2 Sheets--Sheet 1.

# P. McINTYRE.

## Molds for Earthen Pipes.

No. 142,168. Patented August 26, 1873.

Fig 1.

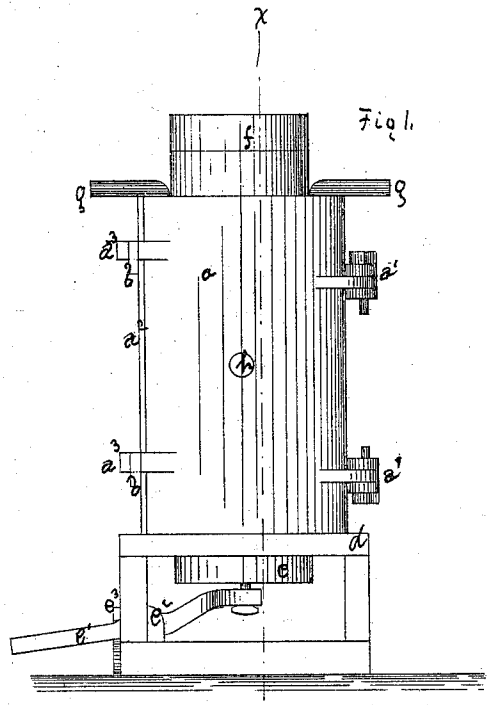
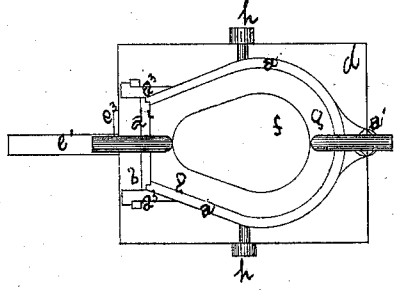



Fig 2.




Witnesses.

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Hannah P. Fuerman

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by Wm E. Simonds

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2 Sheets--Sheet 2

# P. McINTYRE.

## Molds for Earthen Pipes.

No. 142,168. Patented August 26, 1873.

Fig 3

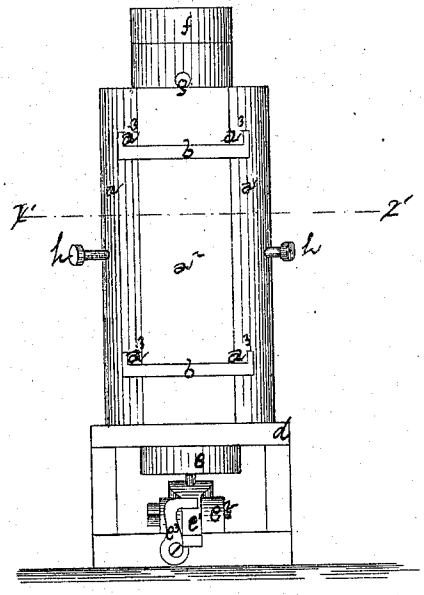


Fig 4

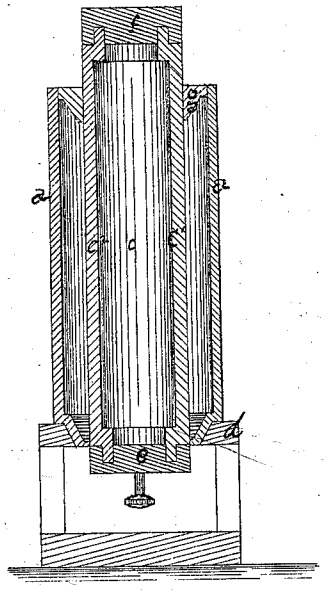
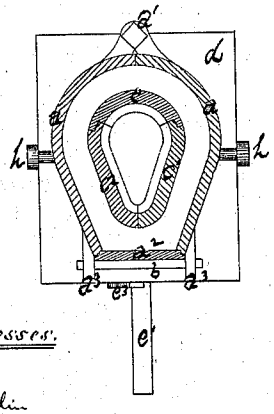


Fig 5



Witnesses.

L. Häfeli

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# UNITED STATES PATENT OFFICE.

PETER McINTYRE, OF HARTFORD, CONNECTICUT.

## IMPROVEMENT IN MOLDS FOR EARTHEN PIPES.

Specification forming part of Letters Patent No. **142,168**, dated August 26, 1873; application filed July 16, 1872.

*To all whom it may concern:*

Be it known that I, PETER MCINTYRE, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Apparatus for Making Pipe, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus. Fig. 2 is a plan view of the same. Fig. 3 is an elevation of the same, which may be termed a front elevation. Fig. 4 is a vertical central section through the dotted line *x x*, seen in Fig. 1. Fig. 5 is a cross-section through the dotted line *x' x'*, seen in Fig. 3.

This apparatus is more especially designed for making pipe for drain or sewer purposes, of a mixture of hydraulic cement, sand, and gravel, which is tamped or rammed up between an exterior casing and an inner core, though it is as well applicable to the making of pipe for other purposes, and of other material. The form of pipe for which this apparatus is more especially intended is what is known among pipe-makers as the "horseshoe" form, though most if not all the principles involved are applicable as well to the making of other forms of pipe, as the common cylindrical form, for instance. The apparatus described is shown applicable to the making of a pipe with so-called V-shaped ends, the male end being formed at the foot of the casing. The parts in which the invention consists will be found specified in the claim at the end of this specification.

The exterior casing is formed in three parts—the two side leaves *a a*, hinged together at $a^1$ $a^1$, and the front plate $a^2$. The leaves *a a* have lugs $a^3$ in front, upon which fit the clamps *b*, so made as to be wedged on by driving with a hammer when the casing is to be fastened together, and to be readily knocked off when it is desired to take the casing apart. These clamps also serve to help hold the front plate in place. The foot of the casing sits into an orifice made for it in the table *d*. The core which forms the interior of the pipe is hollow, and is also made in parts, *c* $c^1$ $c^2$, by preference three in number, though there may be more of them, and when used for forming the interior of a round pipe, perhaps it is as well to use four or more as to use a less number. These parts of the core are, by preference, toothed together, as seen in Fig. 5, though this is not essential to the correct making of the core. The foot of the core sits into a groove, corresponding to the shape of the core, made for this purpose in the core-base *e*, which core-base is loosely jointed to the lever $e^1$, which lever is pivoted at $e^2$ to the base of the table *d*, and is made to sustain the core-base in position for use by means of the hook $e^3$. After a pipe has been made this hook is swung back, and the core-base allowed to fall away from the core, thus relieving the base of the core from the hold of the core-base, so that the parts of the core can be taken out separately. A core-cap, *f*, fits into and upon the top of the core, so as to hold the top of the core in position. This core-cap is also removed preparatory to the removal of the core, after a pipe is finished. When the parts of the core are thus released from the hold of the cap and base they are left free to fall inward, so that the parts can be removed separately. The male end of the V-shaped pipe is formed at the foot of the casing. The female end is formed at the top of the case by the former *g*, which is pressed or driven down upon the cement mixture. The case has upon its sides two pins, *h h*, by means of which the casing can be lifted and transported. After a pipe is rammed up the casing is, preferably, reversed end for end before the casing is taken off from the pipe. After the pipe made of cement mixture is formed, it is allowed to stand long enough to set somewhat before taking it out of the case.

From the foregoing description, it is readily apparent that all the principles of construction shown are as well applicable to the making of pipes of other shapes as to the horseshoe.

I am aware that it is not new to make a core hollow and in longitudinal sections, and that it is not new to make such cores with a core-base separable from the core, and neither of these do I claim, either separately or in combination; but the arrangement and operation of my core and core-base are widely different from any previously made. My core-base is at once a holder, to hold the lower ends of the core securely in place, and a support for the

whole core, and the core-base moves downward and away from the core, in order to release the foot of the core-sections. In these particulars the arrangement and operation of my core and core-base differ widely from all previous inventions, and it is the peculiarity of releasing the foot of the core-sections by moving the core-base downward and away from the foot of the core that I desire to cover and claim as a feature of my invention.

I claim as my invention—

The combination of a casing for forming the exterior of the pipe, the table *d*, a hollow core made in longitudinal sections, the cap *f*, and the core-base *e*, arranged to support the core while a pipe is rammed up, and to move downward and away from the core, in order to release the foot of the core-sections, all constructed and arranged substantially as and for the purposes described.

PETER McINTYRE.

Witnesses:

WM. E. SIMONDS,

DWIGHT CUSHMAN.