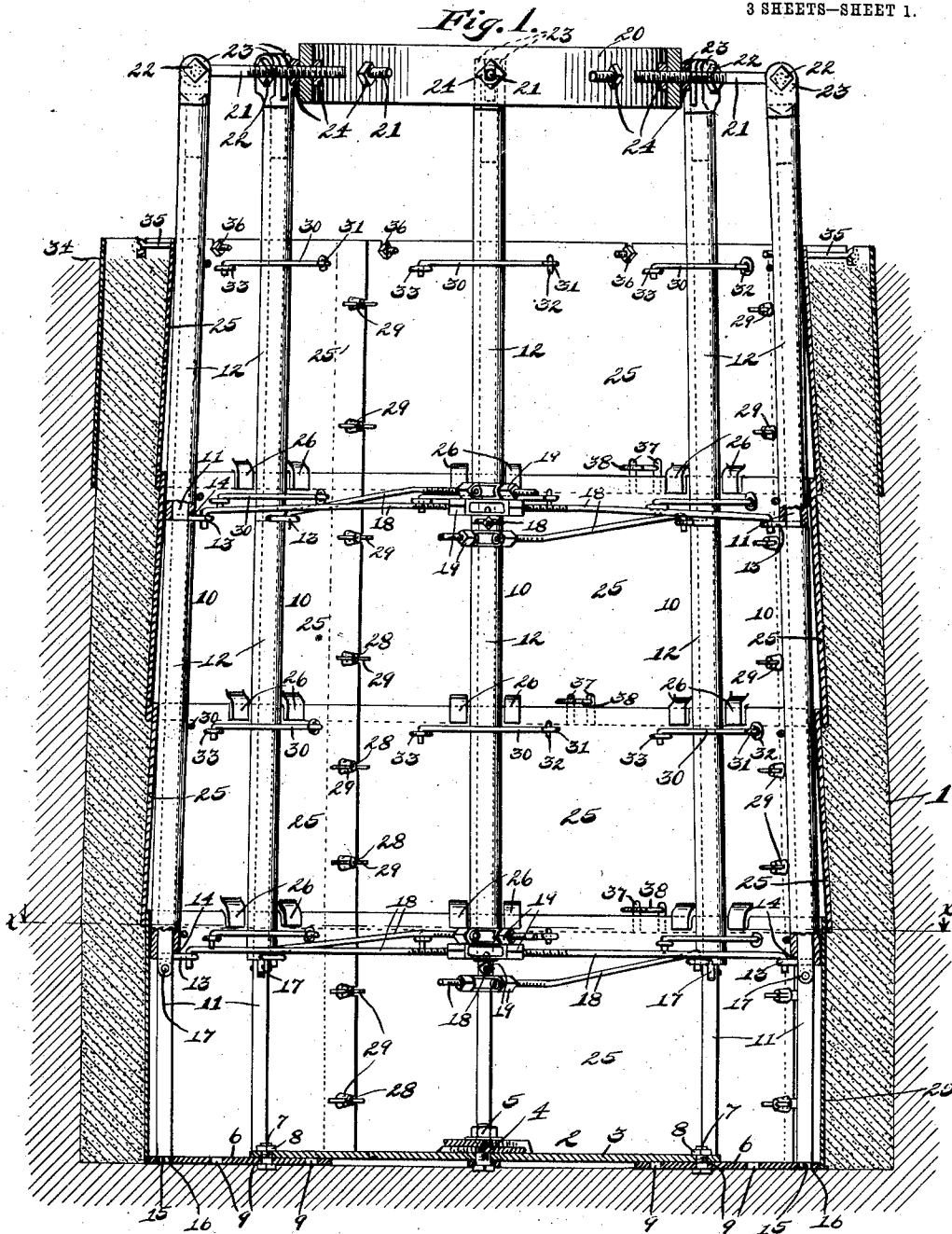


J. ELSMERE.
FORM FOR CONCRETE CONSTRUCTION.
APPLICATION FILED AUG. 12, 1910.

1,016,485.

Patented Feb. 6, 1912.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

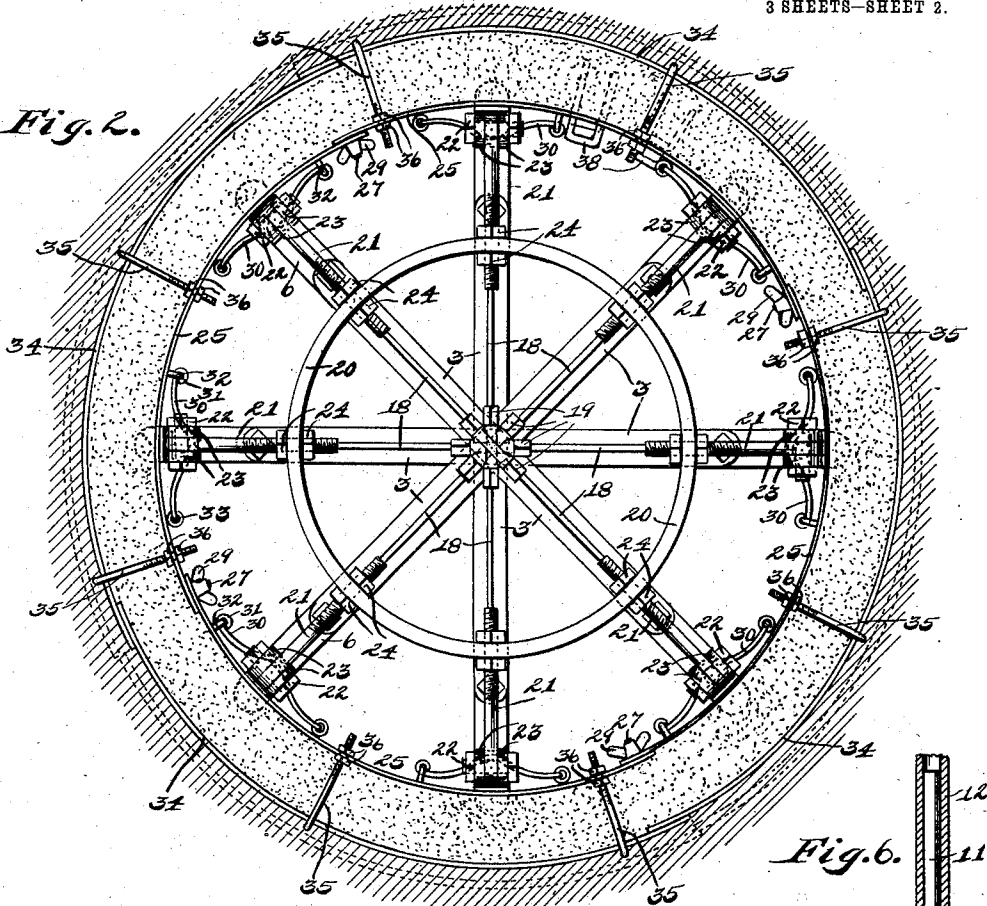


Fig. 6.

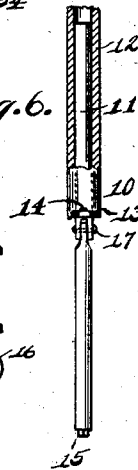


Fig. 3.



Fig. 4.



Fig. 5.

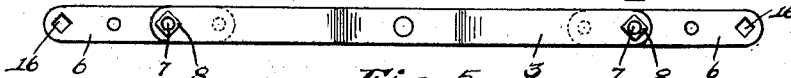
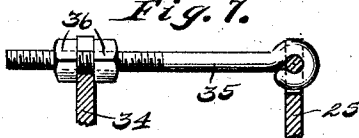


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8.

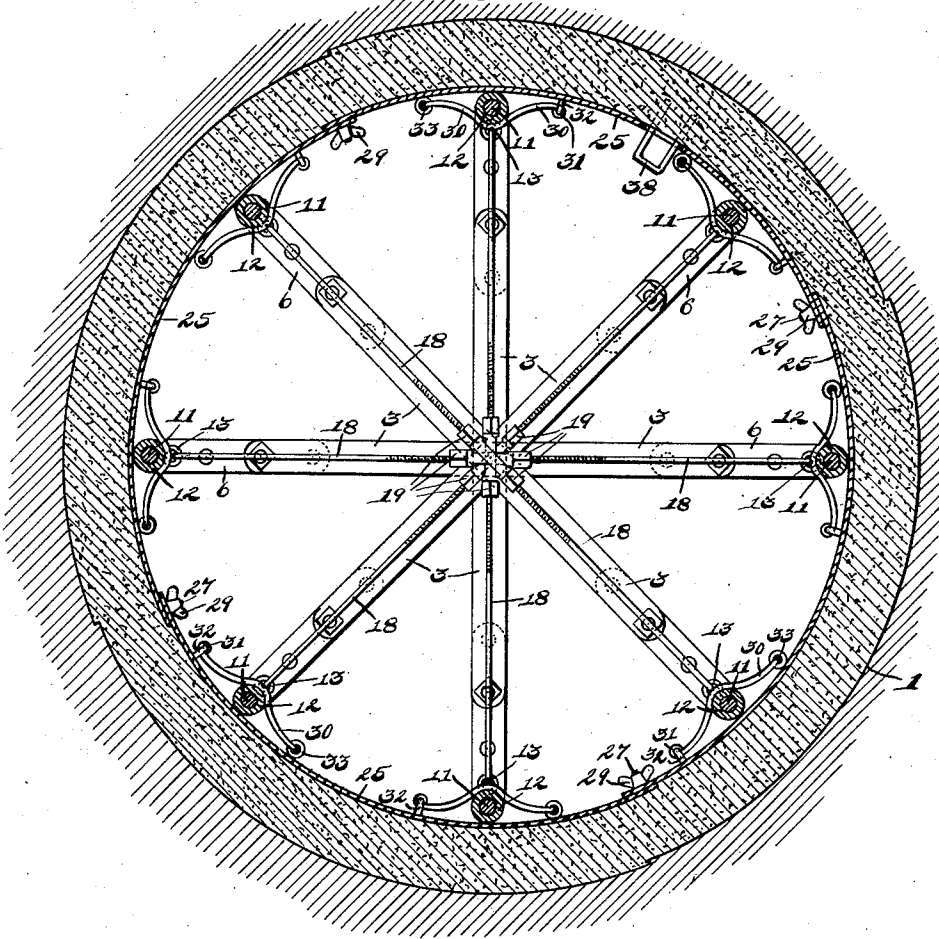
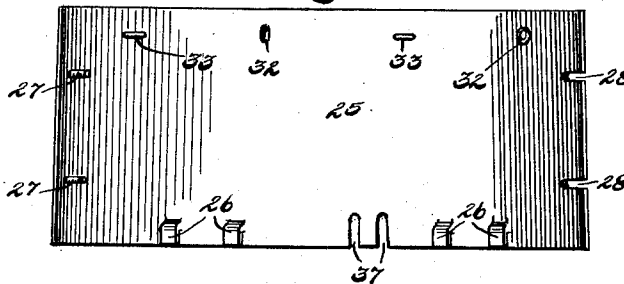


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN ELSMERE, OF BATTLE CREEK, MICHIGAN.

FORM FOR CONCRETE CONSTRUCTION.

1,016,485.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed August 12, 1910. Serial No. 576,835.

To all whom it may concern:

Be it known that I, JOHN ELSMERE, a citizen of the United States, residing at Battle Creek, county of Calhoun, and State of Michigan, have invented certain new and useful Improvements in Forms for Concrete Construction, of which the following is a specification.

My invention relates to improvements in forms for concrete construction of man-holes, catch-basins, etc., and has for its object the production of a sectional or knock-down form which may be readily and quickly arranged for use or knocked down for storage or transportation.

A further object is the provision of a form of the character mentioned which will be of durable and economical construction and efficient in operation.

Other objects will appear hereinafter.

With these objects in view my invention consists in a form for concrete construction characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter more fully described and particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a central vertical section of a form embodying the preferred form of my invention, Fig. 2 is a top plan view thereof, Figs. 3 and 4 are side elevations of the sections or bars of the base member included in the form, detached, Fig. 5 is a top plan view thereof, Fig. 6 is a sectional detail of one of the uprights of the form, Fig. 7 is a sectional detail illustrating the connection between adjacent sections of the spaced walls of the form, Fig. 8 is a horizontal section on line $x-x$ of Fig. 1, and Fig. 9 is a detail of one of the inner wall sections of the form, detached.

Referring now to the drawings, 1 indicates the cylindrical concavity or hole which is dug in the ground preparatory to the formation of the concrete walls of the man-hole therein. Arranged in the bottom of the concavity 1 is a base 2, the latter being of sectional form comprising a plurality of radially disposed similar bars 3 which are connected intermediate their extremities by a bolt 4 and a nut 5. The central portions of said bars 3, in order that the outer ends

thereof may extend in the same horizontal plane, are offset, as indicated. Arranged at the respective extremities of each of the bars 3 are shorter sections 6 which are adjustably connected thereto by means of bolts 7 and nuts 8, said sections being provided with a plurality of spaced perforations 9 whereby longitudinal adjustment of the sections of the base 2 may be effected in order that a base of any design or diameter may be formed according to requirements. Supported at the outer extremities of each of the sections 6 are uprights 10. Each of the uprights 10 is comprised of a plurality of telescoping sections 11 and 12, the former being simply solid bars and the latter tubes which envelop the ends of the sections 11. Each of the sections 11 intermediate its extremities is provided with a projecting eye or loop 13. The lower extremities of the sections 12 are slotted or notched as at 14 to engage the shank portions of the eyes 13 so that relative rotation of the sections 11 and 12 will thereby be prevented. The lower extremity 15 of each of the lowermost of the sections 11 is reduced and squared, as clearly indicated in Fig. 1, said extremity engaging a slot or perforation 16 of corresponding form provided in the outer extremity of each of the base sections 6. With this construction it will be seen that the uprights 10 will be supported upon the base 2 and the same, because of the squared form of the lower extremities thereof, will be held against relative rotary movement in said base. The lowermost sections 11 intermediate their extremities and just below the eyes 13 provided thereon, are provided with pivoted joints 17 so that the upper end portions of said uprights may be swung inwardly or outwardly to regulate the batter of the lateral walls of the man-hole in the course of construction.

Within the form are arranged diametrically extending brace bars 18 which are connected at their respective extremities to uprights 10 at diametrically opposite sides of the form. Said extremities of said brace bars are hooked in form, as indicated, for detachable engagement of eyes 13 which project from said uprights. In each of the bars 18 is interposed a turn buckle 19 whereby longitudinal adjustment of said bars may be effected in order to adjust the upper end portions of the uprights 10 to the proper degree of angularity. Arranged

within the form at the upper extremities of the uprights 10 is a ring 20 which is perforated at intervals for the reception of the inner ends of the eye bolts 21 radially projecting therefrom. The eyes at the outer extremities of the bolts 21 are pivotally connected by means of bolts and nuts 22 with the eyes at the upper extremities of eye bolts 23 loosely secured in the upper extremities of the uppermost sections 12. The inner ends of said bolts 21 are secured to the member 20 by means of nuts 24 which are threaded upon said bolts, so that lateral adjustment of the bolts 21 may be effected by simply adjusting the nuts 24 thereon. Thus it will be seen that the uprights 10 are secured and rigidly held at their upper and lower extremities and also intermediate their extremities, the connections of the bracing means with the uprights being in each instance such that detachment of the former from the latter may be readily and quickly effected.

The inner wall of the form which bears against the outer sides of the uprights 10 is comprised of a series of superimposed rows of sections 25. Each of the sections 25 is of segmental or arcuate form, each being provided at its inner side adjacent its lower edge with inwardly projecting hooked portions 26 which engage over the upper edges of the section below the same, as clearly illustrated in Fig. 1, an overlapping connection between the adjacent horizontal longitudinal edges of said sections being effected. Said sections 25 are also so arranged that the vertical or transverse edges of adjacent sections thereof overlap, the outermost of the overlapping edges being provided with inwardly projecting threaded studs 27 which engage notches 28 provided in the innermost of said edges, thumb nuts 29 threaded upon said studs serving to rigidly fasten said edges together. Said sections 25 are detachably secured to the uprights 10 by means of straps 30, corresponding extremities 31 of the latter being pivotally secured to loops 31 provided upon the inner surfaces of said sections, said members being adapted to extend around the inner sides of said uprights, in which position the same may be held by reason of the opposite hooked extremities thereof engaging eyes 33 provided upon the inner sides of said sections 25 at the opposite sides of said uprights. With this provision, in order to unlock the sections 25, it is only required to release the hooked extremities of the straps 30.

The outer wall of the form is comprised of a plurality of overlapping sections 34 similar in construction to the sections 25. As will be observed only a single row or series of the sections 34 is employed, since in the construction of the lateral walls of the man-hole said sections 34 are gradually

drawn upwardly or elevated, the earth being filled in to support the outer side of said wall while the cement is setting. Also in the outer wall of the form the overlapping edges of the sections 34 thereof need not be secured together as in the inner wall since the earth as it is filled in serves to hold said sections in their proper positions. The upper edges of the sections 34 are, however, spaced from the adjacent sections of the inner wall by means of eye bolts 35 which are pivotally secured to the upper edge of the former and which are adapted to extend over the upper edge of the adjacent section 35 and be detachably secured thereto by means of nuts 36 threaded thereon, as clearly shown in Fig. 7. Upon the completion of the structure the sections 34 are completely removed, the inner wall of the form and the supporting or reinforcing means therefor only being left until the cement has set sufficiently. When the cement of the structure, after completion thereof, has set sufficiently to support itself the parts of the mold within the same may be readily and quickly disconnected or knocked down and removed. The lower edges of certain of the sections 25 are provided with spaced slots or notches 37, the latter permitting of the insertion of the ends of U-shaped members 38 into the adjacent concrete wall so that, when the structure is completed, a step ladder will be formed within the man-hole.

A mold of the construction set forth is durable and economical in construction, the same may be adjusted so as to be adapted to be employed in the formation of man-holes of different dimensions and the same may also be adjusted for the formation of man-holes of various designs; the same may be readily and quickly arranged for use and as expeditiously knocked down and removed from the completed structure.

While I have shown what I deem to be the preferable form of my form I do not wish to be limited thereto as there might be various changes made in the details of construction and arrangement of parts described without departing from the spirit of the invention comprehended within the scope of the appended claims.

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

1. In a form for the concrete construction of a man-hole, the combination of a base comprised of a plurality of radially disposed detachably connected longitudinally adjustable bars, a plurality of substantially vertically disposed spaced uprights supported upon said base, each of said uprights comprising a plurality of detachably connected telescoping sections, the lowermost section of said uprights being held against

relative horizontal movement in said base bars, longitudinally adjustable braces extending between diametrically opposed uprights intermediate their extremities, each of said braces being provided with a turn buckle, radially adjustable means connecting the upper extremities of said uprights, a sectional inner form-wall bearing against the outer sides of said uprights, and a sectional outer form-wall spaced from said inner form-wall, substantially as described.

2. In a form for the concrete construction of a man-hole, the combination of a base comprised of a plurality of radially disposed detachably connected longitudinally adjustable flat bars, a plurality of substantially vertically disposed spaced uprights supported upon said base, each of said uprights comprising a plurality of detachably connected telescoping sections, the lowermost sections of said uprights being held against relative horizontal movement in said base, longitudinally adjustable braces extending between diametrically opposed uprights intermediate their extremities, each of said braces being provided with a turn buckle, radially adjustable means connecting the upper extremities of said uprights, an inner form-wall bearing against the outer sides of said uprights, said wall being comprised of a series of superimposed rows of detachably connected sections, a detachable connection between said sections and said uprights whereby outer movement of said sections is prevented, a sectional outer form-wall, and means for spacing said outer form-wall from said inner form-wall, substantially as described.

3. In a form for the concrete construction of a man-hole, the combination of a base member comprised of a plurality of radially disposed detachably connected longitudinally adjustable bars, a plurality of substantially vertically disposed uprights supported upon said bars adjacent the outer extremities thereof, each of said uprights comprising a plurality of detachably connected telescoping sections, the lowermost sections of said uprights being provided with pivotal joints permitting of inward or outward swinging of the upper end portions of said uprights, the lower extremities of said uprights being held against relative horizontal movement in said base bars, longitudinally adjustable braces extending between diametrically opposed uprights and

connected with inwardly projecting eyes provided at intervals upon said uprights intermediate their extremities, each of said braces being provided with a turn buckle, radially adjustable bracing means connecting the upper extremities of said uprights, an inner form-wall comprised of a series of superimposed rows of detachably connecting sections bearing against the outer sides of said uprights and releasably connected thereto, an outer sectional form-wall, and means for spacing said outer form-wall from said inner form-wall, substantially as described.

4. In a form for the construction of a manhole, the combination of a base member comprising a plurality of radially disposed detachably connected longitudinal and adjustable bars, a plurality of substantially vertically disposed uprights supported upon said bars adjacent the outer extremities thereof, each of said uprights comprising a plurality of detachably connected telescoping sections, the lowermost sections of said uprights being provided with pivotal joints permitting of inward or outward swinging of the upper end portions of said uprights, the lower extremities of said uprights being held against relative movement in said base bars, longitudinal and adjustable braces extending between diametrically opposed uprights and connected with inwardly projecting eyes provided at intervals upon said uprights intermediate their extremities, each of said braces being provided with a turn buckle, radially adjustable bracing means connecting the upper extremities of said uprights, an inner form-wall comprised of a series of superimposed rows of detachably connected sections bearing against the outer sides of said uprights and releasably connected thereto, the upper of said sections overlapping the lower and provided with inwardly projecting hooks engaging the upper edge of the corresponding lower section, an outer sectional form-wall, and means for spacing said outer form-wall from said inner form-wall, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ELSMERE.

Witnesses:

ELZA J. SHOUP,
FREDRICK B. SAUERBIER.