# J. Demarest,

## Casting Curved Pipe.

No. 14,637. Patented Apr. 8, 1856.

Fig: 1.

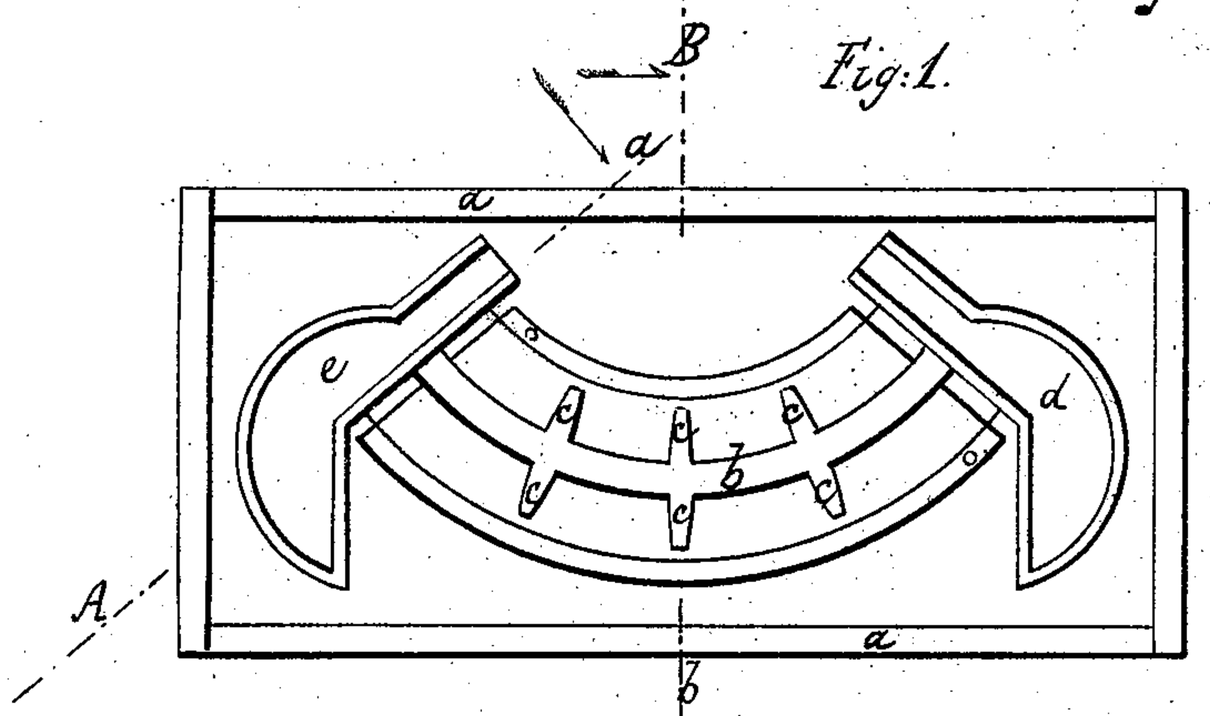



Fig: 2.

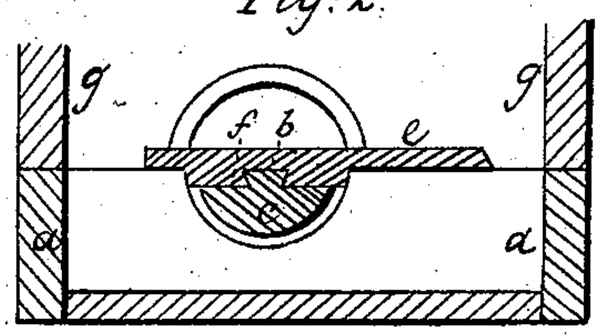



Fig: 3.

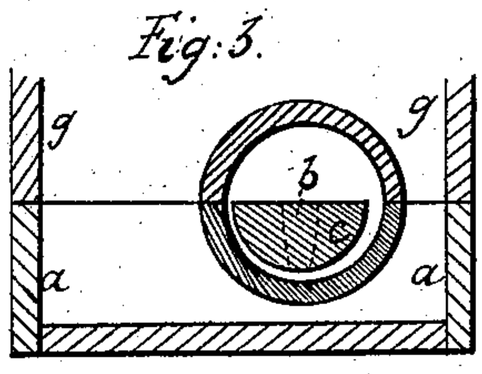



Fig: 4.

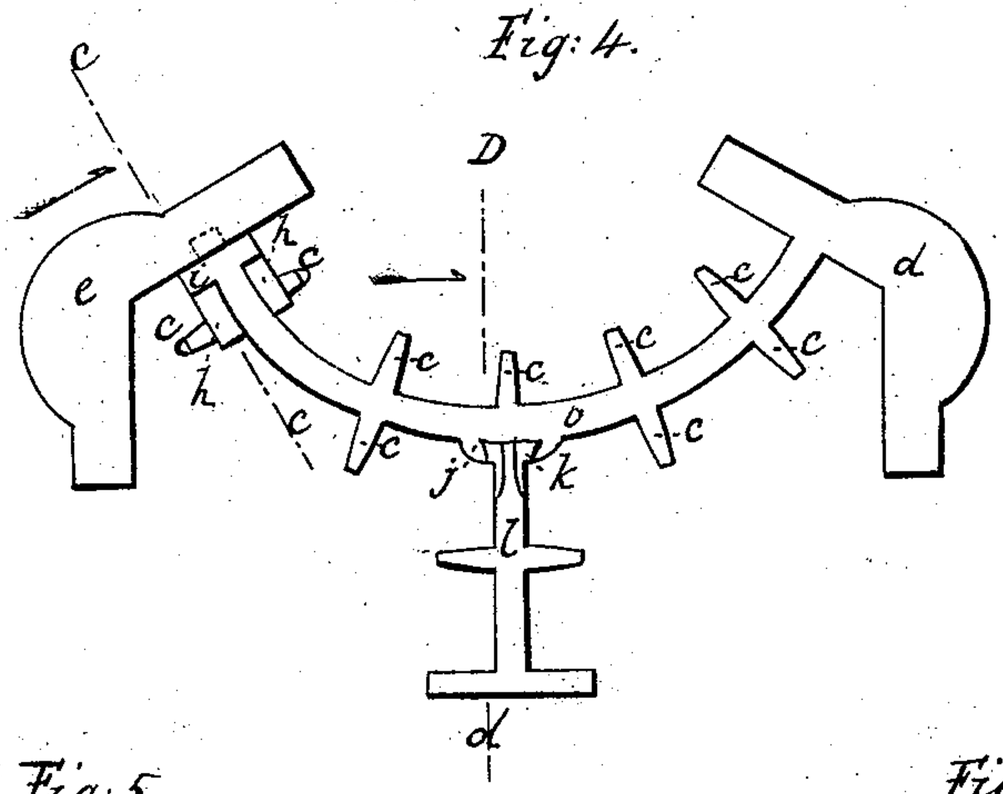



Fig: 5.

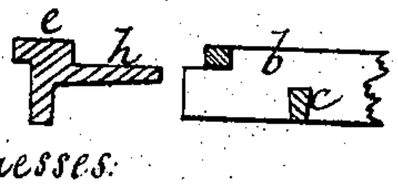
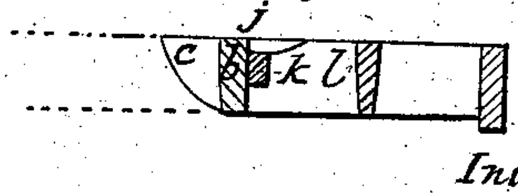



Fig: 6.




Witnesses:
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Inventor:
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# UNITED STATES PATENT OFFICE.

JOHN DEMAREST, OF MOTT HAVEN, NEW YORK, ASSIGNOR TO THE J. L. MOTT IRON WORKS.

## IMPROVED CORE-BAR FOR PIPE-MOLDING.

Specification forming part of Letters Patent No. **14,637**, dated April 8, 1856.

*To all whom it may concern:*

Be it known that I, JOHN DEMAREST, of Mott Haven, Westchester county, and State of New York, have invented certain new and useful Improvements in Core-Bars for Molding Curved, Elbow, and Branch Pipes, and other Irregular Hollow Castings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved core-bar in a core-box, and Figs. 2 and 3, vertical sections taken at the lines A *a* and B *b* of Fig. 1. Fig. 4 is a plan of a core-bar for a curved pipe with a branch; Fig. 5, a section at C *c* of Fig. 4, showing the wing and core-bar separated; and Fig. 6, another section at D *d* of Fig. 4.

The same letters indicate like parts in all the figures.

The mode heretofore practiced for making cores for curved, elbow, or branch pipes is to take an iron rod or rough piece of wood of the form of the curve or angle of the pipe and to pack the sand into such bar to get the required diameter of the caliber of the intended pipe, and to sustain such cores by bearers above and below to prevent the core from being forced up or down by the pressure of the molten metal when run into the mold. When casting pipes having branches it is necessary to cut this bar to get it out of the cast pipe, and the bearers of necessity leave the casting imperfect.

The object of my invention is to avoid these difficulties; and it consists in making the core-bar with end plates or wings, one or both separate, and fitted on by a slip or other equivalent joint, which plates or wings rest on the surface of the core-box in making the core and on the face of the flask in the act of molding, to sustain and hold the core-bar in a true position without the use of bearers, so that the surface of the pipe inside and out may be cast smooth.

In the accompanying drawings, *a* represents a core-box, and *b* the main metallic core-bar for making the core of a curved pipe. This bar is provided with projecting flanges *c c*, which project from each side, to hold the sand which forms the lower half of the core. At one end this core-bar is provided with a plate, *d*, forming two wings, the bottom of which rests on the surface of the core-box; and at the other end there is a similar plate, *e*, fitted thereto by a dovetail joint, *f*, so that it can be taken off and put on readily. These plates should project on each side of the bar to sustain and balance the bar and core when formed thereon, no matter how much it may be curved. The under face of the two plates should be on a level with the upper surface of the core-bar, so that when the plates rest on the surface of the core-box or flask the upper surface of the core-bar shall be in the plane of the axis of the intended pipe. After the lower half of the core has been formed by ramming the sand in the lower half of the core-box and around the core, the upper half is then formed by putting on the upper half of the core-box, *g*, and then ramming in the sand through the ends. The upper half of the core-box is removed, the core lifted out and put in the mold with the plates resting on the flask, which holds the core in its place without any other support, so that the entire length of the pipe can be cast of any curve desired without interposing any support between the surface of the core and the mold; or the core-bar may be made with the end plates or wings as represented in Figs. 4, 5, and 6, where the upper surface of the plates *d* and *e* are on the same level with the upper surface of the main bar, in which case they would be let into the surface of the core-box and flask. Instead of connecting the wing *e* with the bar by means of a dovetail joint, the end of the bar is made with two side lips, *i i*, a short distance from the end which is cut down (see Fig. 5) to slip under the plate *e*, the said plate having two stems, *h h*, one on each side of the bar, the ends of which enter recesses made in one of the projecting flanges *c*. On the curved side the main bar *b* is formed with a wedging dovetail mortise *j*, to which is fitted a dovetail tenon, *k*, on the end of a branch core-bar, *l*, to form a branch core-bar in a core-box of corresponding form. The fitting of the dovetail connection will secure the branch core to the main core, which will be fully balanced in the mold by the wings or plates *d e* resting on or in the flask. After the pipe has been cast the branch core-bar can be readily separated from the main core-bar, so as to be drawn out of the

pipe, and then by removing the plate *e* the main core-bar can be drawn out of the main pipe, whether curved or straight, for it will be obvious that the branch or elbow to a straight pipe can be applied in like manner.

I have thus specified the nature of my invention and the mode of construction which I have tried with success, together with some modifications, and this I have done the better to distinguish the character or mode of operation of my said invention from the mere modes of application, to which I wish it to be distinctly understood I do not limit myself.

I am aware that core-bars have been made with wings between which to pack the sand, and which have effect to bind and hold the sand forming the core, and this I do not claim as my invention; and I am also aware that core-bars have been made with branches connected therewith by dovetail joints, so that the branches of the core-bar can be separated in the pipe after the pipe has been cast; but these as heretofore made required to be sustained centrally in the mold by inside bearers, which injure the castings. I do not, therefore, wish to be understood as making claim to the connecting of the branches with the main core-bar by dovetail joints irrespective of the side wings or plates which rest on the surface of the flask to sustain the branches in a true central position without bearers.

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

Making core-bars for molding curved, elbow, or branch pipes and other such like hollow castings with sustaining plates or wings at the ends, substantially as and for the purpose specified.

JOHN DEMAREST.

Witnesses:
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