H. H. FISHER.

MOLDING PIPES.

No. 185,906. Patented Jan. 2, 1877.

Fig. 1.

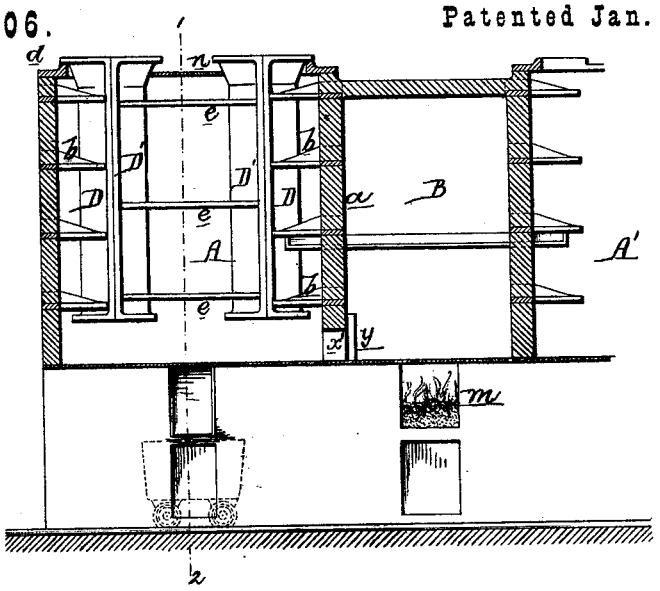


Fig. 2.

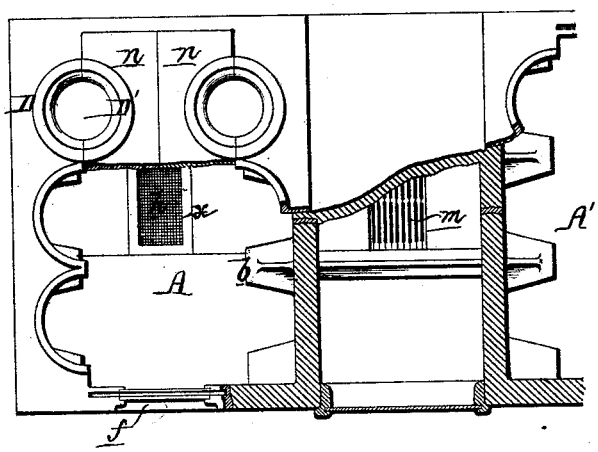
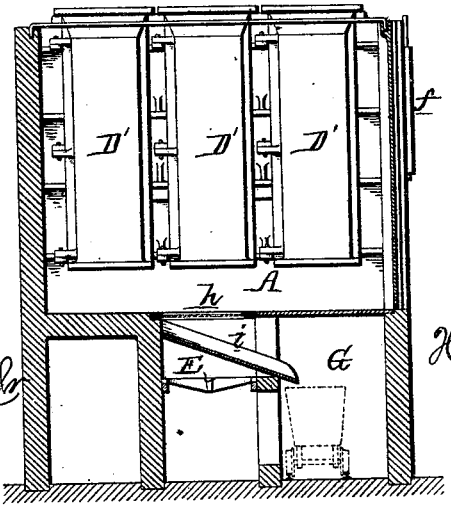


Fig. 3.



Witnesses:
Harry Howson Jr.
Harry Smith

Hiram H. Fisher
by his Attorneys
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UNITED STATES PATENT OFFICE.

HIRAM H. FISHER, OF ALLENTOWN, PENNSYLVANIA.

IMPROVEMENT IN MOLDING PIPES.

Specification forming part of Letters Patent No. **185,906**, dated January 2, 1877; application filed June 3, 1876.

To all whom it may concern:

Be it known that I, HIRAM H. FISHER, of Allentown, Pennsylvania, have invented certain Improvements in Pipe-Molding, of which the following is a specification:

The main object of my invention is to facilitate the manufacture of cast-iron pipes, and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section of my improved molding structure; Fig. 2, a plan view, partly in section; and Fig. 3, a transverse vertical section on the line 1 2.

A is a molding-pit; B, an adjoining core-oven; and A′ a second molding-pit, part only of which is shown in the drawing.

It may be remarked at the outset that, while there may be but one molding-pit in the structure, I prefer to use two, with the core-oven between them, the pit or pits being separated from the said ovens by partition-walls *a*.

In each molding-pit are suspended two rows of pipe-flasks, three flasks in each row being shown in the present instance, and each flask being made in two parts, D D′. The part D of each flask is steadied by projections *b b* on plates built in the walls of the pit, is supported by the top plate *d*, and may be secured in position by any suitable fastenings. The portion D′ of each flask is maintained in contact with the fixed portion D on one edge by the hinges, as shown in Fig. 3, and on the other edge by transverse stays *e*, which extend from the flanges of one flask to those of the opposite flask, as shown in Fig. 1. On knocking away these stays the portion D′ of each flask is at liberty to be turned on its hinges. It is not essential that the two parts of each flask should be hinged together. One part may be separable from the other, and when this is the case additional stays may be used for binding the removable to the fixed portions of the flasks. A doorway, *f*, in front of the molding-pit extends from the top to the bottom of the same, and is furnished with a suitable door. Immediately below each molding-pit A is a fire-place or furnace, E, from which the products of combustion pass directly into the pit through a central opening in the floor *x* of the same, and to this opening is fitted a removable screen, *h*, when there is no fuel in the fire-place, and under the circumstances explained hereafter. When this screen is in place an inclined chute, *i*, is adjusted to the fire-place, the outer end of the chute projecting into a passage, G, on the floor of which may be secured rails for cars. (Shown by dotted lines.) There is also beneath the core-oven a fire-place, *m*, from which the products of combustion can pass directly into the said oven.

It will be seen that the structure consists of two stories, the upper story containing the molding-pits and core-oven, and the lower story the fire-places and a passage, G, from which fuel is introduced into the fire-places, and which, as before remarked, may contain rails, for a purpose rendered apparent hereafter.

After a mold has been made in each flask in the usual manner, fuel is kindled in the fire-place E, the top of the molding-pit is covered by removable plates *n*, and all avenues of escape for the products of combustion, excepting through the interior of the molds, are cut off. As the outsides of the flasks are subjected to the action of the products of combustion, which fill the pit, while the interiors of the molds are acted upon directly by the heated products which pass through the same, the molds soon become dry and ready for the reception of the cores, which have been baked in the adjoining oven B.

After the molds have been dried, the fuel may be withdrawn from the fire-place E, the cores adjusted to the molds, and the pipes cast in the usual manner. At the proper time, after pouring the metal, the plates *n n* are removed from the top of the pit, the door *f* opened, and the screen *h* deposited in the bottom of the pit above the fire-place, in which the chute *i* is adjusted, as shown in the drawing. The next step is to remove the castings from the molds. This is done by knocking away the cross-stays *e*, so that the portions D′ of the flasks may be at liberty to be swung open, thereby releasing the castings and their cores, which may be hoisted out of the pits, and disposed of in a manner which forms the subject of a separate application for a patent. The sand is now detached from the interior of the open flasks, and, falling onto the floor of

the pit, is there raked over the screen *h*. the screened sand falling onto the chute *i*, by which it is directed into a truck in the passage G.

There are three main objects in arranging the core-oven close to the molding-pit: first, facility of transferring the cores to the flask; second, economy in the consumption of fuel, for, as there is but a simple party-wall, *a*, between the pit and oven, the latter must derive much heat from the former; third, a structure in which molding-pit and ovens are combined in the manner described is much cheaper than separate buildings.

There may be a passage, *x'*, forming a communication between the molding-pit and oven, and a damper, *y*, adapted to this passage whenever it is desirable for a portion of the products of combustion to be transferred to the oven.

By suspending the flasks in an elevated pit in the manner described, the following main advantages are attained: First, the drying of the mold is facilitated; second, the necessity of hauling the flasks from place to place obviated; and, third, the sand can be readily stripped from the flasks after the castings have been removed.

I claim as my invention—

1. The mode herein described of drying pipe-molds—that is to say, suspending the molds vertically in a pit, subjecting the outsides of the flasks to the action of heated products of combustion, and at the same time permitting heated products to enter the interiors of the molds at the bottom, pass through the same, and escape at the top into the space above the closed top of the molding-pit, as set forth.

2. The combination of the two-part pipe-flask D D', with the recessed plates *b* and top *d* of the pit, whereby the flask is retained in a suspended position, as set forth.

3. The combination, in a molding-pit, of two part pipe-flasks arranged opposite each other, with intervening stays *e*, by which the two parts of opposite flasks are maintained in contact with each other, as described.

4. The combination of a molding-pit with any desired number of two-part pipe-flasks suspended within the same, one part of each flask being attached to the wall of the pit.

5. The combination, in one structure, of a molding-pit with a core-drying oven, substantially as set forth.

6. The combination of the core-drying oven with one or more molding-pits, and a passage or passages provided with dampers, whereby communication between the pits and oven may be opened or closed at pleasure.

7. The combination of a molding-pit with a removable screen at the bottom of the same.

8. The combination of the molding-pit, the screen, and the chute, by which the sifted sand may be directed to any desired point.

9. The combination of a molding-pit and a fire-place, E, beneath the same with a longitudinal passage, G, at one side, through which access may be had to said fire-place, as set forth.

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

HIRAM H. FISHER.

Witnesses:

HARRY SMITH,

HARRY HOWSON, Jr.