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J. MARTINE

CORE FOR CONCRETE BUILDING STRUCTURES

Filed Oct. 3, 1925

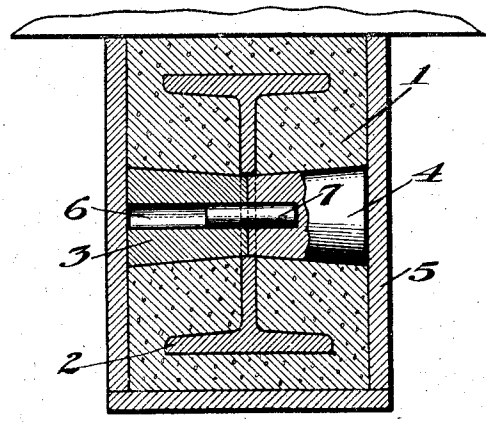


Fig. 1

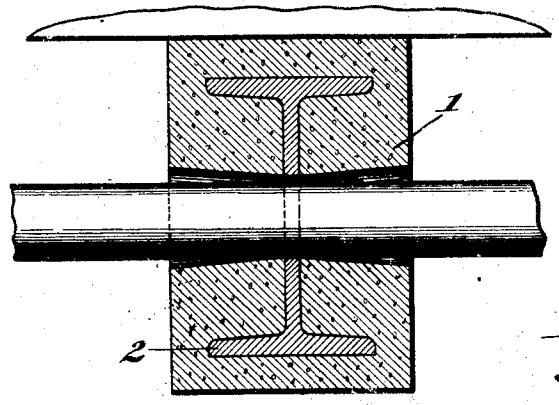


Fig. 2

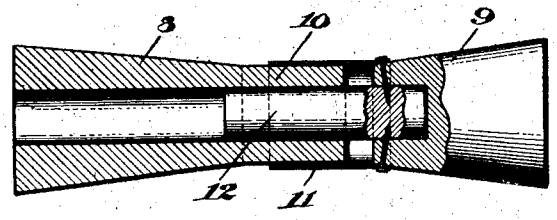


Fig. 3

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UNITED STATES PATENT OFFICE.

JOSEPH MARTINE, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE UNITED STATES BUNG MANUFACTURING COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CORE FOR CONCRETE BUILDING STRUCTURES.

Application filed October 3, 1925. Serial No. 60,353.

To all whom it may concern:

Be it known that I, JOSEPH MARTINE, a citizen of the United States, and residing at 11 Webster Ave., Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Cores for Concrete Building Structures, of which the following specification is a full disclosure.

This invention relates to improvements in the cores for providing openings through concrete beams, walls and the like, the cores being of a construction for convenient placing in the forms or molds into which the concrete is poured or filled, and of particular utility in concrete structures having I-beam reinforcements.

An object of the invention is to provide a sectional core for the purposes mentioned adapted to be easily withdrawn or ejected from the concrete after the form has been removed, the sections being preferably of truncated cone form conversely arranged for abuttingly engaging the head ends so as to have a draft, from the intermediate portion of the formed concrete, outwardly with one core section provided with a bore longitudinally therethrough for access to the head end of the other or second core section, the arrangement facilitating the extraction of the cores without injury to the concrete.

Another object is to provide a sectional core having sections of cone form conversely arranged and telescopically engaged for rendering the core expansible.

Other objects and advantages of the invention will be more fully set forth in the description of the accompanying drawings forming a part of this specification in which:

Figure 1 is a cross-section through a reinforced concrete beam structure with the improved core in position for use.

Figure 2 is a similar view with the form and core removed and a pipe or conduit extending through the opening in the beam formed when the core is removed.

Figure 3 is a view showing an adjustable core providing for usage in beams of various widths.

In concrete building structures it is very desirable to provide for holes or openings through the beams, walls, floors and the like at the time when the concrete is being poured or filled in the molds or forms to avoid the tedious labor of cutting through the hardened concrete for the installation of pipes or conduits. It is particularly desirable to the installation of piping for sprinkler systems to have the pipes pass through the floor supporting beams and thereby serve to support the pipe and also reduce the room height, than would otherwise be required in the suspending of the pipe from the beams or looping around the beams, for under some building codes, addition to the room height must be made to come within the minimum head room regulations. With the pipe going through the beam for tall buildings under such building regulations, a saving of a complete floor height in the building is possible.

In concrete structures employing structural steel or I-beams for a reinforcement, it is impracticable to cut openings therethrough after the concrete has hardened and particularly openings to permit large diameter pipes.

Referring to Figure 1 of the drawings, 1 indicates a reinforced concrete beam, and 2 the I-beam reinforcement for the beam provided with an aperture or opening through the web thereof into which are engaged the opposing ends of a pair of conversely arranged truncated cone core sections 3 and 4. The concrete beam is enclosed by a form or mold 5 which may represent any of the well-known methods of making concrete forms and used for pouring or filling in the concrete, the base end of the cores bearing against the side walls of the form so as to be free when the forms are removed after the concrete has hardened.

One of the core sections, as section 3, has a central bore 6 therethrough providing access to the head end of the opposite core section 4 for driving the core section from the concrete. It is desirable to tie or connect the two sections to prevent displacement while the concrete is being poured, and in this capacity a dowel 7 is engaged through the bore 6 of the core section 3 and into the head end of the core section 4. This anchors the two sections together at their abutting ends within the aperture of the I-beam, and enables the beam to sustain the core in position in the form while the concrete is being poured. The core can be additionally secured in position by means of nails (not shown) driven through the form sides into

the core ends. After the concrete has sufficiently set or hardened and the mold or form removed, a suitable drift tool is inserted into the bore 6 or the core section 3 and driven against the dowel forcing or ejecting the core section 4 from the concrete. After the section 4 has been removed, access is easily had to the head end of the core section 3 for its removal. The taper of the cones for a given width of beam can be materially reduced by providing the core of sectional form, and each section easily driven out without injury to the concrete, and particularly for driving the sections from the inner or head ends, outwardly.

An adjustable form of core is shown in Figure 3 and comprises the truncated core sections 8 and 9 conversely arranged, the section 8 having a straight cylinder portion 10 at its head end and the section 9 having a metal tube 11 secured to its head end and extending outwardly to telescopically engage the straight cylinder portion 10 of section 8. The dowel 12 connecting the sections and providing for their removal is held within the short section 9, the nails securing the tube to the section 9 entering into the end of the dowel thus preventing displacement of the dowel from the section 9 during adjustment of the core to the beam. The metal tube prevents entrance of concrete between the head ends of the core sections during filling when the head ends of the cores are drawn away from each other in adjusting the core length to various widths of beams.

Having described my invention, I claim:

1. A core for the purposes described, comprising a pair of truncated cones, conversely engaged and connected by a longitudinal sliding joint, one thereof having a bore longitudinally therethrough for access to the abutting end of the second in the use of the cone for dislodging the same from the moulded material about the core.

2. A core for the purposes described, comprising a pair of truncated cones, conversely engaged, one thereof having a bore longitudinally therethrough, and a dowel engaged in said bore and into the second cone for connecting said cones.

3. A core for the purposes described, comprising tapering members relatively conversely disposed and telescopically engaged, one of said members having a bore longitudinally therethrough for access to the second member.

4. A method of forming an opening through a concrete beam or like structure, with an I-beam reinforcement, consisting in disposing a sectional core in the mold for the concrete beam, and through an aperture in the I-beam, the sectional core comprising truncated cones conversely arranged and their head ends engaged together in an opening through the I-beam, one of the cones having a bore therethrough for access to the head end of the second core section and after the concrete has hardened and the mold removed, driving out the core sections by inserting a drift tool in the bore of one core section to drive out the other from the inner end outwardly and then driving out the second section from the side of the first ejected core section.

5. A core for the purposes described comprising a pair of truncated cones conversely arranged, one thereof having a straight cylinder end portion and a bore longitudinally therethrough for access to the abutting end of the second cone, and the second cone having an end portion telescopically engaging the straight cylinder end portion of the first cone.

6. A core for the purposes described comprising a pair of truncated cones conversely arranged, one thereof having a straight cylinder end portion and a bore longitudinally therethrough for access to the abutting end of the second cone, a dowel engaged in said bore and into the second cone for connecting said cones, and the second cone having an end portion telescopically engaging the straight cylinder end portion of the first cone.

In witness whereof, I hereunto subscribe my name.

JOSEPH MARTINE.