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CONCRETE CONDUIT.

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1,054,858. Patented Mar. 4, 1913.

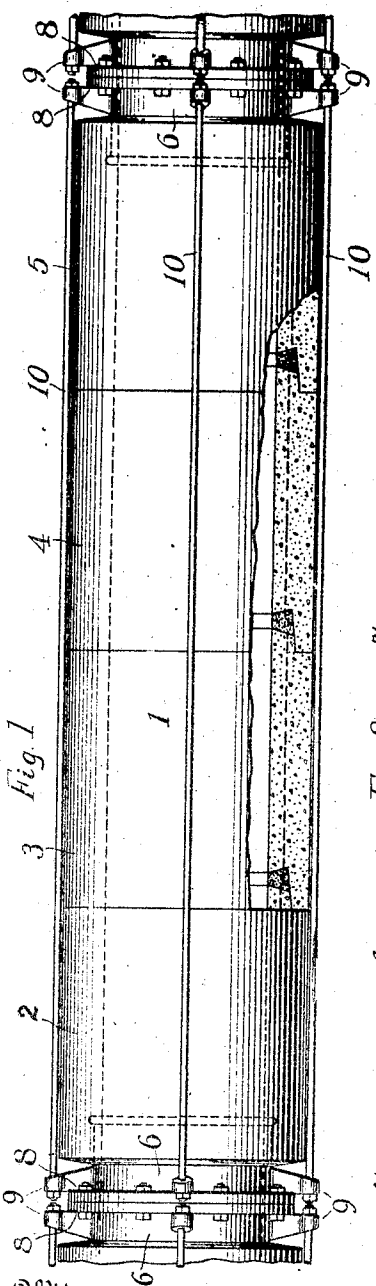

Fig. 1

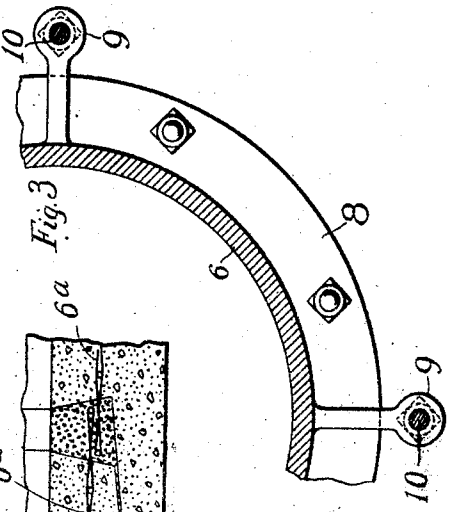

Fig. 3

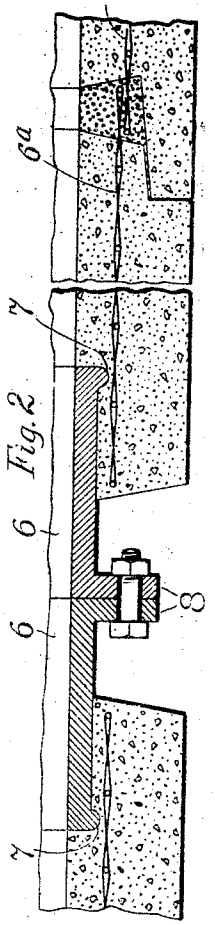

Fig. 2

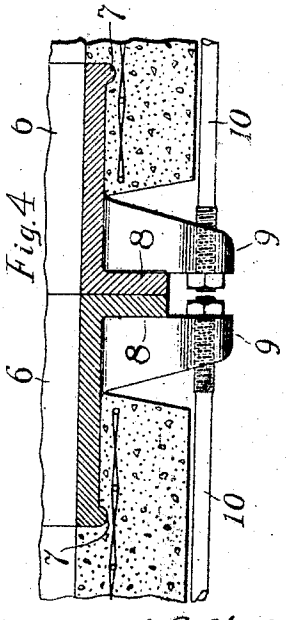

Fig. 4

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CONCRETE CONDUIT.

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To all whom it may concern:

Be it known that we, JOHN C. MITCHELL, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, WALLACE R. HARRIS, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, and COLEMAN MERIWETHER, a citizen of the United States, residing at Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Concrete Conduits, of which the following is a specification.

This invention relates to concrete conduits, more particularly conduits for use under water, as for example a submerged intake for water-works, or for delivering water to a penstock, etc. Heretofore concrete conduits have been but little used for such purposes, chiefly on account of the difficulty of joining the sections under water.

The object of our present invention is therefore to provide a sectional conduit which can be joined up under water as easily as the sections of a metal pipe.

To this and other ends our invention consists in the novel features of construction and combinations of elements hereinafter described, and more particularly set forth in the appended claims.

The preferred embodiment of the invention is illustrated in the annexed drawing, and referring thereto, Figure 1 shows a portion of a complete conduit, partly in section. Fig. 2 is a detail view in longitudinal section, showing the manner of joining the sectional units. Fig. 3 is a detail cross section of one of the connecting rings used at the ends of the sectional units. Fig. 4 is a detail view in longitudinal section, showing the means employed to bind together the parts of the sectional units.

The conduit is made up of sectional units suitably joined together, each unit being itself preferably built up of short sections, two or more in number. A complete unit of this sectional type is shown at 1, and as will be seen it consists of a body portion made up of four short concrete-sections 2, 3, 4, 5. These latter may be of a suitable kind, but we prefer to employ the type illustrated, in which the reinforcing fabrics 6ª overlap in the groove at the bell-and-spigot joint; the joint being completed by filling the groove with concrete, which embeds the overlapping fabrics and thus constitutes in effect a key.

The outer extremities of the end sections, 2 and 5, are not of the bell, or spigot, type, as the case may be, but are provided with suitable connecting members or rings 6, preferably of cast metal, secured in place by molding the concrete around the rings in the operation of casting the sections. In the preferred form the ring has at its inner end a bead 7, which serves to anchor the ring firmly in the end of the section. At its outer end the ring is provided with a laterally extending flange 8, which may be bolted, riveted, or otherwise securely connected to the corresponding flange on the adjoining unit, as clearly shown in Figs. 1 and 2.

The projecting portions of the connecting rings are provided with radial fins or lugs 9, say four in number, preferably outside of the pipe, and in joining up the end sections to the middle sections the former are arranged so that the fins or lugs at one end are in register or alinement with those at the other end.

In practice the sections are laid before jointing the same to form the unit and allow all the settling possible. Long building bolts or tie-rods 10 are then passed through the apertures in the lugs and nuts screwed on the ends of said bolts to tighten up the latter. The tightening is so effected that the outer ends of the members 6 are in parallel relation to each other when it is desired that the pipe line when completed shall be substantially straight. This result is easily obtained owing to the fact that the joint between the sections are of the bell and spigot type. Consequently the unit as a whole will be substantially straight whether or not the individual sections are in alinement. It is also obvious that the line can be made to conform more or less to a curve on the same principle described in making the end members thereof parallel. When the tie-rods are tightened with the end members relatively adjusted the joints are then sealed. These tie-rods also serve to bind the connecting rings firmly in position in the ends of the unit.

The requisite number of sectional units having been prepared they are submerged in the positions they are to occupy and are bolted or otherwise secured together by a diver, the operation being easy and rapid.

The invention is of course capable of embodiment in various forms, but that herein illustrated has been found to be entirely satisfactory in practice and is therefore preferred.

What we claim is:

1. A unit for sectional concrete conduits, comprising a reinforced concrete body portion, tubular metal connecting members at the end of said body and extending to some distance inwardly on the interior thereof, the inner diameter of said members being substantially equal to the inner diameter of the concrete body portion, beads on the inner end of said connecting members, the said beads embedded in the concrete to rigidly secure the connecting members to the concrete body portion.

2. A unit for sectional concrete conduits, comprising a reinforced concrete body portion, tubular metal connecting members in the ends of the body portion, each member having a circumferential bead embedded in the inner surface of the concrete body portion and having on its outer end means for connection with similar members on the ends of adjoining units, said bead adapted to rigidly secure the connecting member to the concrete body portion.

3. In concrete conduits, a reinforced concrete body portion forming a unit comprising sections having telescoping ends and metal connecting members of tubular form secured in the ends of the body portion and projecting therefrom, means on the projecting portions for connecting the same to adjoining units, connecting means on said projecting members, and longitudinally extending and adjustable strengthening members adapted to connect the last mentioned means, and bind the sections together.

4. In a concrete conduit, a reinforced concrete body portion forming a unit comprising sections having telescoping ends of the bell and spigot type and of such construction to leave a space between the ends thereof adapted to be filled with cement, metal connecting members of tubular form adapted to be secured in the ends of the body portion, projecting lugs on said projecting members, and longitudinally extending members connecting the lugs and maintaining the ends of said connecting members in adjusted relation to each other.

5. In a concrete conduit, a reinforced concrete body portion forming a unit comprising sections having bell or spigot ends which allows adjustment of one relative to the other, metal connecting members of tubular form adapted to be rigidly secured in the ends of the body portion, and longitudinally extending members adjustably connecting the aforesaid members and maintaining the latter in adjusted position.

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