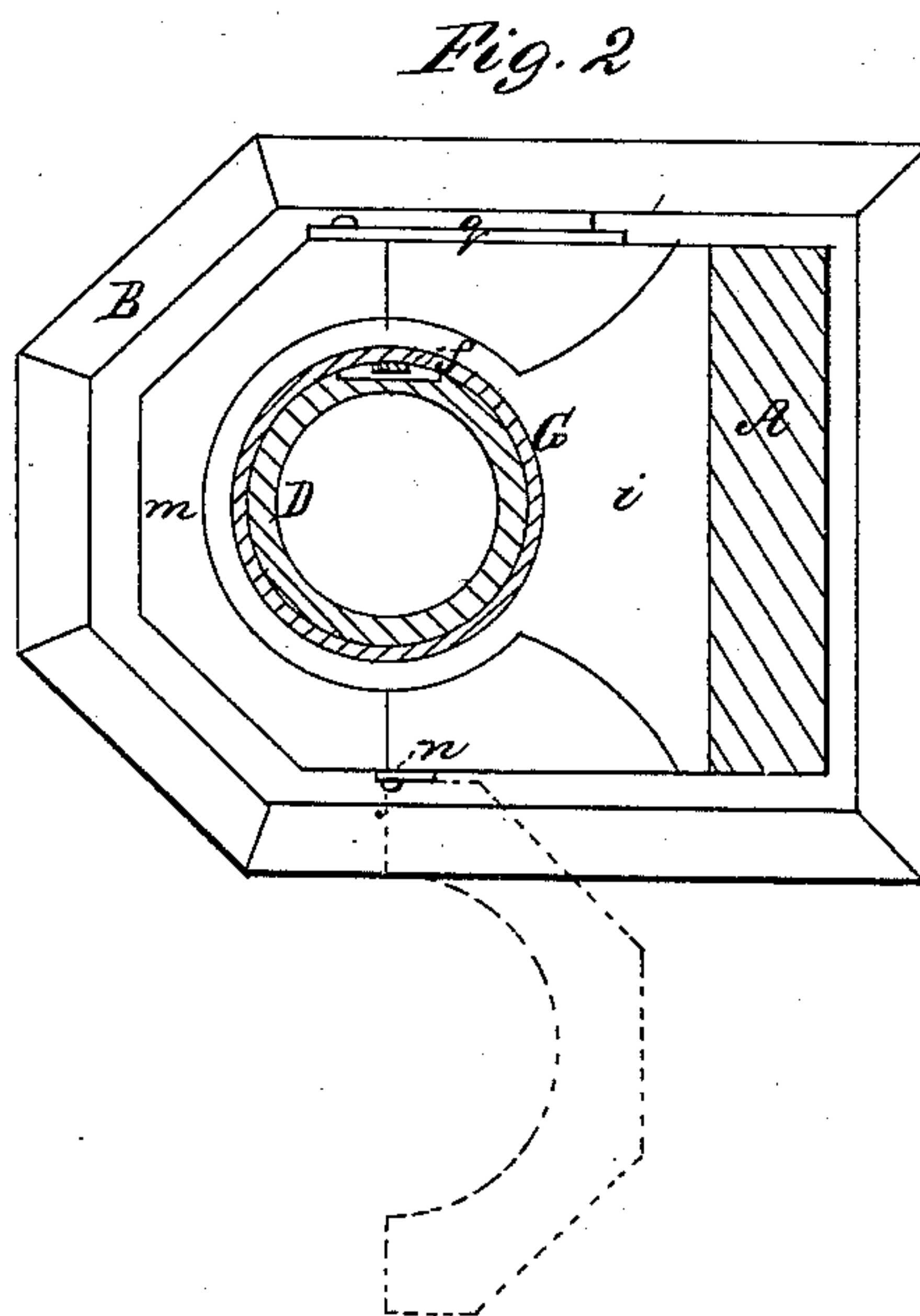
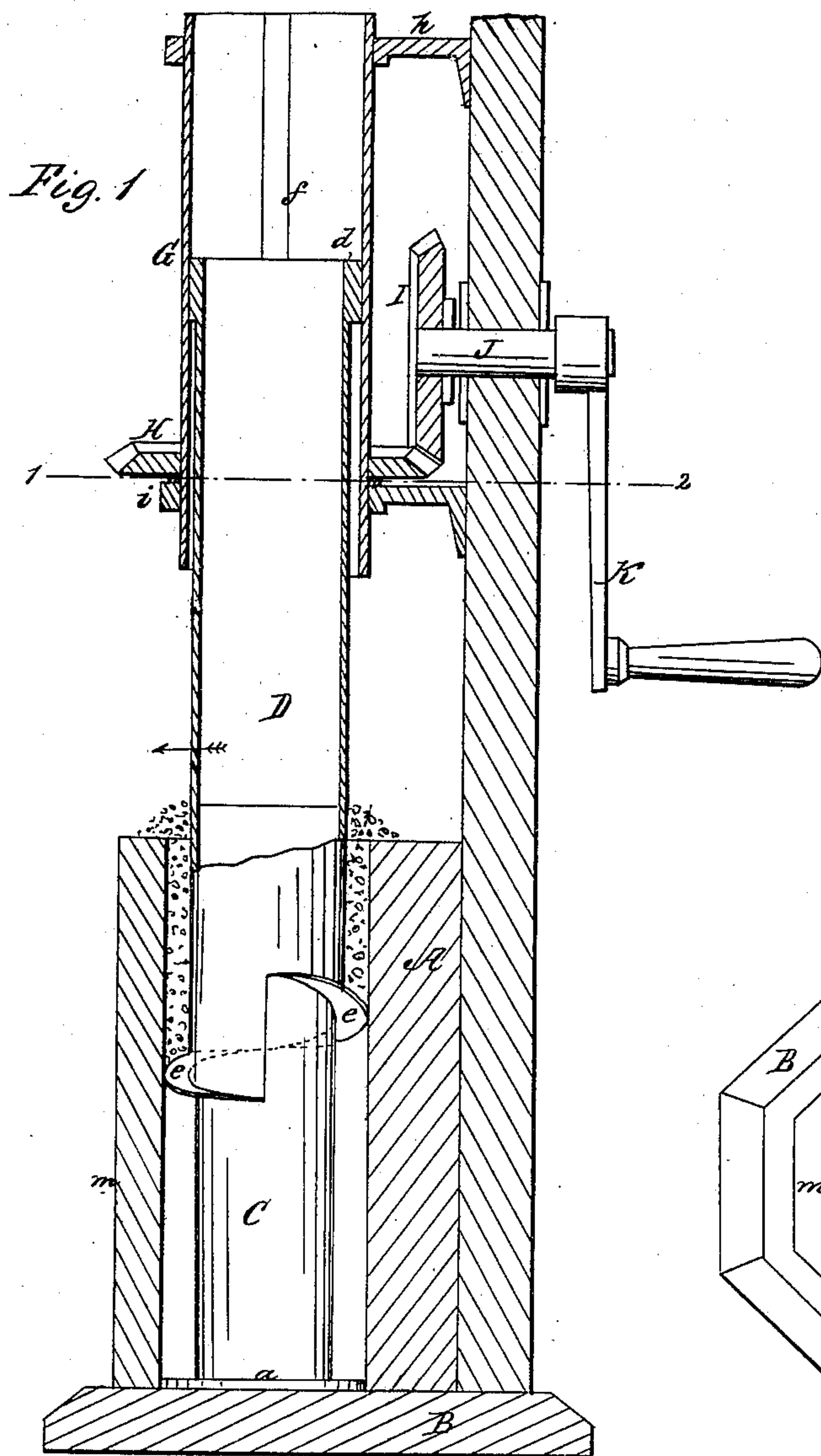


No. 29,908.

PATENTED SEPT. 4, 1860.

H. PARMELEE.
MOLDING METAL PIPES.



Witnesses;
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UNITED STATES PATENT OFFICE.

HOMER PARMELEE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MOLDING METAL PIPES.

Specification forming part of Letters Patent No. 29,908, dated September 4, 1860.

To all whom it may concern:

Be it known that I, H. PARMELEE, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and Improved Machine for Forming Molds for the Casting of Metal Pipes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in forming molds and cores for the casting of metal pipes or other hollow cylinders from granulated materials by means of a pipe furnished at the end with an inclined or spiral flange and revolving within a cylindrical chamber and around any appropriate object within the chamber, the said pipe with its flange being arranged to rise as the mold or core is being formed, as fully described hereinafter, thereby producing that combined solidity and uniformity in the compression of the material which cannot be attained by the ramming process heretofore resorted to for the same purpose.

In order to enable others to practice my invention, I will now proceed to describe the manner in which I carry it into effect.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of apparatus illustrating my improved process of molding pipes, &c., from granulated substances; Fig. 2, a sectional plan on the line 1 2, Fig. 1.

A is the frame-work of the apparatus, resting on and secured to a suitable base, B. The lower portion of the frame-work consists of a block with a movable front, *m*, a cylindrical chamber of such a diameter as to contain a sufficient body of sand for forming the mold being formed one half in the block and the other half in its front *m*; or the cylindrical chamber may be formed in a box detachable from both frame and base.

C is the pattern, resting with its flange *a* on the base A, and maintained in a position concentric with the interior of the cylindrical chamber by the flange which coincides with the said chamber, or by appliances such as the nature of the process, and size of the pattern may suggest as the most convenient.

D is a vertical pipe, arranged to fit snugly

to and at the same time revolve and slide freely on the pattern C. A portion of the lower end of this pipe D is cut away, as shown in Fig. 1, and has a spiral flange, *e*, the diameter of which is such that its edge shall be as close as possible to the inside of the cylindrical chamber without actually touching the same, or, at least, without bearing hard against it. The top of the pipe D has an enlargement, *d*, arranged to fit snugly and to turn and slide freely in the cylinder G, which turns at the top in a bracket, *h*, and near its lower end in the bracket *i*, both brackets being attached to or forming a part of the frame A. A bevel-wheel, H, is secured to the cylinder G, and into this wheel gears a similar wheel, I, on the spindle J, which turns in the frame A, and which is caused to revolve by means of a handle, K, or any suitable driving apparatus. A key or feather, F, is attached to the inside, and extends throughout the whole length of the cylinder G, this feather being so formed in respect to a recess in the enlargement *d* of the pipe D that the latter can move vertically, but cannot revolve independent of the cylinder. The front *m* of the block is hinged to the latter at *n*, and is provided with a suitable latch, *q*, on unfastening which the front may be opened, as seen in dotted lines Fig. 2.

Prior to commencing the process of forming the mold the lower end of the pipe D rests on the base A. A body of sand, or other material of which the mold has to be formed, is then deposited in the space which intervenes between the pipe D and the sides of the cylindrical chamber. This pipe D is now caused to revolve in the direction of the arrow by turning the shaft J, when the spiral flange *e* will draw down the material within the chamber and compress it against the base B. As the revolving motion of the pipe D is continued and more material deposited in the chamber, the pipe will gradually rise as it continues to compress the material beneath its spiral flange to a density depending upon the weight of the pipe. By the time the curved flange of the pipe has reached the upper end of the chamber the mold is completed, and is placed in a proper position, and the pattern is extracted, after which it is ready for receiving the core for forming the interior of the pipe.

In place of forming the cylindrical chamber in a portion of the frame in the manner described, it would be best in most instances to use a detachable box constructed in a manner well-known to molders, and placed on end on the base B, (with the pattern inside,) to be packed with the sand by the action of the spiral flange, as before described, after which the box containing the mold may be removed from the base and the pattern subsequently extracted. The core is made by a process precisely similar to that above described. The cylindrical chamber, however, must be of the same diameter as the intended core, the spindle of which in this case will be represented by the pattern C, a solid mass of sand or other suitable material being compressed tightly round the spindle and forming the core, which is removed from the chamber, and, if no drying be required, is ready for immediate application to the mold previously completed.

The main advantages of my improvement are a rapidity in the formation of the molds, cores, &c., and such a uniformity in the density of the material of which the molds are

composed as cannot be attained by the usual ramming process, for it will be observed that as long as there is material enough above the spiral flange *e*, the same quantity of material must find its way beneath the flange at every revolution, and, the pressure being the same throughout, there can be no variation in the solidity and uniformity of the mold.

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

Forming molds and cores for the casting of cylindrical objects of metal by means of the pipe D, with its flange *e*, when the said pipe and flange are caused to revolve in a chamber around any desired object, to rise as the mold or core is being formed, and to impart by its weight the desired solidity and uniformity to the mold or core, as herein set forth.

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

HOMER PARMELEE.

Witnesses:

HENRY HOWSON,

CHARLES E. FOSTER.