

S. HASTINGS.
CONCRETE PIPE-MOLD.

No. 176,306.

Patented April 18, 1876.

Fig 1

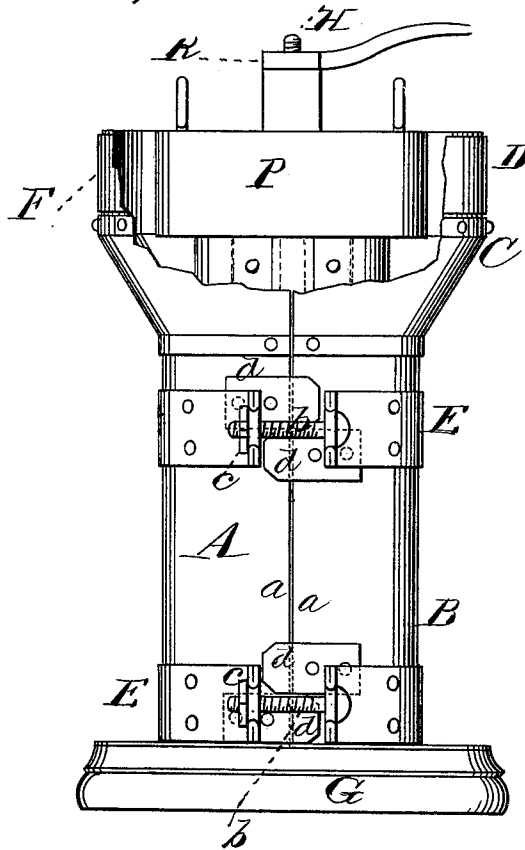
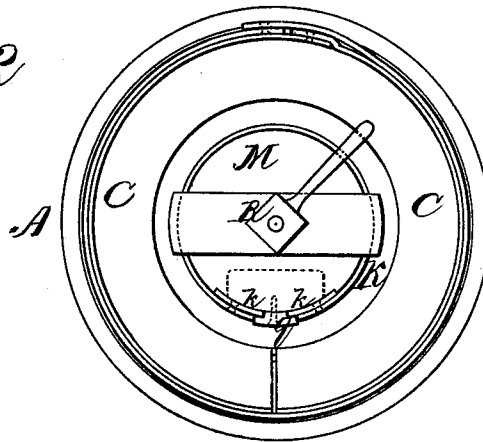


Fig 2



WITNESSES

Villette Anderson.
Francis J. Mass.

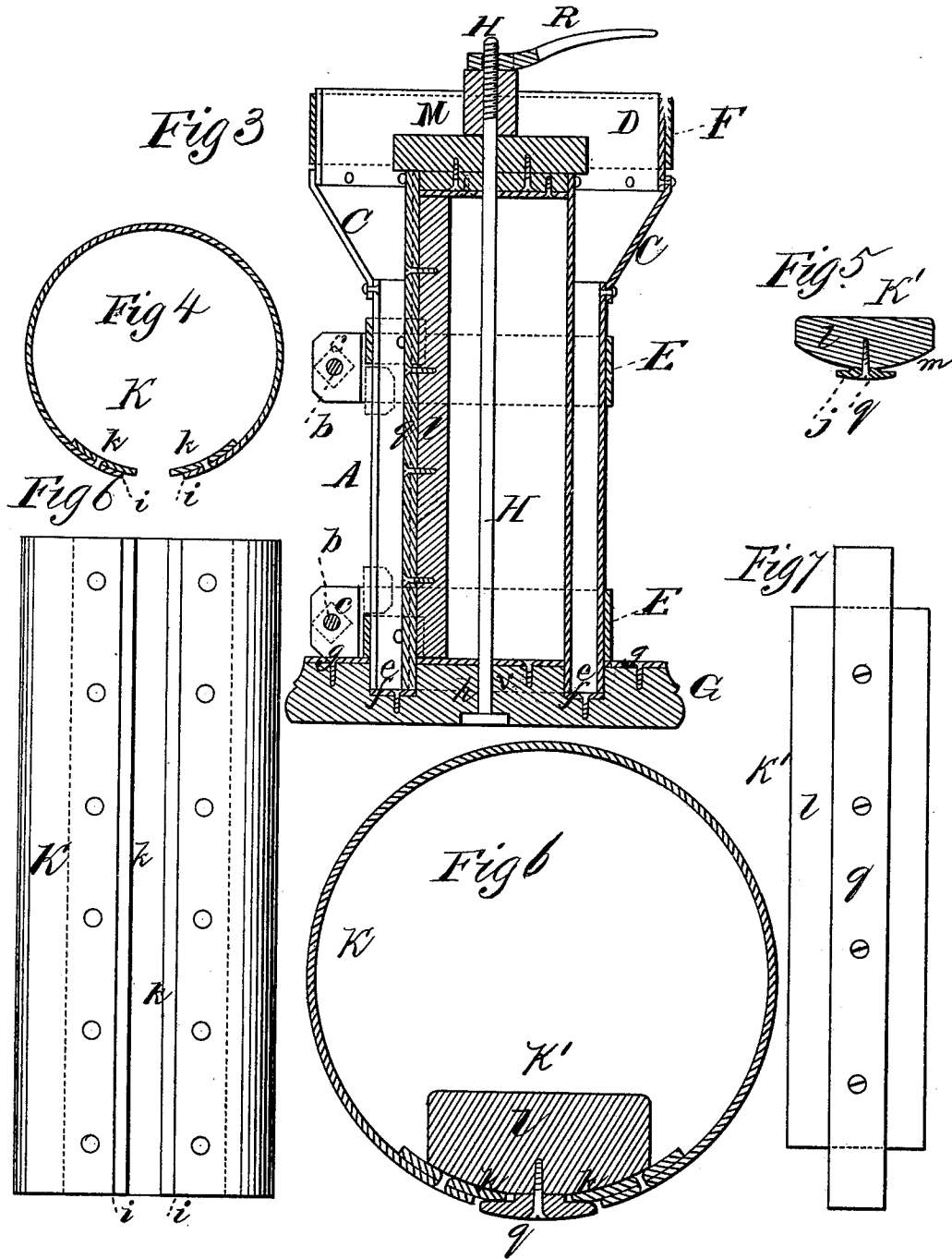
INVENTOR

Stewart Hastings
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ATTORNEY

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UNITED STATES PATENT OFFICE.

STEWART HASTINGS, OF LEAVENWORTH, KANSAS.

IMPROVEMENT IN CONCRETE-PIPE MOLDS.

Specification forming part of Letters Patent No **176,306**, dated April 18, 1876; application filed March 30, 1876.

To all whom it may concern:

Be it known that I, STEWART HASTINGS, of Leavenworth, in the county of Leavenworth and State of Kansas, have invented a new and valuable Improvement in Molds for Concrete Pipe; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my improved mold, its upper part being broken out to show the core and flange former. Fig. 2 is a top view thereof, showing the core closed by a block, M, the tie-rod, and clamp-nut. Fig. 3 is a longitudinal vertical section, and Figs. 4, 5, 6, and 7 are detail views, of parts of the mold.

This invention has relation to means for making drain-pipe from a hot metallic concrete or other similar material; and it consists in the construction and novel arrangement of the elastic metallic outer wall, the expansible sliding core, the mold-base, and the devices whereby said parts are connected together, and adapted to form a mold for the purpose stated, as hereinafter shown and described.

In the accompanying drawings, the letter A designates the exterior wall of the mold. This is preferably made of sheet-iron, and constructed with a lower cylindrical portion, B, and an upper flaring or hopper-shaped portion, C, having a marginal flange, D, at its uppermost part. This wall is vertically divided in such a manner that its edges shall meet, as indicated at *a a*, when drawn together by means of clamp-bands EE, which are provided with draw-bolts *b* and nuts *c* for this purpose. Guide-lugs *d d* are secured to the marginal edges *a*. F designates a band of large diameter, designed to be placed over the upper flange D when the lower portions have been drawn together. G represents the base of the mold, consisting of a body of wood or other suitable substance, having an annular groove, *e*, the bottom of which is lined with metal, as are, also, the raised portions of the base, both within and without said groove, as shown at

f g, to protect the material of which the base is composed from the heat. Through the center of the base is an aperture, *h*, countersunk on the under side for the passage of a long tie-rod, H, which extends upward vertically through the axis of the mold-cylinders. K indicates the sliding core. This consists of a sheet-metal cylinder, divided vertically, and provided at its inner marginal edges with metallic guide-strips *k*, which project beyond the said edges for a purpose hereinafter explained. K' represents a key-slide, consisting of a preferably wooden block, *l*, one surface, *m*, of which is concave, to suit the concavity of the core, and a T-shaped metallic tenon, *q*, rigidly secured to the concave surface of the said block, and extending beyond the ends of the same. When this slide is thrust in between the marginal edges *i* of the central core it will separate these edges, enlarging the internal diameter of the core. At the same time the arm *j* of the tenon *q* will jam the guide-strips *k* against the key-block *l* of the key-slide K, effectually preventing leakage of the concrete into the interior of the core. The cross-bar *j* of the T-shaped tenon *q* will fill up the interval between the edges *i* of the cleft core, owing to the inward springing of the same. Key-block *l* is shorter than the cylinder and tenon-plate *q*, which extend to the bottom of the cylinder, and embrace the upward-projecting portion *l* of the base. This cylinder and its complement slide also extend beyond the upper ends of said block, to afford room to receive the circular head M, provided with an iron lining, which fills the upper opening of the core, and keeps the concrete from penetrating into the core. P represents the flange-core, which is designed to be used after the head M is removed, to form the flange of the pipe. The tie-rod H and its nut R serve to secure the parts together when in position.

The operation is as follows: The exterior wall and core being set up with the slide-key K' and head M in place, the substance whereof the pipe is to be formed is poured into the mold between said core and the outer cylinder until it reaches within a few inches of the top of the core. The mold is then filled to the top of the core, after which the head M is taken out. The flange-core P is put in its place, and

the mold filled to the top, forming the flange of the pipe. When the material is sufficiently set the flange-core is removed, and the slide *l* drawn out, so that the edges of the core-cylinder may approach each other. This core is then withdrawn. The bands *E* are then loosened from the outer cylinder, and the pipe removed therefrom.

What I claim as new, and desire to secure by Letters Patent, is—

1. The removable annular clamp *F*, in combination with a vertically-divided cylindrical external mold-wall, having a vertical cleft flaring portion, *C*, and a cleft right cylindrical flange, *D*, substantially as specified.

2. In combination, the vertically-divided mold-wall *A*, having guide-lugs *d d* upon its edges, and the clamp-rings *E*, having draw-bolts *b*, substantially as specified.

3. The key-slide *K'*, consisting of the block *l*, convex on one face, and having a metallic T-

shaped tenon, *q*, in combination with the vertically-divided core *K*, having guide-strips *k*, adapted to be received between block *l* and tenon *q*, substantially as specified.

4. The combination of a base-plate, *G*, having an annular groove, *e*, with a spring-core adapted to embrace the raised portion of the said base, a key-block, *l*, a T-shaped tenon, *q*, substantially as specified.

5. The flange or lip core-block *P*, in combination with an exterior mold-wall, *A*, having flaring portion *C* and right cylindrical flange *D*, an interior body-core, *K*, and a clamp-rod, *H*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

STEWART HASTINGS.

Witnesses:

H. C. RELFE,

H. S. VALENTINE.