W. & G. Braid,

Molding Pipe.

No. 49,368. Patented Aug. 15, 1865.

Fig: 1.

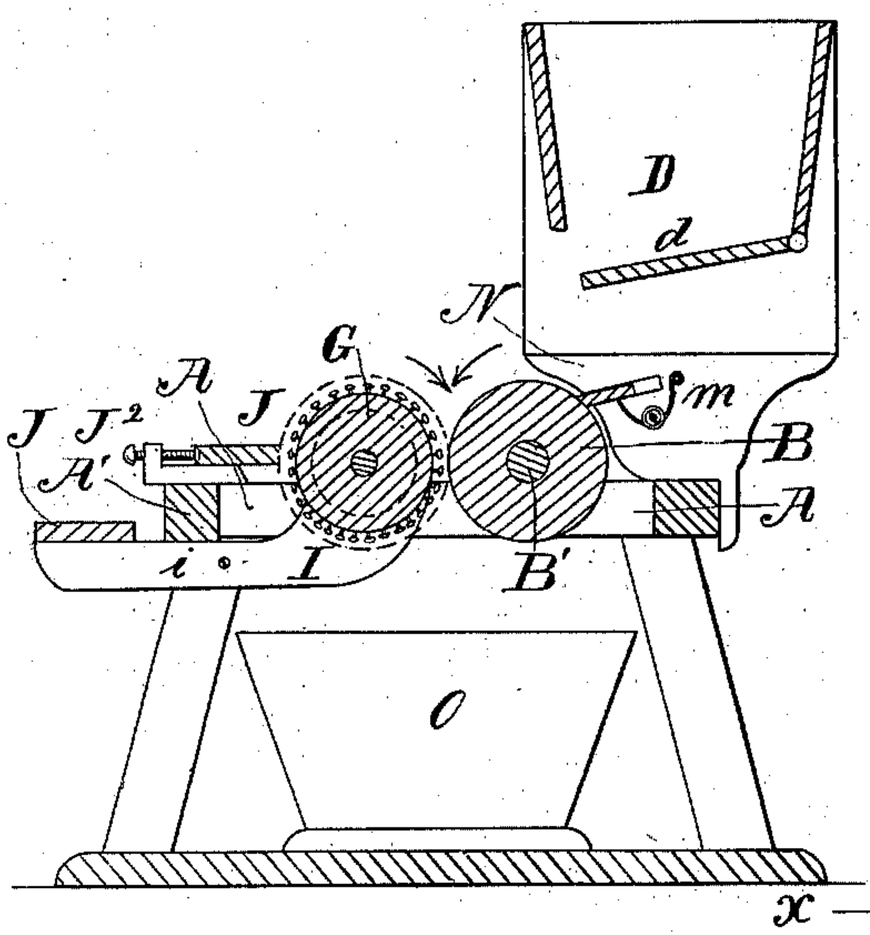


Fig: 2.

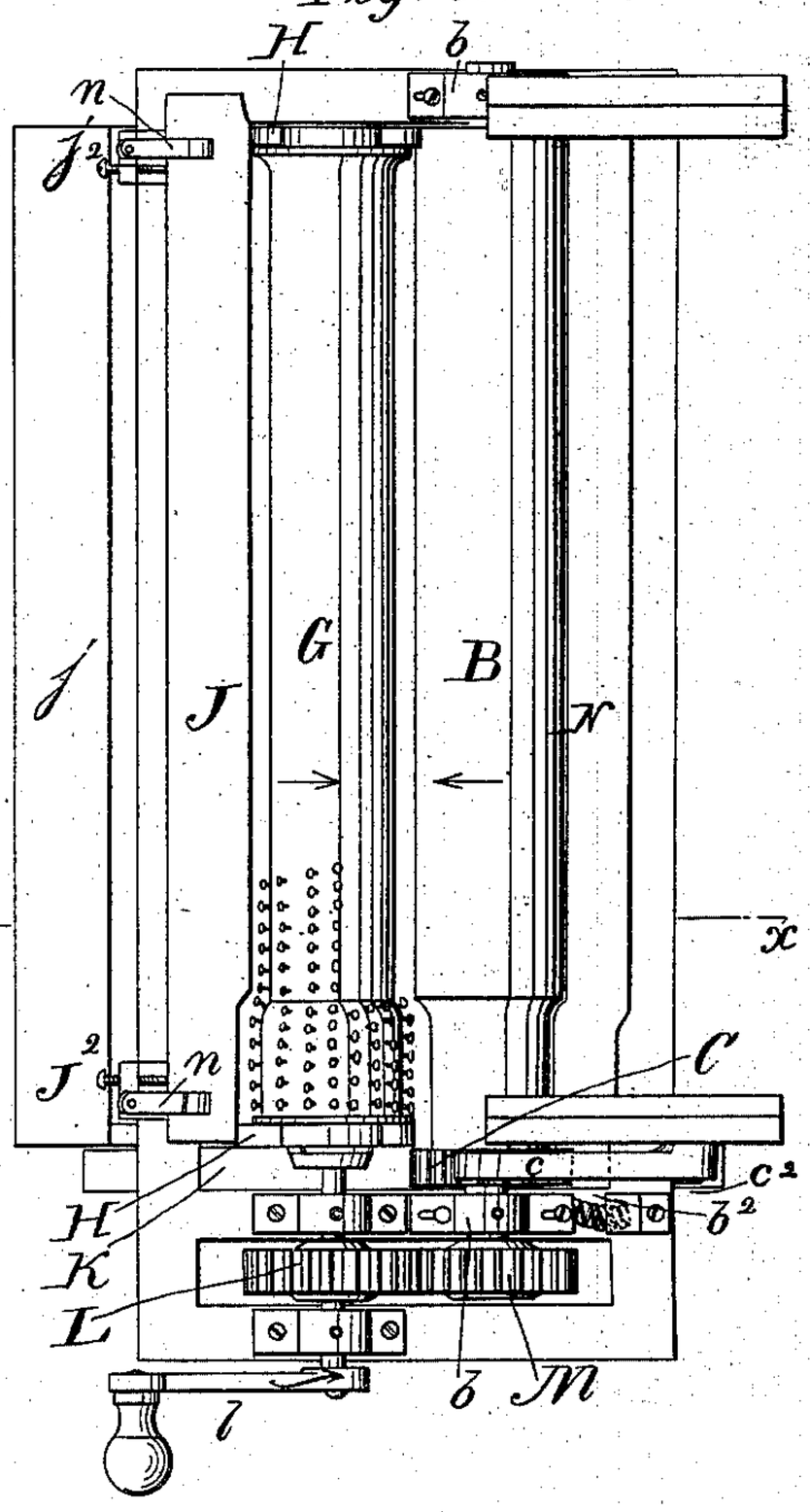
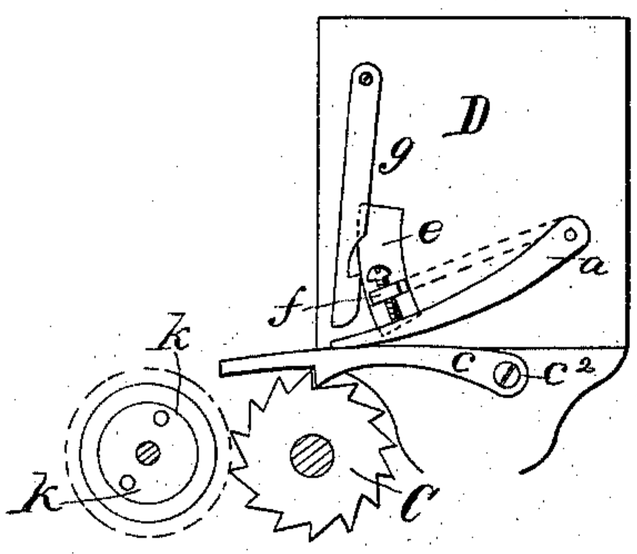


Fig: 3.



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UNITED STATES PATENT OFFICE.

WM. BRAID AND GEORGE BRAID, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR MAKING PIPE-CORES.

Specification forming part of Letters Patent No. **49,368**, dated August 15, 1865.

To all whom it may concern:

Be it known that we, WILLIAM BRAID and GEORGE BRAID, both of the city, county, and State of New York, have invented a new and useful Machine for Making Cores for Cast-Iron Pipes and other Metal Castings; and we 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 this specification, in which—

Figure 1 is a vertical section through line *x*, Fig. 2. Fig. 2 is a plan view with the hopper or feeding-box removed. Fig. 3 is an end view of the principal moving parts of the machine.

Like letters of reference indicate similar parts in each of the figures.

Our invention consists in a combination and arrangement of a center piece, a compressing-roller, a feeding device, and a templet or scraper, to enable the fabrication of cores of circular transverse section to be effected in a quicker and more uniform manner than that in which it is usually done.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A is a horizontal frame-work supporting the working parts of the machine. The roller B, situated longitudinally upon the upper part of the frame A, revolves in two yielding bearings, *b b*, which have a limited horizontal motion in a lateral direction in order to accommodate the roller which carries to and compresses upon a center piece, G, the sand or loam of which the core is to be made from a hopper or feeding-box, D. The roller B is kept to its work by means of springs b^2, one applied against each of its bearings and pressing it toward the center piece, G.

D is a feeding-box or hopper for containing sand or loam to be made into cores, and is provided with a vibrating bottom, *d*, a projection, *f*, at one end of which projects through an arched slot in the end of the feeding-box, and has inserted into it a regulating-screw, *e*, by which the vibrations of the bottom *d* are made variable, and which rests against a lever, *a*, attached to one of the pivots, *d'*, of the vibrating bottom *d*. The lever *a* rests at its front end upon a second lever, *c*, which has a fulcrum, c^2, secured to the frame-work, and the other end of which rests upon a cam or wiper wheel, C, secured to the shaft B' of the roller B at one end of the said roller. When this cam or wheel is revolved the levers *c* and *a* and the vibrating bottom *d* are alternately lifted and allowed to drop, thus shaking the sand or loam down upon the roller B.

g is a latch intended to hold the bottom *d* up and closed when the sand or loam is no longer required, the said latch acting upon the projection *f*. The hopper is movable backward or forward to enable it to deliver the sand upon the roller B in a proper manner.

The center piece, G, for receiving the sand or loam to form the core, consists of a straight shaft, of cast-iron or other suitable material, having a longitudinal profile like that which the core is intended to have, and having upon its surface a number of spikes or projections, for the purpose of holding and assisting the adhesion of the sand or loam to it. This center piece is arranged parallel with the roller B, and is made with journals *s s*, which fit to bearings provided in or on the levers I I, which are attached one to each end of the frame by means of fulcrum-pins *i*, and are connected rigidly together by means of a bar, *j*, which serves as a handle to work both levers together and raise the core center, and so bring the core out of contact with the roller B preparatory to its removal from the machine after it has been finished. The weight of the center piece, G, when it is in its proper position for operation, bears down the rear ends of the rockers I I, upon which its bearings are situated, and so brings the forward arms of the rockers up against the front rail, A', of the frame-work A, and the bearings are thus kept stationary during the operation.

In one end of the center piece, G, there are two or more holes, *k k*, for the purpose of receiving the forks of a clutch, K, the shaft of which is feathered and slides through a corresponding aperture in the center of the driving cog-wheel L, and has upon its outer end a crank-handle, *l*, for the purpose of giving motion to the center piece, G, when the clutch is thrown into gear, and at the same time giving motion to the roller B by the means of a second cog-wheel, M, upon the shaft of the latter, and thereby also operating the vibrating bottom by means of the cam or wheel C, as before described.

In front of the core-center G there is secured, by clasps or buttons *n n*, to the framing A a templet or scraper, J, the profile of whose hinder or working edge is the counterpart of the intended longitudinal profile of the core. This templet or scraper is held up to its work and adjusted by set-screws J^2 J^2 to model the core to the required diameter, removing all excessive material and producing a smoothness and uniformity of surface throughout its length. All surplus material carried around by the roller B is removed by a second scraper, N, which is always kept against the roller by a spring, *m*, and into a waste-box, O, situated below the core-center G and roller B. This scraper rests in slots at each end in the upper part of frame A, which bears the hopper D.

The operation of our invention is as follows: The hopper D having been filled with sand or loam, the center piece, G, is properly placed upon its bearings and put in gear with the roller B by the clutch K, and the templet or scraper J is fixed in its position and properly gaged for the diameter of the core required by the adjusting-screws J^2 J^2. The handle *l* is then revolved in the direction of the arrow, giving motion to the center G, roller B, and vibrating bottom *d* of the hopper D, which shakes the sand or loam down upon the roller B, which conveys it over to the core-center G and compresses it thereon. The sand or loam is allowed to run from the hopper until there is a sufficient quantity upon the core-piece, when it is shut off by lifting up the bottom until the projection *f* slips into the notch in the latch *g*. The core is then finished by a few revolutions of the center piece, G, and roller B, and after this is ready to be removed to any place desired, which is done in the following manner: The templet or scraper J is removed, the clutch K is withdrawn from the center piece, G, and by pressing down the bar *j* the rear ends of the levers I I are brought forward far enough to bring the core clear of the roller B. Bars are then introduced into the central cavities in each end of the core-piece, and it is thereby lifted out of the bearings in the levers I I.

Having thus described the construction and operation of our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of a rotating center piece, G, rotating pressing-roller B, and templet or scraper J, the whole arranged and operating substantially as and for the purpose herein specified.

2. The hopper or feeding-box D, with its vibrating bottom, in combination with the compressing-roller B and center piece, G, substantially as and for the purpose herein described.

3. The arrangement of the center piece, G, in bearings in two connected levers or rockers, I I, and in combination with a movable clutch, K, and driving-gear L, substantially as and for the purpose herein specified.

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