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A. SEMERARO
CORE FOR MOLDING CHANNELS AND OUTLET
OPENINGS IN CONCRETE WALLS
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Fig. 1.

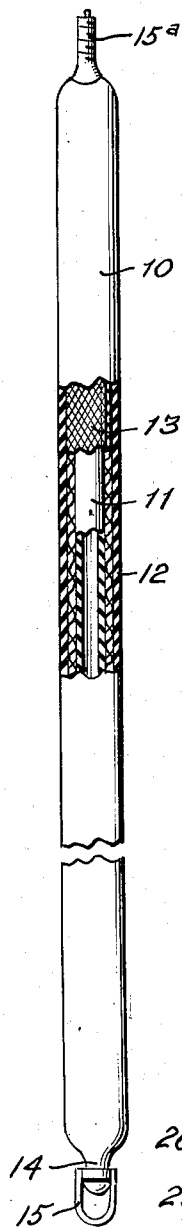


Fig. 2.

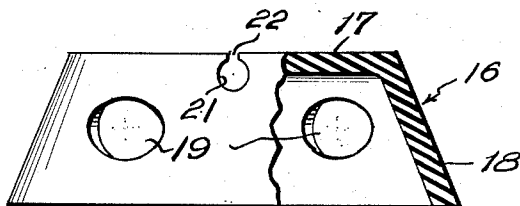


Fig. 3.

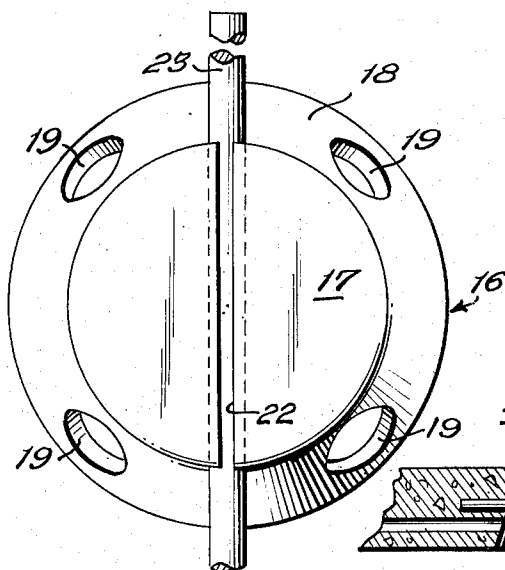


Fig. 4.



Fig. 6.

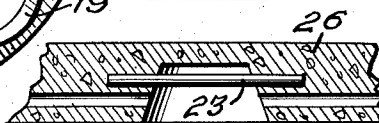
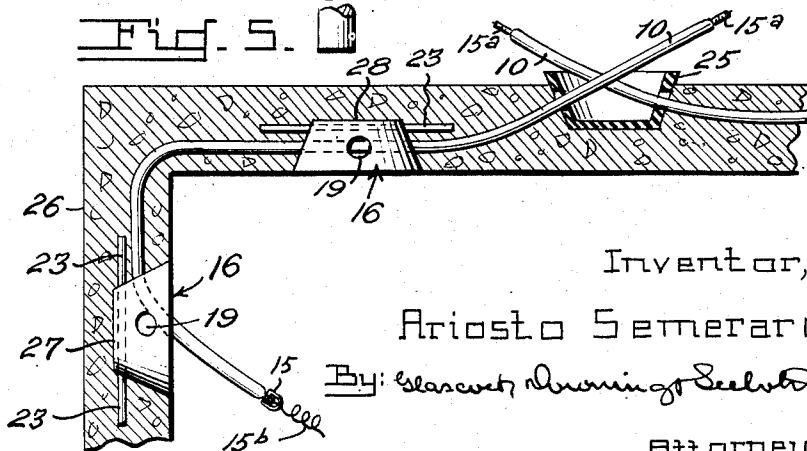


Fig. 5.



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UNITED STATES PATENT OFFICE

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CORE FOR MOLDING CHANNELS AND OUTLET OPENINGS IN CONCRETE WALLS

Ariosto Semeraro, Rio de Janeiro, Brazil

Application November 8, 1947, Serial No. 784,855
In Brazil November 22, 1943

6 Claims. (Cl. 25-128)

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This is a continuation-in-part of my application Serial No. 557,838, filed October 9, 1944.

This invention has for its object to provide a device for forming channels and outlet openings in molded plastic structures such as the walls, floors and ceilings of concrete buildings whereby flexible cables for electric power, telephone and like services may be conveniently installed in a position concealed within the molded structure.

A further object is the provision of a device of this character consisting essentially of a flexible inflated core which is arranged in a position to be embedded in the concrete when the material is cast and mold members receiving the ends of the core and arranged at the points where the ends of the electric cable are to emerge from the surface of the finished plastic structure. After the plastic mass has set, the mold members are removed and thereafter the core deflated and withdrawn thus leaving in the concrete mass the channel formed by the core and the recesses formed by the mold members which constitute outlet openings for the passage of the terminals of the electric cable.

A further object of the invention is the provision of anchoring bars detachably held in such position by the mold members that after removal of the latter the bars remain permanently embedded in the concrete and serve to securely anchor fixtures or parts of equipment in position.

In the accompanying drawing wherein an approved embodiment of the invention is illustrated:

Figure 1 is a plan view of the flexible core partly broken away and partly in section,

Figure 2 is a side elevation of one of the mold members partly in section,

Figure 3 is a plan view of the mold member showing one of the anchoring bars in position therein,

Figure 4 is a perspective view of a closure forming part of the mold member,

Figure 5 is a fragmentary sectional view through a concrete structure illustrating the invention applied thereto, and,

Figure 6 is a view similar to Figure 5 showing the concrete structure after the removal of the core and mold member.

Referring to the drawing in detail, the numeral 10 denotes a hollow tubular inflatable core having sufficient length to extend between at least two outlet points molded in a concrete structure. The core is composed of an inner tube 11, an outer tube 12 and an intermediate tube 13 lying freely between the two first-mentioned tubes. The in-

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ner and outer tubes are preferably formed of rubber and are air-tight while the unattached intermediate tube is formed of fabric with the threads extending diagonally as shown in Figure 1 similar to the disposition of the threads in tubular braid. The several tubes are closed at one end, as illustrated at 14, and a loop 15 is secured thereto for the attachment of one end of a flexible electric cable which is drawn into the passage as the core is withdrawn therefrom.

The opposite end of the core 10 is provided with a valve 15a of the type similar to that used for inflating the inner tubes of vehicle tires. By means of the valve 15a the tube 10 may be inflated to the pressure requisite to distend it to a diameter slightly larger than normal and in so doing the diagonal disposition of the threads of the tube 13 causes the core 10 to contract longitudinally. The valve 15a prevents the escape of air and maintains the core in inflated condition and when it is desired to remove the core, the air is permitted to exhaust by opening the valve 15a. Incident to the diametrical or transverse contraction of the deflated core, it is extended longitudinally to its normal length and in so doing the core becomes entirely detached from the concrete mass in which it is molded and may be freely withdrawn.

A plurality of mold members 16 is also provided, each of which consists of a hollow cup-shaped body formed of rubber of sufficient strength to withstand the pressure of the plastic mass during casting and setting by possessing such flexibility that when the body is removed and pressure is applied to the opposite sides thereof it can be deformed. The end wall 17 of each body is preferably of circular form and is provided with a depending skirt portion 18 having a plurality of openings 19 for receiving either end of the core 10. Plugs 20, preferably of tapered form to limit the axial movement thereof, are engageable in any of the openings 19 which are not actually in use to prevent the penetration of the plastic material during casting.

The end wall 17 of the mold member is formed with a diametric opening 21 communicating with a slot 22 formed in the external surface of the wall, the slot being normally of less width than the diameter of the opening 21. When the mold member is grasped in the hand and pressure is thus applied at opposed points, the wall 17 is flexed out of its normal flat form so as to spread the walls of the slot 22 which, being thus widened, permits the introduction of an anchoring bar 23 into the opening 21. When the pressure on the

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mold member is relieved, it assumes its normal shape and the bar 23 is yieldably held in a position in which its opposite ends project a distance beyond the mold member so as to be firmly embedded and anchored in the portion of the concrete mass lying adjacent the mold member.

In case the length of the individual cores 10 is less than the total length of the passage required for accommodating a cable of predetermined length, two such cores 10 are employed and the adjacent ends thereof are extended externally of the concrete structure through openings provided in a mold member 25, as will hereinafter appear.

In use, a core 10 is placed in position in a mold within which plastic material is introduced to form a concrete structure such, for instance, as the walls of a building indicated at 26 in Figure 5. At a point such as indicated at 27 where it is desired that the electric cable be accessible on the surface of the wall 26, a mold member 16 is placed inside of the wall mold and the end of the cable 10 is passed through one of the openings 19. The other openings in the mold member are closed by plugs 20 to prevent the penetration of the plastic material, as will be understood. Also as illustrated in Figure 5, a mold member 16 may be placed in the position indicated at 23 and in this case the core 10 is passed through two of the diametrically opposite openings 19 and the remaining openings are closed by the plugs 20. After the cement or other plastic material has been introduced in the wall mold and the material is set, the wall mold is removed in the usual way and thereafter the mold members 16 are removed from the recesses formed thereby and in so doing the anchoring bars 23 remain embedded in the concrete mass. After the valve 15a has been opened and the core 10 deflated, said core may be freely withdrawn longitudinally through the passage formed in the plastic mass 25 and through the openings 19 in the mold member 16 located at the point designated at 23. Thereafter, the last mentioned mold member is removed from the concrete and the anchoring bar 23 remains embedded in position and forms a means of attachment for fastening devices whereby fixtures may be secured in position.

Incident to the withdrawal of the core member 10 the flexible electric cable (not shown) which is attached to the loop 15 by a suitable wire 15b is drawn into position in the passage formed by the core. In cases where the length of the passage in the concrete requires the use of two or more cores 10, the adjacent ends thereof are introduced in openings in the mold member 25 and after the plastic material has set and the cores 10 as well as the mold member 25 have been withdrawn, the electric cable may be extended across the passages formed by the two adjacent cores 10. Thereafter the recess formed in the concrete may be closed, if desired, by introducing plastic material into the cavity which the mold member 25 has formed.

What I claim is:

1. A molding device comprising an inflatable

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core and an anchoring bar to be embedded in a plastic mass during the casting and setting thereof, a mold member arranged adjacent the surface of the molded mass and having an opening therein for the passage of an end of said core, said mold member having a deformable slot therein positioning the anchoring bar, said slot being disposed so as to permit detachment of the mold member from the anchoring bar when the molded mass has set.

2. A molding device as defined in and claimed by claim 1 further characterized in that said mold member is provided with a plurality of openings for selectively receiving the end of the core, and closure members for closing the openings not used.

3. A molding device as defined in and claimed by claim 1 further characterized in that said mold member is of hollow truncated conical form.

4. A molding device as defined in and claimed by claim 1 further characterized in that said mold member is of hollow form and includes an end wall and an outwardly tapered depending skirt portion in which said opening is formed.

5. A molding device comprising an inflatable core to be embedded in a plastic mass during the casting and setting thereof, and a deformable mold member to be arranged adjacent the surface of the molded mass, said mold member having an opening therein for the passage of an end of said core when said core is deflated, said core positioned in said opening and engaging said opening when inflated to prevent the passage of the plastic mass, said mold member being formed with another opening for receiving an anchoring bar and a slot communicating with said other opening to facilitate the removal of the mold member from the anchoring bar and the plastic mass.

6. In a molding device for positioning an anchoring bar in a plastic mass, a resilient mold member having an opening therein adapted to receive an inflatable core in tight engagement when the core is inflated and adapted to permit withdrawal of the core when deflated, and yieldable engaging means for the mold member for detachable engagement with an anchoring bar to be positioned by said resilient mold member.

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