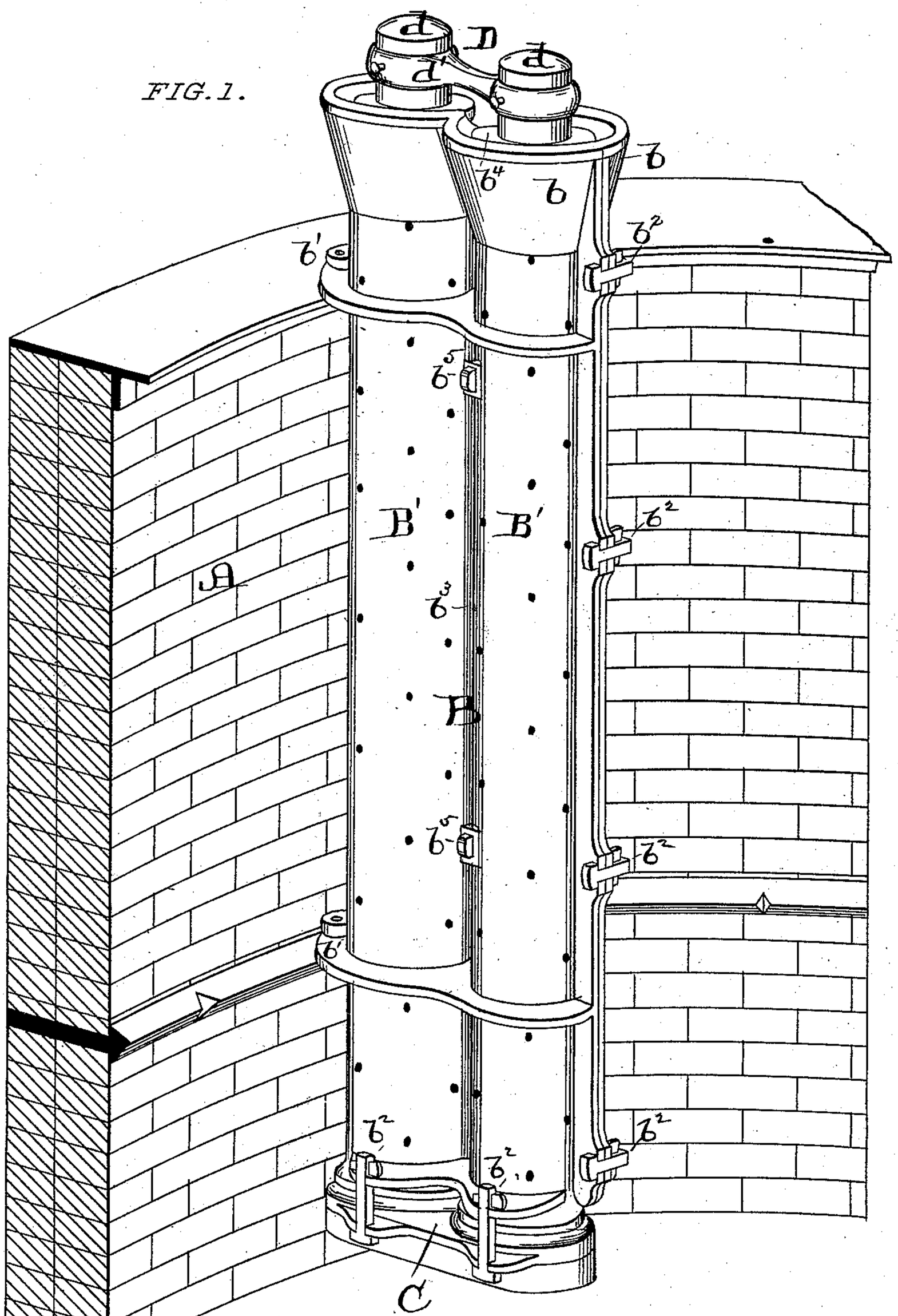
2 Sheets—Sheet 1

F. SHICKLE.
Pipe Molding Machine.

No. 209,428. **Patented Oct. 29, 1878.**

FIG. 1.



ATTEST.
Robert Burns.
Paul Bakewell

INVENTOR.
Frederick Shickle
by Chas. D. Moody.
atty.

2 Sheets—Sheet 2.

F. SHICKLE.

Pipe Molding Machine.

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FIG. 2.

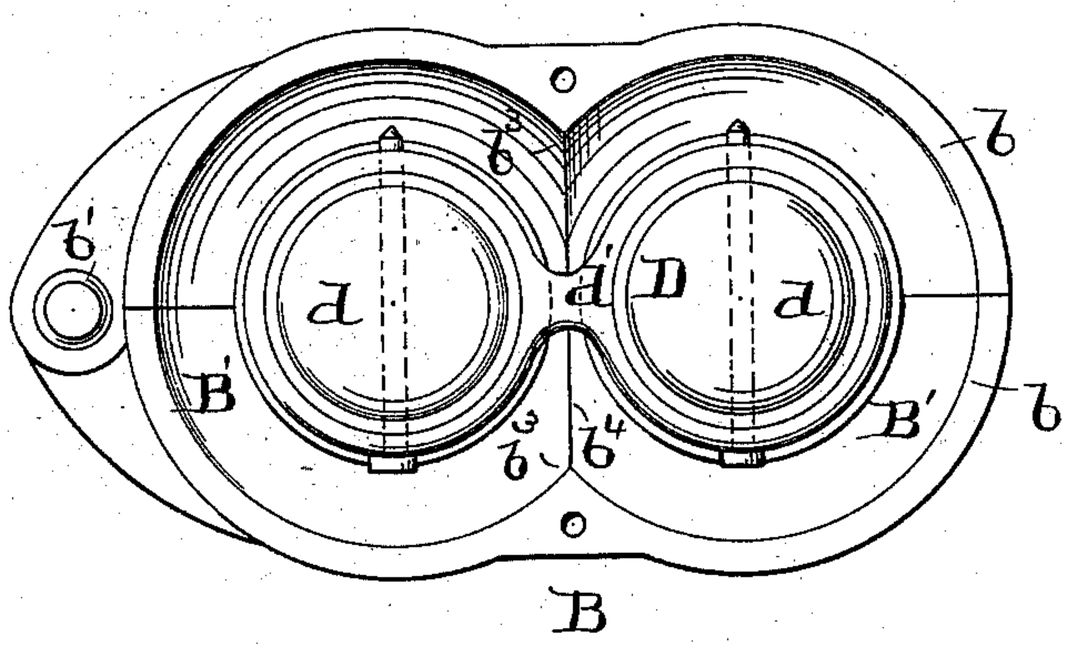
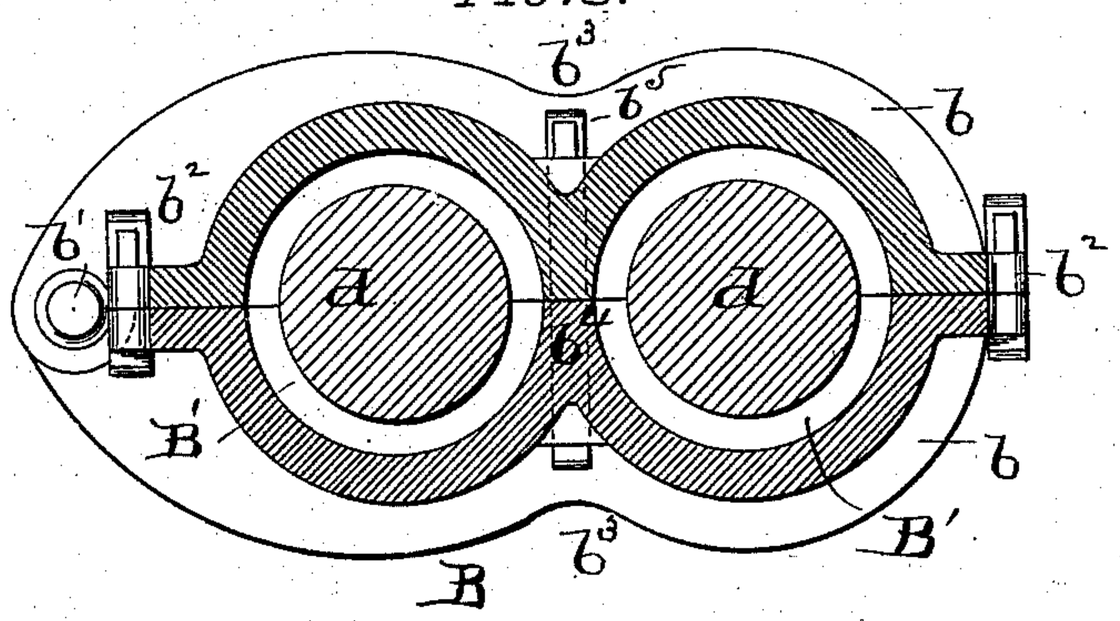


FIG. 3.



ATTEST:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

FREDERICK SHICKLE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO THOMAS HOWARD AND JOHN W. HARRISON, OF SAME PLACE.

IMPROVEMENT IN PIPE-MOLDING MACHINES.

Specification forming part of Letters Patent No. **209,428,** dated October 29, 1878; application filed August 14, 1878.

To all whom it may concern:

Be it known that I, FREDERICK SHICKLE, of St. Louis, Missouri, have made a new and useful Improvement in Molding Pipes and other long heavy castings, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a view, in perspective, of the improvement, showing also a portion of the pit-wall, to which it is attached; Fig. 2, a plan of the improvement; and Fig. 3 a transverse section taken, say, midway of the length of the flask.

The same letters denote the same parts.

This improvement is especially valuable in the manufacture of water and gas pipes and other long heavy castings.

I have heretofore made certain improvements in molding pipes of the kind referred to, described more fully in Letters Patent No. 148,094, granted March 3, 1874.

In the construction alluded to the flask is suspended vertically upon the pit-wall, and the operation is as follows: The flask being properly clamped and adjusted, the pattern is lowered into the flask and the sand properly rammed. The pattern is then hoisted out of the flask. The latter is then transferred to the drying-oven, from which, after being dried, it is brought back and suspended again upon the pit-wall. The core is then inserted and the pipe cast. The flask is then opened and the pipe hoisted out of the pit.

Now, the pipes being long and heavy, the flasks, patterns, and other parts of the apparatus are correspondingly cumbersome and difficult to handle. The pipes must be lifted and the patterns lowered and lifted a distance equal to the length of the pipe, and the flasks in being transferred to and from the drying-oven, must, on an average, be swung one-third around the pit.

In practice, large cranes operated by steam are needed for lifting and moving the various parts of the apparatus, and considerable time is required for each stage of the operation.

It is the aim of the present improvement to provide means by which the operation of molding pipes and similar castings is materially abbreviated and cheapened, and at the same time provision made for overcoming a difficulty experienced in the use of an ordinary single-chamber flask.

It is well understood that to produce a perfect pipe the sand must be rammed very solidly around the pattern. From this practice the pattern frequently becomes so tightly embedded in the sand as to cause the entire flask to adhere to and be lifted with the pattern when the latter is hoisted for removal. In such case the flask has to be jarred loose from the pattern—a troublesome operation, and often the cause of the disintegration of the sand within the flask, requiring the latter in such event to be rammed a second time.

To facilitate the molding and casting of the pipes, the present flask is made with two or more compartments, so that two or more pipes can be cast at the same time; and I overcome the difficulty arising from the adherence of the flask to the patterns, and at the same time provide for the ready insertion and removal of the patterns from the flask, by yoking the patterns of the several compartments together and lowering and lifting them in a cluster, for I have ascertained in practice that when two or more patterns are yoked together and embedded as described, and the attempt to lift them is made, the lifting strain does not come upon all the patterns simultaneously, and the patterns do not start from the sand simultaneously, but slightly in advance of each other, or successively, and sufficiently so to enable the weight or inertia of the entire flask (which is increased in weight according to the number of the compartments therein) to resist the friction of the patterns in detail. The practical result of this is that not only can all the patterns be removed from the flask at a single lift, but they are started from the sand with less difficulty even than in withdrawing a single pattern from the single-chamber flask, and the flask never rises with the patterns.

Referring to the drawing, A represents a section of the wall inclosing the pit such as pipes are usually cast in. B represents the flask, suspended upon the wall. The flask is

made in two parts, b b, hinged together at b^1 b^1, and made to be fastened together by the clamps b^2 b^2. C represents the bottom of the flask, hinged and clamped to the main part. The flask is preferably made with re-entering angles b^3 b^3 in its sides, and it is divided by means of the vertical partition b^4 into two compartments, B′ B′, each of which is of suitable proportions to enable a pipe to be molded therein.

In operation, the flask is suspended upon the wall in the usual manner, and as shown. A double or two-part (the two parts being connected by the detachable yoke d') pattern, D, is then, and by one operation, lowered into the flask, the parts d d entering the compartments B′ B′, respectively. The sand is then rammed around the parts d d, and then the latter, and by one hoisting, is withdrawn from the flask.

In practice, the part connecting the pattern with the hoisting apparatus does, as above stated, exert its strain upon both patterns exactly simultaneously, and, in consequence, the double pattern is easily removed. The flask is then transferred to the drying-oven, dried, and brought back again to the pit-wall in the usual manner. The cores are then yoked together and lowered into the compartments B′ B′, respectively, and a pipe cast in each of the compartments at one casting.

When the flask has more than two compartments the parts d d of the pattern are correspondingly increased in number, and are yoked together by a yoke of suitable shape for holding the parts d d in proper position in the compartments.

I claim—

1. The combination of the flask B, having the compartments B′ B′, and the pattern D, having the parts d d, united at or near their tops by a yoke, d', consisting of two rings and a connecting-bar, substantially as described.

2. The combination of the flask B, having the compartments B′ B′, and the pattern D, having the parts d d and the yoke d', substantially as described.

Witness my hand.

FREDERICK SHICKLE.

Witnesses:
CHAS. D. MOODY,
THOMAS HOWARD.