Aug. 7, 1962 R. C. DOYLE 3,047,930

MEANS AND METHOD FOR PROVIDING ACCESS TO PIPE COUPLINGS IN CONCRETE SLABS

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Fig.1

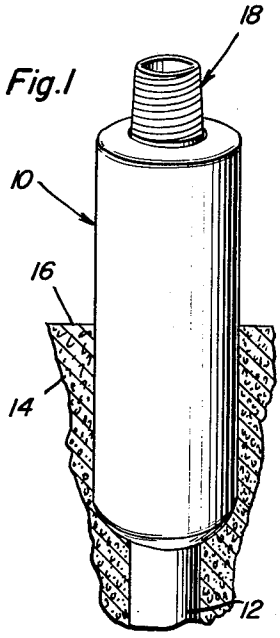


Fig.2

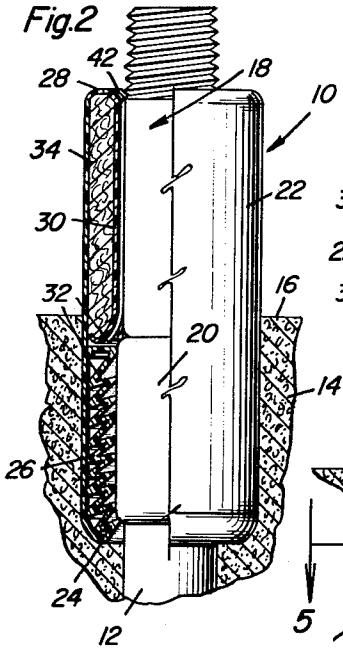


Fig.3

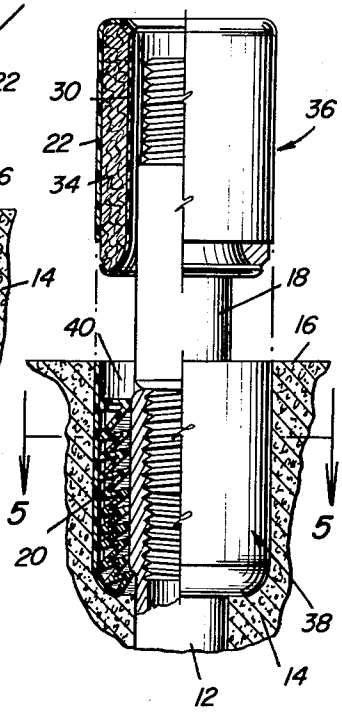


Fig.4

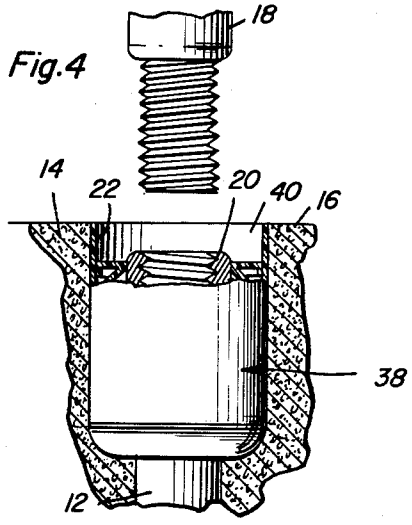
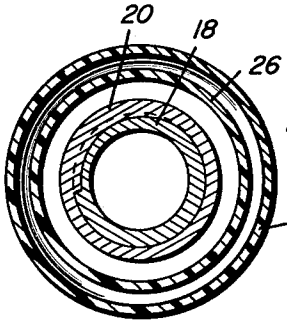


Fig.5



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MEANS AND METHOD FOR PROVIDING ACCESS TO PIPE COUPLINGS IN CONCRETE SLABS

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This invention relates to a new and useful method and associated device for providing access to conduits and pipe couplings embedded in concrete slabs or the like.

When pouring concrete slabs or the like, it is often necessary to accommodate conduits that pass through the concrete slab. It is therefore often necessary or desirable to provide facilities for disconnecting the portion of the conduit projecting above the concrete slab from the conduit embedded in the concrete, so that repairs may be made in the conduit system when necessary at some future date. Accordingly, the pipe coupling or that portion of the conduit through which repairs may be made must remain exposed through the concrete. The usual procedure therefore, is to position the upper exposed ends of the pipe coupling at the upper surface of the concrete slab or slightly thereabove. This requires therefore that the concrete slab be poured to an exact predetermined level so as to not cover the exposed upper portion of the coupling or permit said upper exposed end to project too far above the upper surface of the resultant concrete slab. The exacting requirement of this procedure heretofore used has therefore involved the use of highly skilled labor and the expenditure of time and materials necessary to perform the concrete pouring operation with the required degree of preciseness. By the practice of the present invention, however, a tremendous reduction in time and necessary skills is effected without sacrificing or in any way reducing the pipe coupling accessibility.

It is therefore a primary object of the present invention to provide a method to be used in conjunction with the pouring of concrete about pipe couplings or the like whereby accessibility to the pipe coupling is maintained without the exacting requirement as was heretofore necessary in pouring the concrete to a predetermined elevation within close tolerances.

A further object of this invention in accordance with the foregoing object, is to provide a simple spacer unit to be applied to a pipe coupling establishing wide elevational limits within which the concrete may be poured about the pipe coupling and yet provide the required accessibility to the pipe coupling after the concrete has hardened.

In accordance with the foregoing objects, the present invention involves the installation of a pipe coupling slightly below a predetermined level to which a concrete slab is to be poured. The novel spacer unit is then applied to the coupling from which it projects above the predetermined level. The spacer unit is formed by a continuous outer sleeve of thin material, such as plastic, that may be readily severed. Connected to the lower end of the sleeve and extending upwardly therefrom, there is formed an inner corrugated wall by means of which the spacer unit may be placed about and spaced from the coupling. The corrugation of the lower section inner wall of the spacer unit not only resiliently embraces the coupling but also resists lateral pressure applied to the thin outer sleeve by the concrete so as to maintain the spacing about the coupling. Connected to the upper projecting end of the outer continuous sleeve, is a smooth thin inner wall which extends downwardly toward the corrugated wall and is slightly spaced from a portion of the conduit connected to the coupling which is to project above the concrete slab. The inner wall within the upper section of the spacer unit has bonded thereto an annular filler disposed between the outer thin sleeve and the upper inner wall so as to protect the projecting portion of the conduit. The thin outer sleeve may then be severed flush with the upper surface of the concrete slab after it has been poured and has hardened whereupon the upper cut section of the spacer unit may be removed together with any filler projecting therebelow so as to expose the upper end of the coupling positioned below the upper surface of the concrete slab but spaced therefrom by the remaining lower section of the spacer unit.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a sectional view through a concrete slab illustrating the installation of the novel spacer unit.

FIGURE 2 is a sectional view through the installed spacer unit of the present invention prior to being cut.

FIGURE 3 is a sectional view similar to that shown in FIGURE 2 illustrating the removal of the upper section of the spacer unit after being cut.

FIGURE 4 is a partial sectional view showing the exposed pipe coupling from which a projecting removable portion of the conduit may be removed.

FIGURE 5 is a sectional view taken substantially through a plane indicated by section line 5—5 in FIGURE 3.

Referring now to the drawing in detail, FIGURE 1 illustrates one exemplary installation for the novel spacer unit generally referred to by reference numeral **10** which is applied to a conduit **12** embedded within a concrete slab **14**. As seen in FIGURE 1, the spacer unit **10** projects above the upper surface **16** of the concrete embracing a portion of the conduit **12** disposed below the concrete surface **16** and a connecting nipple **18**.

Referring now to FIGURE 2, it will be observed that the conduit **12** is connected to the projecting conduit portion **18** by means of pipe coupling **20**. The spacer unit **10** is therefore formed externally by a continuous sleeve member **22**. The sleeve **22** is made of thin material capable of readily being cut such as plastic. Connected to the lower end **24** of the sleeve **22** is a corrugated spacer wall **26**, the corrugations of which resiliently embrace the coupling **20** and also laterally resist distorting pressure applied to the outer sleeve **22** so as to maintain the concrete **14** spaced throughout from the coupling **20**. The corrugated spacer wall **26** extends upwardly a distance sufficient to accommodate the coupling **20**. Connected to the upper end **28** of the sleeve **22** is a thin smooth inner wall **30** which extends downwardly from the upper end **28** in closely spaced relation to the projecting conduit portion **18**. The lower end **32** of the inner wall **30** terminates just above the upper end of the corrugated spacer wall **26**. Disposed between the sleeve **22** and the upper inner wall **30**, is a filler **34** of any suitable type providing a cushioning protection for the projecting conduit portion **18**. The filler **34** is however bonded only to the inner wall **30** for removal with the inner wall **30** and separation from the outer sleeve **22** as will hereafter be explained.

It will be observed from FIGURE 2 that the concrete slab **14** has been poured up to the level **16** above the coupling **20**. The actual level of the concrete slab **14** may vary within limits established by the length of the spacer unit **10** with the coupling **20** being disposed preferably below the level **16** as illustrated in FIGURE 2. After the concrete has set, the spacer unit **10** may be cut flush with the level **16** by severing the outer thin sleeve **22** only. The resulting upper section **36** of the cut spacer unit **10** may then be separated from the lower section **38** which remains embedded in the concrete **14**. It will be observed however that the filler **34** will sepa-

rate from the outer sleeve 22 of the lower section 38 inasmuch as it is bonded only to the inner wall 30 as hereinbefore indicated. An access space 40 is thereby formed when the upper section 36 is removed as indicated at FIGURE 3.

As seen in FIGURE 4, the resulting installation of the conduit 12 and coupling 20 within the lower section 38 of the spacer unit provides easy access for removal of the conduit portion 18 when repairs are necessary or required.

When the spacer unit is installed prior to pouring of the concrete, it may be desirable to provide a seal about the upper end 28 of the spacer unit in order to prevent material from accidentally filling the spacing between the spacer unit and the conduit. Accordingly, as more clearly seen in FIGURE 2, a sealing rib 42 may be formed on the upper end 28 for sealing contact with the conduit portion 18. It will also be appreciated that a sealing cap may be provided for the upper end of the conduit portion 18 for the same reason as well as for the exposed upper end the coupling 20 when necessary.

From the foregoing description, the use of the novel spacer unit and the method with which it is associated, will be apparent. It will therefore be appreciated that the pouring of concrete slabs in building constructions will be rendered more economical and require less time as a result of the use of the novel spacer unit of the present invention in accordance with the procedure hereinbefore outlined.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A spacing form for providing access to a conduit means embedded in concrete, comprising, severable continuous outer sleeve means, said sleeve means adapted to encompass a conduit means below a contemplated upper surface of the concrete and extend upward therefrom to a point sufficiently above said upper surface so as to allow some variation in the level of the finished floor without completely embedding said sleeve, conduit spacer means connected to the inner surface of the lower portion of the sleeve means and adapted to space said sleeve means from said conduit means, protective liner means spaced inwardly from the inner surface of the upper portion of the sleeve means and adapted to surround conduit means extending above the upper surface of the concrete, said liner means connected to the upper end of the sleeve means, a filler disposed between said sleeve means and liner means and bonded only to said liner means so as to allow ready removal of the upper portion of the sleeve means and associated liner means and filler by mere severance of the outer sleeve at the level of the finished floor.

2. A spacing form for providing access to a conduit coupling secured to an embedded conduit, comprising, severable continuous outer sleeve means, said sleeve means encompassing a coupling secured to the upper end of a conduit adapted to be embedded in concrete with said coupling at approximately the upper level of the concrete, and extending upwardly therefrom, a second conduit secured to the coupling and extending upwardly therefrom and encompassed by the upwardly extending portion of the sleeve means, spacer means connected to the inner surface of the lower portion of the sleeve means spacing said sleeve means from said coupling so as to allow easy access to said coupling, protective liner means spaced inwardly from the inner surface of the upper portion of the sleeve means and surrounding said second conduit, said liner means connected to the upper end of the sleeve means and extending approximately to the upper edge of said coupling, a filler disposed between said sleeve means and liner means and bonded only to said liner means so as to allow easy removal of the portion of said sleeve above the upper surface of the concerete, as well as the entire liner means and filler by severance of the sleeve at the level of the upper surface of the concrete.

3. The combination of claim 2, wherein said spacer means comprises an inner corrugated wall resiliently embracing the conduit and resisting lateral distortion of the sleeve means.

4. The combination of claim 3, including sealing means connected to an upper end of the sleeve means for sealing engagement with the projecting portion of the conduit.

5. The combination of claim 1, wherein said spacer means comprises an inner corrugated wall resiliently embracing the conduit and resisting lateral distortion of the sleeve means.

6. The combination of claim 5, including sealing means connected to an upper end of the sleeve means for sealing engagement with the projecting portion of the conduit.

7. The combination of claim 1, including sealing means connected to an upper end of the sleeve means for sealing engagement with the projecting portion of the conduit.

8. A method for providing access to pipe couplings or the like embedded in concrete slabs or the like, comprising the steps of: installing a pipe coupling slightly below a predetermined level; securing an upwardly extending conduit section thereto; placing a spacer sleeve about the coupling and lower partion of said conduit section for projection above said predetermined level; pouring concrete substantially up to said predetermined level; and cutting the spacer sleeve flush with the upper surface of the concrete after set, to expose the upper end of the pipe coupling below the upper surface for easy access thereto.

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