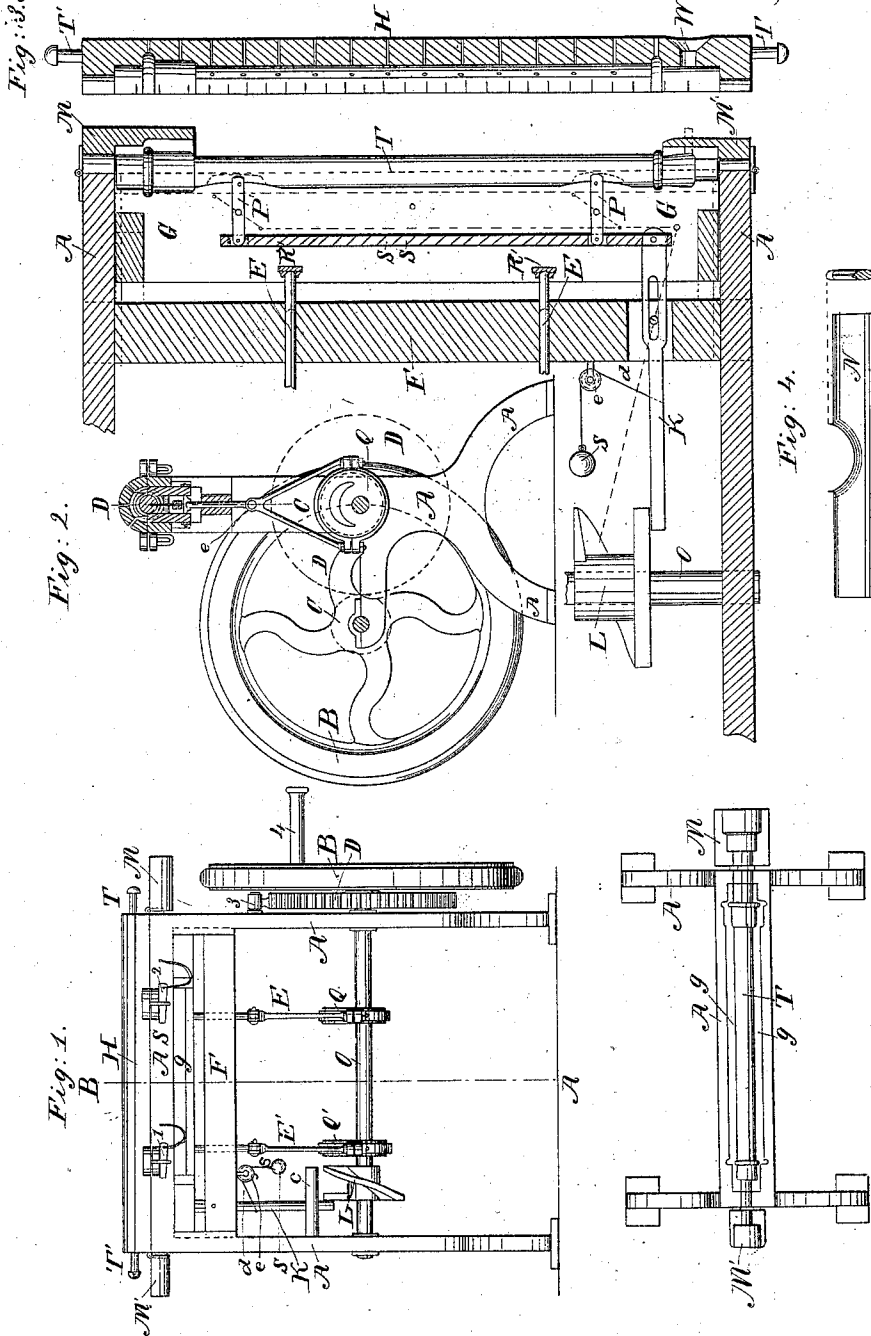


D. Brown,

Molding Pipe.

N^o 11,191.

Patented June 27, 1854.



UNITED STATES PATENT OFFICE.

DAVID BROWN, OF BALTIMORE, MARYLAND, ASSIGNOR TO J. F. CLARK
AND D. BROWN.

IMPROVEMENT IN MACHINERY FOR MOLDING FOR METAL CASTINGS.

Specification forming part of Letters Patent No. 11,191, dated June 27, 1854.

To all whom it may concern:

Be it known that I, DAVID BROWN, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Machines for Forming Molds, specially adapted to molds for casting pipes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, of which—

Figure 1 is a front elevation of the machine complete; Fig. 2, a section through the line A B of Fig. 1; Fig. 3, a section through C D of Fig. 2, and Fig. 4 is a strike-board.

The nature of my invention consists in so arranging the several portions of the mechanism that the sand contained in a chamber or piston-box shall be moved therein by a pattern, and a piston-plate surrounding said pattern, and thus made to protrude from the piston-box and to enter a half-flask, by which means the sand at the parting is more compressed than at the central portion of the half-mold, while on the face of the mold it is sufficiently so to insure good castings.

To enable others skilled in the art to make and use my improvement, I will describe it as follows:

In Figure 1 A A is the stand; B, a fly-wheel; D, the main spur-wheel on the main shaft; E E are the jointed eccentric piston-rods; F, the main brace through which the piston-rods work. G, Fig. 1, is the piston. A S is the piston-box, permanently fastened to the top of the stand A A by strong iron plates. H is the half-flask in which the mold is formed, and T' T' are swivels in the ends of the flask. M M are caps secured by hinges to the ends of the piston-box, so as to allow them to be thrown over the ends of the piston-box, for holding sand when forming the bell and faucet ends of the pipe. O is the main shaft, and a a are the eccentrics. L is a screw-cam by its side acting on the lever K in relieving the pattern from the mold, while the sand is retained by the piston-plate G G. (See plan.) d is a cord passing over a pulley, e, to which is attached a weight, S, whose use is to keep the lever in contact with the screw-cam. 1 and 2 are keys for retaining the half-

flask to the machine in molding. There is a pawl attached to the spur, to prevent it turning in a wrong direction.

In the section in elevation, Fig. 2, the arrangement of the piston, &c., in the box is more clearly exhibited, and in Fig. 3 an enlarged view, exhibiting the caps M M' turned over to receive the sand. P P are rods or bearers supporting the pattern T from S S. U is the gate for pouring in the metal.

The operation is as follows: The caps M M' having been turned in position, (seen in Fig. 3,) the piston, formed of the pattern T and piston-plate G, is lowered in the piston-box. Sand is then thrown in, observing to cast it well under the caps M M', and, ridging it up with the strike, Fig. 4, the surplus sand is removed and the caps thrown back into position, Fig. 1. The half-flask H is now secured by the keys 1 and 2 to the piston-box. Motion having been given by the main shaft O, the eccentrics thereon operate the rods E E, which uplift the piston, formed of the pattern and piston-plate, and with it the sand thereon in the box. Continuing the turning of the shaft O the sand is protruded from the piston-box and forced into the half-flask, and a proper pressure exerted thereon. While under this pressure the screw-cam L and weighted rod K relieve the uprights P P, and the pattern drops below the piston-plate with a slight side motion, in connection with the vertical one, and is thus relieved from the flask without chipping the edge of the mold. The flask is released by the withdrawal of the keys 1 and 2, and offborne by the swivels T' T'. It will be observed that one-half of the number of half-flasks have a spur or gate. The others are without it.

This improved machinery enables me to give the desirable firmness of the sand on the face and parting of the mold, while the central portion thereof preserves the permeable characteristics well understood as requisite in good founding.

Having described my improvement in machines for forming molds, what I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the pattern T and piston-plate G G, surrounding the pattern, within

a chamber or piston-box, A S, in relation to the half-flask H, operated on in the manner substantially as described, by which I am enabled to protrude the sand into the half-flask from said piston-box or chamber and around the pattern, and thus effect a compression of the sand at the parting, instead of at the cen-

tral portion of the mold, (as has heretofore been done,) for the purpose of producing more perfect castings.

DAVID BROWN.

Witnesses:

AARON DENMAN,
JOHN C. McELROY.