

(No Model.)

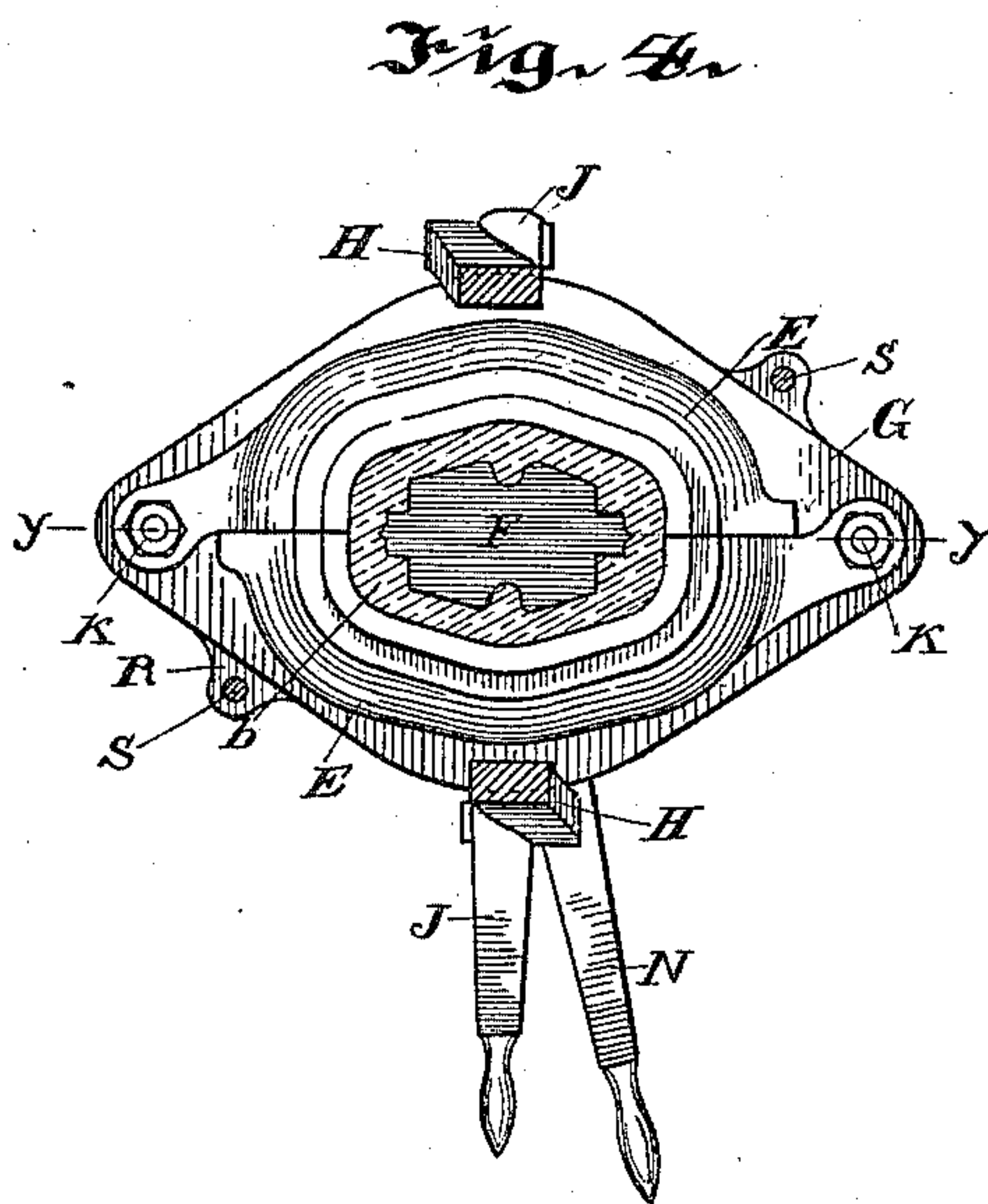
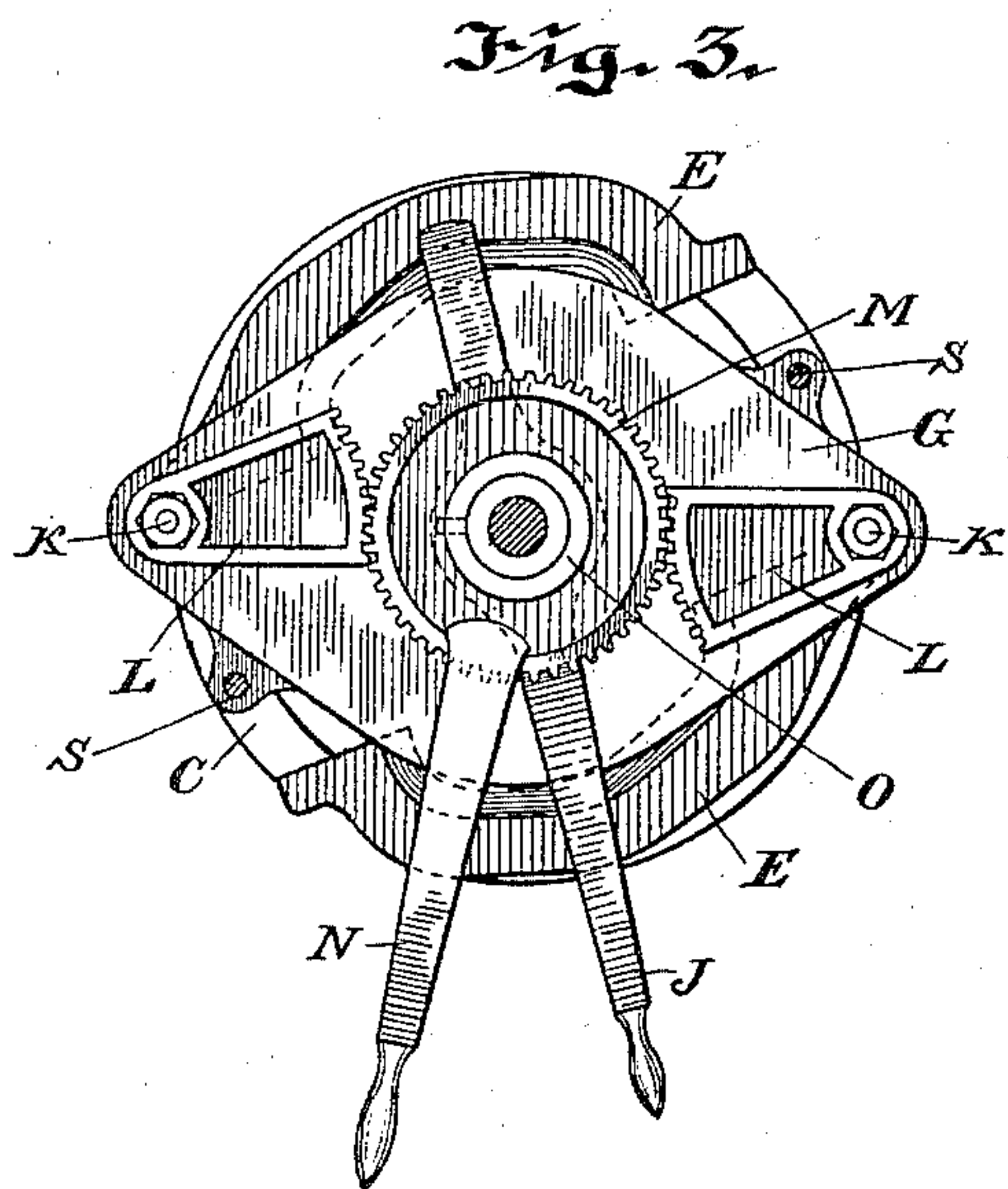
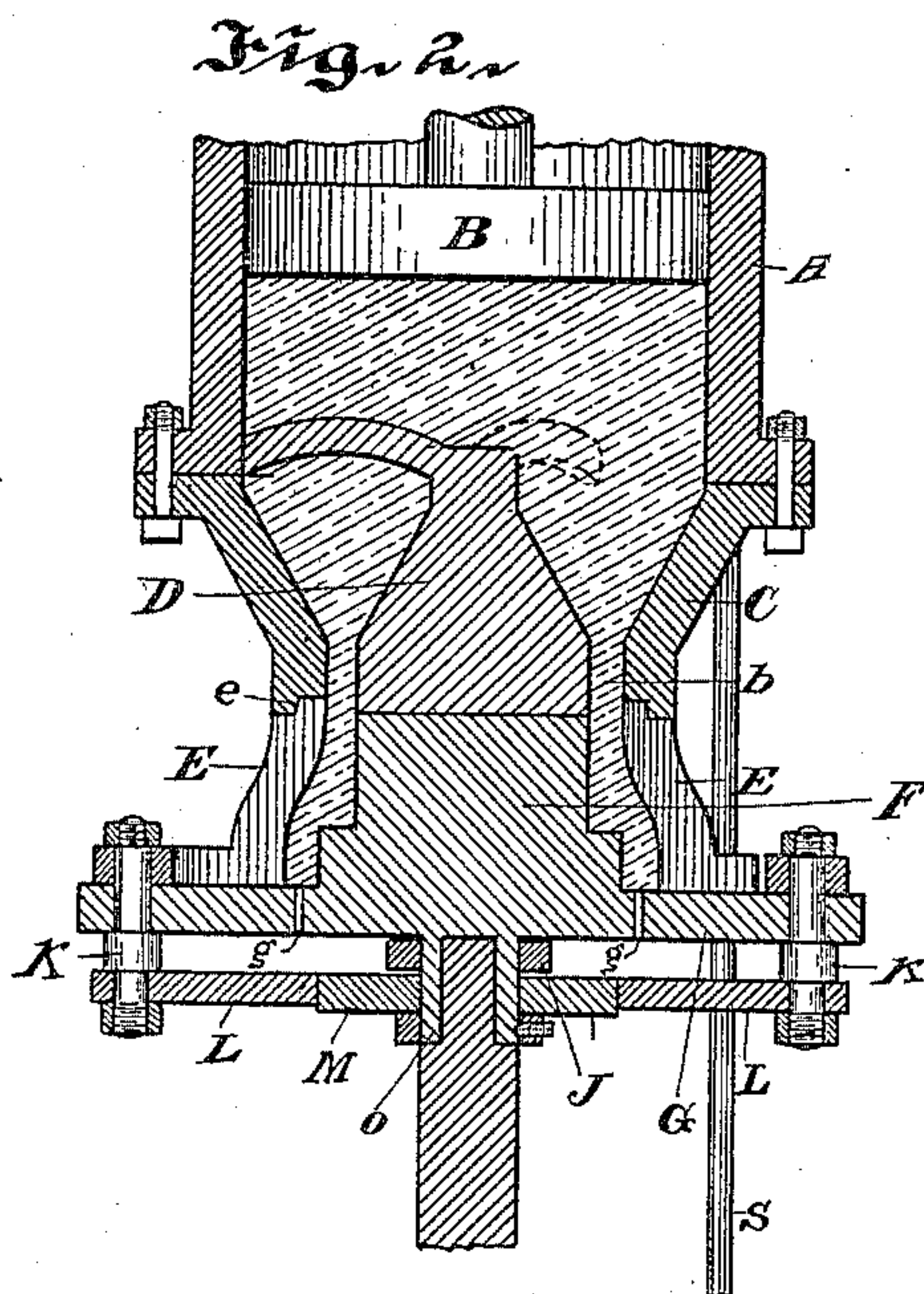
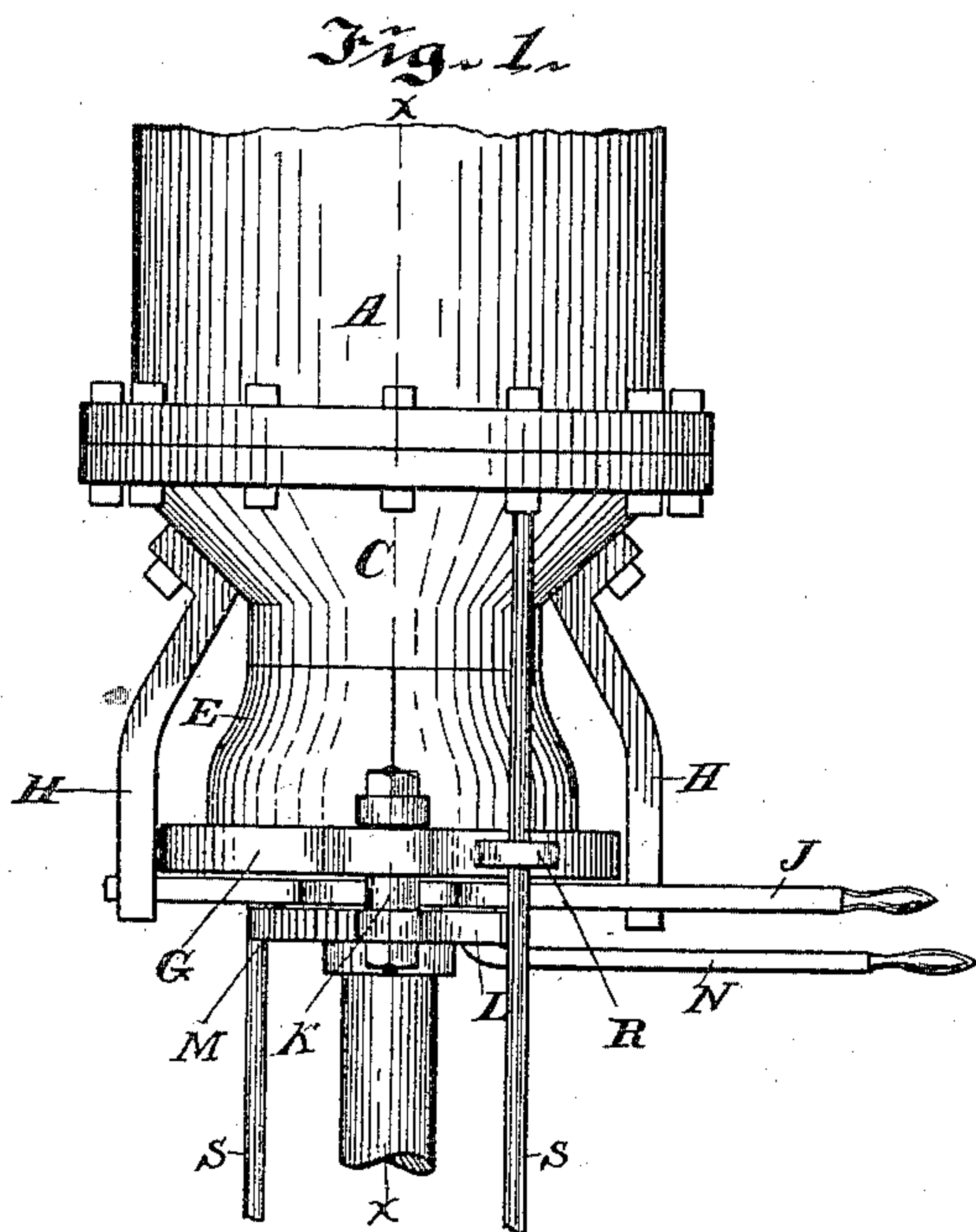
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A. R. ENGLISH.

DIE FOR MANUFACTURING EARTHENWARE PIPES.

No. 427,562.

Patented May 13, 1890.



Witnesses
J. Watson Sims
E. H. Mansellus

Inventor
Albert R. English
by Howard L. Osmond
his attorney

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Fig. 5.

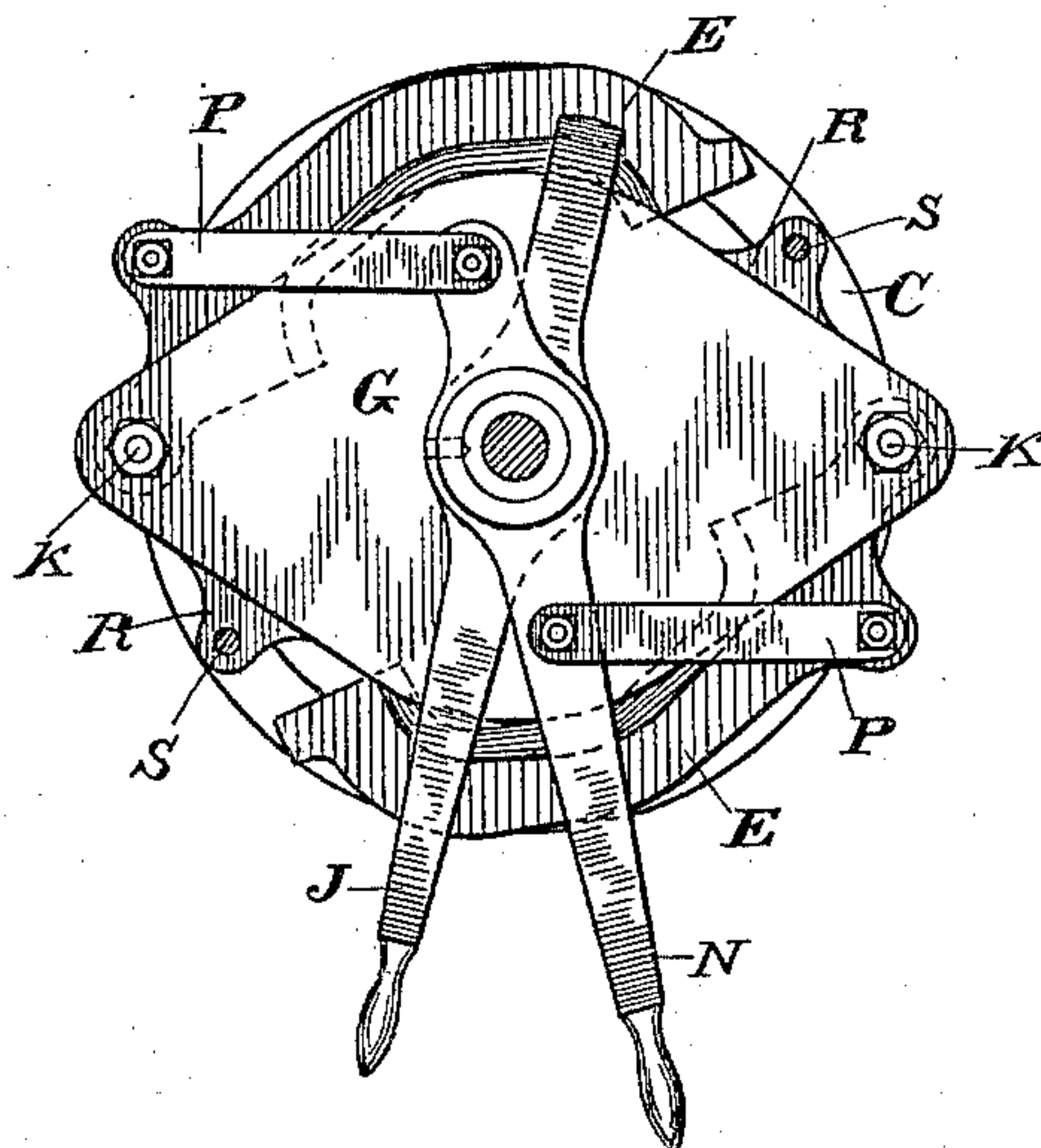
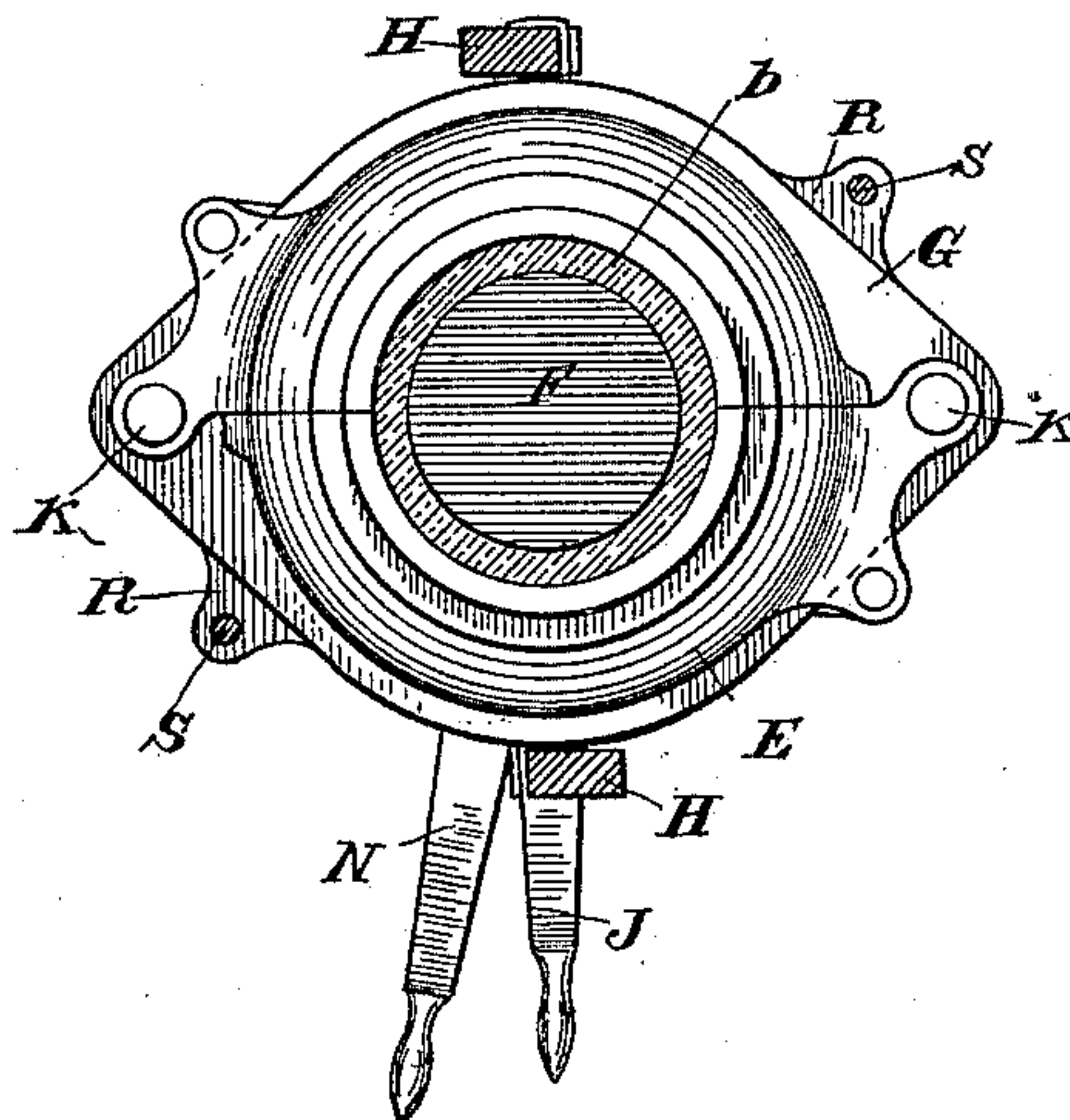


Fig. 6.



Witnesses
J. Watson Sims
E. H. Marcellus.

Inventor
Albert R. English
by Howard L. Osgood
his attorney

UNITED STATES PATENT OFFICE.

ALBERT R. ENGLISH, OF ROCHESTER, NEW YORK, ASSIGNOR TO OTIS & GORSLINE, OF SAME PLACE.

DIE FOR MANUFACTURING EARTHENWARE PIPES.

SPECIFICATION forming part of Letters Patent No. 427,562, dated May 13, 1890.

Application filed March 1, 1890. Serial No. 342,531. (No model.)

To all whom it may concern:

Be it known that I, ALBERT R. ENGLISH, a citizen of the United States, residing at the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dies for Manufacturing Earthenware Pipes, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of an ordinary clay-press having my device attached thereto. Fig. 2 is a vertical cross-section on the line x of Fig. 1. Fig. 3 is a bottom view of the mechanism shown in Figs. 1 and 2. Fig. 4 is a top view of the dies and attached mechanism shown in the preceding figures. Fig. 5 is a bottom view of another variety of the mechanism for operating the dies. Fig. 6 is a top view of the dies and attached mechanism constructed for making round pipe.

My invention relates to dies for making sockets on the end of earthenware pipes as the same issue from the press; and it consists of the improvements in mechanism hereinafter described.

In the drawings, A represents the clay-cylinder of an ordinary clay-press.

B, Fig. 2; represents the piston operating to press the clay through the orifice or throat b .

C represents the inclined bottom of the clay-cylinder, which forms the outer side of the throat or orifice b and shapes the outer side of the pipe passing through the throat.

D represents the core, which is attached to the clay-cylinder by means of the spider at its upper end and shapes the inner side of the pipe passing through the throat.

E E represent the two wings or outer sides of the die for forming the socket on the end of the pipe.

F is the former or die for shaping the inside of the socket of the pipe.

G is the disk, to which are pivoted the two wings E E, and to which are fastened the former F and the mechanism for operating the wings and for locking the die into position.

H H represent two bars having hooks at their lower extremities, and which are fastened to a convenient part of the clay-cylinder and extend down a slight distance below the level of the disk G.

J is the locking-bar journaled beneath and adjacent to the disk G and arranged to lock over the hooked ends of the bars H H.

N represents a lever which operates the two wings E E. These wings are pivoted to a disk G by means of studs K K. In the mechanism shown in Figs. 1 and 3, inclusive, these studs pass through the disk, and upon their lower extremities are rigidly fastened the segmental gears L L. These mesh into a gear-wheel M, which is journaled upon the central stem O of the disk.

R R represent lugs fastened to the disk G at suitable points, through which pass the guide-rods S S.

In the variety of apparatus shown in Figs. 5 and 6, instead of segmental gears L L and a gear M, operating said gears, I operate the two wings E E by means of a lever journaled upon the central stem O and connected to the wings E E by means of links P P, said links being pivoted to the wings E E and to the lever N.

I am aware that split dies have heretofore been used for the formation of sockets upon earthenware pipes, and that the same have been operated and fastened by hand or by a lever and links, and I do not claim, broadly, split dies for the formation of sockets on earthenware pipes.

The devices heretofore used for the operation of split dies have either been slow in action, difficult to operate, or liable to become loose through the strain thrown upon the parts. In my device I have succeeded in obviating these difficulties and in producing a die for the formation of sockets, as aforesaid, which is solid and firm when closed, is easily and rapidly operated, easily and securely adjusted when in use, and which may be adapted to the manufacture of earthenware pipes of any section whatever, whether round or polygonal or otherwise.

The operation of my device is as follows:

The clay, being brought to a plastic state, is introduced into the clay-cylinder. (See Fig. 2.) The piston B presses the same downward through the throat *b*, and the body of the pipe is thus made by the flow of the clay through the throat. The sockets of the pipes are of different size from the body thereof. Generally the sockets are enlarged, so that the end of one section of pipe may fit within the enlarged socket. For this purpose I employ, as usual, a suitable former F, which shapes the inside of the socket. This former is fastened to a plate or disk G, to which is also fastened at diametrical points K K and at suitable distances apart two wings E E. These have an inner contour when closed together, as shown in the drawings, corresponding to the outer contour of the socket of the pipe. These two wings close together tightly and form when closed a space between their inner surfaces and the outer surface of the former F, which when filled with clay will produce the desired shape of the socket. Stud K K form the pivots round which these wings E E move, and the same pass through the disk G.

In the form of mechanism shown in Figs. 1 to 3, inclusive, I operate the wings E E symmetrically by means of segmental gears attached to the lower ends of said studs and arranged to mesh with a central gear M, which is journaled upon a central stem O, attached to the lower side of the disk. At *e* in the figures is shown a rabbet extending around the upper inner portion of the wings E E, which engages with a rabbet on the inner side of the inclined bottom of the clay-cylinder C, so that when these two parts are brought together they by means of a rabbet are prevented from being opened by pressure on the inner side of the wings.

Holes *g g* are drilled through the disk G, leading into the space to be held by the clay in forming the pipe-socket. These holes serve to relieve the pressure of the air when the clay is pressed into the dies and indicate by the escape of clay through them when the die is properly filled. The disk, with its attached mechanism, is placed upon a follower which is capable of being moved to and from the clay-cylinder. This disk, with its attached mechanism, is first moved up to the clay-cylinder, whereby the former F is brought into close contact with the core D, and the closed wings E E engage the inclined bottom of the press C by means of the rabbet at *e*. Suitable lugs R R are formed upon the disk G, through which pass guide-rods S S, the latter extending from the floor of the press-room high enough to guide the disk throughout its path. By this means the disk is prevented from twisting, and thus deforming the pipe as it issues from the press, and the dies are accurately guided into place, so that the rabbeted joint *e* is made to fit together quickly and automatically. By means of the locking-lever

J engaging the hooks H H the disk and its mechanism are rigidly secured in place and to the clay-cylinder. The clay is now forced down until it appears through the issue-holes *g g*. The socket-die is thus shown to be full. The locking-lever J is now moved so as to release the disk and its attachments from the hooks H H. The pressure upon the clay now continuing, the pipe is pressed out, the disk falling away as fast as the pipe comes through the throat until a proper length has issued. The lever N is then moved to one side, which turns the central gear M, thus operating the two segmental gears L, which in turn operate and open the two wings E E, leaving the pipe standing upon the former F and the disk G. The pipe may then be cut off and be taken away for baking and otherwise finishing.

In Figs. 5 and 6 is shown another mechanism for operating the wings in the same way. The lever N, instead of having attached to it a gear M, is journaled directly upon the central post O, and at suitable distances from the center has pivoted to it two links P P. These two links have their other ends pivoted to suitable points upon the wings E E. The to-and-fro movement of the lever will cause the wings to move exactly as do the segmental gears L L and the central gear M.

The cohesion between the parts of a die and the moist clay is very great, and the devices heretofore in use for opening and operating split dies for making sockets on clay pipe have been difficult to operate, requiring the employment of one or more men to tend the die alone. My device requires only one pressman, who attends to all the operations of the die.

My device is also of such construction that the parts support each other and the strains put upon them are taken up, so that wear is reduced to a minimum.

What I claim is—

1. In a die for forming sockets upon earthenware pipes, the combination of a disk or base-plate, a former formed to shape the interior surface of the socket, two wings formed to shape the outer surface of the socket, said two wings being pivoted at opposite sides of said base-plate, and a lever connected with and operating jointly said two wings, for the purpose described.

2. In a die for forming sockets on earthenware pipes, the combination of a former, a disk or base-plate, two wings separately pivoted to the disk at its opposite sides or ends, and mechanism for operating said wings by a single lever, for the purpose described.

3. In a die of the class described, the combination of a former F, disk or base-plate G, wings E E, pivoted to the disk at K K, lever N, and mechanism connecting said lever with

said wings for opening and closing the same, for the purpose described.

4. In a die of the class described, the combination of a former F, disk or base-plate G, wings E E, pivoted to the disk at K K, segmental gears L L, central gear M, and lever N, for the purpose described.

Signed at Rochester, New York, this 17th day of February, 1890.

ALBERT R. ENGLISH.

Witnesses:

C. D. KIEHEL,

H. L. OSGOOD.