

(No Model.)

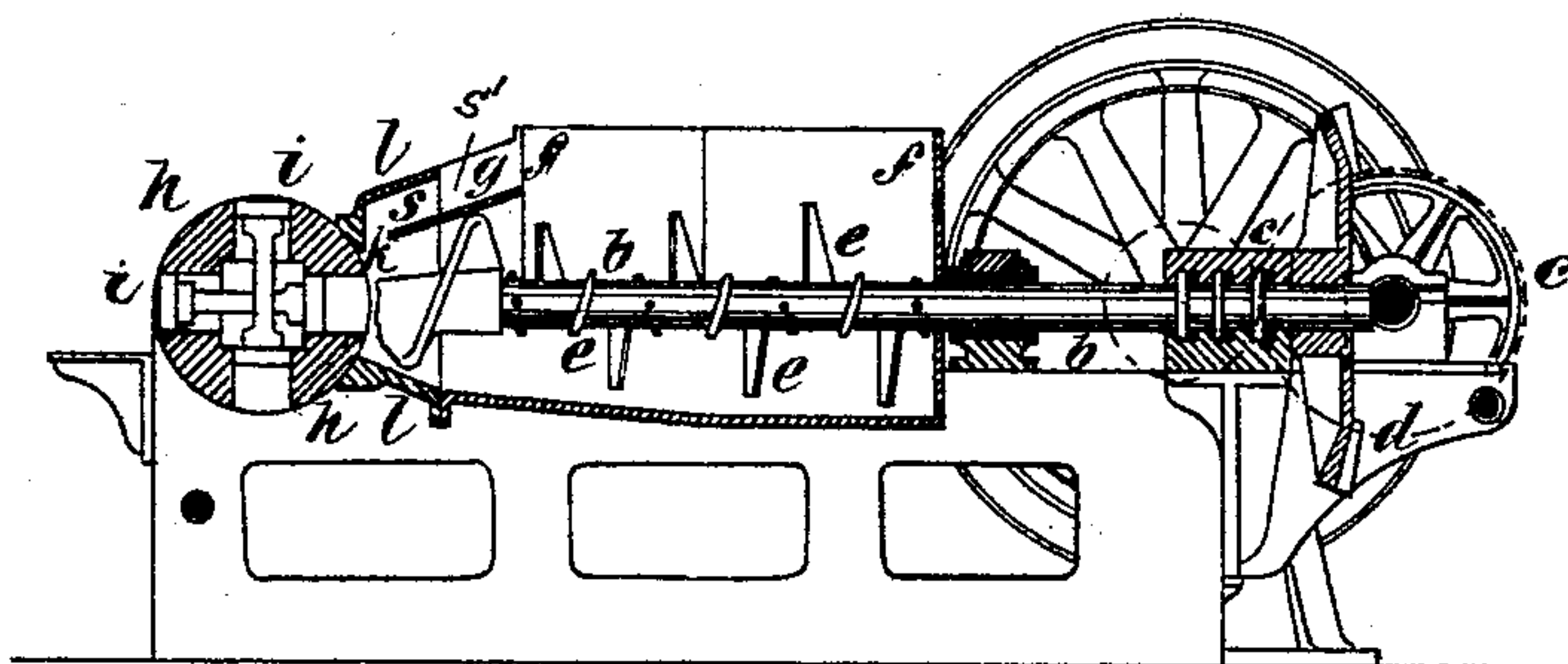
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W. JOHNSON.  
BRICK MACHINE.

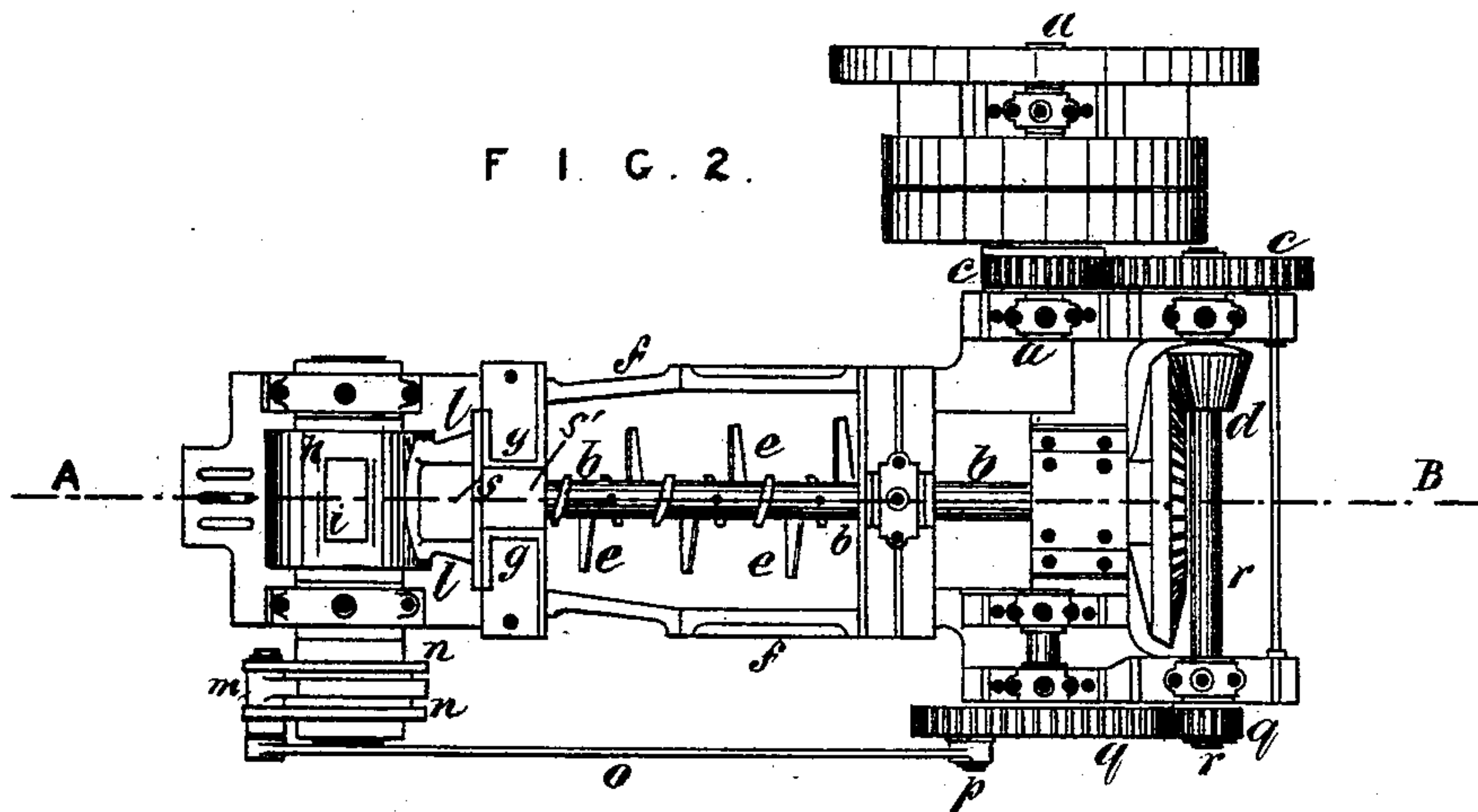
No. 480,726.

Patented Aug. 16, 1892.

F I G. 1.



F I G. 2.



Witnesses  
*E. L. Champion*  
*E. L. Richards*

INVENTOR  
*William Johnson*  
By his Attorneys *Richardson*

(No Model.)

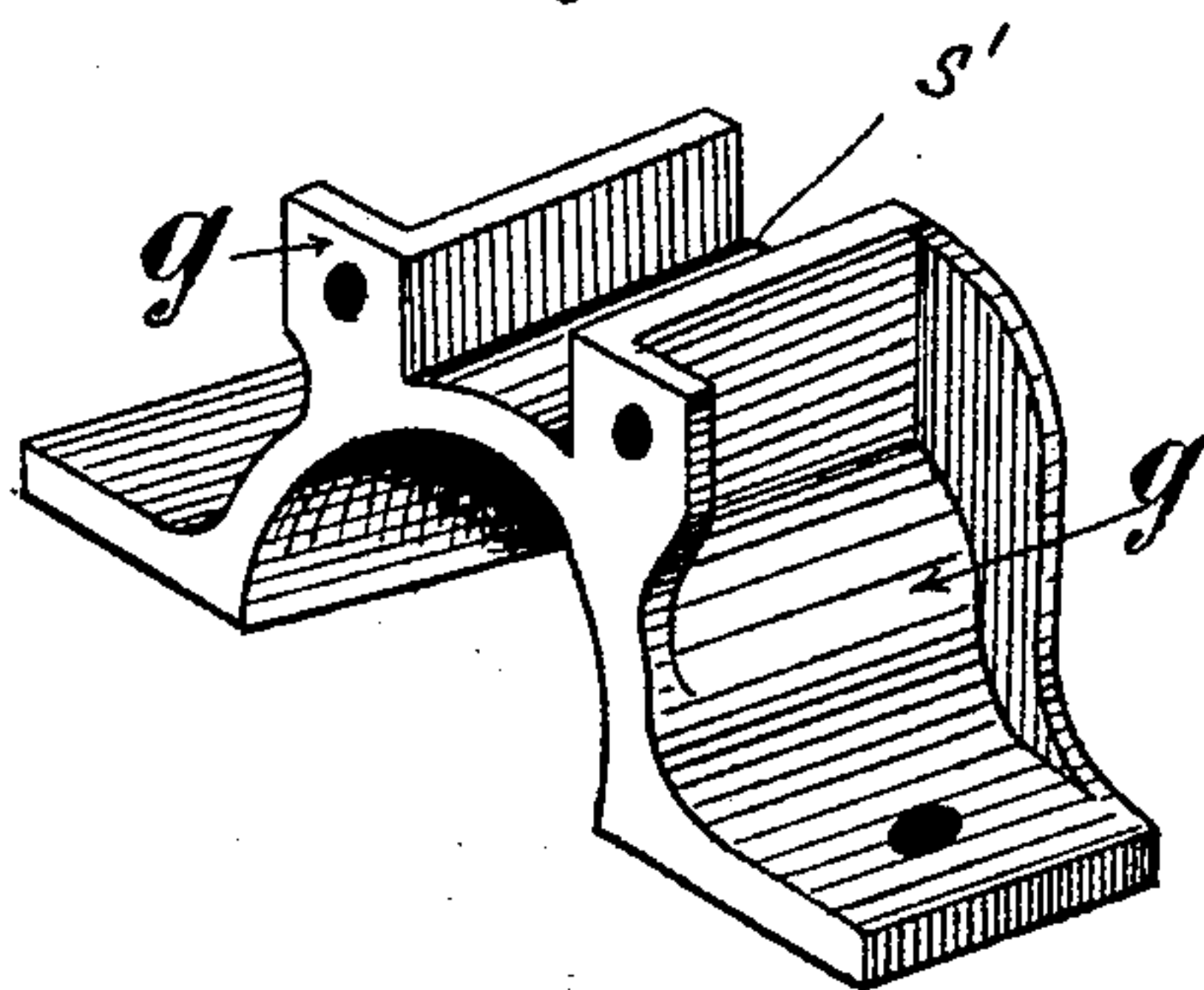
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W. JOHNSON.  
BRICK MACHINE.

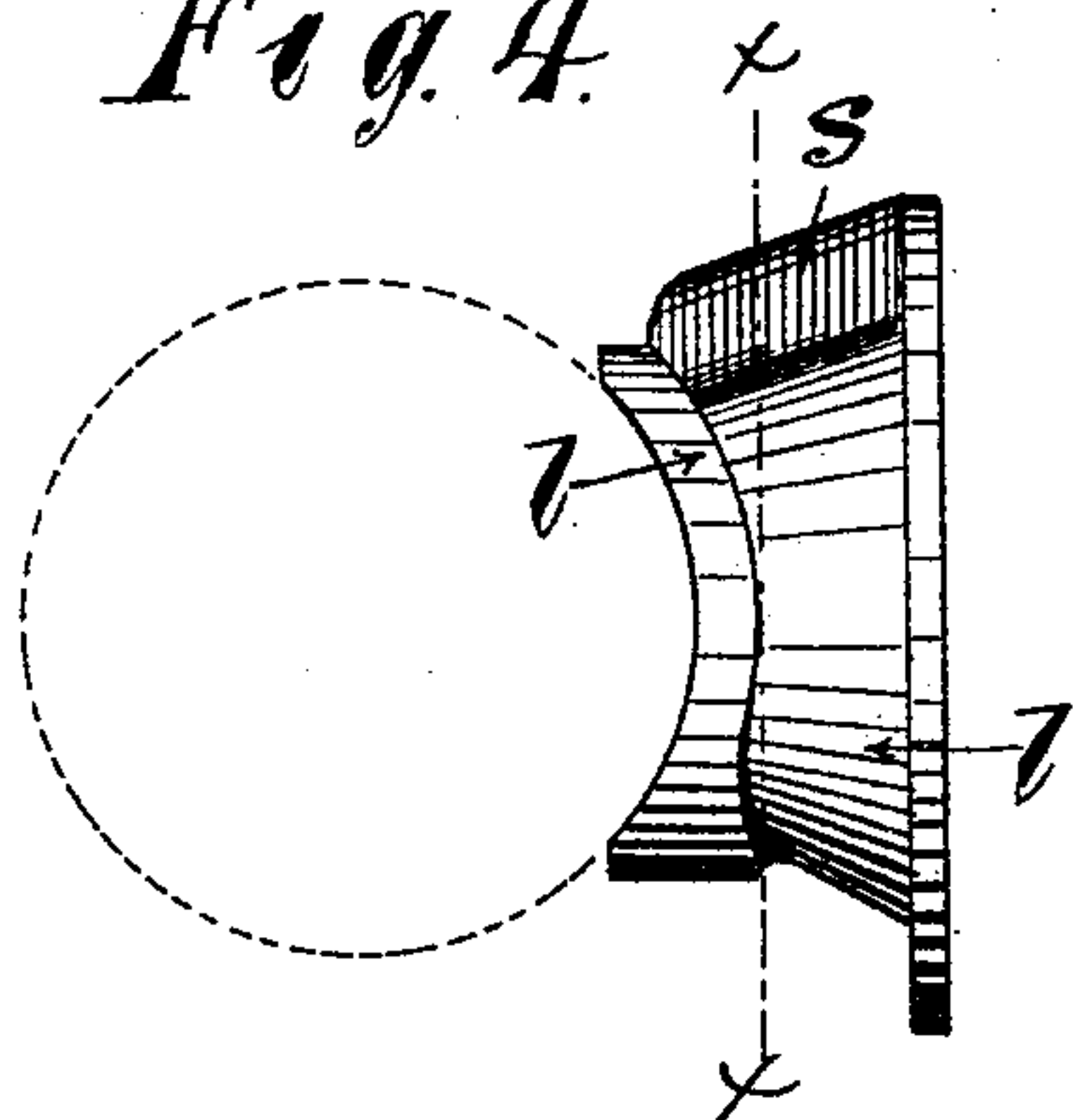
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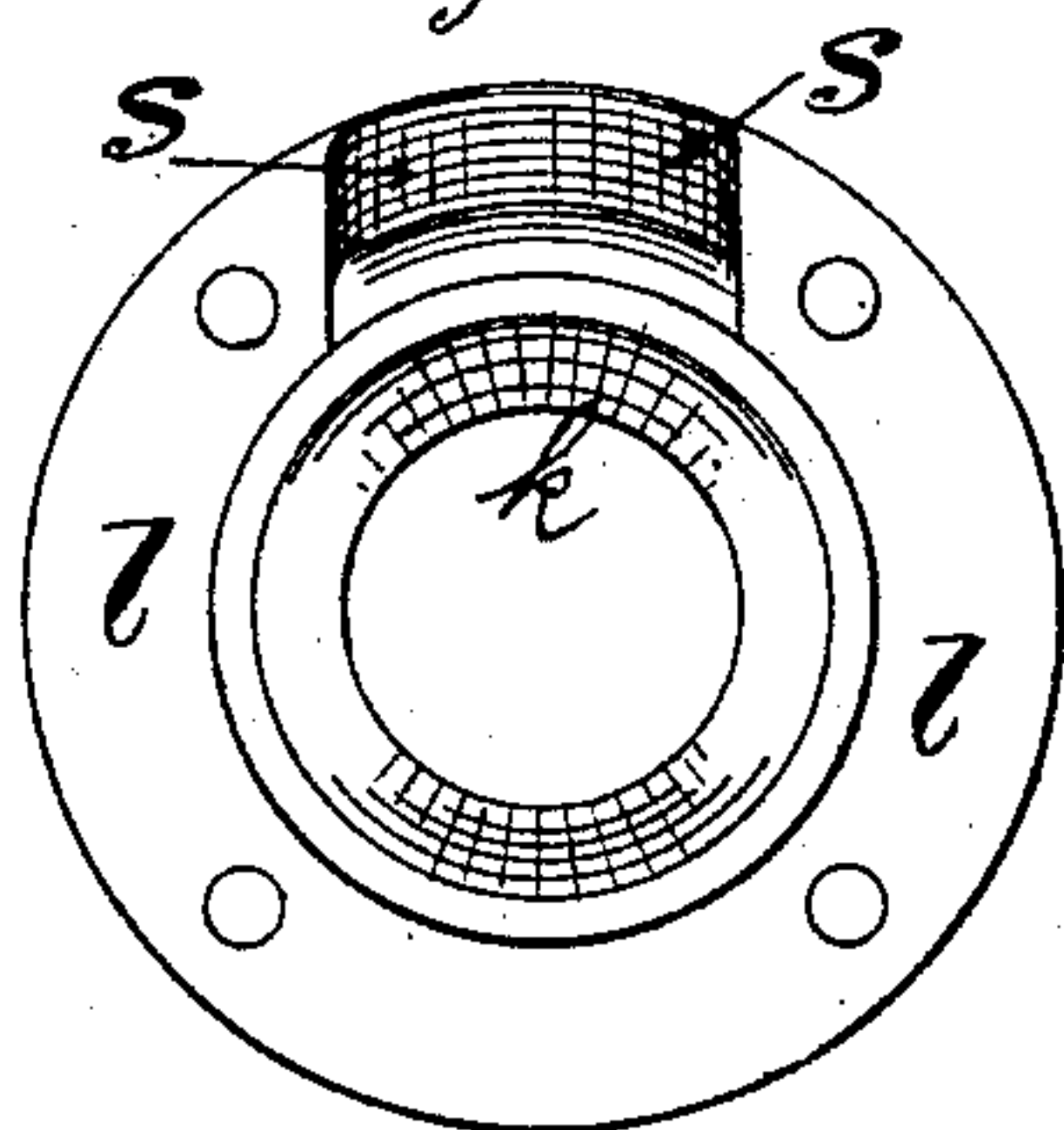
*Fig. 3.*



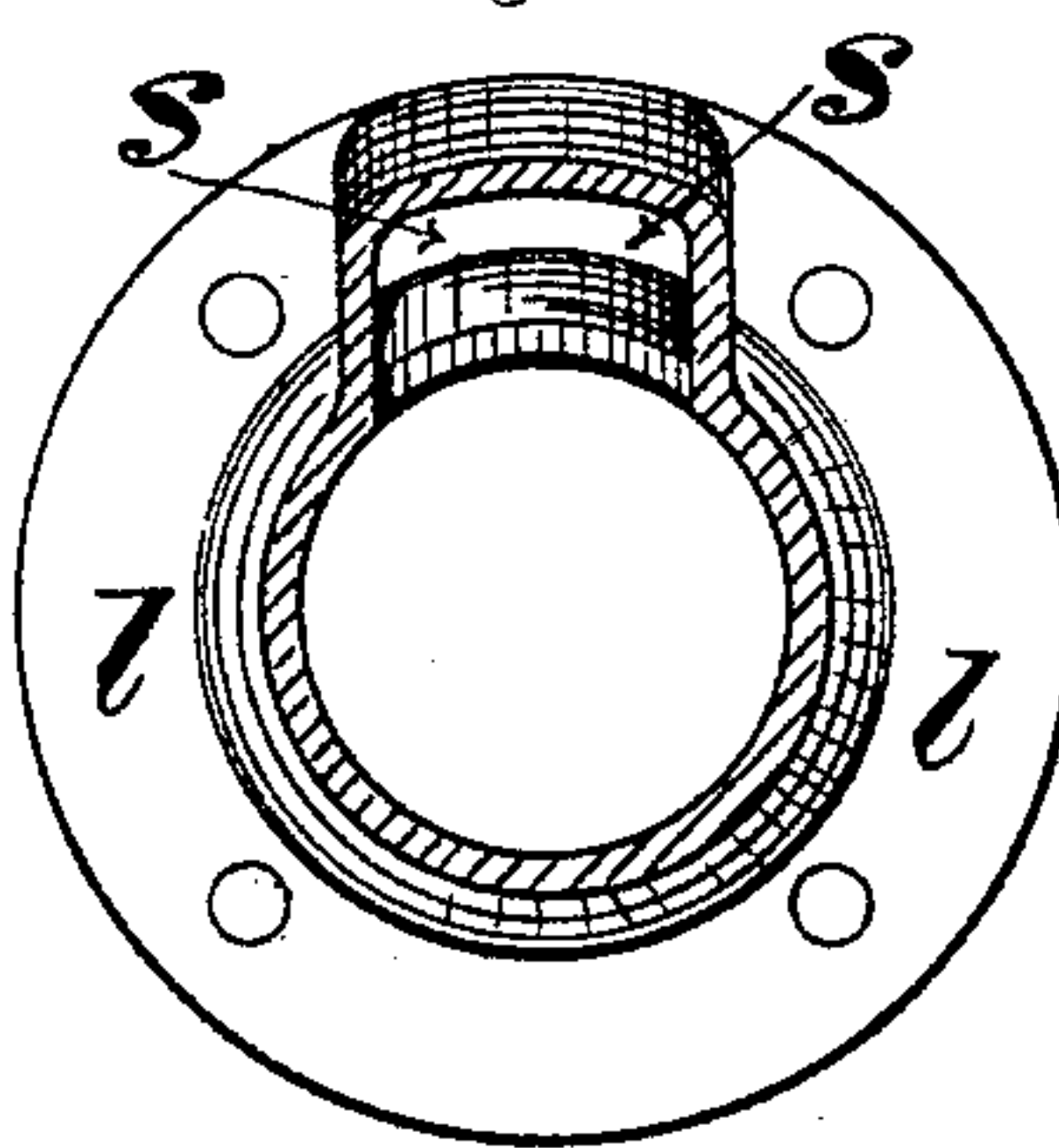
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



Witnesses

*E. H. Sturdevant.*  
*Jonathan Bailey.*

INVENTOR.

*William Johnson*  
*By his Atty. Richard D. A.*



# UNITED STATES PATENT OFFICE.

WILLIAM JOHNSON, OF ARMLY, LEEDS, ENGLAND.

## BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,726, dated August 16, 1892.

Application filed March 13, 1890. Serial No. 343,814. (No model.) Patented in England April 1, 1886, No. 4,547.

*To all whom it may concern:*

Be it known that I, WILLIAM JOHNSON, a subject of the Queen of Great Britain, residing at Castleton Foundry, Armly, Leeds, in the county of York, England, have invented certain new and useful Improvements in Machines for Manufacturing Brick, (for which I have obtained a patent in Great Britain, No. 4,547, dated April 1, 1886,) of which the following is a description.

The object of my improvements is to simplify the construction of brick-making machines and so arrange the various parts that renewals or repairs are easily and readily effected, such improved machines also combining in their working the operations of a pug-mill and a brick-making machine and being capable of treating plastic or semi-plastic materials. In my arrangement the bricks are separately molded, instead of being delivered in a continuous column and afterward cut off by wires, as is usual in pug-mill brick-making machines.

My said improvements relate in the first instance to renewable or interchangeable covers for that part of the machine in which the pugging operation takes place, the variation in the form and size of such covers being for the purpose of meeting the wear of the wings, knives, and worm, and also for the treatment of various kinds of clay, from plastic to semi-plastic.

The improvements also include a renewable or interchangeable nose connecting the pug-mill portion with the brick making or molding part of the machine and in a knife for cutting off the clay in the mold.

The improved apparatus comprises a combined pug-mill and a brick-making machine, the arrangement including, also, a main shaft, which serves both for pulling over the brick-mold and for driving the pug-mill.

A hinged-pawl arrangement is included in the mechanism for intermittently pulling over or rotating the mold-cylinder. An aperture or groove leads back from the molds to the hopper or pug-mill cylinder, whereby the surplus clay from the brick making or molding part of the machine is automatically carried back to the hopper or pug-mill cylinder.

In the accompanying drawings, Figure 1 is a sectional elevation on line A B, Fig. 2, and

Fig. 2 is a plan, of a machine constructed in accordance with my said invention. Fig. 3 is a perspective view of one of the removable cover-sections. Fig. 4 is a side view of the interchangeable nose, showing the mold-cylinder in dotted lines. Fig. 5 is a front view of the same, and Fig. 6 is a section on line  $x x$  of Fig. 4.

$a$  is the first driving-shaft, which communicates motion to the longitudinal shaft  $b$  of the pug-mill by means of spur-gearing  $c$  and bevel-gearing  $d$ . The shaft  $b$  carries the knives  $e$ , (or screw or worm,) which rotate in the hopper or case  $f$ . The top of the hopper or case  $f$  is more or less closed in by the renewable or interchangeable cover or covers  $g$ . (See Figs. 1, 2, and 3.)

$h$  is the mold-cylinder, in which are formed four rectangular recesses or molds  $i$  for molding or forming the bricks. The clay is forced forward into the mold by the rotation of the screw-shaped or helical knives  $e$ , filling the mold, the clay being cut off on the rotation of the cylinder  $h$  by the knife-edge  $k$ . This knife-edge  $k$ , as shown in Fig. 1, is formed with the interchangeable or renewable nose  $l$ , which latter connects the pug-mill portion with the brick making or molding part of the machine.

The mold-cylinder  $h$  is caused to rotate intermittently by means of the hinged pawl  $m$  and clutch-box  $n$ , such hinged pawl  $m$  receiving a reciprocating motion by means of the connecting-rod  $o$  from the crank-pin  $p$  on the spur-gearing  $q$ . This gearing  $q$  is driven direct from the the second-motion shaft  $r$ .

In order to completely fill the molds  $i$ , the screw-shaped or helical knives  $e$  feed forward the clay somewhat in excess of the quantity which would fill the molds. This surplus clay finds its way back from the nose-piece  $l$  to the hopper or pug-mill portion of the machine along the aperture or groove  $s$ , formed, preferably, in the upper part of the nose  $l$ , as shown in Fig. 1. This passage  $s$  may be continued, as shown, by the passage  $s'$ , formed in the removable section  $g$ .

I claim as my invention—

1. In a brick-machine, the combination, with the pug-mill portion and the mold-cylinder  $h$ , of the means for driving said pug-mill portion and pulling over the mold-cylinder and



the groove for carrying the surplus clay back to the pug-mill from the mold-cylinder, substantially as set forth.

- 5 2. In combination with the pug-mill casing, the removable section *g*, constituting the cover, and the nose *l*, having a return-opening for the excess of the material fed, said cover being formed with a passage *s'*, substantially as described.
- 10 3. The aperture or groove *s*, leading back to the hopper or pug-mill, whereby the surplus

clay from the brick making or molding part of the machine is automatically carried back to the pug-mill, substantially as herein set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses. 15

WILLIAM JOHNSON.

Witnesses:

DAVID FULTON,  
RICHARD IBBERSON.