(No Model.)

I. BISHOP.

CABLE RAILWAY CONDUIT MOLD.

No. 403,728. Patented May 21 1889.

Fig. 1

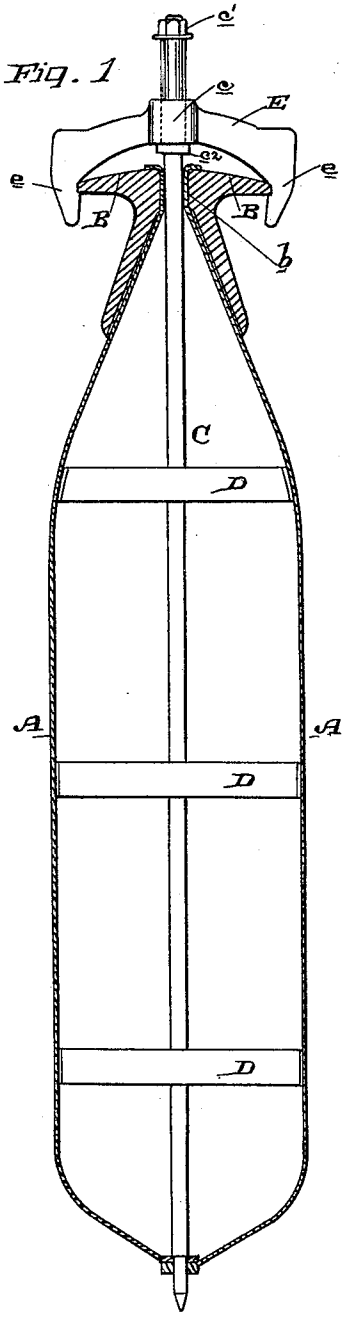


Fig. 2.

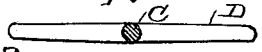
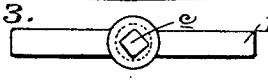


Fig. 3.



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UNITED STATES PATENT OFFICE.

IRA BISHOP, OF SAN FRANCISCO, CALIFORNIA.

CABLE-RAILWAY-CONDUIT MOLD.

SPECIFICATION forming part of Letters Patent No. 403,728, dated May 21, 1889.

Application filed February 26, 1889. Serial No. 301,249. (No model.)

To all whom it may concern:

Be it known that I, IRA BISHOP, of the city and county of San Francisco, State of California, have invented an Improvement in Concrete Molds for Cable-Railway and other Conduits; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of molds for concrete work, and especially for molds adapted for the formation of conduits or subways, having narrow or contracted top openings, such as the tubes or tunnels of cable railways.

My invention consists in separable opposing plates forming between them the space for the conduit or subway, and serving as the mold against which the concrete is tamped, said plates being adapted to be readily removed through the contracted top opening without having to remove or disturb any portion of the work, and in a spreading-frame between the plates and adapted to hold them apart and in position while the concrete is being tamped and is setting, said frame being adapted to be readily removed from between the plates by drawing it out through the narrow top opening, whereby the plates themselves, being relieved, may be also removed.

My invention also consists in the novel construction and arrangement of the removable mold-plates, the spreading-frame for holding them in position and relieving them, and the locking-bar for the frame, all of which I shall hereinafter fully describe.

The mold, though applicable for other concrete work, is especially adapted for making the conduit or subway of cable roads, and in this connection I shall describe and illustrate the invention.

The conduit or subway of a cable road is a tube or tunnel formed in the ground, and in which a traveling cable is mounted and supported upon carrying-sheaves. With this cable a suitable gripping device is adapted to be connected and disconnected, said gripping device being carried by the car, traveling on the tracks above, and having a narrow shank which passes through a continuous narrow opening known as the "grip-slot," which is made in the top of the tube or tunnel. These features of a cable-road are now well known, and I do not therefore need to more particularly describe or illustrate them, as I deem it sufficient for the purpose of my application to show simply the slot rails or irons which bound the grip-slot.

The object of my invention is to provide a simple, effective, and readily removable mold for forming concrete subways.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section of my mold. Fig. 2 is a plan of one of the arms of the spreading-frame. Fig. 3 is a plan of the locking-bar for said frame.

A A are two plates of metal opposing each other and forming between them the space for the tube or conduit of the cable railway. These plates at their lower ends meet and preferably overlap, as shown in Fig. 1, and at their upper ends they pass through the grip-slot *b*, and their tops engage the tops of the slot irons or rails B.

The plates A are of such shape, as will be seen, that when entirely free they may be drawn up through the grip-slot without having to remove or in any way disturb the slot irons or rails. When in position in the subway these plates have to be held out rigidly and solidly against the mass of concrete which is to be tamped against their outer sides, and which finally forms the tube or conduit of the cable railway. In order to do this, I have a readily-removable frame consisting of a rod, C, which passes down through the grip-slot and vertically through the conduit or space between the mold-plates, and through holes in the overlapping lower ends of said plates, as shown in Fig. 1. Upon this rod at different heights are secured firmly the arms D, which have a length equal to the width of the space between the mold-plates, so that the ends of said arms come in contact with and hold said plates separated.

The rod C is squared at its top, as shown at *c*, and upon this squared portion is fitted the locking-bar E, the ends *e* of which are bent downwardly and are adapted to engage the edges of the slot irons or rails B, as shown in Fig. 1. This bar is confined upon the rod by means of a sleeve and nut, c', above and a collar, c^2, below, on which it rests.

The operation of the mold is as follows: In

the ditch which is dug in the street the mold-plates A are placed and the rod C is inserted with its arms D extending between the mold-plates and holding them in position, said arms being then at right angles to the direction of grip-slot *b*. The ends *e* of the locking-bar E fit upon the edges of the slot-rails, and thereby hold the rod C fixed so that it cannot turn, but is held in position with its arms D holding the mold-plates separated. The concrete is then dumped in against the mold-plates and tamped and allowed to set. After it is set and it be desired to remove the entire mold the locking-bar E is knocked upwardly from its engagement with the slot-rails, its ends being of a springy nature sufficient to allow for this disengagement, and the upward movement of said bar carries the rod up with it. The rod C, being now free, may be rotated axially, the bar E, of course, rotating with it, and this axially-rotary movement of the rod turns its spreading-arms D from their former position to a position in line with the grip-slot, and the whole rod with its arms can then be lifted up through the said slot. The mold-plates A, being thus freed, may themselves be removed through the grip-slot, as heretofore described. It will be seen that in this removal of the mold it is not necessary to disturb or remove any portion of the work, so that said work may be proceeded with rapidly and effectively.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A concrete-mold consisting of the separable opposing plates and the axially-rotary rod having arms rigidly secured to it, and adapted to hold the plates apart and to relieve them, substantially as described.

2. A concrete-mold consisting of the separable opposing-plates, the axially-rotary rod having rigidly secured to it arms for holding the plates apart, and the locking-bar of the rod for keeping it from turning when in position, substantially as described.

3. The concrete-mold for the construction of cable-railway conduits, consisting of the separable opposing-plates within the conduit and adapted to be removed through the grip-slot, the axially-rotary rod passing down through the grip-slot, and having upon it the spreading-arms for holding the plates apart and relieving them, and the locking-bar fixed upon the upper end of the rod and having its ends adapted to engage the slot rails or irons, whereby said rod is held in fixed position when in use and relieved when not in use, so that it may free the mold-plates and be withdrawn through the grip-slot, substantially as described.

In witness whereof I have hereunto set my hand.

IRA BISHOP.

Witnesses:
S. H. NOURSE,
H. C. LEE.