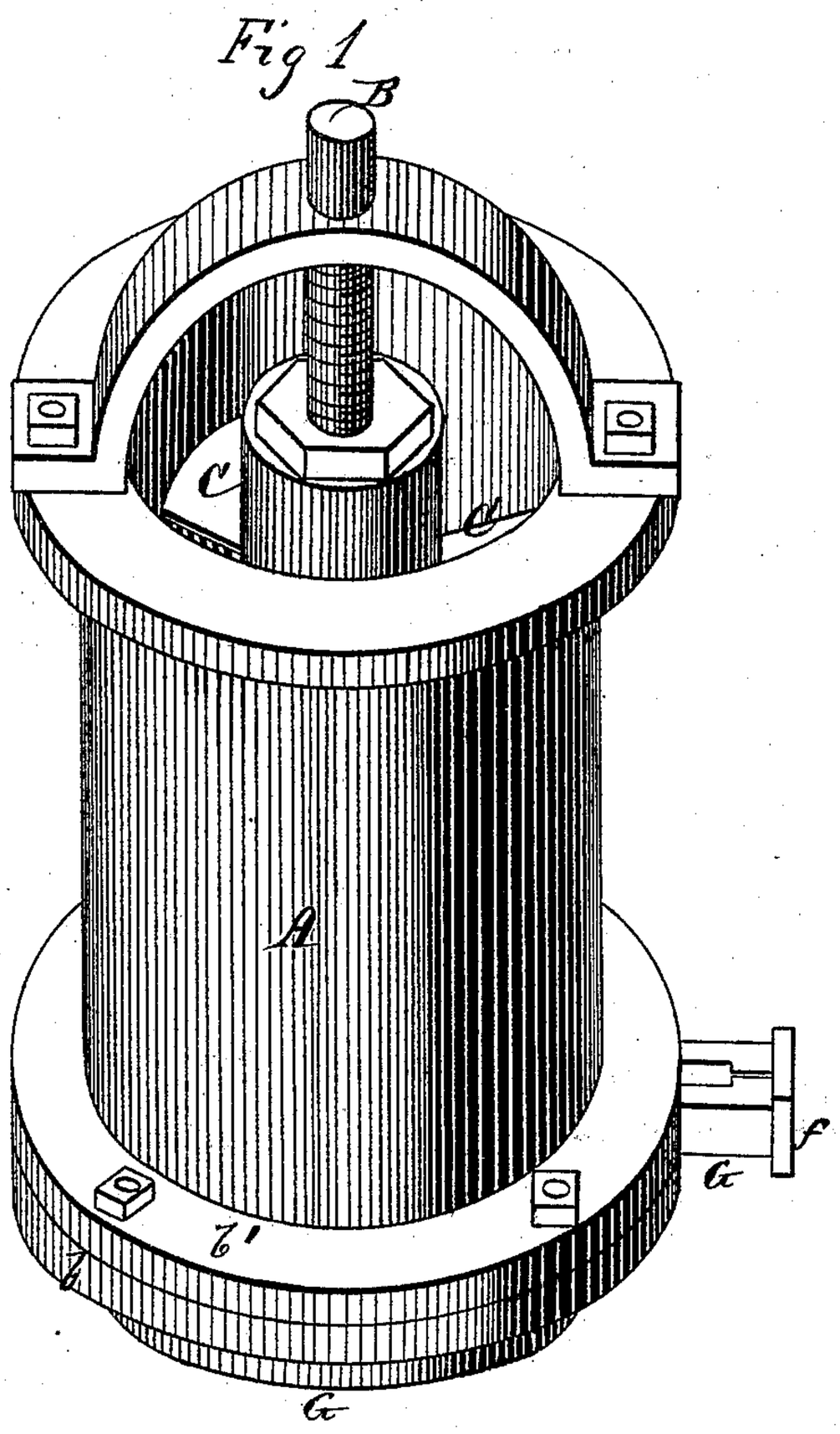
3 Sheets--Sheet 1.

J. BINGHAM.

Machines for Making Earthenware Pipes. .

No. 143,870. Patented Oct. 21, 1873.

Fig 1



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Machines for Making Earthenware Pipes.

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Fig 2

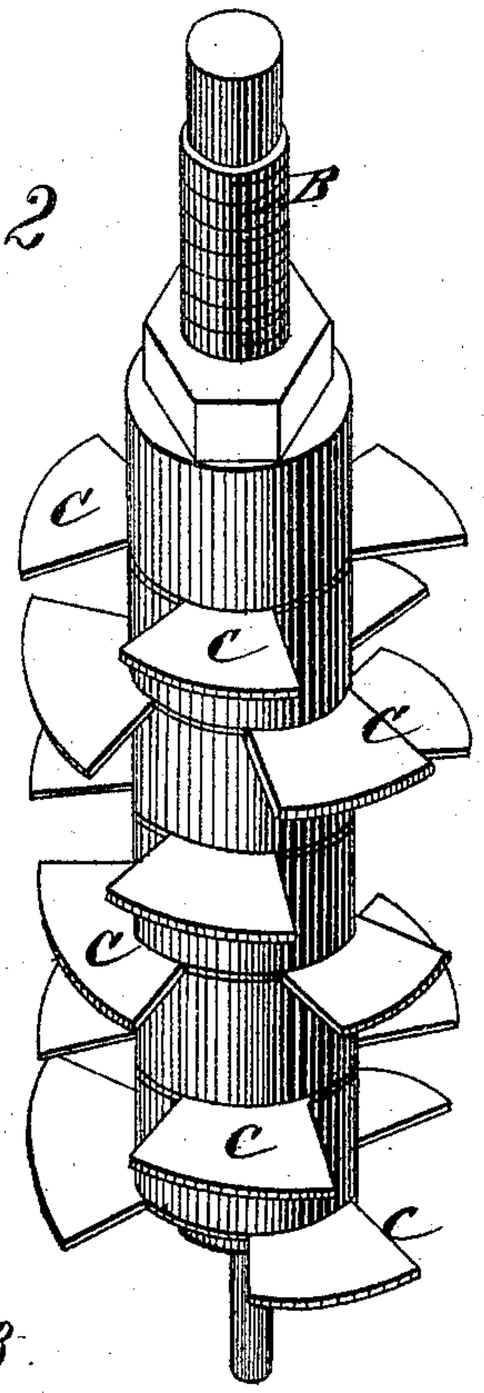
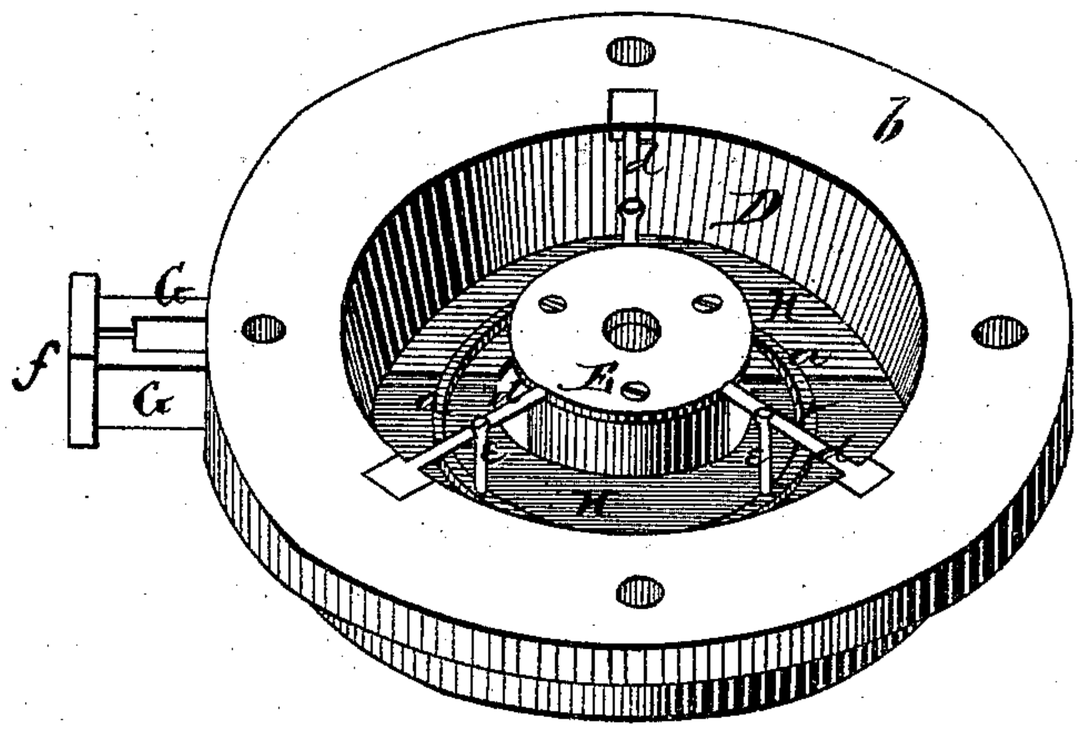


Fig 3.



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3 Sheets--Sheet 3.

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Machines for Making Earthenware Pipes.

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Fig 4

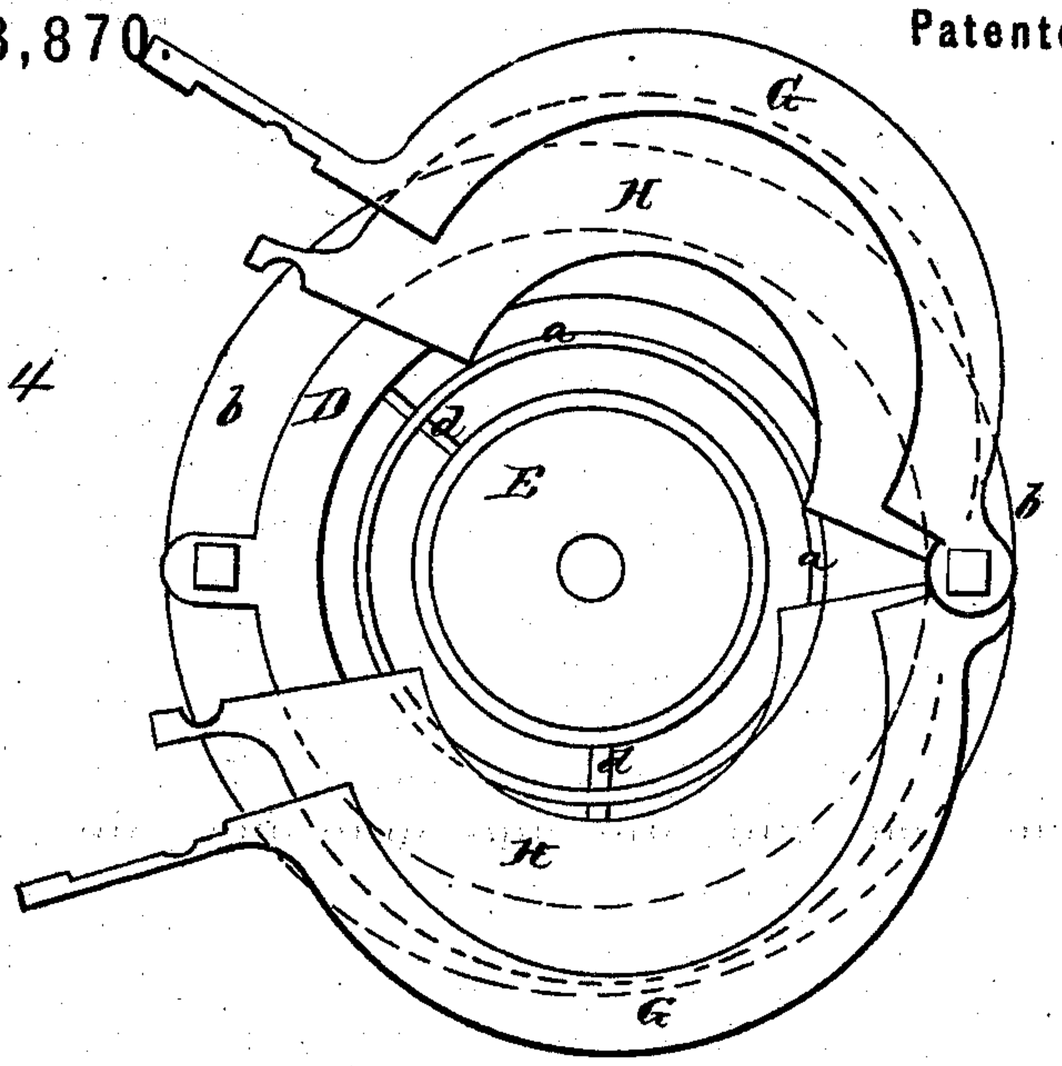


Fig 5

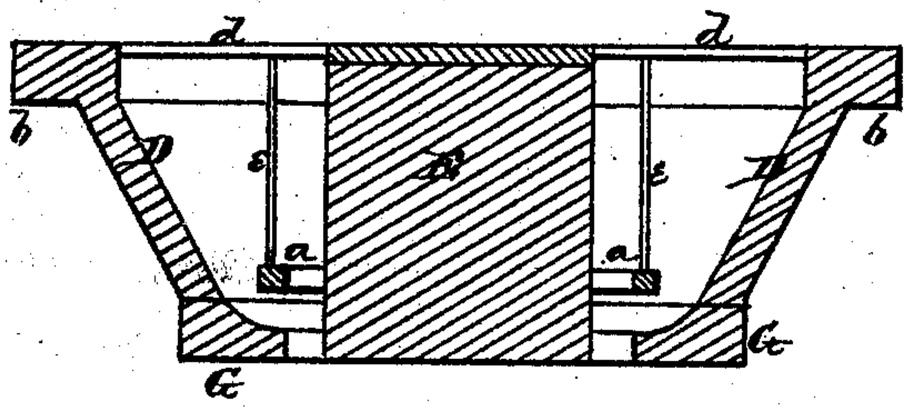
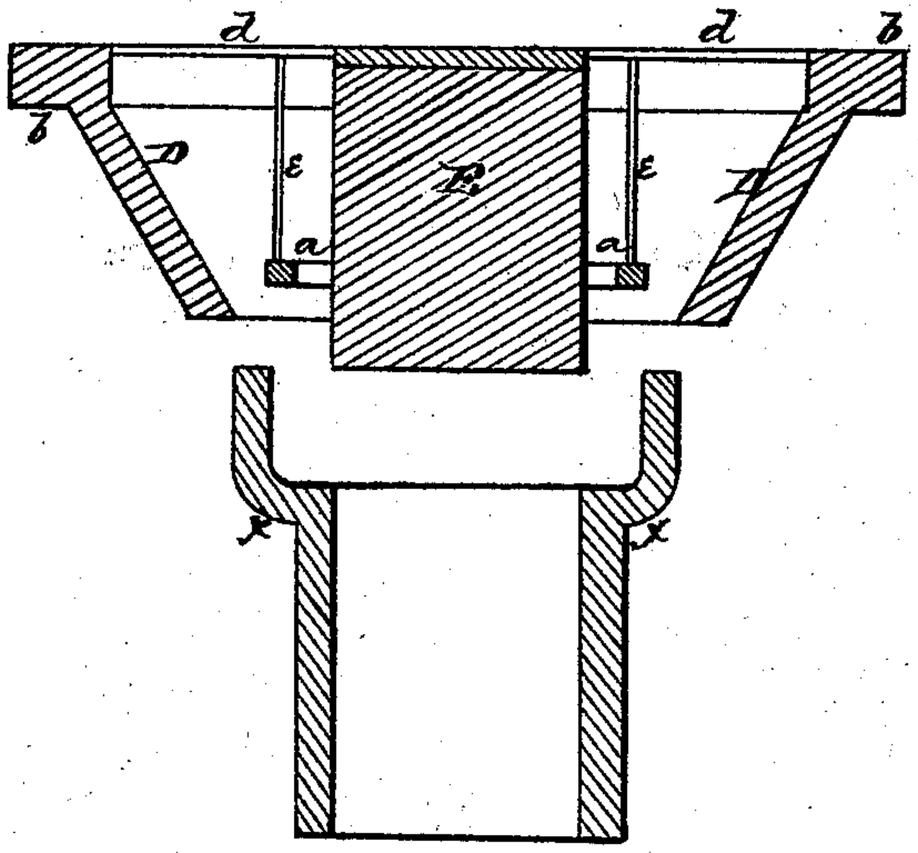


Fig 6



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UNITED STATES PATENT OFFICE.

JAMES BINGHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, F. L. CARNELL, AND D. R. CARNELL, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING EARTHENWARE PIPE.

Specification forming part of Letters Patent No. **143,870**, dated October 21, 1873; application filed February 19, 1873.

To all whom it may concern:

Be it known that I, JAMES BINGHAM, of Philadelphia, in the county of Philadelphia and in the State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Machine; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a pipe-machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective view of the entire machine. Fig. 2 is a perspective view of the central revolving shaft with knives. Fig. 3 is a perspective view of the die. Fig. 4 is a bottom view of the same, and Figs. 5 and 6 are sections of the die.

A represents the cylinder, in which the clay is put at the top, and forced down by the propeller-knives C C, attached to a central revolving shaft, B. These parts may be constructed in any of the known and usual ways, as I lay no claim to the same. To the bottom of the cylinder A is attached the die, through which the clay is forced by the knives to form the pipe. This die is composed of a casting, D, center core E, ring *a*, and jaws G G. The casting D is made in inverted conical shape, with a flange, *b*, around its upper wider end, to be fastened by bolts or other suitable means to the flange *b'*, surrounding the cylinder A at its lower end. The center core E is made of wood, and attached by means of rods or bars *d d* to the upper face of the casting D. From these rods or bars extend arms *e e* vertically downward, and to the lower ends of these arms is attached the ring *a*. The jaws G G are pivoted on one side to the under surface of the casting D, and may be closed or thrown open, as occasion requires, and, when closed, are fastened by a clip, *f*. The inner surface of the jaws is curved or concave, as shown in Fig. 5. On the same bolt which pivots the jaws G G, and between said jaws and the casting D, are pivoted two knives, H H, which are only used for cutting the pipe at the proper length.

When the jaws G G are closed, as shown in Fig. 5, the core E forms the inside of the pipe, and the jaws form the outside. Then, when the jaws are opened, as shown in Fig. 6, the clay takes the largest circle on account of its being easier passage, the ring *a* forming the inside of the bell or socket. The pipe must be pricked, when the jaws are opened, at *x*, to let in air to the inside of the ring, which stops this passage of clay from proceeding any further, and breaks off short at the inside of the bell. The jaws also form the bottom part of the bell in proper shape, as that part of the clay which is against the jaws at the time they are opened retains the shape given to it by the concave surface of the jaws.

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

1. The combination of the cylinder A with flange *b'*, the die D with flange *b*, the core E, ring *a*, and rods *d e*, all constructed substantially as and for the purposes set forth.

2. The combination of the cylinder A, with shaft B and stirrers C C, the die D, core E, ring *a*, clamps G G, and knives H H, all constructed and operating substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of January, 1873.

JAMES BINGHAM.

Witnesses:
GEO. W. WARD,
WM. H. MELCHER.