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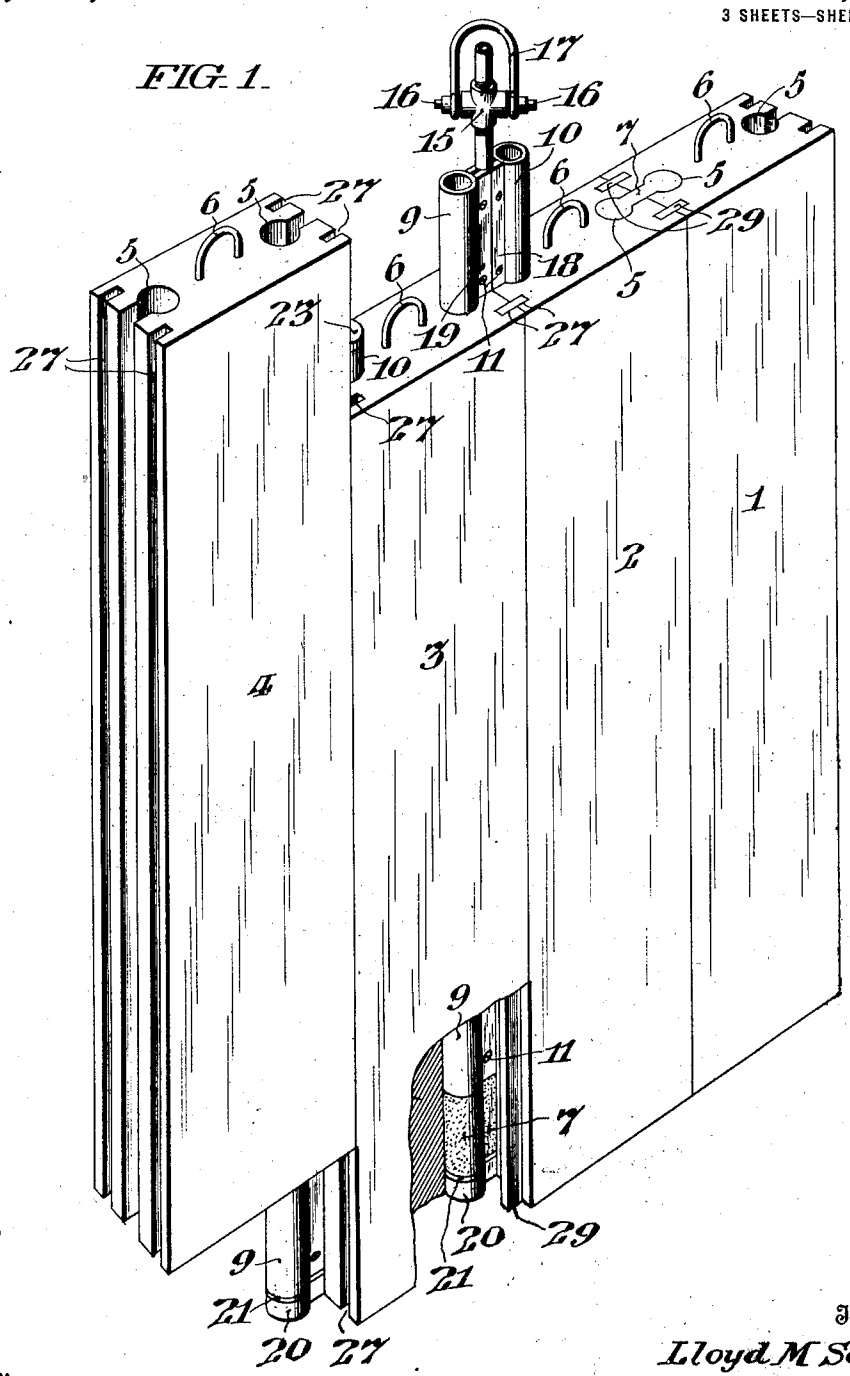
CONCRETE CONSTRUCTION.

APPLICATION FILED APR. 3, 1918.

1,366,029. Patented Jan. 18, 1921.

3 SHEETS—SHEET 1.

FIG. 1.



Witness

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3 SHEETS—SHEET 2.

FIG. 3.

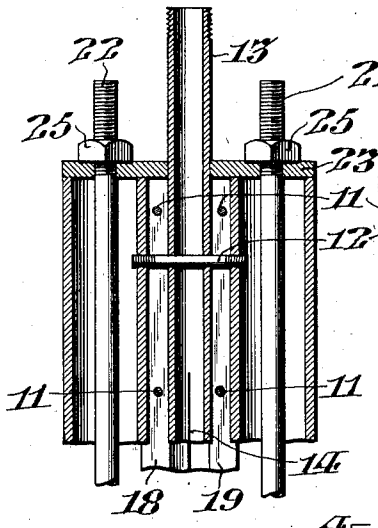


FIG. 2.

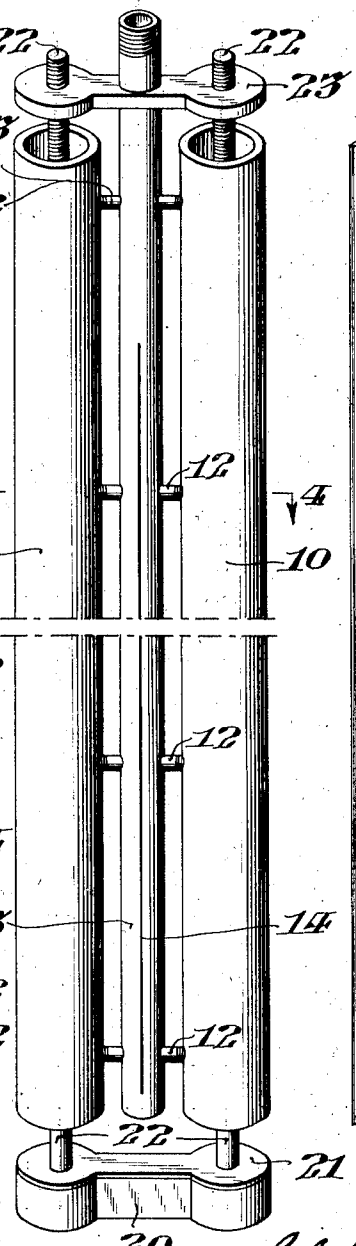


FIG. 6.

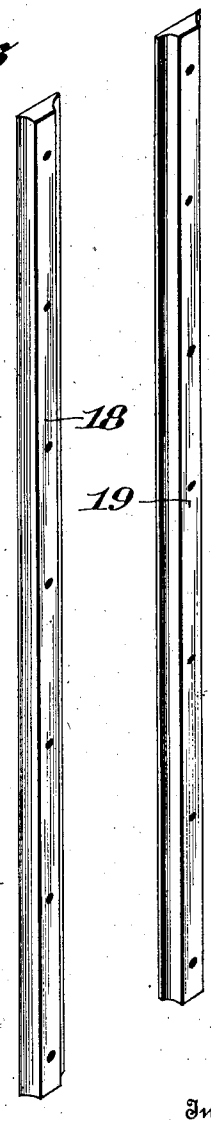


FIG. 4.

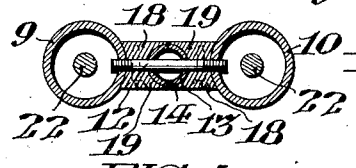
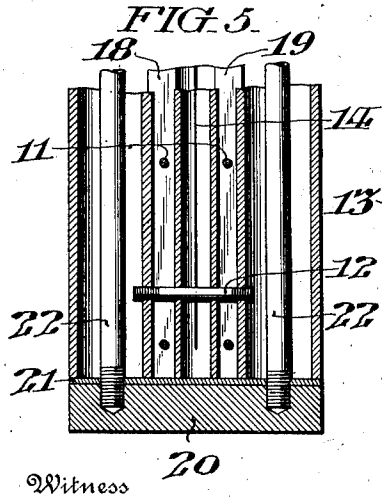


FIG. 5.



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3 SHEETS—SHEET 3.

FIG. 7.

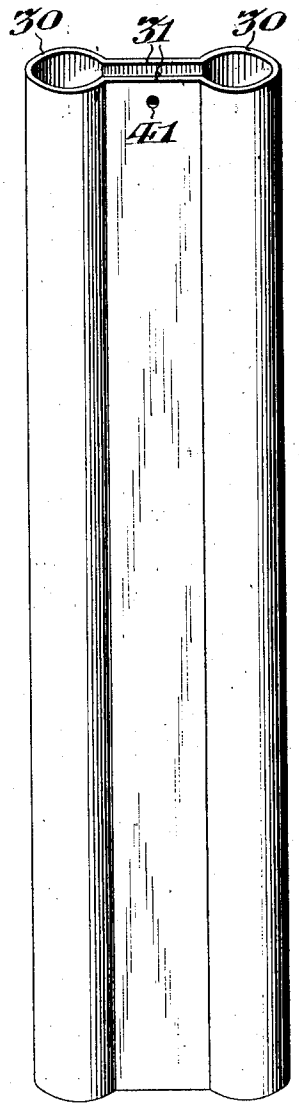
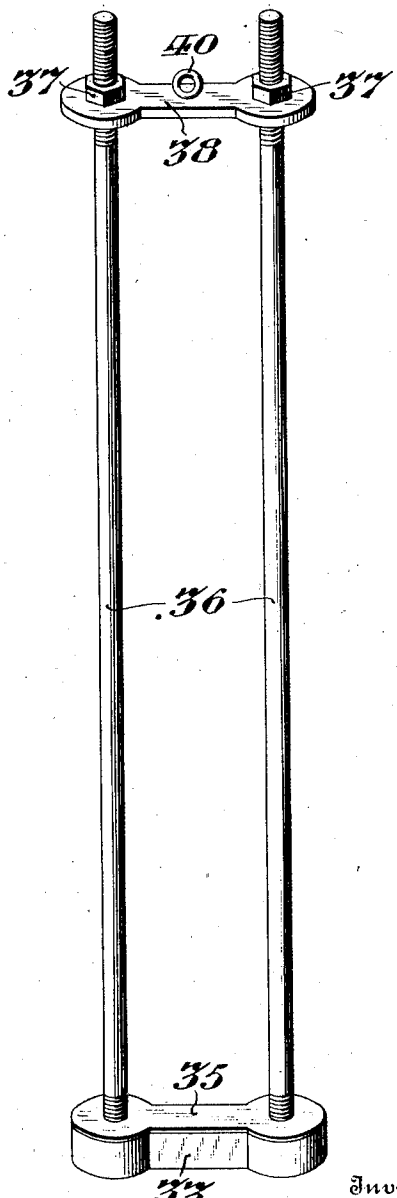


FIG. 8.



Witness

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UNITED STATES PATENT OFFICE.

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CONCRETE CONSTRUCTION.

1,366,029. Specification of Letters Patent. Patented Jan. 18, 1921.

Application filed April 3, 1918. Serial No. 226,391.

To all whom it may concern:

Be it known that I, LLOYD M. SEAMAN, a citizen of the United States, and a resident of Stoneharbor, in the county of Cape May, State of New Jersey, have invented certain new and useful Improvements in Concrete Construction, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates particularly to devices employed in constructing concrete structures forming sea-walls, bulkheads, coffer-dams, etc., wherein separately formed sectional units may be assembled and united when partly submerged, and is especially directed to the devices employed in assembling and uniting separate units having longitudinal undercut grooves in their lateral edges.

The principal objects of my invention are to provide a guide by which the adjacent units may be set in position, and by which water, mud or sand may be excluded while plastic concrete is being introduced to unite said units.

Other objects of my invention are to provide such a guide, so constructed and arranged that it may be dismembered, to afford the free introduction of the plastic concrete therethrough, between the assembled units.

My invention further comprises means to flush the joint between the abutted edges of adjacent units, whereby any dirt or grit that may accidentally lodge therein, may be removed to afford close contact of the abutted surfaces.

Specifically stated the form of my invention as hereinafter described, comprehends a hollow guide structure comprising enlarged lateral parallel members, spaced apart and substantially conforming to the cavity formed by the undercut grooves in the edges of the units when said units are abutted, and being arranged to exclude water, sand, mud or other foreign matter, by means of a plug or cap detachably engaged with its lower end, to be released and left in the cavity between the adjacent units when the guide is withdrawn therefrom.

My invention also includes all of the various novel features of construction and arrangement as hereinafter more definitely described.

In the accompanying drawings Figure 1, is a perspective view of a fragment of a seawall or bulkhead showing the different stages of construction as related to four units; Fig. 2, is a perspective view of the guide by which the units are assembled, showing the plug and correlated parts slightly separated for convenience of illustration; Fig. 3, is a fragmentary longitudinal sectional view of the upper part of said guide as assembled to direct the units into place; Fig. 4, is a transverse sectional view of said guide taken on the line 4—4 in Fig. 2; Fig. 5, is a fragmentary longitudinal sectional view of the lower end of said guide, showing the plug as sealing the conveyer tubes through which the plastic concrete is introduced; Fig. 6, is a perspective view of the fillers which are arranged to bridge the open gap between the concrete conveyer tubes; Fig. 7, is a perspective view of a modified form of guide; and Fig. 8, is a perspective view of the sealing plug and its associated parts, assembled.

In said figures the fragment of the seawall or bulkhead illustrated, comprises the formed concrete units 1, 2, 3 and 4, respectively having the undercut grooves 5, extending longitudinally in their opposite edges, and having the loops 6, by which they may be lowered into position.

As illustrated the units 1 and 2, have been guided into position and are connected to form an integral structure by the concrete key 7, which has been introduced in plastic condition, through the guide, such as is shown as being withdrawn from between the units 2 and 3, and such as is shown guiding the unit 4 into position with respect to the unit 3, with which said guide has been previously engaged.

The guide, as above stated, is to be utilized, not only to guide the consecutively assembled units into position, but is also adapted to introduce plastic concrete into the cavity forming the keyway between the adjacent units, which plastic concrete, when hardened provides an integral interlocking key 7, as shown between the units 1 and 2, filling the keyway afforded by the complementary undercut grooves 5, in the opposite edges of said slabs, as shown in Fig. 1.

The guide as illustrated in Figs. 1 to 6, inclusive, is formed of tubes 9 and 10, conveniently connected in spaced relation by the spacing bars 12, which are oppositely threaded at their respective ends, so that they may be rotated to adjustably space said tubes 9 and 10.

Said spacing bars 12, extend through and support the flushing pipe 13, which is centrally disposed between said tubes and which is provided with the diametrically opposite slits 14, disposed in the plane of the opposed faces of the adjacent slabs when abutted. The slits 14, are arranged to direct sheets of water in opposite directions through the joint afforded by the abutting slabs, whereby any undesirable dirt or grit tending to prevent close contact of the slabs may be flushed out.

The lower end of said pipe 13, terminates flush with the lower ends of the tubes 9 and 10, while its upper end preferably projects somewhat above the upper ends of said tubes, and is threaded to receive a union connection or fitting 15, shown in Fig. 1, leading to any convenient source of water supply under pressure. Said fitting may as shown, be a "cross" fitting having its laterally directed outlets provided with plugs 16, and afford means for attaching the bale 17, by which the guide may be lowered into place and withdrawn therefrom.

The guide thus formed is provided with fillers 18 and 19, preferably of wood, bridging the space between the tubes 9 and 10, as shown in Figs. 1, 3 and 5, and shaped as shown in Figs. 4 and 6, to conform to the tubes 9 and 10, and pipe 13, as best shown in Fig. 4, and may be rigidly held in position by bolts or screws 11, it being understood that said fillers are coextensive with said tubes, as shown in Figs. 3 and 5, and are so fitted to the tubes 9 and 10, and pipe 13, as to permit the free flow of water through the slits 14, as best shown in Figs. 3, 4 and 5.

The tubes 9 and 10, are designed to convey the plastic concrete into the double-headed cavity, formed by the undercut grooves in the abutted slabs, and may be filled and withdrawn thereby leaving said cavity filled with the concrete thus introduced, to form the interlock when set or hardened.

As it is essential that such concrete shall not be adulterated by water, mud, sand or other foreign matter, said tubes are arranged to be sealed by the plug 20, preferably having the gasket 21, drawn tight against the lower edges of the tubes 9 and 10, and the pipe 13, as best shown in Fig. 5, by the tie-rods 22, which are in threaded engagement with the plug 20, and are arranged to be readily unscrewed and withdrawn to release said plugs, which remain in the bottom of the cavity and serve as a lock to prevent the displacement of the slabs while the concrete is in process of setting.

The tie-rods 22, project upwardly above the top of the tubes 9 and 10, as shown in Figs. 2 and 3, and extend through the tie-plate 23, which is arranged to slip over and embrace the pipe 13, and rest upon the top of the tubes 9 and 10, and serve as an abutment for the nuts 25, which are engaged with the threaded upper ends of the respective tie-rods 22, and which may be rotated to draw the plug 20, into fluid tight engagement with the lower ends of the tubes 9 and 10.

As shown in Fig. 1, the opposite edges of the slabs 1, 2, 3 and 4, are provided with slots 27, disposed upon opposite sides of the undercut groove 5, and arranged to register with the corresponding slots 27, when said slabs are abutted to afford a cavity into which a board 29, may be inserted to seal the joints between the slabs after they have been flushed, and before the guide is withdrawn, thereby preventing access of water to the plastic concrete after the guide has been withdrawn.

In the alternate form of my invention shown in Fig. 7, the guide is in the form of a tubular shell, substantially conforming to the walls of the cavity formed by the grooves 5, when the edges of the slabs are abutted, and comprises the parallel open-sided cylindrical bodies 30, connected in spaced relation by the parallel plane walls 31, whose distance of separation is somewhat less than the diameter of the cylindrical bodies 30.

The lower end of this guide is arranged to be sealed by the plug 33 and gasket 35, drawn into watertight relation with its lower end, by the tie-rods 36, by means of the nuts 37, which are arranged to bear against the tie-plate 38, in the same manner as above described with respect to Figs. 2, 3 and 5.

In this alternate form of my invention, the tie-plate is preferably provided with the lifting eye 40, by which the guide may be lowered into the last slab that has been placed in position, and the guide is provided with the apertures 41, in the respective plane walls 31, through which a lifting pin (not shown) may be inserted, which may serve as a means of engagement by which the guide may be withdrawn from the assembled slabs after the tie-plate and tie-rods have been withdrawn and the concrete introduced.

My invention is advantageous, in that the guide may be rendered absolutely watertight by the plug and its associated parts, and may be employed thus sealed to direct the slabs into position, after which said plug may be released by unscrewing and withdrawing the tie-rods, thereby leaving the tubes of the guide free for the introduction of plastic concrete, and permitting the easy withdrawal of said guide from the cavity, leaving the plug in the bottom of said cavity between the slabs to tie said slabs together and prevent their accidental displacement, while the concrete key is in process of setting or hardening.

I do not desire to limit my invention to the precise details of construction and arrangement as herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

Having thus described my invention, I claim:—

1. A structure of the class described, comprising spaced tubular members forming a guide, a flush pipe having a longitudinally extended outlet slit, disposed between said tubular members, and means connecting said members and pipe.

2. A structure of the class described, comprising spaced tubular members, a flush pipe having a longitudinal outlet slit, disposed between said members, means connecting said members and pipe and fillers disposed upon opposite sides of said slit and arranged to bridge the space between said tubes.

3. A structure of the class described, comprising spaced tubular members, a pipe split longitudinally, a closure for the lower end of said pipe and tubular members, and means adjustable to hold said closure in watertight engagement with said pipe and tubular members, and arranged to be manipulated from the top of said tubular members to release said closure.

4. A structure of the class described, comprising spaced tubular members, and spacing bars having oppositely directed screw threads engaging said tubular members, rotatable to vary the spaced relation of said tubular members.

5. A structure of the class described, comprising spaced tubular members, a pipe of less diameter than said tubular members, and having diametrically opposite slits, and spacing bars having oppositely directed screw threads adjustably connecting said tubular members and pipe.

6. A structure of the class described, comprising spaced tubular members, a pipe of less diameter than said tubular members, and having diametrically opposite slits, and spacing bars having oppositely directed screw threads adjustably connecting said tubular members and pipe, a closure for said tubes and pipe, and means adjustable to engage said closure in watertight relation therewith, and arranged to be manipulated from the top of said tube to release said closure.

7. A structure of the class described, comprising spaced tubular members, a pipe of less diameter than said tubular members, and having diametrically opposite slits, a closure for said tubes and pipe, means adjustable to engage said closure in watertight relation therewith, and arranged to be manipulated from the top of said tubes to release said closure, and fillers arranged to bridge the space between said tubes.

8. A structure of the class described, comprising a tubular guide, a flushing pipe having longitudinal outlets, and a fitting connected with said flushing pipe and affording means for carrying said guide.

9. A structure of the class described, comprising a guide comprising spaced tubular members, a closure for the lower end of said members, and means adjustable to maintain said closure in watertight relation with said tubular members, and arranged to be manipulated from the top of said tubular members to release said closure, of a flushing pipe interposed between said tubular members, and having lateral outlets, means connecting said members and pipe and a fitting forming a union connecting said pipe with a suitable water supply, and serving as a carrying medium for said guide.

10. A structure of the class described, comprising slabs of concrete having their lateral edges each provided with an undercut groove and a slot, said grooves being complementary to form a double-headed cavity arranged to receive plastic concrete, which when set forms a concrete interlock holding adjacent slabs together, and said slots being complementary to form a rectangular cavity arranged to receive a board forming a seal for the joint between said adjacent slabs, to protect said plastic concrete while setting.

11. A structure of the class described, comprising slabs of concrete having their lateral edges each provided with an undercut groove flanked upon either side by parallel slots, the grooves of adjacent slabs being complementary to form a double-headed cavity into which plastic concrete may be introduced to form a concrete interlock holding said slabs together, when set, and said slots being complementary to form rectangular cavities into which boards may be inserted to seal the joint between said slabs and thereby protect said plastic concrete while setting.

In witness whereof I have hereunto set my hand this 20th day of March, A. D., 1918.

LLOYD M. SEAMAN.

Witnesses:

EVERTON A. CARSON,

WM. HENRY COLLISSON, Jr.