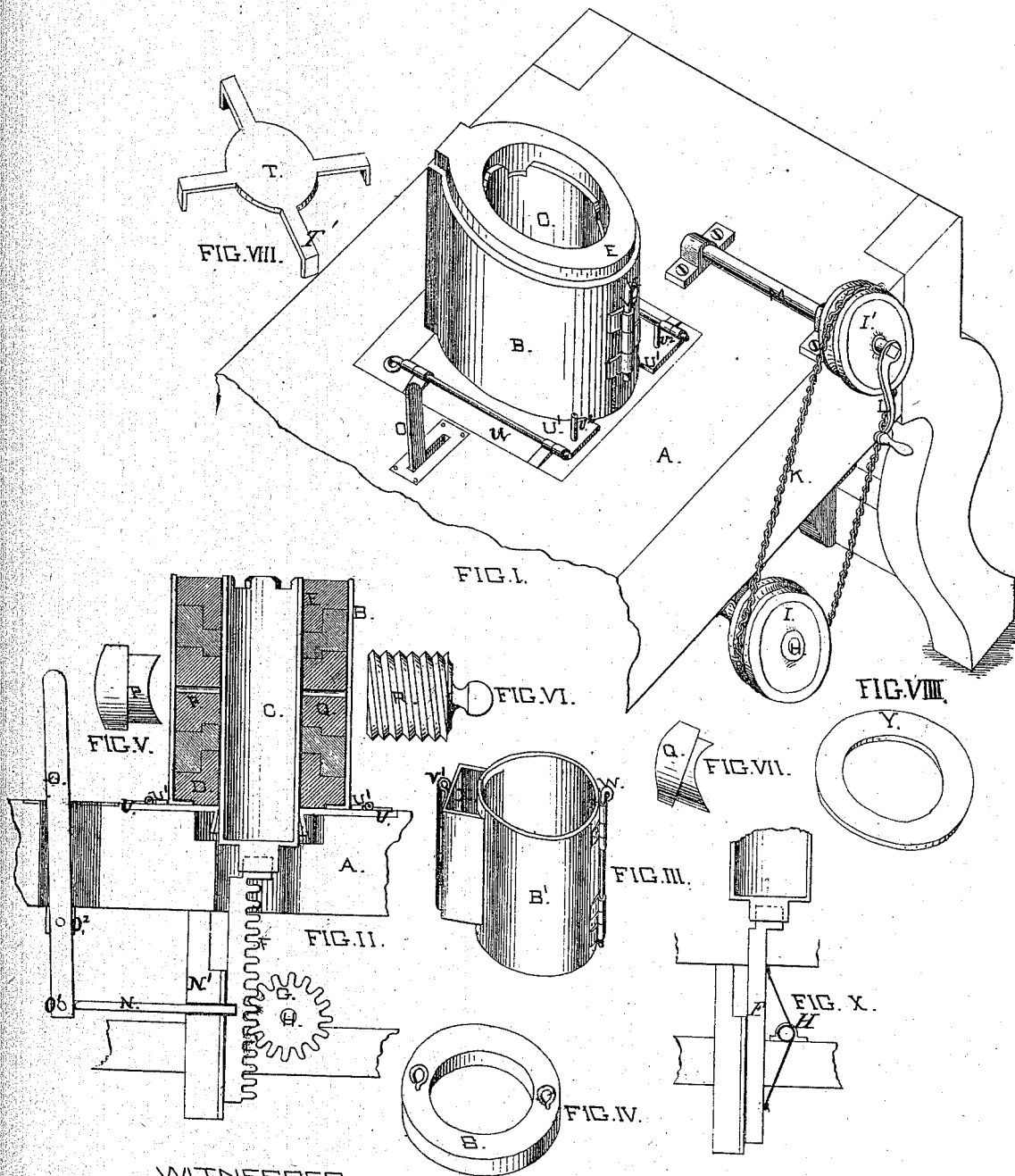


G. Richardson. Tile Machine.

No. 112,495.

Patented Mar. 7, 1871.



WITNESSES.

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IMPROVEMENT IN PIPE-MOLDING MACHINES.

Specification forming part of Letters Patent No. **112,495**, dated March 7, 1871.

To all whom it may concern:

Be it known that I, GEORGE RICHARDSON, of the city and county of Milwaukee and State of Wisconsin, have invented certain Improvements in Pipe-Molding Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 represents a perspective view of my improved machine. Fig. 2 is a vertical longitudinal section thereof. Figs. 3 to 9 represent views of various parts of the machine in detail. Fig. 10 shows a modification of the means for operating the central cord.

The same letters are used in all the figures in the designation of identical parts.

This invention relates to a machine for molding pipes and pipe-couplings from clay or other plastic substances; and my improvement consists in the construction and combination of various parts thereof, which will be more specifically pointed out in the following description and claims.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The various parts of the apparatus are mounted upon a substantial table, A, provided with a metallic plate, U, at the point where the case or mold B is to be placed upon it. This plate has a central opening, in which the core C snugly fits, and an aperture is also formed in the top of the table, to admit of the passage of the said core through it in its vertical movements.

The case or mold B is cylindrical or of other form upon its interior surface, to correspond in reverse to the exterior of the pipes to be formed, and may be of any suitable length. The mold illustrated in Fig. 3 is used when the pipes are formed with a rectangular base upon one side, such base being formed in the chamber X, there shown. The mold consists of two sections hinged together, so that it may be opened and removed from around the pipe when the molding of the latter is completed. In use it rests upon the plate U with its lower end, and is held firmly in place, concentric with the central core C, by means of hinged plates U', which are attached to the top of the plate U in such manner, and are of such out-

line at their outer opposite edges, that when turned down they will firmly clasp the mold and prevent any horizontal movement of the latter. The sections are further held in a closed position by a bolt, W, passing through eyes on the sections.

To the lower end of the central core C a rack, F, is secured in a vertical position to mesh into and be driven by a pinion, G. This pinion is keyed to a shaft, H, to which the power may be applied directly; but as it is located necessarily some distance below the top of the table it is generally preferred to drive from a counter-shaft, M, arranged upon the table, the motion of which is transferred to the shaft H by intermediate gearing, or by pulleys and belts or chains, as shown clearly in Fig. 1. The back of the rack slides in a guide, N', and it is held together with the core in its highest position by a sliding bolt, N, which moves in an aperture in the slide, and enters a hole in the back of the rack. The bolt N is operated by a lever, O, fulcrumed at O', and extending up through the top of the table. Instead of the rack F, the lower end of the core may carry a straight bar, as shown in Fig. 19, and be operated by means of a cord or chain, one end of which is fastened to the lower end of the bar, and which, after being wound several times around the shaft H, is fastened with its other end to the upper end of the bar. By operating the shaft in one direction or the other the core can be raised or lowered.

The concentricity of the central core C is preserved by a disk, T, snugly fitting its bore, and having spider-legs T', which, passing through notches in the upper end of the core, hook with their bent-down ends over the shell of the mold.

The pipes which are intended to be molded in this mold are of the construction described in my Letters Patent of September 6, 1870. The annular recesses in the couplings for these pipes are formed by placing a ring, D, with an annular shoulder in the bottom of mold. After the required amount of cement or other earthy matter has been properly tamped, the ring S is slipped over the core—the spider T' being removed—to form the recess in the upper end; or the ring E may be used for this purpose, if desired. In order to form lat-

eral openings in the pipes or couplings for the attachment of branches, a core, P or Q, may be employed, which is inserted into the space between the mold B and core C after a sufficient amount of cement has been tamped down, and enough more cement is then added to finish the pipe or coupling. To strengthen the pipe at these branch openings it is desirable to form a collar around such openings upon the surface of the pipe. This is done by using an additional core, R, fitting the outer larger part of said opening, and inserted therein after mold B has been opened and the core P or Q withdrawn from the pipe or coupling, from which said core R projects sufficiently to mold a collar around it by hand. This core R is either screw-threaded, as shown in Fig. 6, or it may have a plain cylindrical surface, to form either a screw-threaded or plain opening. To form a branch opening extending from the pipe at an angle other than a right angle, the branch core is made to stand at the required angle to the central core, as shown, for instance, in Fig. 7.

I am aware that branch openings have been formed in pipes of this class by means of lateral cores; but in every instance these cores were inserted through an opening in the side of the mold, so that it was necessary to use a different mold for every change in the position of the branch. This difficulty is overcome by

using lateral cores inserted from the top of the mold, as hereinbefore described.

In molding straight pipes, a ring, Y, is placed in the bottom of the mold to support the pipe in being removed from the mold.

After a pipe or coupling has been molded in the manner set forth, the central core is withdrawn from it, the hinged plates U' thrown back, and the mold opened and removed. The pipe is then lifted from the table resting upon the ring Y, and placed in a kiln to be burned.

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

1. In combination with the central core C, bar F, and guide N', the bolt N and lever O, substantially as set forth.

2. The arrangement with reference to each other of the mold B, central core C, and lateral shouldered cores P Q, substantially as and for the purpose set forth.

3. The core R, for the purpose of forming a shoulder on the outside of the pipe or coupling, around branch openings therein, when arranged and operating substantially as set forth.

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Witnesses:

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