

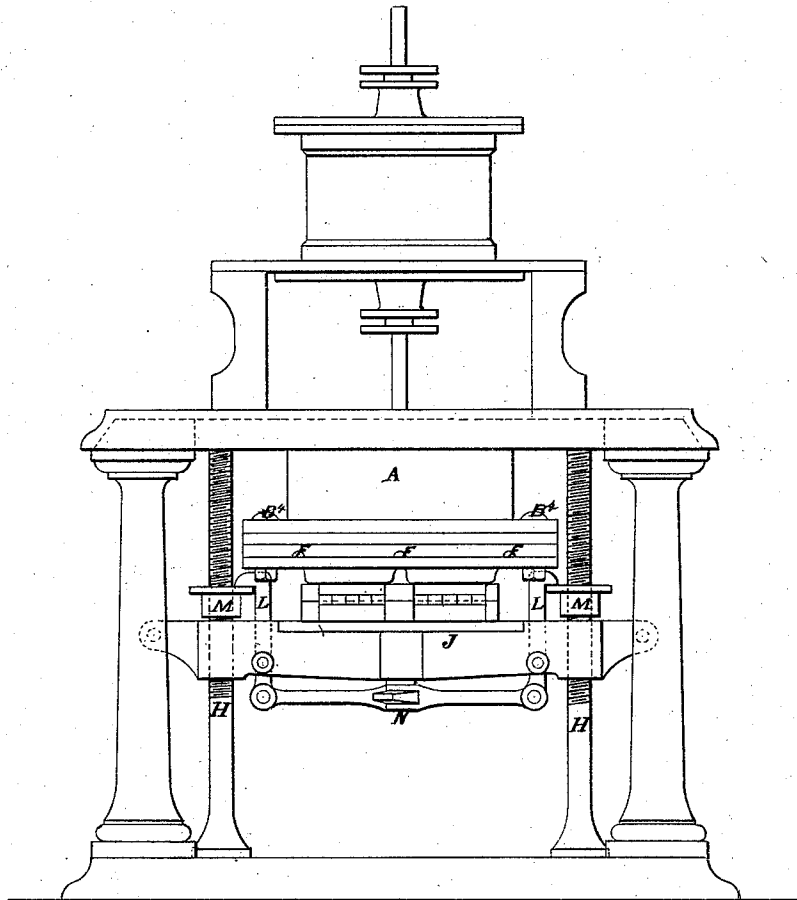
5 Sheets--Sheet 1.

**J. WHITEHEAD.
Tile-Machines.**

No. 152,890.

Patented July 7, 1874.

FIG. 1.



WITNESSES

John Bennett
Waterside N. Darwin

John Holden
Waterside N. Darwin

INVENTOR.

Julius Whitehead

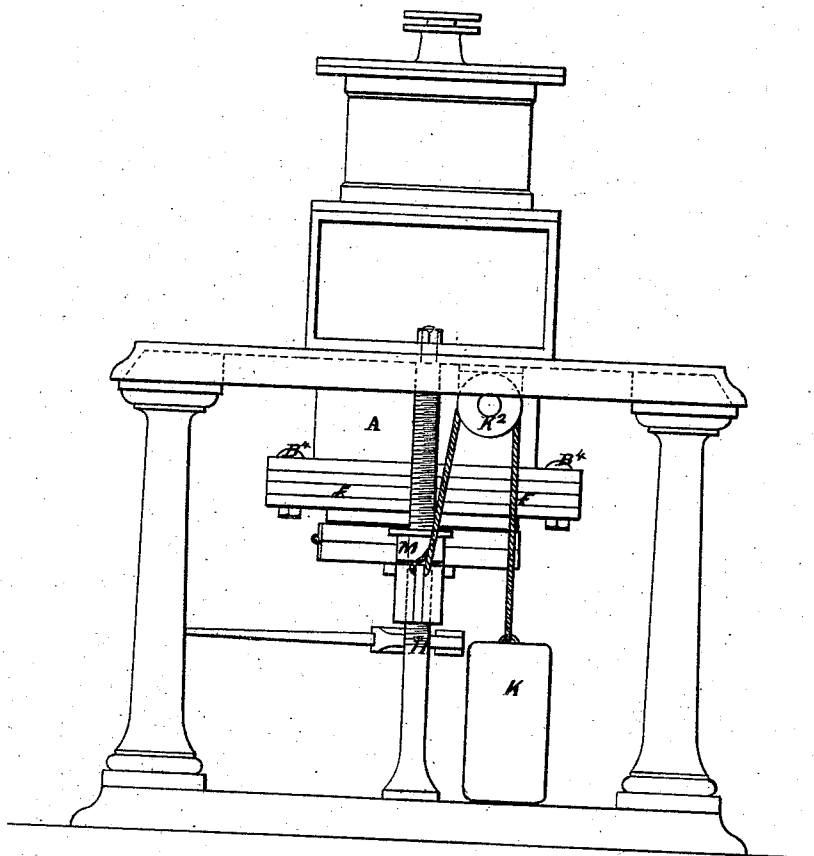
J. WHITEHEAD.
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5 Sheets--Sheet 2.

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Patented July 7, 1874.

FIG 2



WITNESSES

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INVENTOR

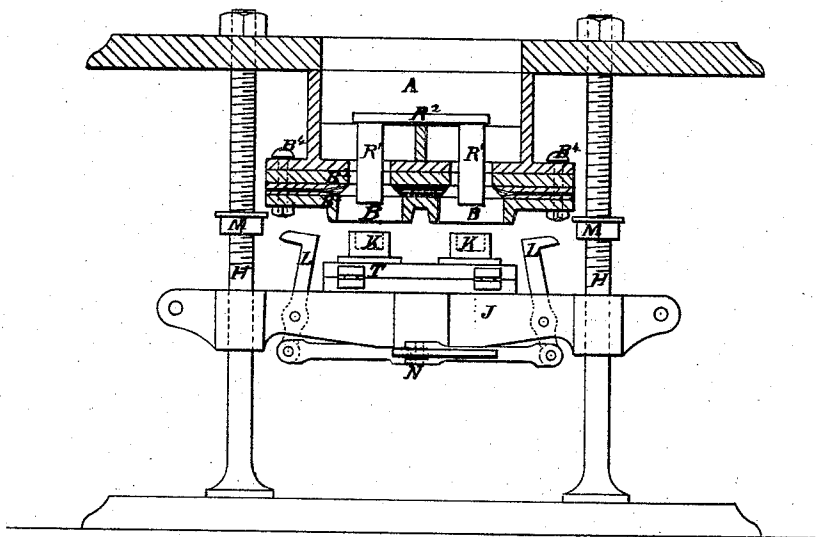
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FIG. 3.



WITNESSES.

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FIG 4

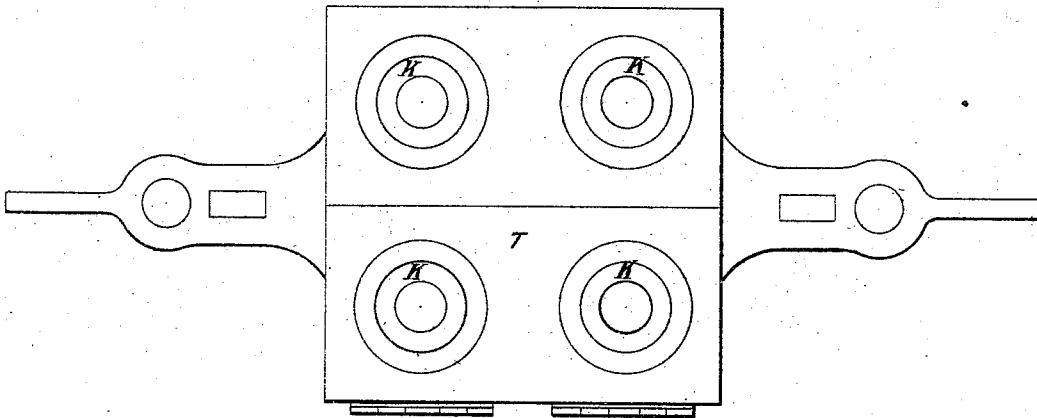


FIG 6

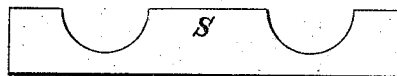
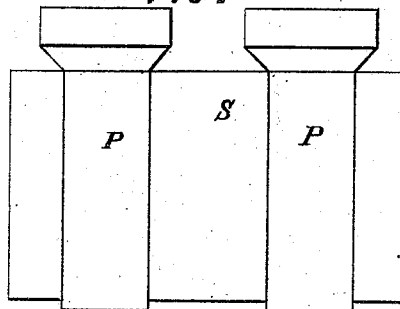


FIG 7



WITNESSES

John Bennett

Waterside Mr Darwen

John Golden

Waterside Mr Darwen

INVENTOR

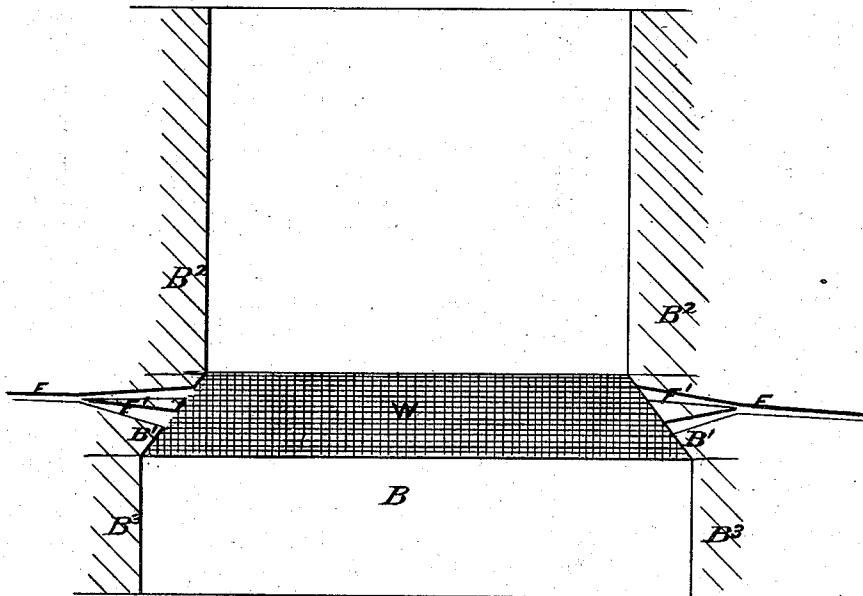
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FIG. 5.



WITNESSES.

John Bennett
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INVENTOR

Julius Whitehead

UNITED STATES PATENT OFFICE.

JULIUS WHITEHEAD, OF DARWEN, ENGLAND.

IMPROVEMENT IN TILE-MACHINES.

Specification forming part of Letters Patent No. **152,890**, dated July 7, 1874; application filed January 12, 1874.

To all whom it may concern:

Be it known that I, JULIUS WHITEHEAD, of Darwen, in the county of Lancaster and Kingdom of England, fire-clay-works manager, have invented certain improvements in machinery or apparatus to be employed in the molding of sanitary tubes or pipes, of which the following is a specification:

This invention relates to improvements in the dies or apparatus for forming or molding the sockets of sanitary tubes or pipes, and in the apparatus for operating such machinery, whereby the frequent damage to the sockets of the tubes or pipes during the process of molding is obviated.

When making a number of pipes at one operation, I affix the dies, constructed as herein after described, to the bottom of the clay-cylinder. When making pipes of large diameter, one at a time, I construct the clay-cylinder with its lower end shaped according to the form of socket required. At each side of the said cylinder is a guide-rod. Extending from rod to rod, and immediately under the clay-cylinder, is a table or bed rail on which the socket-blocks rest. The table or bed rail ascends the guide-rods by means of chains or cords and counterbalance-weights passed over pulleys. The socket-blocks are thus brought into proper position within the socketed end of the clay-cylinder, and there held by catches until the piston descends, partially forcing the clay into the socket-dies. The steam is now shut off and the catches are released. The steam being again turned on, the piston resumes its downward stroke, forcing down the table or cross-rail to its original position, and completing the formation of the cylindrical part of the tube or pipe. The completed tubes or pipes are now removed from the table or bed rail, (the boards on which the socket-blocks rest are hinged so as to facilitate removal of the pipes by tilting them onto a bearing-board hereinafter described,) and the socket-blocks withdrawn from the sockets of the pipes and replaced on the table or bed-rail ready to repeat the operation.

The die of each socket is perforated and its interior lined with cloth, through which air is admitted on the farther descent of the piston, so as to prevent formation of vacuum.

The following is a full and complete specification of this invention, reference being had to the five sheets of drawings accompanying the same.

Figure 1 is a front elevation of a machine for molding nine sanitary pipes or tubes at one operation, and constructed according to this my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a section, showing interior of the dies, drawn to an enlarged scale. Fig. 4 is a plan view of the table or cross-rail and the socket-blocks, and it will be seen that the dies are constructed of complete rings, and not in halves or part rings, as heretofore. Fig. 5 is a detached die and socket, enlarged scale. Figs. 6 and 7 are elevation and plan of a bearer.

A is the clay-cylinder, which is of the ordinary character, the clay therein being forced or expelled therethrough and into the dies thereof by a piston and piston rod or rods, as usual. B are the socket-molds, which are secured to the lower part of the clay-cylinder. The beveled part B¹ forms the shoulder of the socket. This part, by preference, I make of wood, and it is secured between the parts B² and B³ by the bolts B⁴. F F are holes formed in the part B¹. (See Figs. 3 and 5.) From the holes F F branch or radiate other smaller holes F' F'. The object of these perforations is to admit atmospheric air to the socket-dies when a pipe or pipes are being forced from the cylinder and molds, and so prevent damage to the pipes or tubes by the formation of a vacuum or vacuity between the socket-shoulder of the pipe or tube and the interior of the die. The perforated face of the part B³ is faced or covered with cloth, linen, or other fabric, W, to prevent the clay being forced into and stopping up the holes F', and so precluding the admittance of the necessary supply of air. On each side of the clay-cylinder A is a guide-rod, H, and extending from rod to rod is a table or bed-rail, J, on which the ordinary socket-block K rests. The table or bed-rail J ascends the guide-rods by means of the counterbalance-weights and pulleys K². The socket-blocks K are thus brought into proper position within the socket-forming end of the clay-cylinder, (see Fig. 2,) and there held by the catches L catching and holding

the flanges of the nuts M. The nuts M may readily be adjusted to any height on the guide-rods H by means of the chasing or screwing thereon. The clay-piston now partially descends within the clay-cylinder, forcing the clay into the socket-dies, and so forming the socketed end of the pipes or tubes. The catches L are now released from the flanges of the nuts M by hand or foot lever connected at their junction N, and the clay-piston resumes its downward stroke, forcing down the table or bed-rail J, and forming the cylindrical part P of the tube or pipe.

Any convenient number of such dies may be employed, according to the power of the clay-piston and capacity of the clay-cylinder, the cores R¹ being suspended by the bridges R², as will be clearly understood.

The perforated portions of the dies are arranged between the plates B² and B³, and the whole secured to the bell or bottom of the clay-cylinder by bolts. The bed-rail J will of course be provided with a corresponding number of socket-blocks, K, as shown at Fig. 4. The boards T, on which the socket-blocks rest, are hinged, in order to facilitate removal by tilting the pipes S when molded onto the "bearer" S', on which they are carried or removed to the drying-room. The socket-blocks K will be greased or oiled as usual.

Having thus fully described the nature and particulars of this my said invention, together with the manner in which the same is to be or may be performed or carried into practical operation, I would have it distinctly understood that I claim as my invention—

1. The catches L and adjustable nuts M on the guide-rods, as and for the purpose herein fully described and shown.

2. The combination, with a clay-cylinder, A, of dies or molds B, constructed of complete annular portions B¹ B² B³, the part B¹ being beveled to form the shoulder of a pipe or tube, having holes or passages F F' radiating therefrom, and a surface of linen or other reticulate fabric, W, all constructed and operating substantially as and for the purpose specified.

3. The boards T, hinged for the purpose herein described, and the bearer S', as described and shown.

JULIUS WHITEHEAD.

Witnesses:

JOHN BENNETT,
Bookkeeper, Waterside.
JOHN HOLDEN,
Waterside.