B. S. Benson,

Molding Pipe.

No. 79,629. Patented July 7, 1868.

Fig. 1

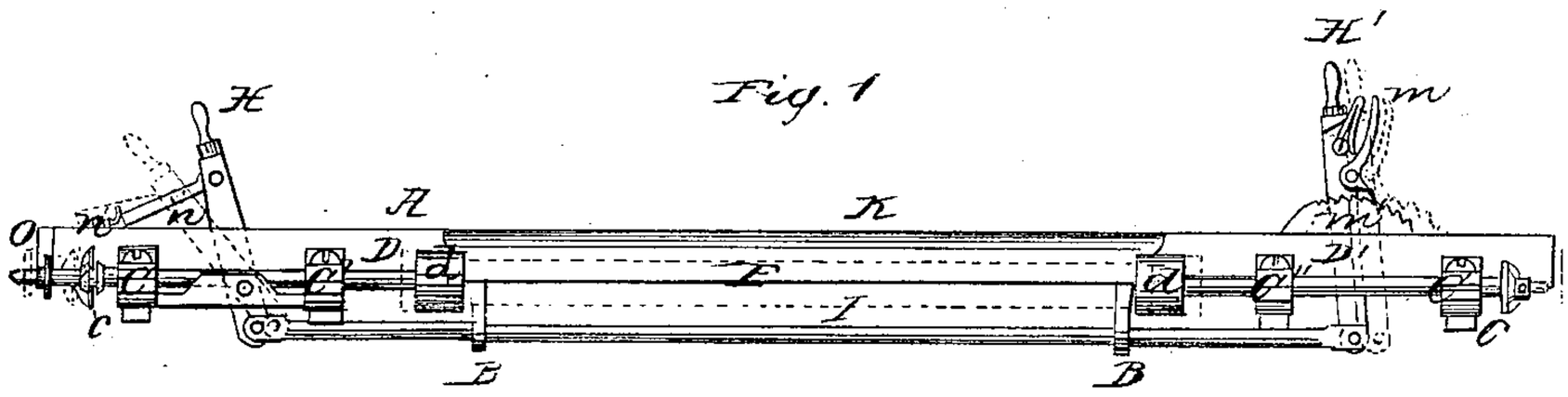


Fig 2.

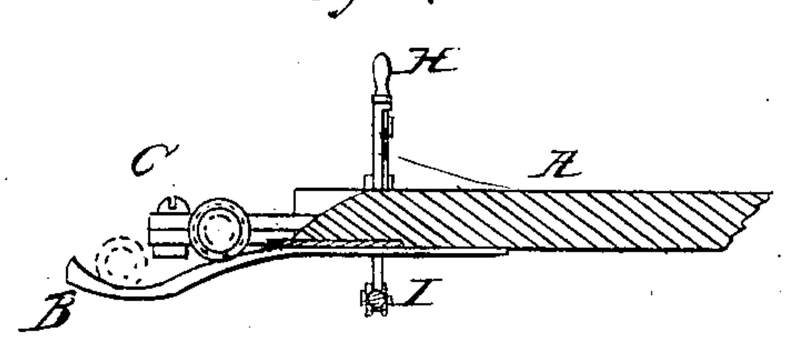
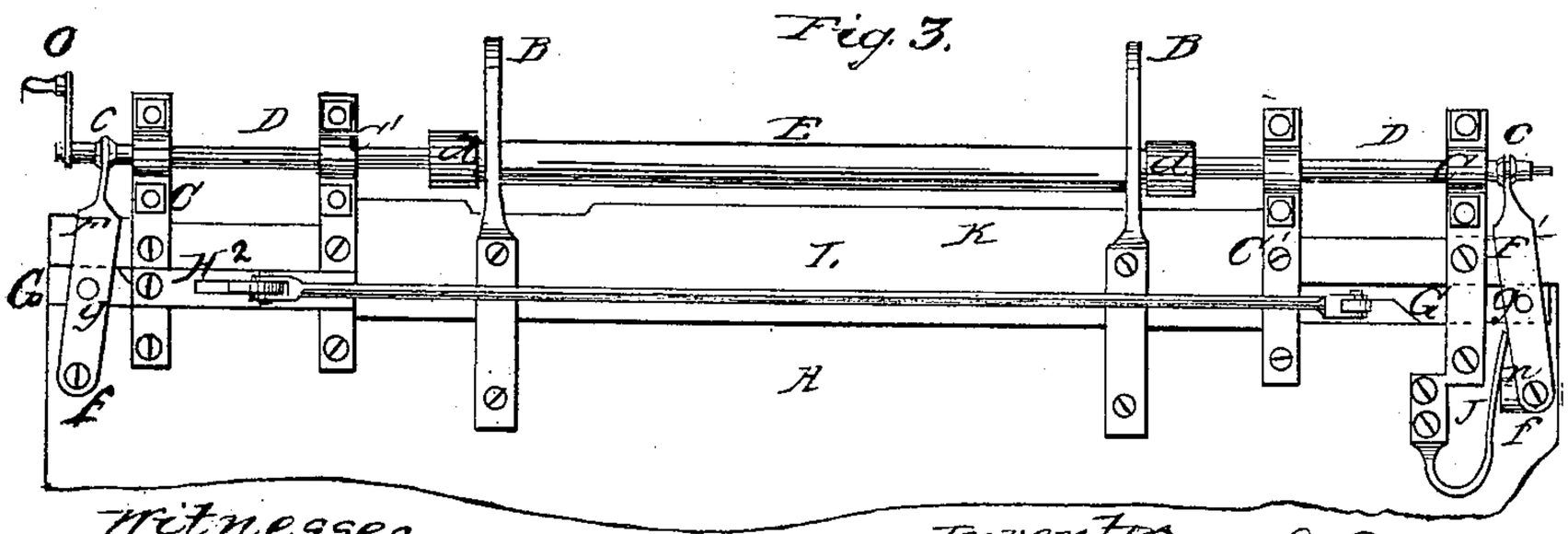


Fig. 3.



Witnesses
S C Keenan
C. A Pettet

Inventor
Benj S. Benson
By Munn & Co
Attys

United States Patent Office.

BENJAMIN S. BENSON, OF BALTIMORE, MARYLAND.

Letters Patent No. 79,629, *dated July* 7, 1868.

IMPROVEMENT IN MACHINE FOR MAKING CORES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, BENJAMIN S. BENSON, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Making Cores for Castings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 is a cross-section.

Figure 3 is a bottom view.

This invention relates to the manufacture of cores for casting metallic pipe, and consists in an improved device by which such cores are held and rotated while receiving their outer coating of loam, and are then dropped gently upon elastic receivers in such a manner as to leave the surface of the core perfectly smooth.

In the drawings, A represents a bed, base-plate, or table, upon which the apparatus is supported, and to which it is attached. B B are curved spring-arms, projecting horizontally from its under surface, upon which the core is dropped by the action of the machine after being formed. C C′ are arms, projecting nearly parallel to the arms B B at each end of the table A, and supporting two shafts, D D′, which rotate in bearings in said arms. The shafts are situated end to end, in the same straight line, and at such a distance apart that they will receive the core-spindle between them. At their inner ends they are each provided with an enlarged hollow socket or chuck, *d d*, the recess in the end of which is large enough to receive the end of the core-bar E.

These shafts slide longitudinally in their bearings, so that when they are drawn apart the core-bar may be inserted between them, and when brought together again the hollow chucks or sockets *d d* will enclose the ends of the core-bar, and hold it in the position shown in red at E. Instead of hollow sockets or chucks, as here described, centres may be employed, entering the ends of the core-spindle, and thus confining it in position.

At each end of the apparatus, the shaft is provided with a groove, *c*, cut around it, or formed between two collars upon it, around which passes a ring or eye at the end of an arm, F F′, by means of which the two shafts can be caused to approach towards or recede from each other, while still being allowed to rotate freely. The arms F F′ are pivoted at their end at *f f*, and at their centre have a slide, G G′, attached to them by a hinge-joint, *g g*.

H H^1 are vertical levers, one, H^1, pivoted to the slide G′, and the other pivoted to a beam or block, H^2, under the table, and the two being connected together by a rod, I, jointed at each end to their lower extremities. The slide G is hinged to the lever H above its fulcrum, the other slide forming itself the fulcrum of the other lever, as above described. A stout spring, J, operates outward against the arm F′.

One of the levers, H^1, is provided with a spring-pawl, *m*, which acts, in connection with a rack, *m′*, to hold the lever fixed in any position which will enable it to keep the core-spindle in place, as seen in the drawings. The other lever is provided with a pivoted arm, *n*, and a stop, *n′*, to hold it.

By means of this arrangement, whenever the handle of lever H is thrown outward from the centre of the table, the shafts D D′ are drawn apart, and the core dropped upon the arms B B, which spring slightly so as not to give it too great a jar and disturb the coating it has received, and whenever said handle is thrown inward the shafts D D′ are slid towards each other, and if the core-spindle is in line between them, its ends will enter the sockets or chucks *d d*.

In practice, I fix the lever H^1 in the proper position, and lift the arm *n*, allowing the lever H to fall back, as seen in red in fig. 1. This throws the shafts D D′ apart, when I insert the core-spindle, and by bringing lever H up to the position shown in black in fig. 1, I confine the core-spindle between the chucks *d d*. I then bring the arm *n* down against the stop *n′*, so as to hold the lever H in position, and keep the core-spindle firmly confined between the shafts. If the spindle should be a little loose after this has been done, I set the handle of lever H^1 a notch or two further inward, which forces the shafts together in the same manner as when the lever H was moved towards the centre.

It might happen that even then the spindle would be a little loose were not some provision made to guard

against it, for were the pawl *m* set in one notch of the ratchet *m'* it might leave the core loose in the socket, while the next notch might be so far that the pawl would not enter it, and again, the expansion or contraction of the parts by heat or cold might sometimes loosen the core in its place.

To obviate this difficulty, I make the fulcrum *f* of arm F' movable, and place a little rubber spring, *r*, against it, that presses it outward towards the end of the table, to the same degree pressing its other extremity inward, and forcing the shaft D' inward against the end of the core-spindle. This spring is very small, it being needed only to take up the looseness that the spindle might have by requiring to be set in such a position that the pawl *m* would not set exactly in the notches of the ratchet, but somewhere between two adjacent notches.

The operation of the spring J is such as to force the shafts D D' apart and liberate the core-spindle at both ends simultaneously whenever the arm *n* is lifted from its stop *n'*.

One of the shafts, D, has a crank, O, attached to it, by means of which the shafts, and the core-spindle held between them, can be rotated on their longitudinal axis.

K is a stout straight-edge blade, firmly fixed to the table A, and holding its edge close to and parallel with the axis of the core-spindle when the latter is supported by the sockets *d d*.

The various parts of the machine having been thus constructed, their operation may be described as follows: The core-spindle, a cylindrical metallic barrel, is placed in the sockets *d d*, and confined there by the means above described. It is then wound closely with rope, after which it is to be covered with a coating of loam, the outer part of which must be perfectly smooth.

This machine is constructed and used for the purpose of facilitating the covering of the spindle with the loam. When the spindle has been properly wound with rope, the loam or other material is placed on the table and on the blade K, and raked down against the spindle, while the latter is caused to revolve by means of the crank O. Its face, coming in contact with the loam, takes up a coating of the latter, and thus perfects the core. When the coating has formed on the spindle sufficiently smooth, the arm *n* is disengaged from the stop *n'*, and both shafts D D' are retracted at once by the spring J dropping the core gently upon the receivers B B.

In making very small cores the shafts D D' may be driven rapidly by gear-wheels. In making large ones, the crank will give sufficient velocity.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Rotating the core or core-spindle E by means of two shafts D D', between which it is held in the manner described, and by which it is applied to a blade, K, substantially as and for the purpose specified.

2. The sockets *d d*, by which the core is held while applied to the scraper, when connected by a rod, I, and levers H H', so constructed and operating that the sockets are caused to approach or recede from each other simultaneously for the purpose specified.

3. Operating the shafts D D' by means of arms F F', slides G G, rod I, levers H H', and spring J, in connection with pawls *n m*, substantially as and for the purpose specified.

BENJAMIN S. BENSON.

Witnesses:

J. C. BENSON,

WM. G. PRICE.