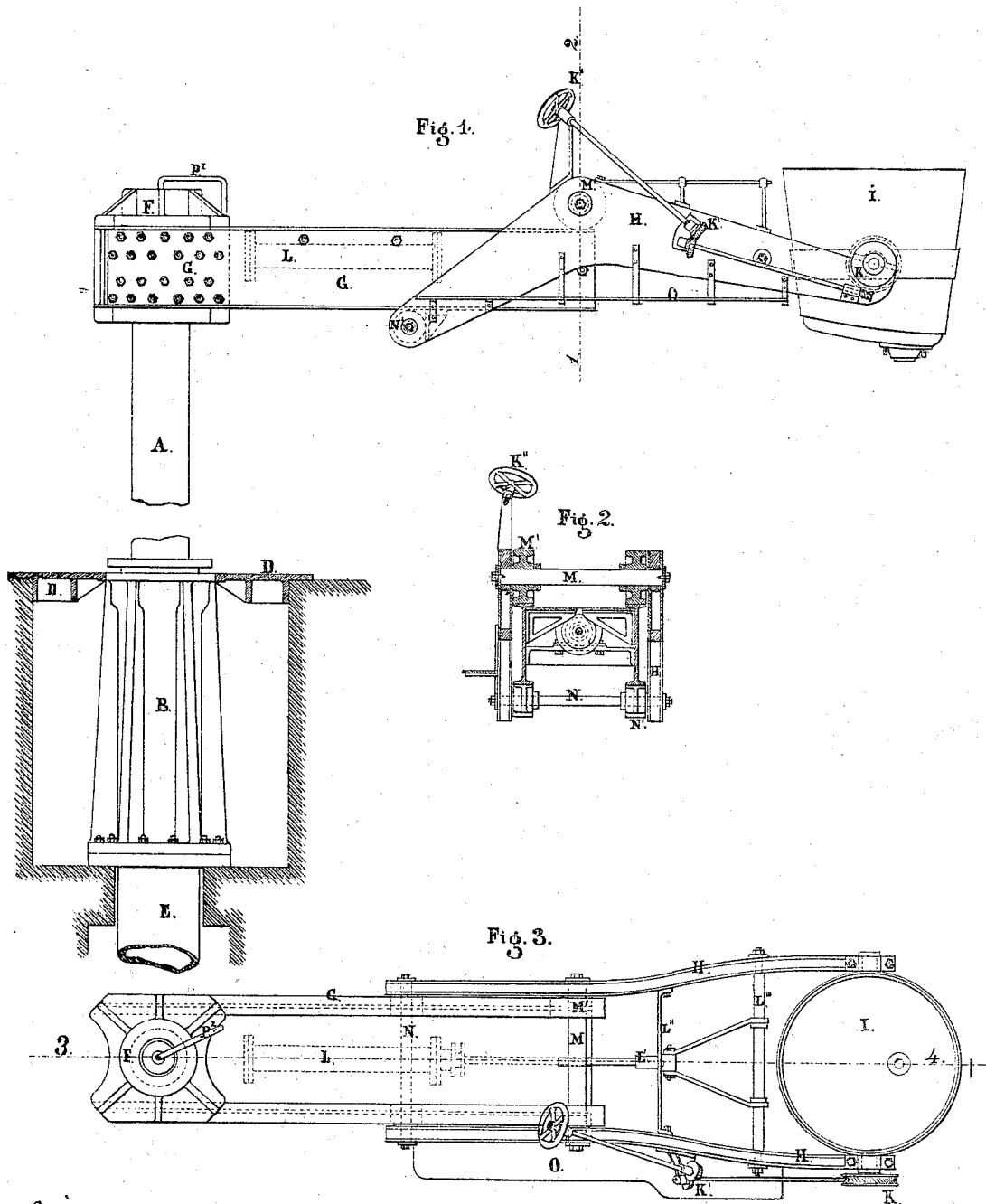


Z. S. DURFEE.
Foundry-Cranes.

No. 147,489.

Patented Feb. 17, 1874.



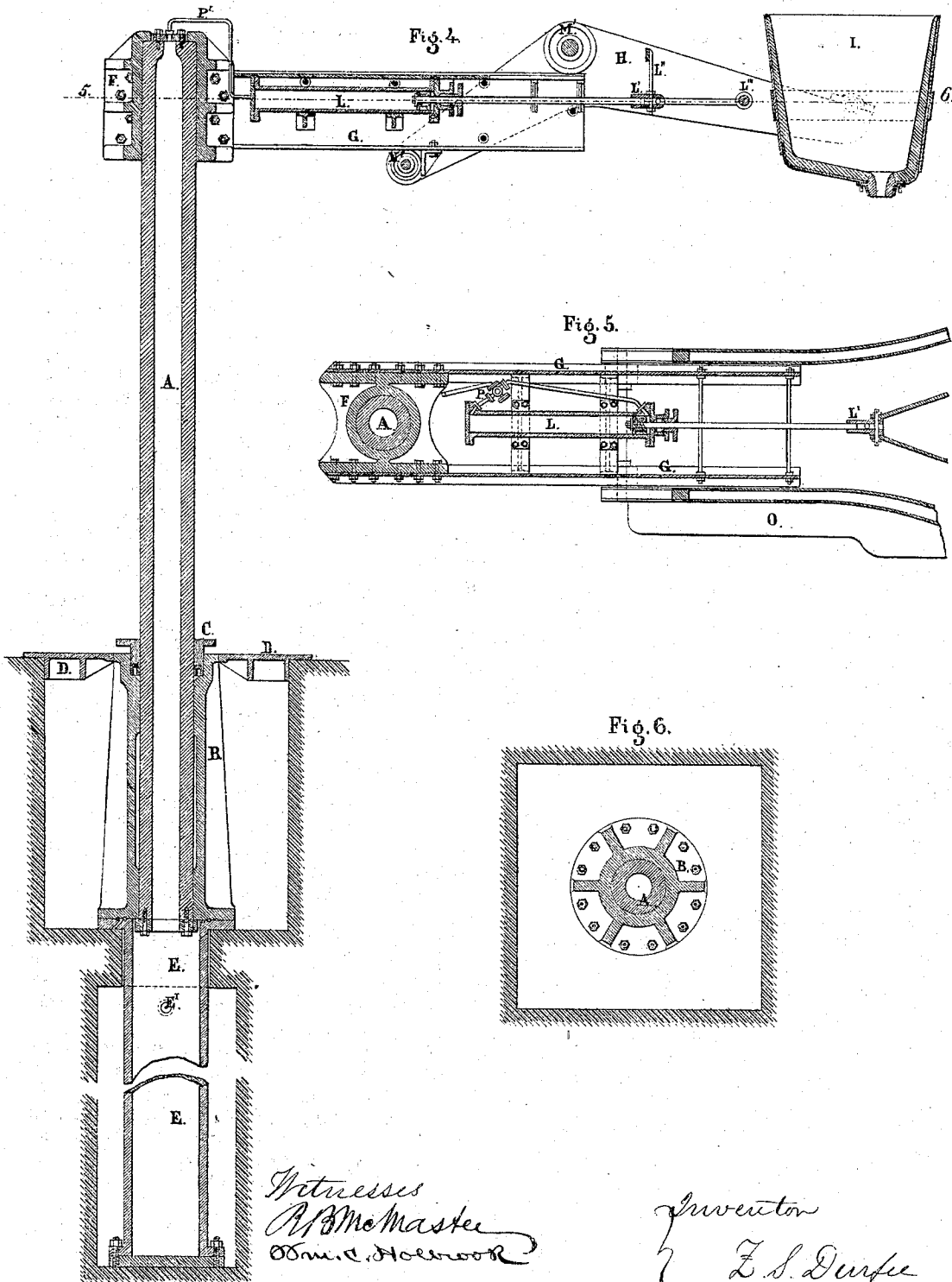
Witnesses
R. B. McMaster
Wm. C. Howland

Inventor
Z. S. Durfee

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UNITED STATES PATENT OFFICE.

ZOHETH S. DURFEE, OF NEW YORK, N. Y.

IMPROVEMENT IN FOUNDRY-CRANES.

Specification forming part of Letters Patent No. **147,489**, dated February 17, 1874; application filed October 17, 1872.

To all whom it may concern:

Be it known that I, ZOHETH S. DURFEE, of the city, county, and State of New York, have invented certain Improvements in Foundry-Cranes, especially designed for use in steel-works, of which the following is a description:

Figure 1 in the accompanying drawings shows a vertical elevation; Fig. 2, a cross-section on the line 1 2 of Fig. 1; Fig. 3, a horizontal plan view; Fig. 4, a vertical section on the line 3 4 of Fig. 3; Fig. 5, a horizontal section on the line 5 6 of Fig. 4, and Fig. 6 a cross-section through the cylinder B and post A.

A is the post of the crane, which passes through the stuffing-box C into the cylinder B, and thence into the cylinder E. The post A fits closely into portions of the upper and lower ends of the cylinder B, but loosely in cylinder E, and it is made hollow, and is covered by a cap on its upper end, and has a plate bolted onto its lower end, which projects around this end, so as to prevent the post from passing up through the cylinder B.

A man-hole may be arranged in the cylinder E to give access for removing this plate when it is desired to lift out the post A; or the post may be removed by first detaching the cylinder B from E. The water for actuating the crane is let in at E', the plate on the end of A being loose enough in E to let the water pass by it freely. Space enough for giving access to the flanges whereby B and E are bolted together is left around the cylinder B, and the plate D, attached to or made part of B should have a man-hole in it for giving access to this space. A cast-iron head, F, is fastened to the top of the post A, and to this head are fastened the arms G G, which may be made of heavy I-girders, of box-girders, or otherwise, as may be preferred. Upon these arms are attached the bent arms H H, which may be moved to and fro on the arms G G on the wheels M' N', which work on the axles M N, as shown. The axles M N serve also as bolts to hold the arms H H in their proper positions. The motion of the arms H H I prefer to effect

by hydraulic power. To that end I attach the cylinder L to cross-pieces running from one arm, G, to the other, and work its piston L and rod L' by water, let in by the four-way cock P, supplied with water by the pipe P' from the hollow post A, communicating with the pressure-pump. The piston-rod L' takes hold of a bail attached to a bolt, L'', running from one arm, H, to the other, and it is also supported by the cross-bar L'', and by the reciprocating motion of the piston in L the arms H H may be moved to and fro on the arms G G, carrying the ladle I with them.

In the cranes now ordinarily used in steel-works, there is only one pair of arms, and when the ladle is drawn in on them to any extent these arms project beyond the ladle, and are in the way. On my plan it will be seen the ladle may be made to cover a large area of a casting-pit without being at all interfered with by either set of the arms upon which it is supported.

The general details of construction will be understood from the drawings without further description.

If desired, the movable arms H H may be made straight, and may move on the top of or between the arms G G, or their equivalent, and I do not restrict myself in this regard.

The apparatus for tipping and turning the ladle is shown at K K' K'', and O represents a platform attached to one of the arms H for giving access to the ladle.

What I claim as my invention is—

1. Constructing foundry-cranes with double sets of arms, or a double arm, the outer set sliding or rolling in and out upon the inner, and carrying the casting-ladle.

2. The combination of the hydraulic cylinder L and piston-rod L' with the arms H H, and the application of power to the cylinder by the cock P and pipe P', communicating with the hollow post A and the water under pressure, as herein described and shown.

ZOHETH S. DURFEE.

Witnesses:

R. B. McMASTER,
WM. C. HOLBROOK.