No. 875,518. PATENTED DEC. 31, 1907.

G. GEORGENSON.

SECTIONAL SEWER MOLD.

APPLICATION FILED APR 16, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

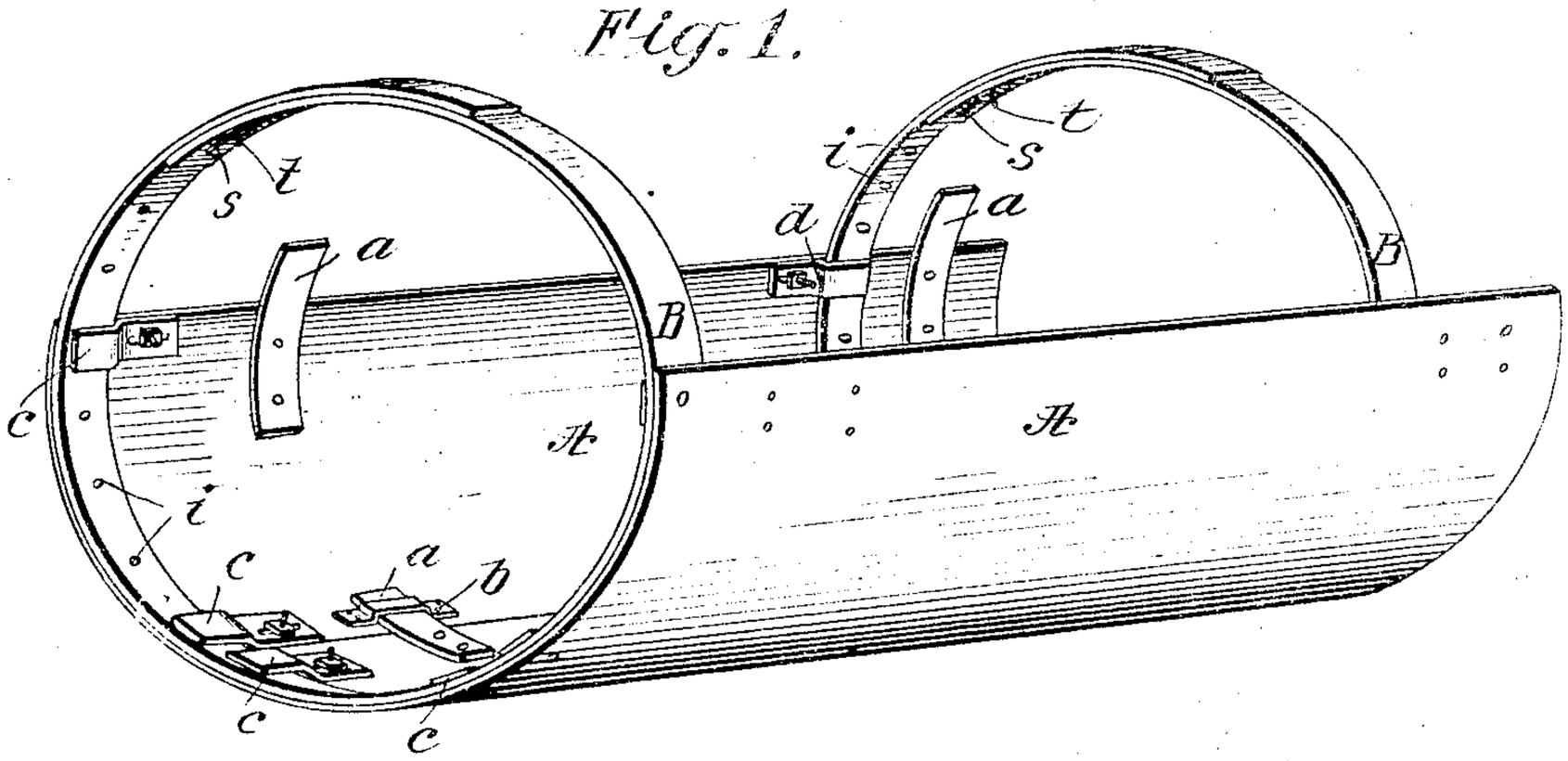
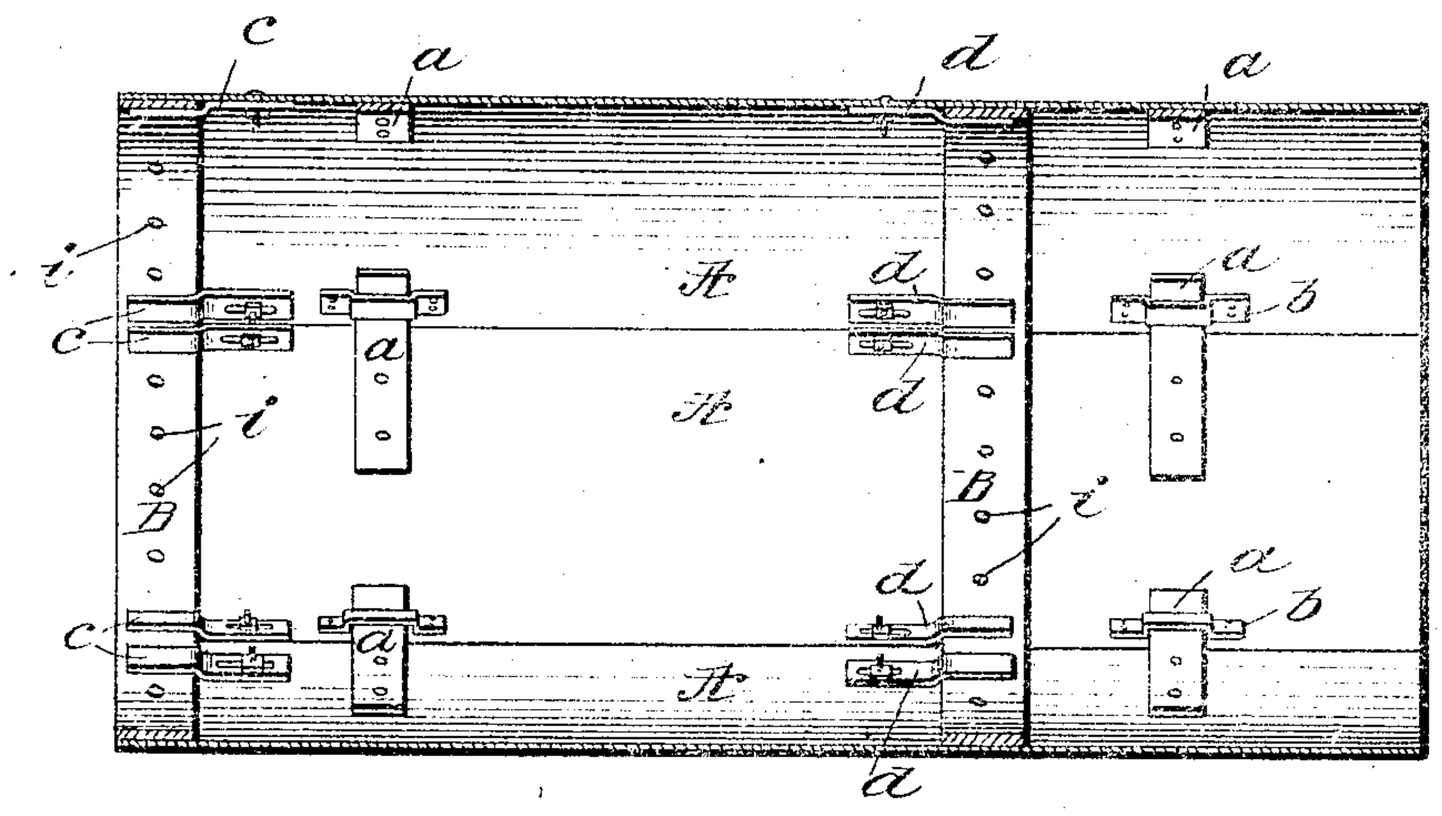


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

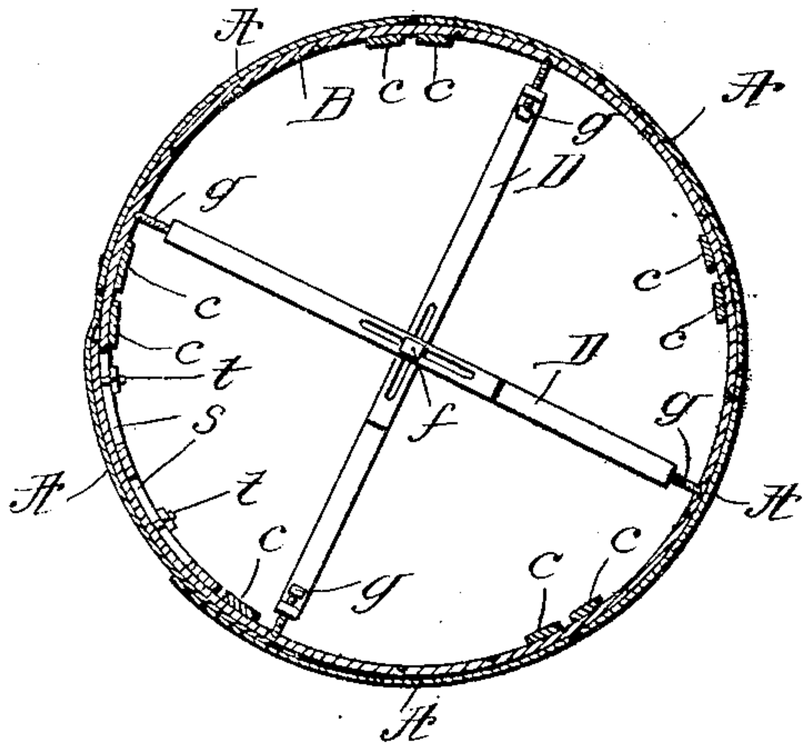


Fig. 4.

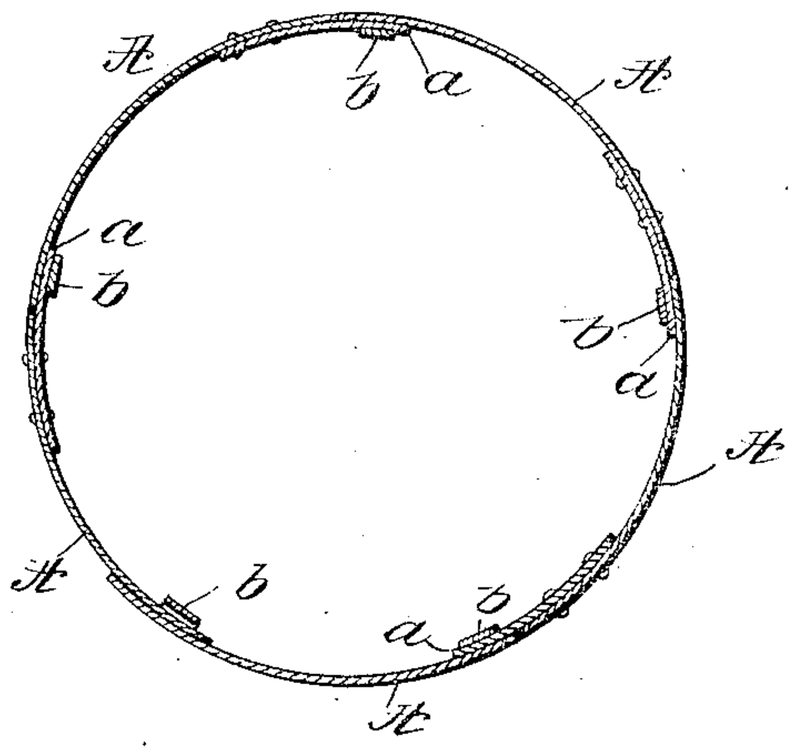


Fig. 5.

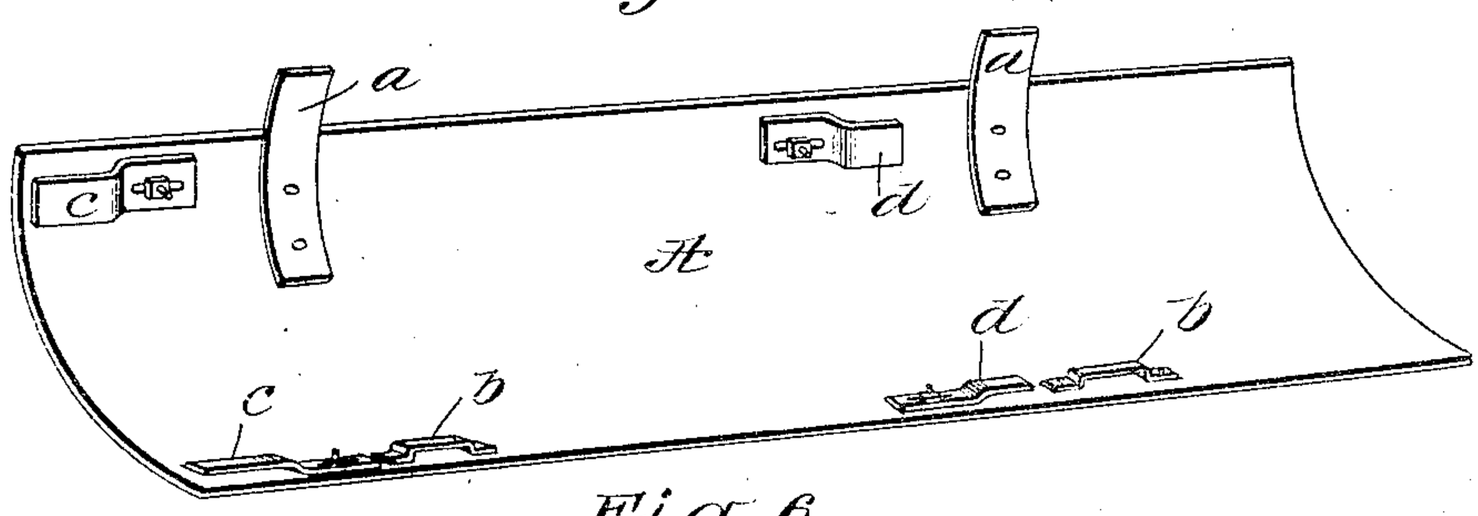


Fig. 6.

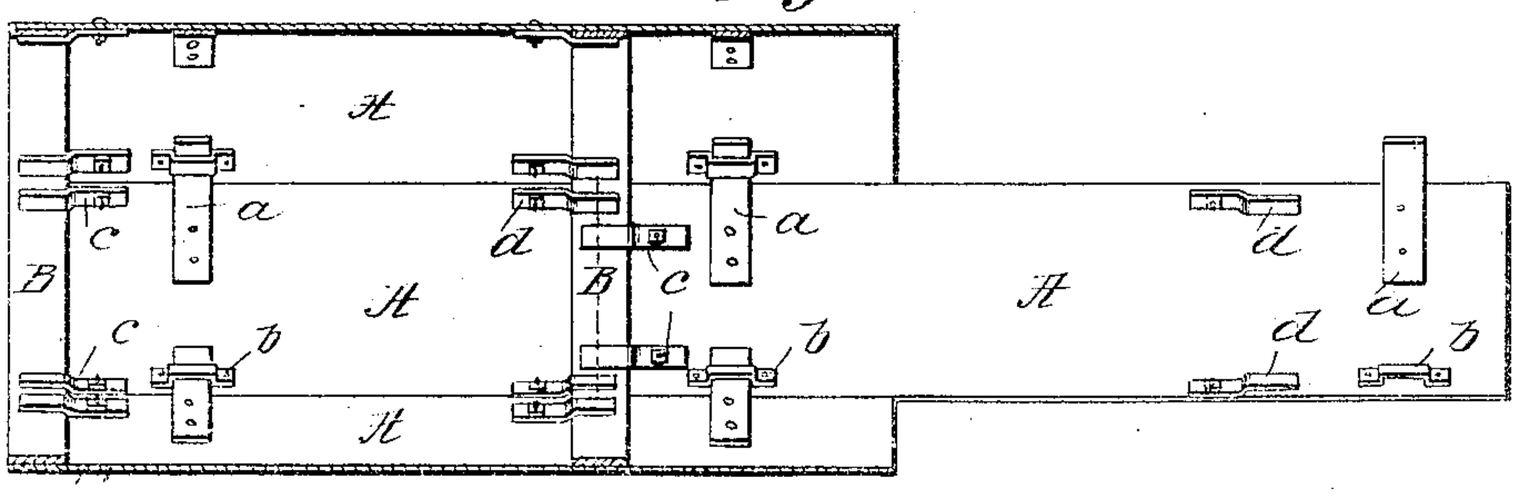
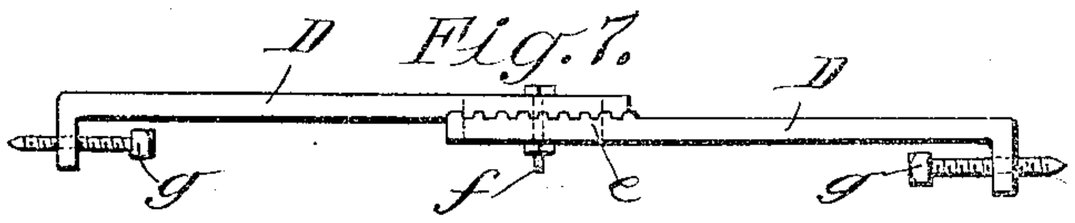


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE GEORGENSON, OF WILMINGTON, NORTH CAROLINA.

SECTIONAL SEWER-MOLD.

No. 875,518. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed April 16, 1907. Serial No. 368,524.

To all whom it may concern:

Be it known that I, GEORGE GEORGENSON, a citizen of the United States, and resident of Wilmington, in the county of New Hanover and State of North Carolina, have invented an Improved Sectional Sewer-Mold, of which the following is a specification.

My invention is designed to provide a sectional sheet metal sewer mold, which may be built up in indefinite lengths in the sewer preparatory to packing the cement concrete around the same, and be built up progressively to a higher level by the addition of new panels, as the level of the concrete rises until the circular form of the mold is completed, and it consists in the novel construction and arrangement of the sectional sewer mold capable of extensible construction as above described, and which is also so constructed as to be readily collapsed and taken to pieces from the interior after the cement hardens.

In the drawing, Figure 1 is a perspective view of two panels of one length of my sewer mold in process of being built up around the circular brace hoops. Fig. 2 is a longitudinal section of a completed length of mold. Fig. 3 is a transverse section of the sewer mold taken through the brace hoop. Fig. 4 is a similar transverse section taken through the registering tongues and loops of the panels. Fig. 5 is a perspective view of a single detached panel. Fig. 6 is a view on a smaller scale, partly in section, showing the method of laying the panels with lap joints; and Fig. 7 is a detail of the diametrical brace.

My sectional sewer mold is composed of three separate elements. The first is a series of panels A, seen in detail in Fig. 5, each of which is made of stout sheet metal bent to the arc of a circle, so as to form a sort of stave, with which other similar staves or panels, form when put together a complete circular mold. These staves are of much greater length than width, which width is of a curved cross section, and the longitudinal edges are only the thickness of the staves without any abutting flanges.

The second element is the circular brace hoop B, seen in Fig. 1, on which the staves or panels are held, and the third element is the diametrical transverse brace bars D, D, Figs. 3 and 7, which hold the form distended against any collapsing pressure.

Each panel—see Fig. 5—is made with two or more tongues *a a* projecting along one longitudinal edge, two or more loops *b b* along the other longitudinal edge, each tongue *a* being in the same transverse plane as the loop *b*, and two or more sets of hook-shaped and inwardly offsetting clips *c c* and *d d*, whose shanks are slotted longitudinally and are adjustably connected to the panels by bolts, or screw studs and nuts. One set *c c* of these clips is located at the extreme end of the panel, and the free ends of the clips trend outwardly, while the other sets, as *d d*, are located at uniformly distributed points from the set *c c*. The spacing of the clips *d* at a distance from the end of the panel is to permit of the laying of the panels with lap joints, as hereafter described.

The brace hoops B have separable ends provided with longitudinal slots *s*, and are connected together adjustably by bolts *t* passing through said slots.

The panels A are connected to the hoops by the clips *c* and *d*, which are adjusted endwise up to the hoops, the hoops occupying a position between the clips and the panels, as seen in Figs. 1 and 2. The tongues *a a* of one panel are entered into the loops *b b* on the adjacent edge of the next panel, so that when all the panels are in place on the hoops B, they constitute a complete tubular form or mold, around the exterior of which the cement material is packed and allowed to harden to form the sewer. The complete tubular form has, however, when completed, an overlap where the last applied panel overlaps the first, as seen at the bottom of Figs. 3 and 4. This not only permits of adjustment of the size of the circular cross section but permits of the separate removal of the panels or staves and collapse of the mold when it is to be taken out.

To permit the overlap to take place with the last panel, the tongues *a a* and clips *c c* at the free overlapping edge of the last panel are removed so as to permit this overlap without interference of said tongue and clips with the edge of the first panel.

In the interior faces of the hoops B, are formed slight indentations *i*, providing seats into which are held the ends of the diametrical brace bars D, Figs. 3 and 7. These brace bars are each made in two sections, the inner ends of which are provided with interlocking teeth *e* on the side to prevent slipping, and which two sections are clamped together by a bolt *f*. This bolt passes through the slots in the toothed ends of the bars, and two such sectional brace bars are arranged at

right angles to each other, as seen in Fig. 3, and are connected together by the one bolt *f*. At their outer ends the bars D have right angular bends, through which are tapped set screws *g*, whose outer pointed ends enter two diametrically opposite seats *i*, and when the screws are tightened up, hold the sewer form against all collapsing strains while the cement mortar is being packed against the exterior of the panels.

The operation of building up and removing my sectional mold is as follows. The trench for the sewer being prepared with a bed of cement concrete, two or more of the panels are connected to the lower portion of the hoops, as seen in Fig. 1, the mold being extended longitudinally in this way any desired length along the bottom of the trench. The cement concrete is then filled in around the sides and packed and then other panels A are put on the sides, as the level of the concrete rises, until all the panels are on the hoops and form a complete tubular mold, the concrete being finally carried entirely over the top of the mold in sufficient thickness to form the sewer. After the concrete has set, the mold is removed as follows. The braces D D are first removed and the hoops loosened by the screw nuts connecting their ends and the panels of the form may then be sufficiently collapsed to allow them to be picked out one at a time.

In laying the sewer form, the ends of the panel sections in one circumference can be made to terminate in the same cross sectional plane as in Fig. 2, but are preferably laid with alternating panels of one section lapping past the intermediate panels of the next section, as seen in Fig. 6. For this purpose the first section of the mold has one half the panels only the length between clips *c* and *d*, and the other half of the panels are the full length shown in Fig. 2. This causes the panels to make break joints at the end of the first section of the tube, and after this break joint arrangement is established, the construction of the sewer mold with break joints is carried out with the regular full length panel section seen in Fig. 5.

The panels are perfectly smooth on the outside, and all of the connections are on the inside. By increasing or diminishing the size of the hoops, the panel sections are capable of adjustment to larger or smaller sewers within certain limits, and the forms are quite economical, easily placed and removed and also conveniently transported and compactly stored. The sewer may also be made of circular, or semi-circular form, or any other desired shape in cross section.

I claim:

1. A sewer mold, comprising a series of staves curved in cross section and of greater length than width, each bearing along one longitudinal edge one or more laterally projecting tongues, and on the other longitudinal edge one or more loops in the same transverse plane with the tongues and also having hook shaped clips at the ends on the inner sides and circular brace hoops with overlapping slotted ends arranged inside the panels and between the panels and the hook clips, said hoops being provided with bolts for adjustably connecting its ends.

2. A sewer mold, comprising separable brace hoops with overlapping and adjustable ends and a series of detachable panels forming together a complete tube, longitudinally adjustable hook clips on the inside of the panels for connecting them to the hoops, means for locking the panels to each other and diametrical braces arranged inside the hoops and made longitudinally extensible.

3. A sewer mold, comprising separable brace hoops having on their inner faces indented seats, sectional panels arranged outside the brace hoops and connected to them in series, to form a tube, and a diametrical brace having set screws at the opposite end adapted to enter the indented seats of the hoops.

4. A sewer mold, comprising separable brace hoops, sectional panels arranged outside the hoops and connected to them in series to form a tube, and a diametrical brace consisting of two bars having at their inner ends longitudinal slots and teeth along the side of the same, and a bolt passing through the slots, said bars having at their outer ends adjustable set screws.

5. A sewer mold, comprising separable brace hoops, sectional panels arranged outside the hoops and connected to them in series to form a tube, and two diametrical braces having longitudinal slots in the middle arranged at right angles to each other and having set screws at their ends and a central connecting bolt passing through the two crossed slots in the middle.

6. A sewer mold, comprising a series of curved panels, each having along one edge one or more laterally projecting tongues and at the other edge one or more loops in the same transverse plane with the tongues, and having also one or more inwardly offsetting clips at one end and a corresponding set of offsetting clips at a remote point from the other end, and circular brace hoops arranged inside the panels and adapted to be connected to the panels as arranged with lap joints.

GEORGE GEORGENSON.

Witnesses:
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R. H. NORTHROP