

No. 625,381.

Patented May 23, 1899.

E. S. CLARK.
BRICK, TILE, OR PIPE DIE.

(Application filed May 16, 1898.)

(No Model.)

FIG. 1.

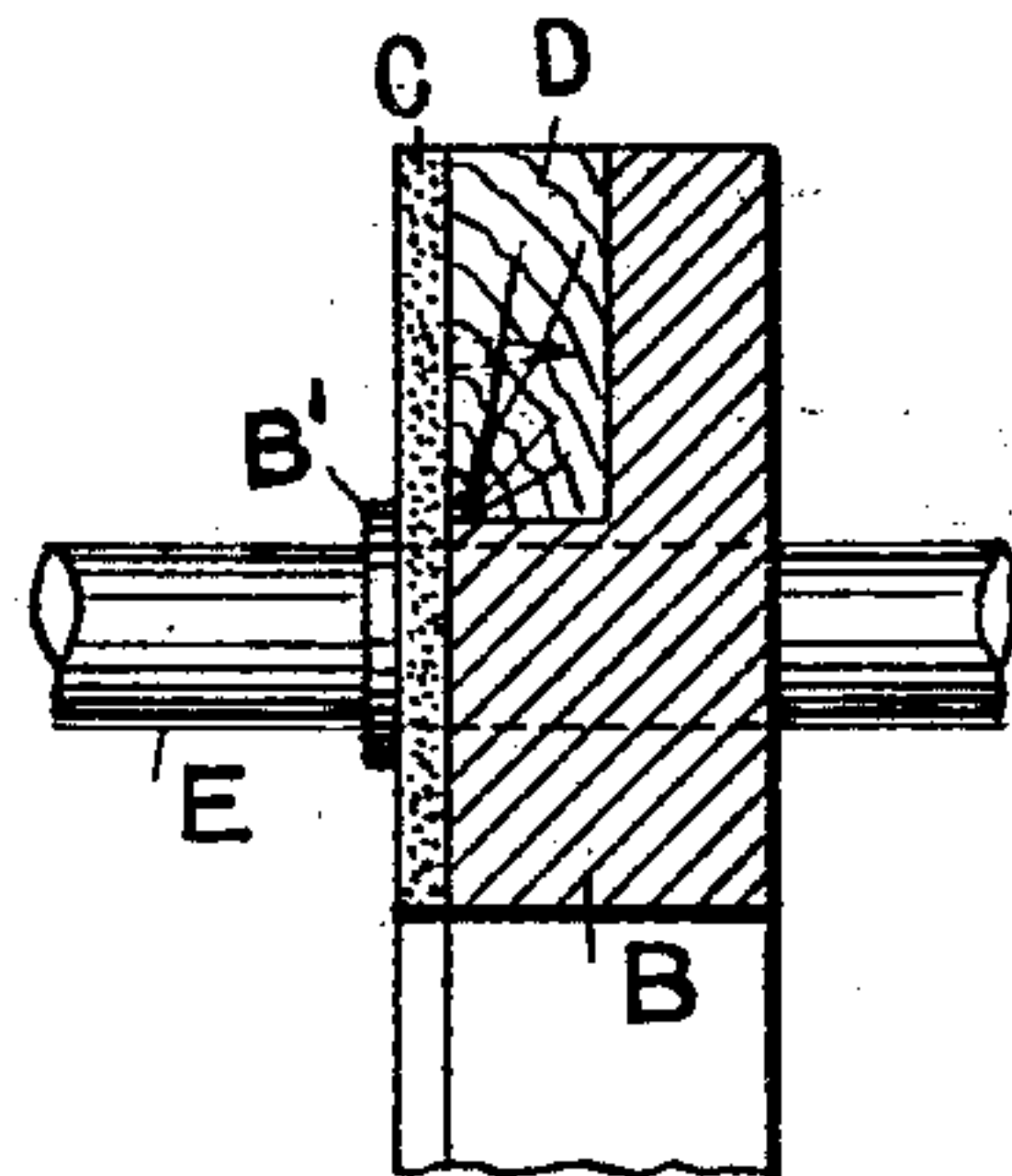
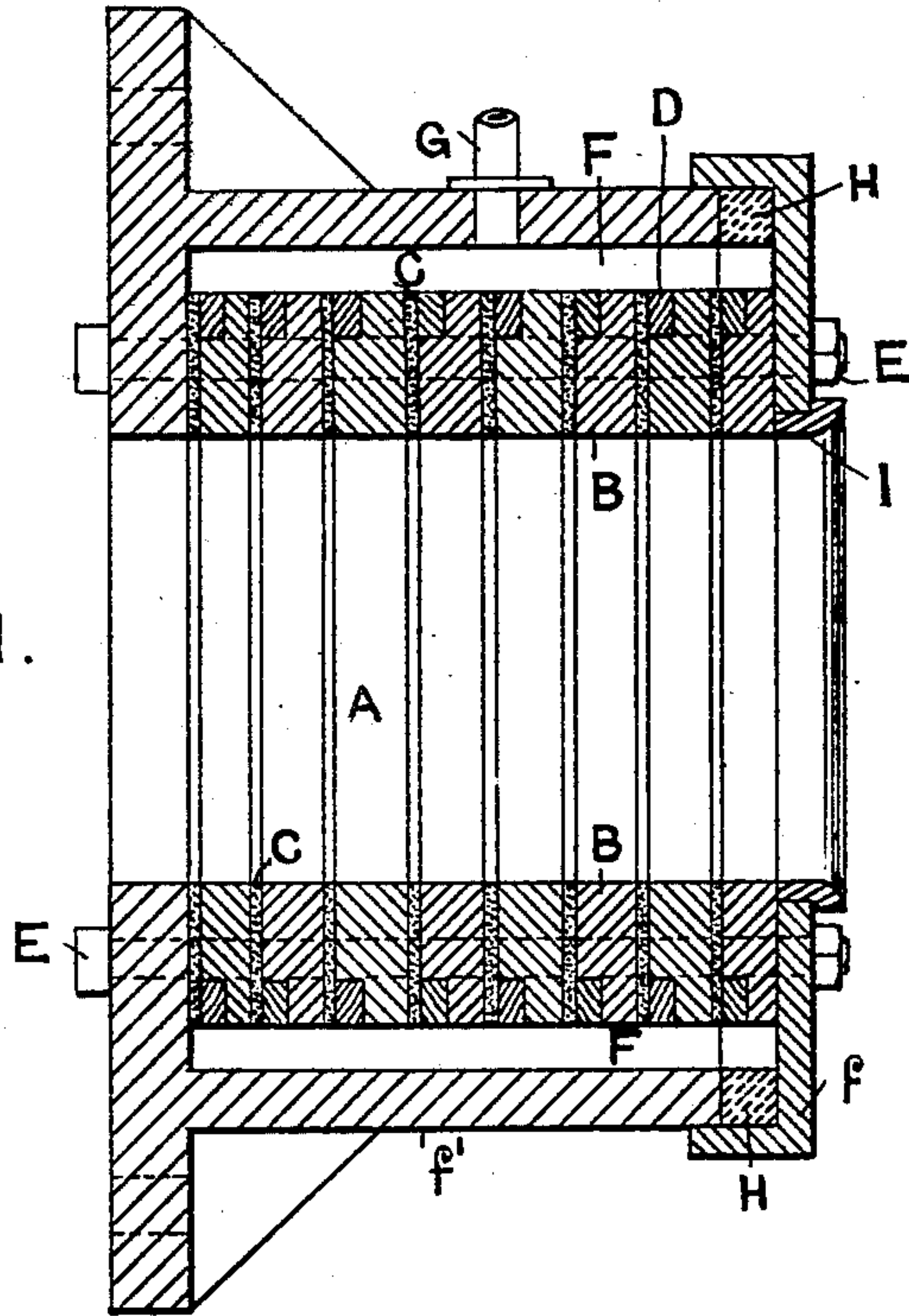


FIG. 2.

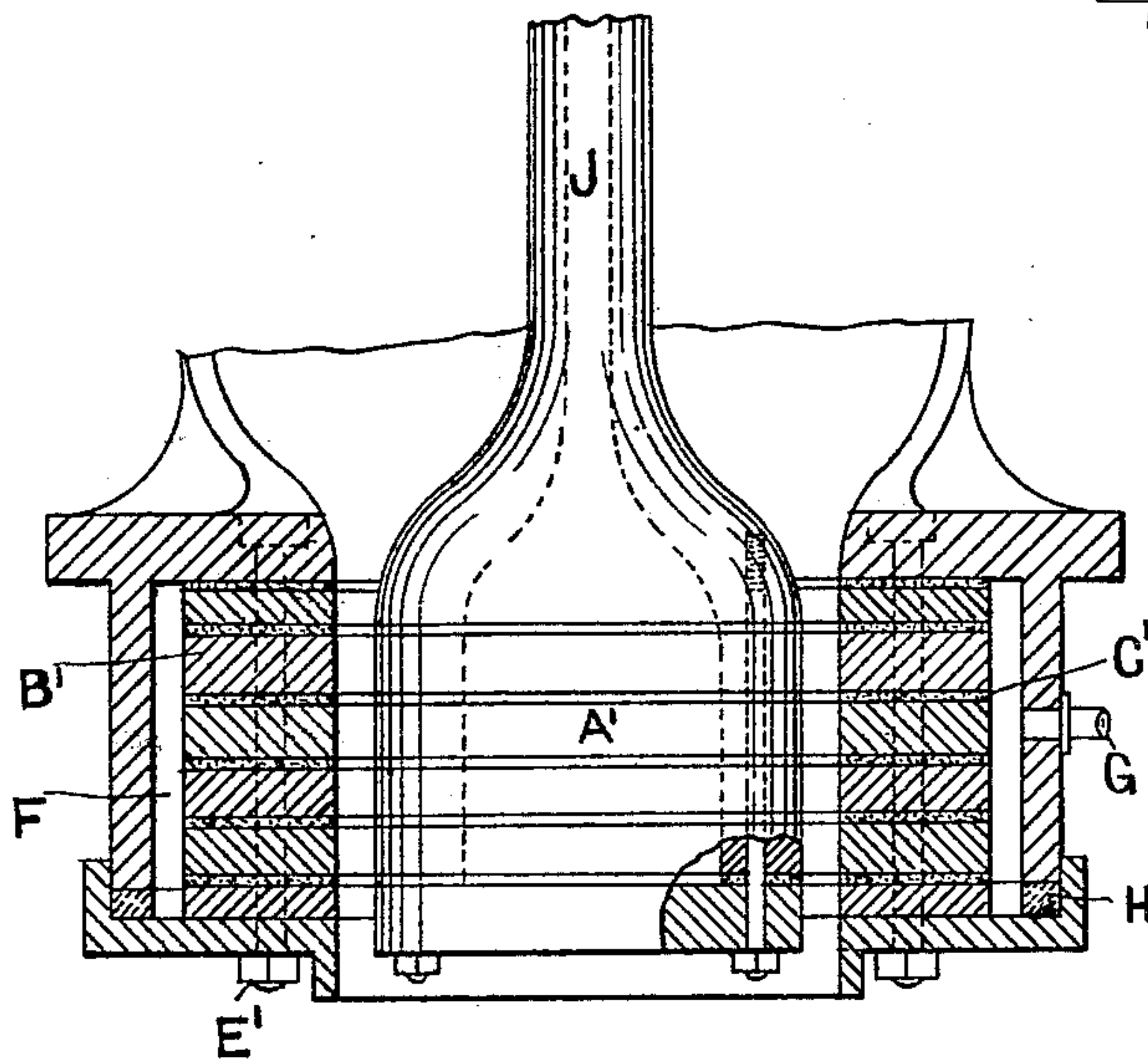


FIG. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

EDWIN STANLEY CLARK, OF OAK ALYN, ENGLAND.

BRICK, TILE, OR PIPE DIE.

SPECIFICATION forming part of Letters Patent No. 625,381, dated May 23, 1899.

Application filed May 16, 1898. Serial No. 680,798. (No model.)

To all whom it may concern:

Be it known that I, EDWIN STANLEY CLARK, a subject of the Queen of Great Britain, residing at Oak Alyn, near Wrexham, in the county of Denbigh, England, have invented certain new and useful Improvements in Brick, Tile, or Pipe Dies, of which the following is a specification.

This invention relates to apparatus for molding or forming bricks, tiles, earthenware pipes, or the like, and has mainly for its object to make such apparatus more durable, to enable any part of it to be quickly repaired when so required, to obviate the use of mole-skin, to minimize friction of the clay in the mold, thereby reducing the pressure required to force the clay through, and to enable the clay to be used in a very hard state, so that the bricks when cut off are ready for pressing.

The invention will be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of the apparatus for molding or forming bricks and tiles; Fig. 2, a detail view; Fig. 3, a sectional elevation of the apparatus for making sanitary pipes or chimney-tops.

By my invention as applied to making bricks the clay is fed into a pug-mill provided with rotary knives or cutters which comminute the clay, breaking the lumps, and mixing it with the other materials of which bricks are made. The stream of clay as it exudes from the mill is passed through a die A, formed of metallic sections B, fitted and bolted together, with porous material C alternating between each metallic section, and constituting a four-sided or other-shaped box open at each end. (See Figs. 1 and 2.) Through this die the stream of clay is passed to mold it into the exact size and shape of a brick edgewise or lengthwise, as required, and deliver it in one unbroken stream, after which the clay thus molded is cut up into bricks by transverse-moving knives or wires. Each of these metallic sections B, which may be of steel or other metal, is formed at a distance from their working edges with a recess, into which is fitted a wooden collar or frame D, which lies flush with the metallic sections and forms a foundation for the porous material C to be nailed or otherwise fastened to.

These metallic sections B, with their wooden collars or frames D and the porous material C between them, are bolted together by screw-threaded bolts and nuts E and inclosed in a water-jacket F, which latter is in communication with the water-supply through pipe G. The bolts, however, have washers B', Fig. 2, placed on them between each section B and porous insertion C. The porous material, which may be of well-woven felt, is able to absorb and deliver water under pressure from the water-jacket F to the working surfaces of the die to form a lubricant for the stream of clay passing through, thus largely reducing the friction on the sides of the die. It is, in fact, a metal die with its surface lubricated by means of water, the flow of which can be regulated by tightening up the bolts E to squeeze the plates B together and compress the porous material C between them or relax the same, the washers B' preventing the felt insertions C being compressed to such an extent as to prevent the passage of water.

The water-jacket may be in two parts, one, *f*, bolted to the mouthpiece of the mill, and the other, *f'*, (containing the built-up sections constituting the die,) is bolted to it, the joint between the two being provided with a rubber seating H to insure a water-tight joint being effected.

The mouthpiece I of the die is so constructed as to allow of renewal without destruction of the water-jacket. It will be obvious that the metallic sections and the porous material intervening between, which when bolted together constitute the die, may be of any suitable shape on their inside or working edges, so as to produce the variety or shape of brick required, such as copings, bearers, slabs, bricks, or blocks of any regular shape, and that, furthermore, by hanging a series of mandrels or cores longitudinally in the die hollow or perforated bricks can be made without any alteration of the machine or by changing the sections of which the die is built up for sections of a different shape the shape of bricks produced by the apparatus can be altered as required. The top and bottom surfaces of the die are by preference parallel, but the sides have a taper of about two inches in their length.

The invention as applied to making sanitary pipes or chimney-tops is arranged on substantially the same principle as for making bricks; but of course the sections constituting the die or box are so shaped as to produce the shape of pipe or chimney-top required. Thus for cylindrical pipes or chimney-tops the die or box A is circular, Fig. 3, and of the same diameter inside as the outside diameter of the pipe, while a core A' is mounted longitudinally in the die of the same diameter outside as the inside diameter of the pipe. This core A' is formed also of metallic sections B', with porous material C' between, which may be nailed to wooden collars or rings to keep it in place, or it may be made without the wooden collars and bolted up by means of bolts E'. The core A' is made hollow, and its rod J is also hollow, the water required as a lubricant passing down this rod into the core and through the porous material.

By this invention the use of moleskin in brick-dies is done away with and the dies can be made of steel, iron, and other metal instead of, as in the ordinary practice, wood. The sections are easily renewable. The porous material is not exposed, except at its edge, to the wear due to the clay passing through the die, and the wood parts to which the felt is nailed are not exposed at all. In making sanitary pipes, as well as in making bricks, the friction of the clay in the die is largely reduced by the water lubrication, while a corresponding decrease of the pressure required to force the clay through the die is secured.

I claim as my invention—

1. The improvement in dies for molding or forming bricks, tiles, earthenware pipes, or the like, which consists in the combination of metallic sections fitted and bolted together with porous material between, water jackets or chambers surrounding or located in the die, tightening devices and hard spacing devices in the porous material whereby the porous material can be tightened, but not made too tight to absorb and deliver water from the jacket or chamber to the working surfaces of the die, the water thus forming a lubricant for the stream of clay passing through the delivery of the water to the working surfaces being capable of regulation by tightening up the bolts to compress the porous material between the plates or releasing the same, substantially as described.

2. The combination in a molding device for the purposes described, of a series of metallic segments recessed at a distance from the mold-surface, a material capable of holding nails and of having nails driven into it filling the recesses, porous segments alternating with the metallic segments and nailed or fastened to the aforesaid material, means for admitting water, and means for regulating the pressure of the segments together, substantially as described.

In witness whereof I have hereunto signed my name, this 6th day of May, 1898, in the presence of two subscribing witnesses.

EDWIN STANLEY CLARK.

Witnesses:

G. C. DYMOND,
W. H. BEESTON.