

(No Model.)

D. N. HURLBUT.

DIE FOR FORMING CONDUITS OR PIPES.

No. 353,681.

Patented Dec. 7, 1886.

Fig. 1.

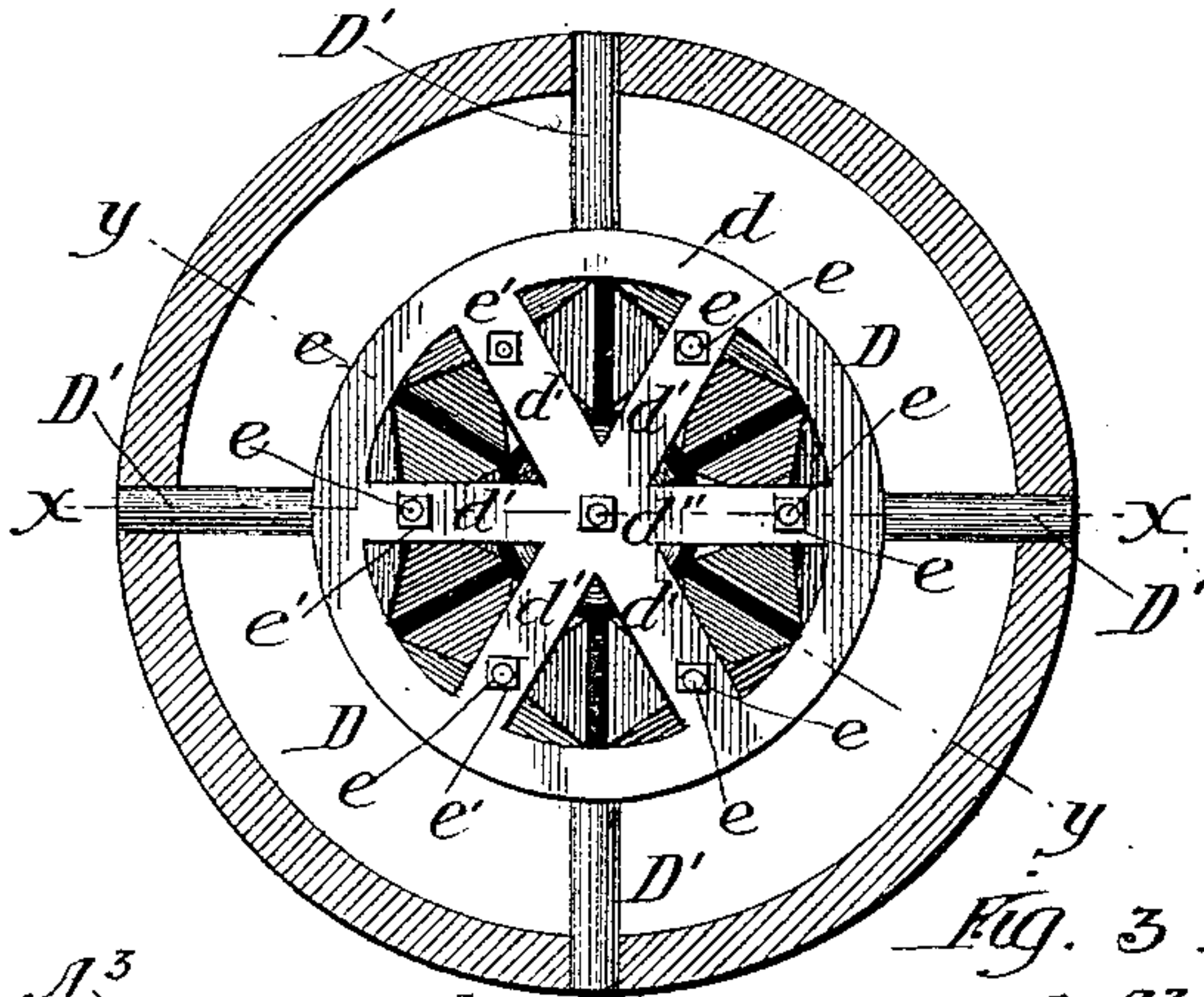


Fig. 2.

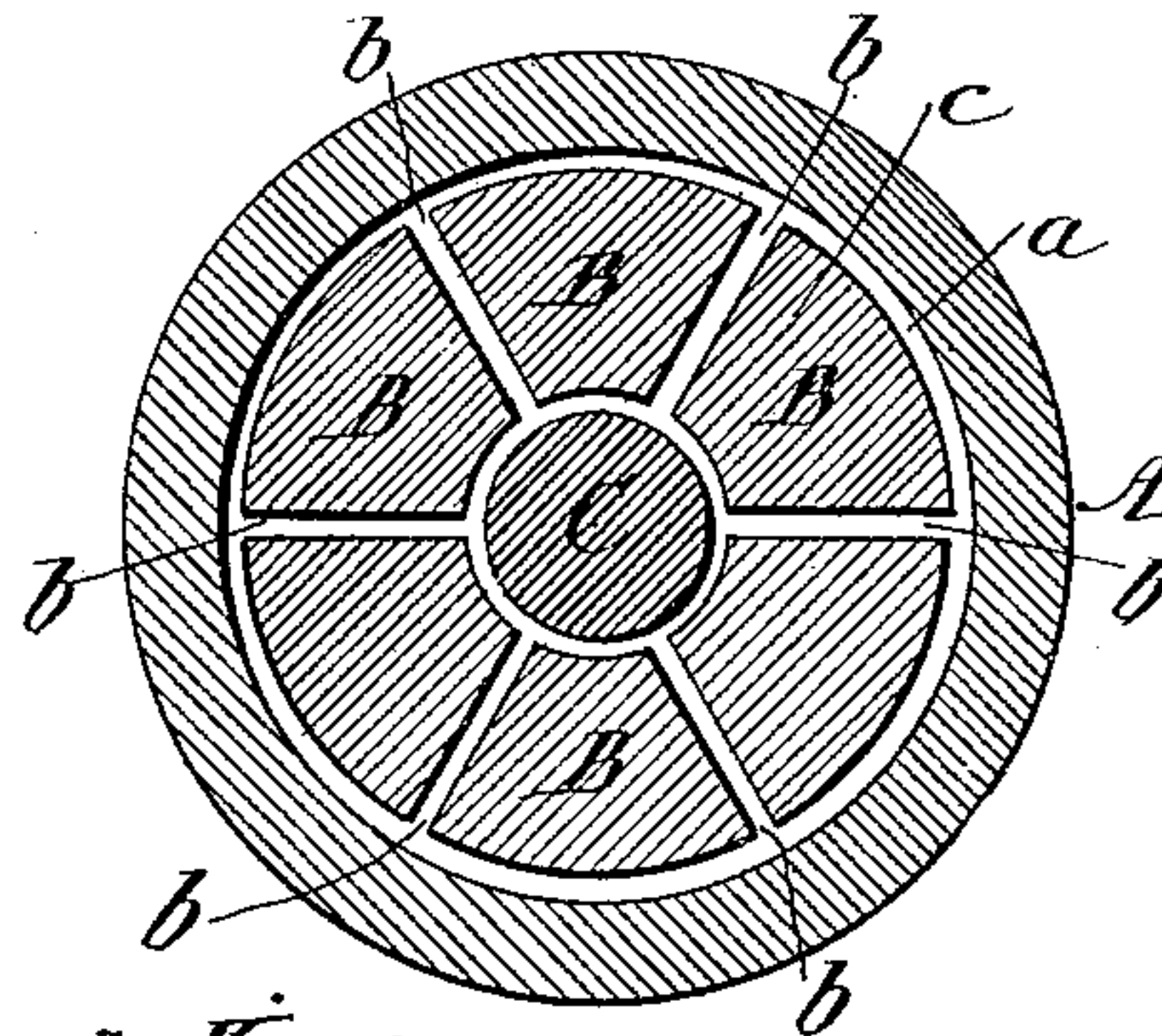


Fig. 3.

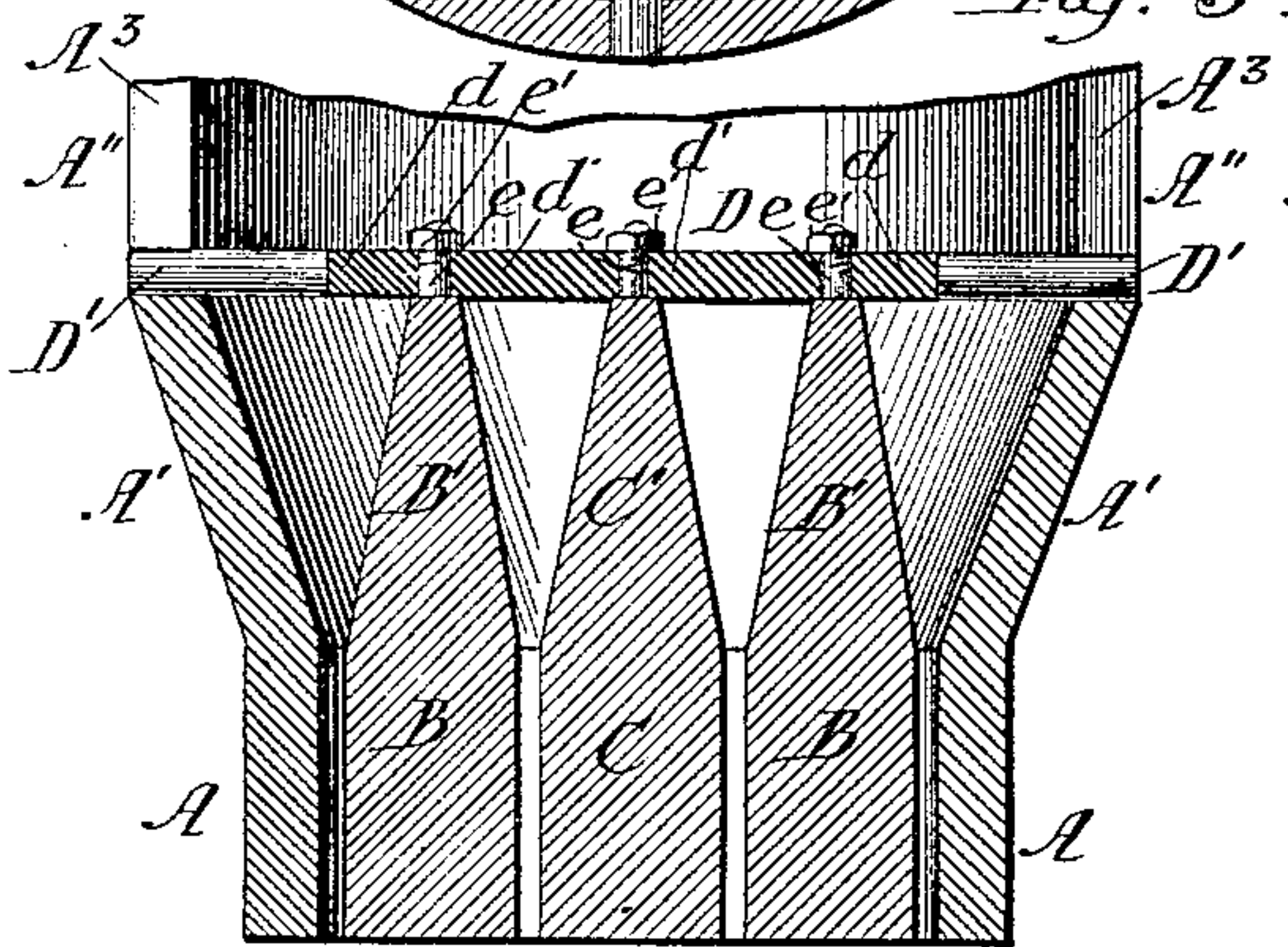


Fig. 4.

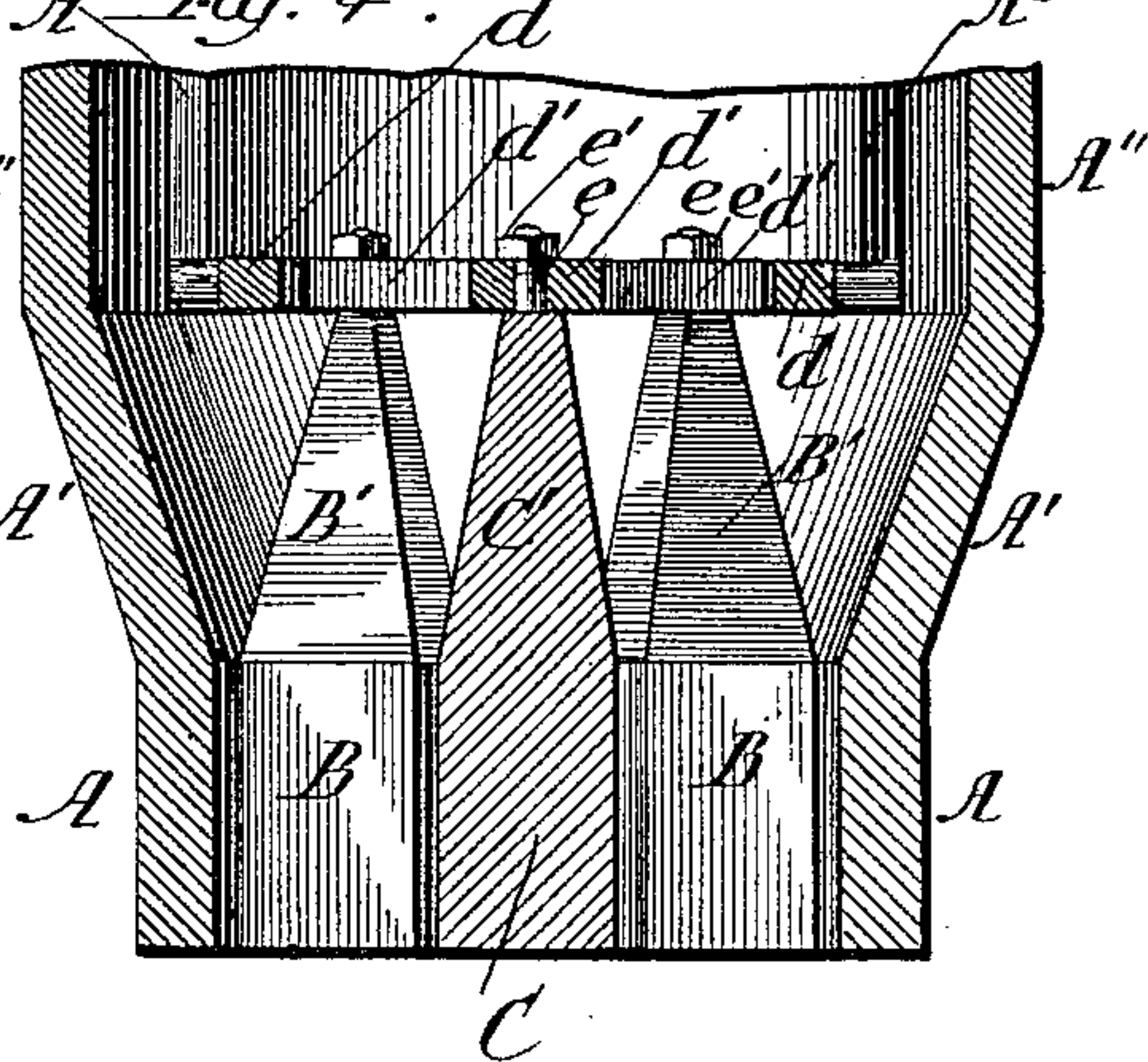


Fig. 5.

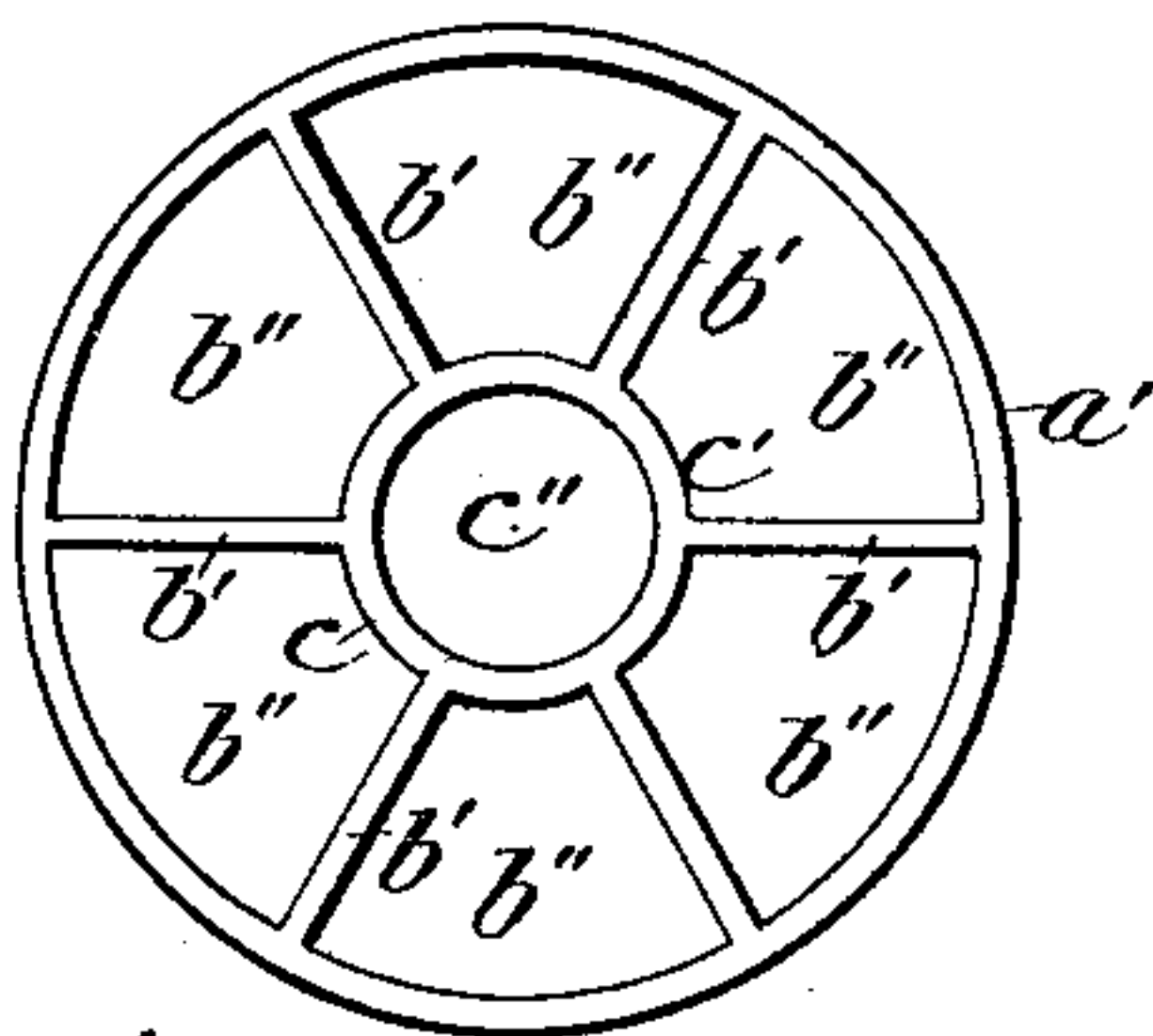
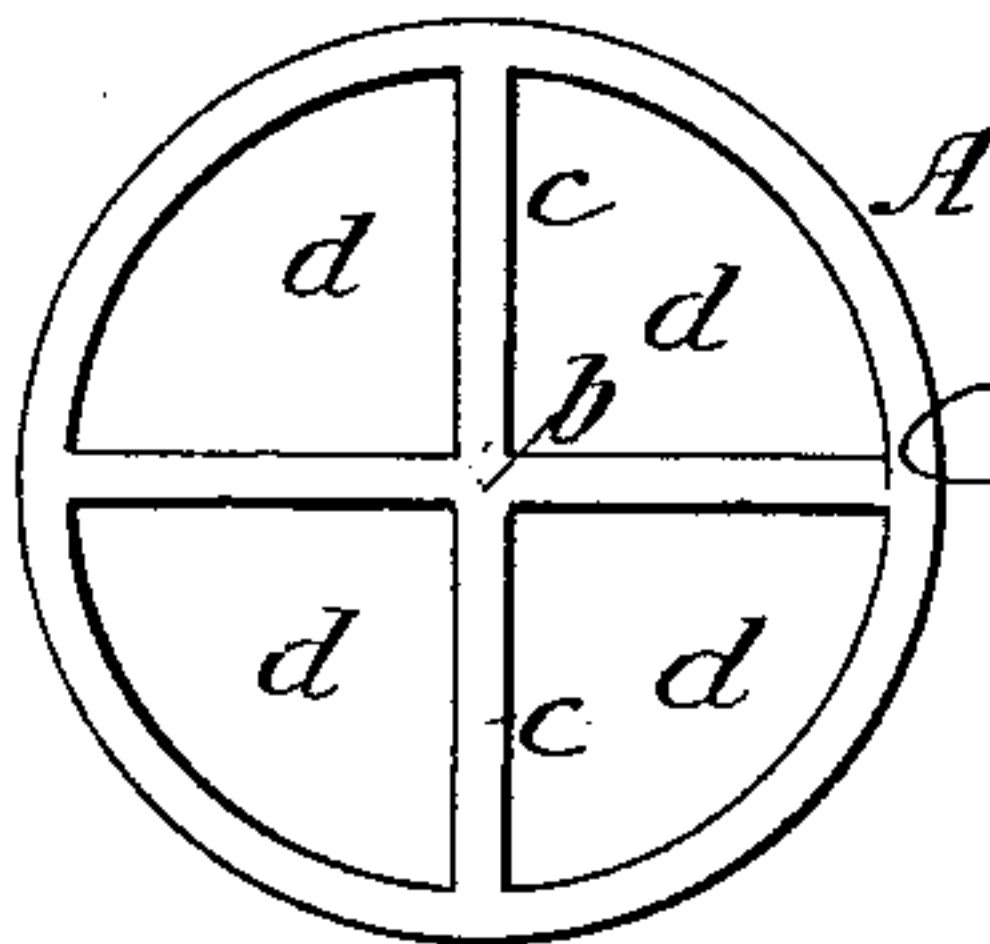


Fig. 6.



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DIE FOR FORMING CONDUITS OR PIPES.

SPECIFICATION forming part of Letters Patent No. 353,681, dated December 7, 1886.

Application filed August 17, 1886. Serial No. 211,178. (No model.)

To all whom it may concern:

Be it known that I, DANIEL N. HURLBUT, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Dies for Forming Conduits or Pipes, of which the following is a full description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a cross-section through the hopper; Fig. 2, a cross-section through the body of the die; Fig. 3, a longitudinal section on line $x x$ of Fig. 1; Fig. 4, a longitudinal section on line $y y$ of Fig. 1; Fig. 5, an end elevation of a pipe formed by the shape of die shown; Fig. 15 6 an end elevation of the pipe with four passages or compartments or ducts.

This invention relates to dies or formers for the production of a conduit or pipe in cylindrical form, divided into separate passages, and has for its objects the construction of a die through which fire-clay or other material can without difficulty be forced to form a conduit or pipe-section having separate passages of the 20 desired number, with the exterior and division walls of the same or nearly the same thickness; and its nature consists in an exterior body or wall having an interior diameter corresponding to the exterior diameter of the pipe, with a 25 mouth or hopper to receive the material, and having located within the interior of the body or wall a bell or die formed of a series of blocks arranged to leave an annular space between the exterior wall or body and an annular space 30 at the center, with tangential sides running from the outer sides to the inner, as hereinafter described, and pointed out in the claim.

In the drawings, A represents the exterior wall or body of the die or flask, having a flaring continuation, A', and a straight continuation, A'', which continuations form the mouth or hopper for feeding the clay.

B represents a series of blocks each having, in the form of construction shown, a convex exterior surface or face and a concave interior surface or face with inclined side faces, and of a diameter to form a circle of a less diameter on the exterior than the interior diameter of the body or flask A, so as to leave an annular space, a , 45 between the body or flask and that of the blocks B. The number and size of the blocks are to

correspond with the number and size of the passages which the conduit or pipe section is to have, and these blocks or dies when in position form the bell or die which coacts with the 55 body or flask.

C is a center block of a circular shape in cross-section in the form of construction shown, and of a less diameter than the opening formed by the interior faces of the blocks, so as to 60 leave an annular space, c , between the center C and the inner face of the blocks B, and the blocks B are of a width and size, and arranged in relation one with the other, so as to leave the space b between them, running from the 65 space a to the space c , and these spaces $a b c$ form the passages for the walls of the conduit or pipe section.

D is a frame or support, formed, as shown, of the outer annular ring, d , a center, d'' , and 70 arms d' , running from the outer rim to the center; and extending out from the rim d , on four sides, are pins D' , which enter slots A³ in the walls A'', and furnish a support for the frame D', by which it is properly guided. 75

Each block B has a continuation, B', the sides of which are tapered, so as to present a cone shape with the apex at its outer end, and these cone-shaped parts B' lie within the portion A' of the flask when the parts are ready for use. 80 Each block B B' is connected to an arm, d' , of the frame D by the screw-threaded pin or bolt e and a nut, e' , the connection being one that will bring the blocks in proper relation to each other and to the inside of the flask A to form 85 the spaces $a b$.

The center C has a cone-shaped extension, C', and is attached to the frame D at the center by a screw-threaded pin or bolt, e , and a nut, e' , to bring the center C in proper relation 90 with the blocks B to form the space c .

The form of die shown in Figs. 1 to 4, inclusive, produces a conduit or pipe section of the form shown in Fig. 5, and in use the die or center formed of the blocks B C, suspended 95 from the frame D by the extensions B' C', is dropped into place, with the arms D' in the slots A³, which form the die or center, with spaces $a b c$, and through which the clay is forced, making a conduit or pipe section hav- 100 ing an outer wall, a' , an inner wall, c' , and dividing-walls or partitions b' , leaving passages

b'', for the reception of the wire or cable, and a central passage, c''.

The form of pipe shown in Fig. 6 is produced by omitting the central piece or block, C, and widening the blocks B sufficiently to have their inner ends nearly meet, and using four blocks instead of six. This die or former, it will be seen, draws out a conduit or pipe section divided into passages with all the walls of a uniform or nearly uniform thickness, and this uniformity enables the section to be cured or burned without becoming warped, drawn, or otherwise disfigured, so as not to present an approximately true and accurate circle, and the conduit or pipe section thus formed, when burned can be put together to form a conduit or pipe of any desired length, and will fit the coupling or packing rings at the joints, so as to make a tight joint and an accurate fit.

I am aware that dies have heretofore been constructed for forming at one operation cylindrical blocks of terra-cotta having round longitudinal perforations or cylindrical bores. In a construction known to me, a cylinder for the reception of the clay to be molded has a tapering die-chamber and a spider, consisting

of a ring or rim adapted to rest on a shoulder on the inner face of the chamber, spokes within said rim, and rods extending down from said spokes for the support of dies, made tapering at their upper portions and cylindrical at their lower portions. The dies mentioned serve to form cylindrical perforations in the block of terra-cotta whereas in my invention the dies are of such a shape as to form straight longitudinal walls and inner and outer walls of a uniform or nearly uniform thickness, in order to obtain the advantages arising from the conduit described and claimed in my application No. 211,177, filed August 17, 1886.

What I claim as new, and desire to secure by Letters Patent, is as follows:

The combination, with an outer body or flask, of a center circular block or bell with outer blocks or bells having a convex exterior surface, a concave interior surface, and inclined side faces, all pendent from an annular frame, substantially as described.

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Witnesses:

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