

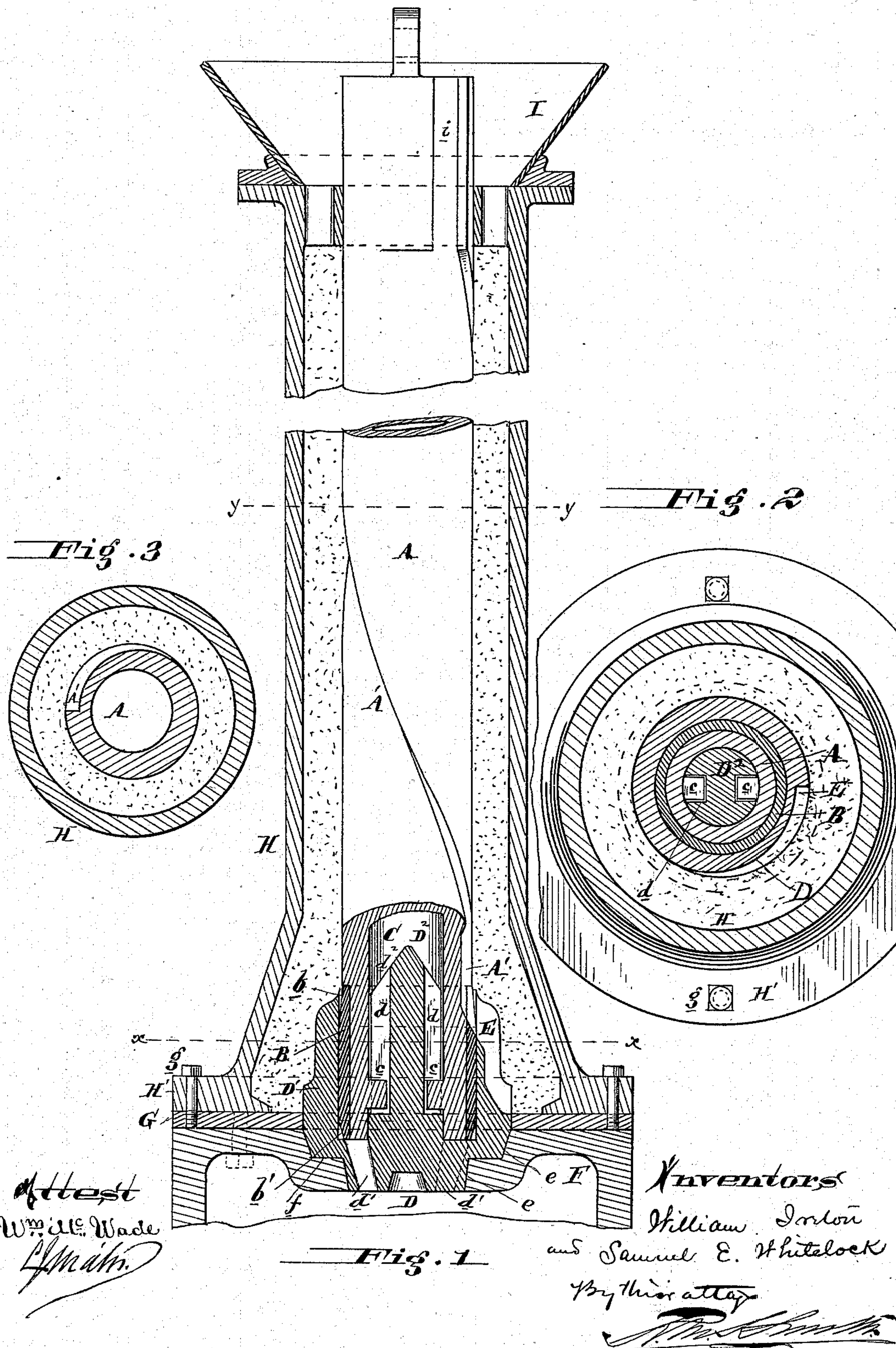
(No Model.)

W. IRETON & S. E. WHITELOCK.

MOLDING APPARATUS FOR THE MANUFACTURE OF PIPE.

No. 278,663.

Patented May 29, 1883.





# UNITED STATES PATENT OFFICE.

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## MOLDING APPARATUS FOR THE MANUFACTURE OF PIPE.

SPECIFICATION forming part of Letters Patent No. 278,663, dated May 29, 1883.

Application filed April 9, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM IRETON and SAMUEL E. WHITELOCK, of the city of Camden, county of Camden, State of New Jersey, have invented an Improvement in Molding Apparatus for the Manufacture of Pipe, of which the following is a specification.

Our invention has reference to molding apparatus, but particularly to an improvement on Letters Patent granted to William Ireton, March 13, 1883, and No. 273,738; and it consists of the cam-shaped former therein shown provided with an adjustable device by which the thickness of the metal pipe to be cast may be varied without changing the former; and, further, in a suitable construction of support for the bottom of said former, whereby the mouth of the pipe-mold may be packed in a manner similar to the body of the pipe, and in details of construction, as fully set forth in the following specification and shown in the accompanying drawings, which form part thereof.

The object of our invention is to provide a molding apparatus of this kind with means whereby the former may make the mold of various diameters without changing the former, as a whole, to give different weights of pipe when cast by varying the thickness of metal; and, further, to provide means to pack the sand in the flask to form the enlarged part or mouth of the pipe-mold, and also to provide means to support the sand in the flask after the former of the molding apparatus has been removed therefrom and the flask is raised from its support and placed in the casting-pit.

In the drawings, Figure 1 is a sectional elevation of our improved pipe-molding apparatus. Fig. 2 is a cross-section of same on line *x x*, and Fig. 3 is a cross-section on line *y y*.

A is the former, which is provided with the straight or spiral cam-groove A', as fully set out in the patent hereinbefore referred to. The bottom is reduced in diameter, and is provided with a steel sleeve, B, which fits tightly thereon by friction or other means, and is preferably beveled or tapered on its ends, as at *b* and *b'*. Ordinarily this sleeve should be of larger diameter than the former A, as shown, to make the mold perfectly smooth when drawing out said former from the flask, and it is evident, also, that by varying the diameter of

the sleeve B the external diameter of the pipe, when cast, will be more or less, and if the core is uniform the metal in the pipe must vary. This is important, as in some class of work light pipes are used, while, again, in other classes of work heavy pipes are necessary. The interior of the former may be made hollow, as at C, and near the bottom it is furnished with lugs *c*.

H is the flask, and is made substantially as set forth in the previous patent referred to, having the hopper I at the top, as well as a bearing for the former A. At the bottom it is made somewhat bell-mouthed, and provided with a flange, H', to which is secured the annular plate G by bolts *g* or other equivalent means; or the plate G may be cast with said flask. This flask and plate then rest upon and may be temporarily bolted or clamped to the support F, having recessed aperture *f*, preferably provided with beveled centering-walls *e e*.

Supported in the recesses of plate F is the head D, having the annular part D', which is provided with the cam-groove E, which forms a continuous groove with A' of the former, the said part D', when rotated, molding the outer surface of the bell-mouthed end of the pipe-flask, its interior fitting snugly against the sleeve B, and to which it acts as a bearing. The center D<sup>2</sup> of head D projects up into the space C of the former A, is preferably made conical on the top, as at *d*<sup>2</sup>, and has grooves *d*, into which the former-lugs *c* fit, to the end that when the former is rotated the head will rotate also. An annular space is formed between the central part, D<sup>2</sup>, and annular flange part D', into which the bottom of the former fits, as shown, and to prevent clogging by sand apertures *d'* are made through the bottom, through which any sand may be brushed.

The operation is as follows: The head D being placed in the support F and the flask H secured thereon, the former is put in position and sand is admitted and placed around the same by hopper I and apertures at the top. Now, as the former and head are rotated the sand is admitted by groove *i* and is packed solid, and when completed the former is raised while being rotated, the ring or sleeve B



smoothing up the interior of the mold. When the former is removed the flask is taken away to receive its core and placed in the casting-pit, and the head D remains in the support, ready for another flask.

We do not limit ourselves to the construction shown, as it may be modified in various ways without departing from our invention.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for molding pipe, &c., a stationary flask, in combination with a rotating former supported against lateral pressure in said flask, adapted during its revolutions to compress the sand within said flask into the requisite shape, and a rotating molding-head to form the mold for the bell-mouthed end of the pipe, substantially as and for the purpose specified.

2. In molding apparatus, a stationary flask, in combination with a cylindrical former supported in said flask, arranged to rotate within said flask, having its surface made cam shape, and a rotating molding-head to form the mold for the bell-mouthed end of the pipe, substantially as and for the purpose specified.

3. In a molding apparatus, a stationary flask, in combination with a former arranged to rotate within said flask, supported at the bottom by rotating molding-head arranged to rotate in the bottom of the flask, the said former having a longitudinal cam-groove arranged upon its surface, substantially as and for the purpose specified.

4. In a molding apparatus, a stationary flask, in combination with a former arranged to rotate within said flask, supported at the bottom by rotating molding-head arranged to rotate in the bottom of the flask, the said former and head having longitudinal cam-grooves arranged upon their surfaces, substantially as and for the purpose specified.

5. In molding apparatus, a stationary flask, in combination with a former supported in bearings in said flask, arranged to rotate within said flask, having a spirally-arranged cam-groove about its surface, and a rotating molding-head to form the mold for the bell-mouthed end of the pipe, substantially as and for the purpose specified.

6. In molding apparatus, a flask having supports for a former both at top and bottom, in combination with a rotating former provided with corresponding bearings, having its surface made cam-shaped, and a rotating molding-head to form the mold for the bell-mouthed end of the pipe, having a cam-groove therein to compress the sand, substantially as and for the purpose specified.

7. In molding apparatus, a flask having supports for the former, both at top and bottom, in combination with a rotating former

provided with corresponding bearings, having its surface made cam-shaped, being provided in its upper bearing with a feed groove or slot to admit sand to the interior of the flask during the operation of packing, and a rotating molding-head to form the mold for the bell-mouthed end of the pipe, having a cam-groove therein to compress the sand, substantially as and for the purpose specified.

8. In apparatus for molding pipe, &c., a stationary flask, in combination with a rotating former supported against lateral pressure in said flask, adapted during its revolutions to compress the sand within said flask into the requisite shape, and a removable smoothing-band arranged about the bottom of said former, substantially as and for the purpose specified.

9. In apparatus for molding pipe, &c., a stationary flask, in combination with a rotating former supported against lateral pressure in said flask, adapted during its revolutions to compress the sand within said flask into the requisite shape, a rotating molding-head to form the mold for the bell-mouthed end of the pipe, and a removable smoothing-band arranged about the bottom of said former, substantially as and for the purpose specified.

10. In apparatus for molding pipe, &c., a stationary flask, in combination with a rotating former supported against lateral pressure in said flask, adapted during its revolutions to compress the sand within said flask into the requisite shape, and a plate, G, substantially as and for the purpose specified.

11. In apparatus for molding pipe, &c., a stationary flask, in combination with a rotating former supported against lateral pressure in said flask, adapted during its revolutions to compress the sand within said flask into the requisite shape, a rotating molding-head to form the mold for the bell-mouthed end of the pipe, and a plate, G, substantially as and for the purpose specified.

12. The combination of flask H, former A, having cam-groove A', head D, plate G, and support F, substantially as and for the purpose specified.

13. The combination of flask H, former A, having cam-groove A', having band or sleeve B, head D, plate G, and support F, substantially as and for the purpose specified.

14. The combination of flask H, former A, having cam-groove A', and having band B and head D, substantially as and for the purpose specified.

In testimony of which invention we hereunto set our hands.

WILLIAM IRETON.

SAMUEL E. WHITELOCK.

Witnesses:

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