Sept. 21, 1926. 1,600,696

T. E. MURRAY

MOLDING CONDUITS

Original Filed July 17, 1925

Fig. 1.

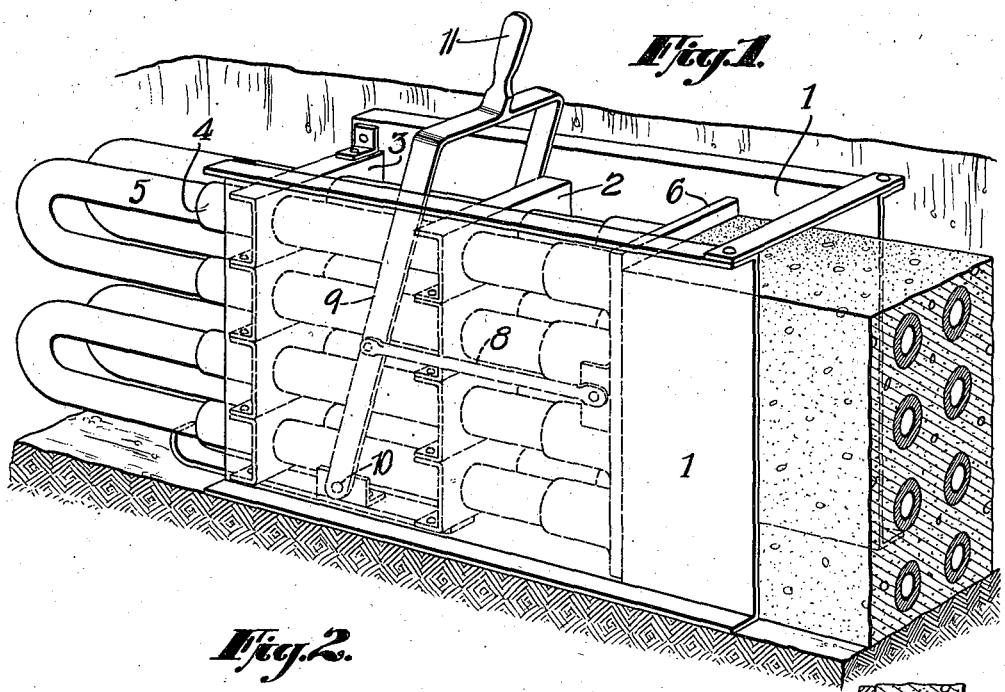


Fig. 2.

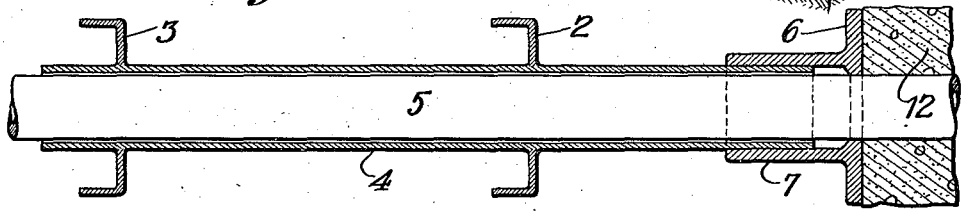


Fig. 3.

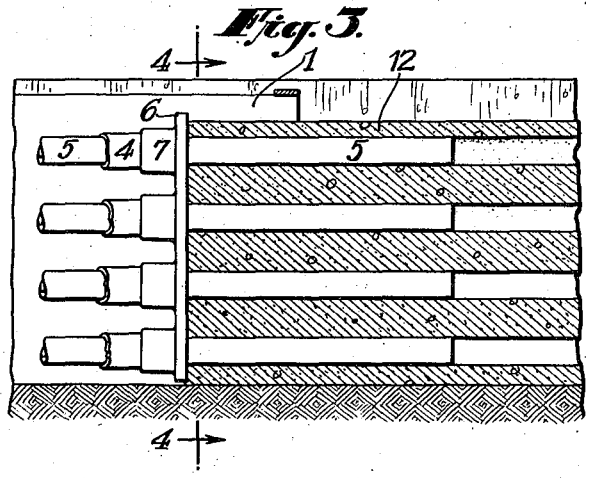
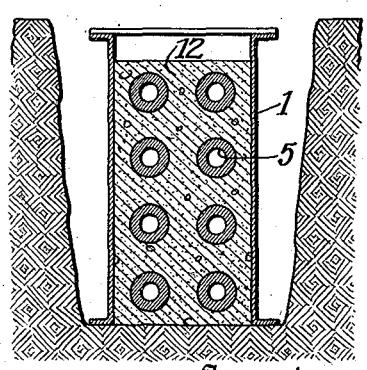


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MOLDING CONDUITS.

Application filed July 17, 1925, Serial No. 44,195. Renewed March 2, 1926.

The invention is particularly applicable to the laying or building of concrete structures formed with ducts, generally a few inches in diameter, for electric cables. It is also applicable to other plastic materials than concrete and to the forming of structures with openings of various sizes and shapes.

The accompanying drawings illustrate an embodiment of the invention.

Fig. 1 is a perspective view;

Fig. 2 is a longitudinal section of a detail;

Fig. 3 is a longitudinal section, partly in elevation, of a portion of the apparatus in use;

Fig. 4 is a cross-section near the rear end of the apparatus.

The invention is shown in connection with an apparatus similar to that described in previous applications, for example, my application No. 754,471 and in my Patent No. 1,525,087 of February 3, 1925. In these apparatus the concrete conduit is laid in place and by a sort of extrusion process the apparatus is moved ahead of the conduit progressively as the latter is shaped and rammed to compact it.

The apparatus comprises a pair of side plates 1 which are connected at intervals in their length by cross-braces 2 and 3 in which are fixed steel tubes 4 within which are carried tubes 5 made of high grade rubber with thick walls so as to withstand the blows and pressures of the concrete without substantial distortion and to be so elastic that they can by pulling them lengthwise be contracted transversely sufficiently to free them from the surrounding concrete and to permit their withdrawal, all as described more fully in a certain prior application No. 670,423. A ram 6 extends across the rear portion of the space between the plates 1 and has sleeves 7 freely sliding on the ends of the tubes 4. The ram is connected by links 8 to side arms 9 which are pivoted at their lower ends to the sides of the apparatus as indicated at 10 and which are connected at their upper ends to an operating handle 11. When the handle is pushed forward (to the left) a space is left beyond the forward end of the completed portion of the conduit, which space is occupied only by the cores 5. The concrete is cast about these cores. The ram is then pushed to the rear. This operation compacts the concrete and at the same time causes the entire apparatus to move forward, so that the next movement of the handle 11 forward will leave a space as before for further concrete.

In the apparatus of this type shown in previous applications, the steel tubes 4 have extended through the ram and to the rear thereof so as to take the blows and strains involved in casting and compacting the concrete immediately at the rear of the ram; the rubber cores being carried through and well beyond the rear ends of the steel tubes so as to furnish a support for the walls of the ducts as the apparatus, with the steel tubes, was advanced. This, however, meant the making of the ducts first of the external diameter of the steel tubes and the subsequent settling of the concrete to bring the diameter of the ducts to that of the external diameter of the rubber cores. With the present apparatus I avoid this difficulty by having the concrete molded in the first place directly on the rubber cores.

Fig. 3 illustrates this. The concrete 12 is cast between the plates 1 and against the face of the ram 6 directly around the cores 5. The latter are moved forward, either in short steps with each movement of the operating lever 11 or at longer intervals as may be desired, in the latter case giving more time for the concrete to set before withdrawing the cores. They must, of course, be of such length and the apparatus must be advanced at such a rate that they will not be withdrawn from the duct until the concrete has set sufficiently to hold its shape. The ram 6 is provided with openings through which the cores 5 pass with a fairly close fit. The sleeves 7 surrounding the ends of the tubes 4 are of sufficient length to permit the desired limited movement of the ram with respect to such tubes. Thus the tubes 4 serve their purpose of providing a long bearing which will hold the cores 5 in proper line and position and of providing guides for the reciprocation of the ram 6.

Various modifications of the apparatus illustrated may be made by those skilled in the art without departure from the invention as defined in the following claims.

What I claim is:

1. An apparatus for molding conduits comprising a rubber core of sufficient strength to support the external pressures of the molded material, a ram for compacting the material longitudinally about said

core and a tube for holding and guiding said core located forward of the ram so as not to project into the space in which the concrete is cast.

2. The apparatus of claim 1, said guiding and supporting tube arranged to act also as a guide for the reciprocation of the ram.

3. An apparatus for molding conduits comprising a rubber core of sufficient strength to support the external pressures of the molded material, a ram for compacting the material about said core and means for holding and guiding said core located forward of the ram so as not to project into the space in which the concrete is cast.

In witness whereof, I have hereunto signed my name.

THOMAS E. MURRAY.