured to the form, the female sleeve 1 is telescopically adjusted to an extent such that the over-all length of the device is slightly less than the contemplated total thickness of the concrete slab 8, such as a floor or ceiling, which is subsequently poured on the form 6 and finished off with an upper or top surface 9 slightly outwardly of the adjacent rim 10 of said female sleeve 1.

As a result, the upper or top surface 9 of the concrete slab 8 is unbroken; there being a plug 11 of concrete in the device outwardly of the baffle disc 3 within the related end portion of the female sleeve 1.

After the concrete slab 8 has set, the form 6 is stripped, carrying with it the male sleeve 2; the latter sliding out of the sleeve 1 and the slab 8 without difficulty (see Fig. 3).

The sleeve 1 and the baffle disc 3 remain in the concrete slab 8, the plug 11 closing, or making the hole blind, at the end adjacent the upper or top surface 9.

When it is desired to complete the hole through the concrete slab 8, the baffle disc 3 and the concrete plug 11 are driven out; this being accomplished with relative ease, for the reason that the concrete needs to be fractured only in the small distance between the rim 10 and the surface 9. This fracturing occurs quite cleanly when the disc 3 and the plug 11 are driven out, as aforesaid, since the rim 10 is quite thin, as will be obvious.

It will thus be recognized that the hole formed in the concrete slab 8 may remain blind, relative to the surface 9, until such hole is needed for use.

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It will also be seen that due to the unobstructed top surface of the concrete when the device is embedded therein, smoothing of such surface, by mechanical troweling or otherwise, may be easily performed since there is no protruding metal to catch the trowel.

In the modification of Fig. 4, the device comprises the same parts as in Figs. 1-3 inclusive. Here, however, the device is designed for use in an instance where the concrete slab 12 is disposed on an incline, but where the hole must be vertical.

To accomplish this, the female sleeve 13 and male sleeve 14 are cut diagonal at opposite ends, and in parallelism, as shown; the baffle disc 15 being secured in the sleeve 13 parallel to the diagonally cut outer end of said sleeve, and the attachment plate 16 is affixed to the diagonally cut outer end of the sleeve 14. Thus, when the attachment plate 16 is secured to the inclined form 17, the device is vertical and forms a corresponding blind end hole in the slab 12.

In the modification of Fig. 5, the device is shown as it may be constructed for use to form a hole in a concrete slab 18 poured between spaced vertical forms 19 and 20.

In this embodiment the device forms a hole which is initially open at both ends, and comprises a female sleeve 21 and a male sleeve 22 in adjustable telescopic relation.

The female sleeve 21 is affixed at its outer end to an attachment plate 23 having a securing flange 24 which projects beyond the periphery of said sleeve 21, and which flange is secured to the form 19 by nails 25.

A similar attachment plate 26 is affixed to the outer end of the male sleeve 22. The attachment plate 26, which would be difficult to secure by nailing after erection of both the forms 19 and 20, is wired to the latter, as at 27; the wires being initially U-shaped and extending through openings in the attachment plate 26 and form 20, being twisted exteriorly of the latter.

After the concrete slab 18, such as a wall, is poured and sets, the forms 19 and 20 are stripped away, carrying with them the female sleeve 21 and male sleeve 22, respectively. This leaves a clean open-ended hole through the wall for a utility conduit, outlet, or the like.

Due to this construction, it will be seen that if the wall forms should give, the hole forming device can expand accordingly without tearing the device from its fastenings in the forms.

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With the described invention, holes either blind at one end or fully open can be formed expeditiously in concrete slabs, such as floors, roofs, or walls; the design of the device being such that it can be manufactured inexpensively, and used with convenience.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. A device for producing a blind-ended hole in a poured concrete slab initially backed by a form; said device comprising a sleeve, means adapted to support the sleeve from the form for projection in the concrete slab when poured, and a baffle in the sleeve adjacent but short of its end opposite the form said sleeve being relatively thin with said end exposed, whereby to provide a fracturing edge engaging the concrete when said edge is embedded in the concrete.

2. A device to produce a blind-ended hole in a poured concrete slab initially backed by a form; said device comprising a pair of adjustably telescoping sleeves whose opposed outer ends are parallel to each other but diagonal to the axis of the sleeves, a baffle disc in one sleeve short of its outer end, and an attachment plate for engagement with the form, secured on the outer end of the other sleeve parallel to said end thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
746,445	Boise	Dec. 8, 1903
951,688	Lee	Mar. 8, 1910
1,229,576	Boyton et al.	June 12, 1917
1,651,269	Gnagi	Nov. 29, 1927
1,881,971	Roedig	Oct. 11, 1932
2,077,506	Woock	Apr. 20, 1937
2,270,286	Gerriets	Jan. 20, 1942
2,286,564	Newell	June 16, 1942