

P. H. KELLS.

Improvement in Brick Machines.

No. 124,590.

Patented March 12, 1872.

Fig. 1.

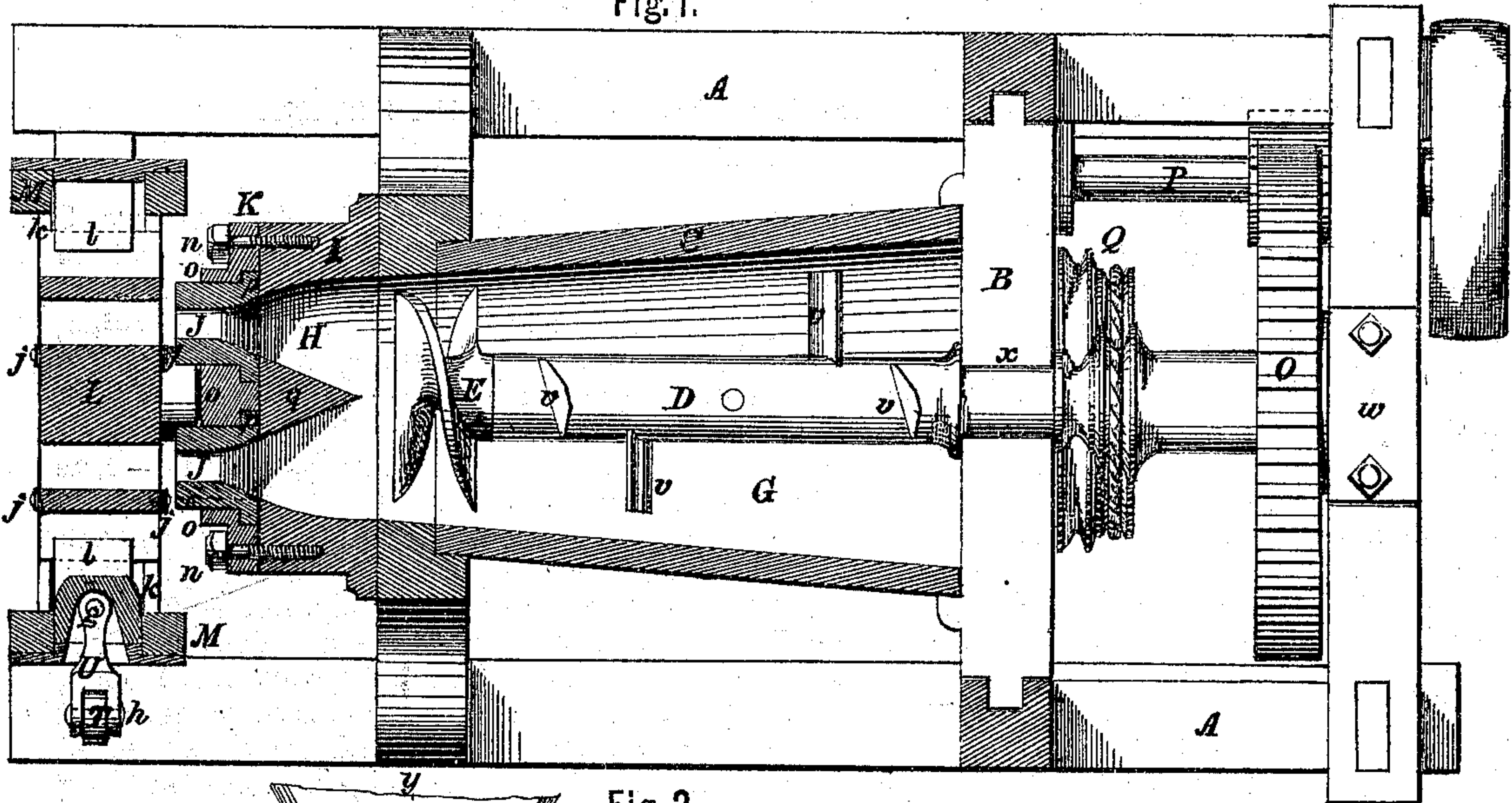


Fig. 2.

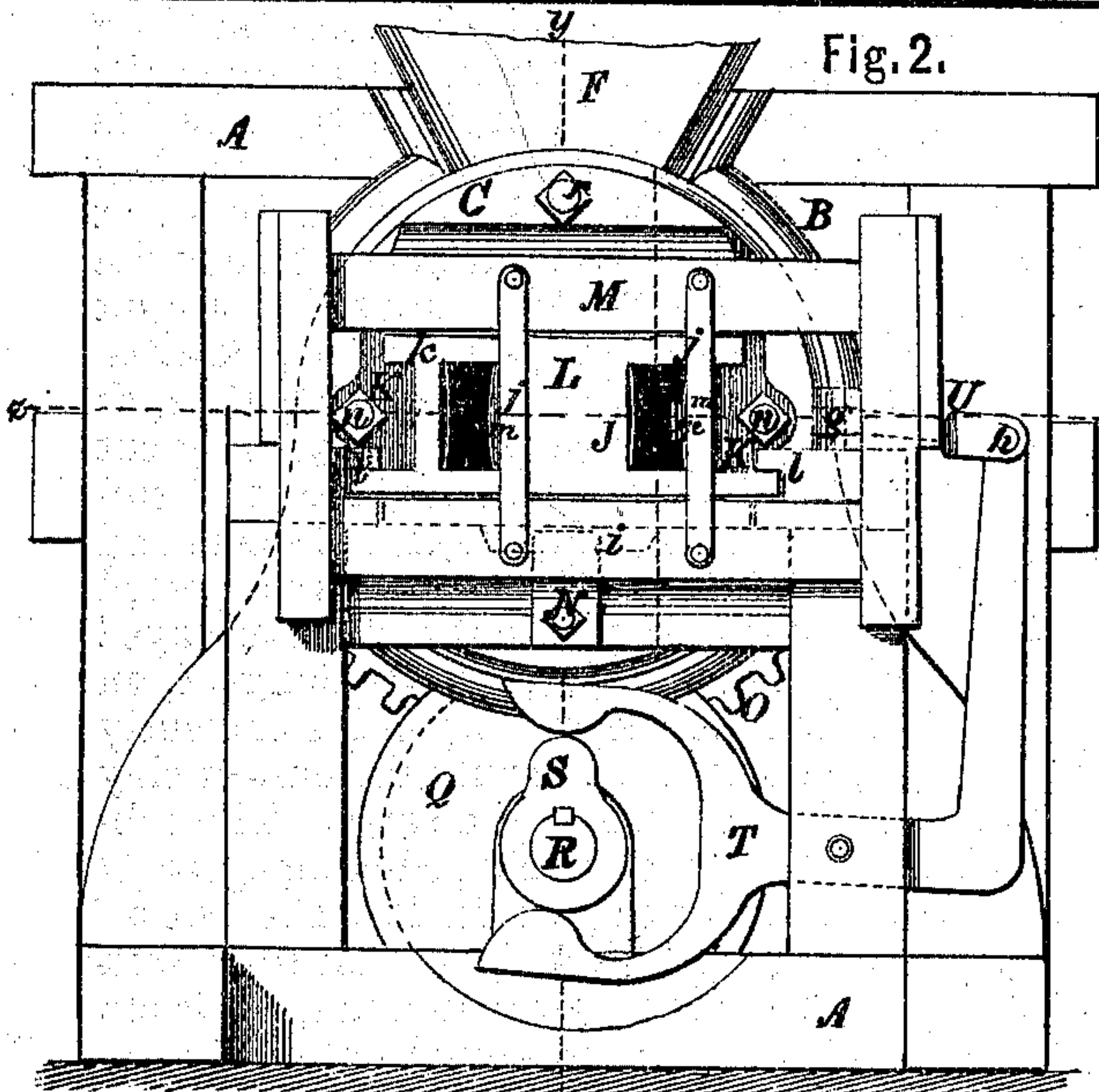


Fig. 3.

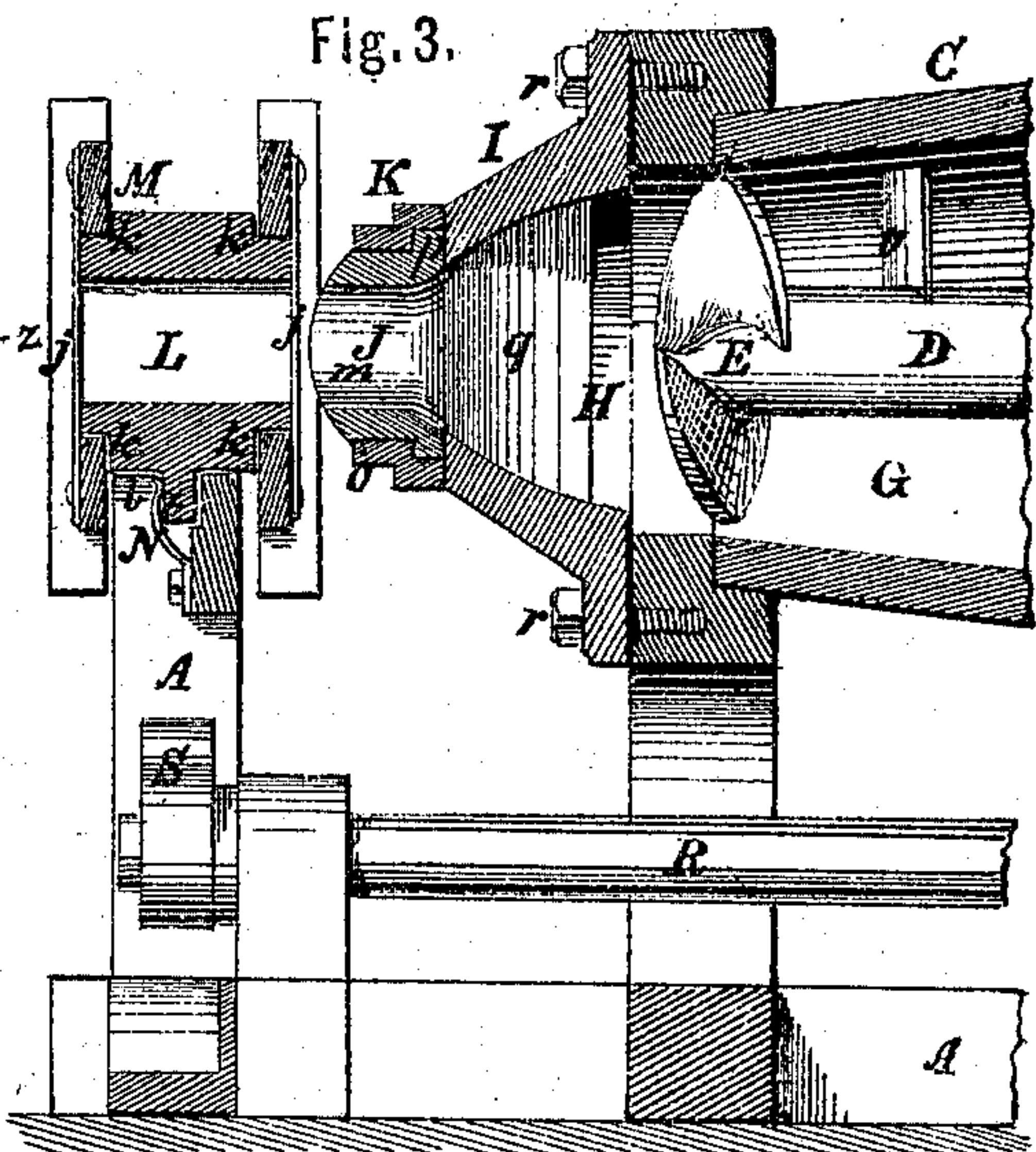


Fig. 5.

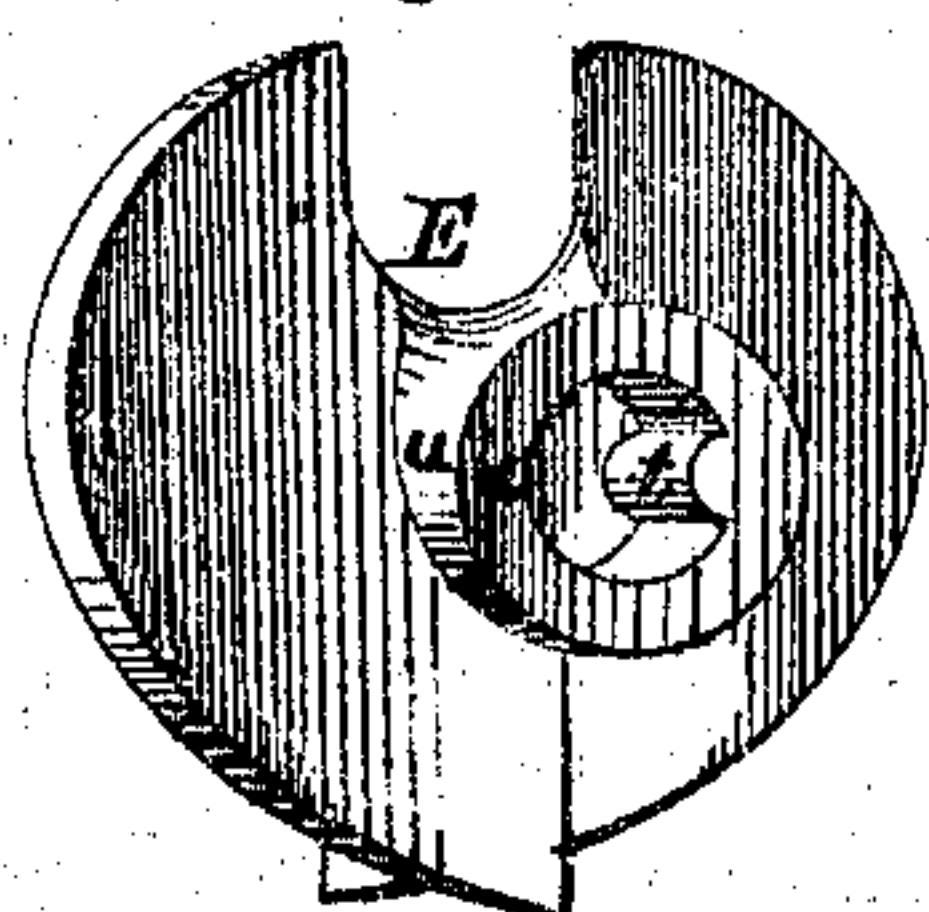
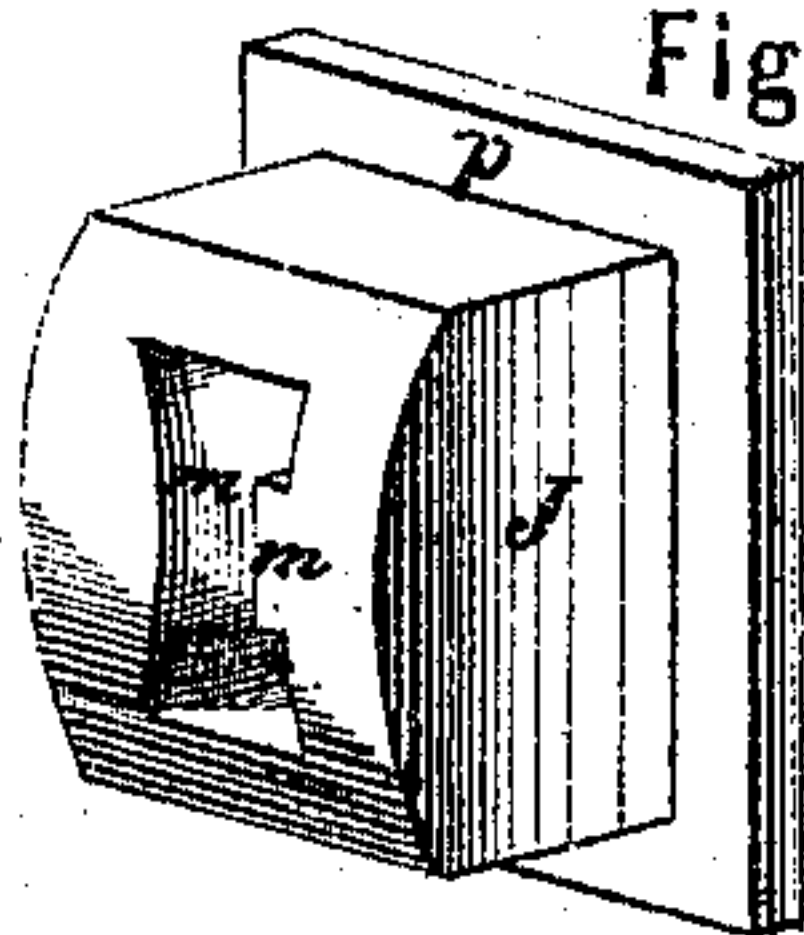


Fig. 6.



Fig. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

PHILIP H. KELLS, OF ADRIAN, MICHIGAN.

## IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 124,590, dated March 12, 1872.

Specification describing an Improved Brick-Machine, invented by PHILIP H. KELLS, of Adrian, in the county of Lenawee, Michigan.

This is a machine of the type in which the clay is expressed in continuous bars from the pug-ging and tempering-chamber and then cut into lengths by automatic devices. The invention consists, first, in a peculiarly-shaped double throat-piece; second, in a mode of attaching and supporting removable dies; third, in giving the dies convex sides, so as to secure the filling of corners and produce concave or recessed bricks; fourth, in a yielding box to receive the proper length of clay for one or more sets of bricks, and to hold the same while the bricks are being severed; fifth, in a sliding cut-off adapted to sever the bricks at each end; sixth, in a combination of cam, forked lever, and connecting-rod for operating the cut-off; seventh, in driving the cut-off from the tub-shaft; eighth, in an expelling screw cast with a shaft-socket and feather.

Figure 1 is a plan of my improved machine, partly in horizontal section, on the line  $z z$ , Fig. 2. Fig. 2 is an end elevation. Fig. 3 is a vertical longitudinal section on the line  $y y$ , Fig. 2. Fig. 4 is a perspective of one of the dies. Fig. 5 is a perspective of the expelling-point. Fig. 6 is a perspective of the shaft end adapted to receive the same.

The frame A of the machine may be of wood, as indicated, or of metal, as preferred, and of any suitable shape. Mounted centrally in this, in front of a vertical abutment, B, forming the rear end of the same, is a horizontal tapering tub, C, which may also be of any preferred construction. Axially within the tub C is a shaft, D, having a bearing,  $x$ , in the abutment B and another,  $w$ , behind the same, with others, if preferred, and provided with pugging and tempering-blades  $v$ . A spiral point or expelling-screw, E, is also attached to the outer end of said shaft, being cast with a socket,  $u$ , with feathers  $t$  to receive a grooved tenon,  $s$ , on the end of the shaft. Said point is thus adapted to be made with small hub and very deep spiral flanges, which gives large clay space and works more freely. A hopper, F, provides for the introduction of clay into the chamber G, in which said pugging and tempering shaft D and expelling-point E work. This chamber is ex-

tended by the cavity H of a throat-piece, I, attached by bolts  $r$  or their equivalent, which cavity is peculiar in being of angular form to prevent the rotation of the clay, and divided, by one or more partitions,  $q$ , into compartments, tapering to the respective dies J, through which the clay, solidified in this throat, is forced in continuous bars by the point E, as in other similar machines. These dies are removable, being constructed (see Fig. 4,) with flanges  $p$ , and are attached by a face-plate, K, with flanges  $o$  to support the outer ends of the dies, and secured by bolts  $n$ . They are further constructed with sides  $m$ , convex or ribbed, to produce bricks with concave or recessed sides. Good sharp corners are thus insured and the bricks rendered superior for building purposes on account of the hold afforded the mortar. Immediately in front of the dies J is a "box," L, to receive the bars of clay as they issue therefrom. This is mounted in short longitudinal ways  $l$  and furnishes transverse ways  $k$  for a "cut-off," M, composed of a light frame with plane thin strips of steel  $j$  for knives. This box, as represented, is of sufficient depth to receive one set of bricks, the clay being cut off at each end. I propose making it of sufficient length to contain two or more sets and employing more knives. This box is supported against backward movement along the ways  $l$  by a spring, N, engaging with a flange,  $i$ , on the bottom of the same, which yields sufficiently to adapt the box to move with the bars of clay while the knives are in the same. The tub-shaft D is driven through reducing-gear O from a parallel driving-shaft, P. The cut-off M receives its reciprocating motion from said tub-shaft through further reducing-gear, (cone pulleys and band, as represented, or their equivalent,) Q, a third shaft, R, a cam, S, thereon, a forked elbow lever, T, and a link, U, with horizontal and vertical pivots  $h g$ . Quick, positive movements are thus imparted.

What I claim as my invention and new is—

1. The throat-piece I, constructed as described, with the angular cavity H and partition  $q$ , in combination with the nozzle-molds J J attached thereto, substantially as and for the purposes specified.

2. The removable dies J constructed with the flanges  $p$ , in combination with the face-

plate K, with its flanges *o* and attaching-bolts *n*, substantially as shown and described, for the purpose specified.

3. The dies J, when constructed with convex or ribbed sides *m* so as to produce bricks with sharp corners and concave sides, substantially as shown.

4. The yielding "box" L, constructed of sufficient depth to receive and support the whole length of one or more sets of bricks while they are being severed and trimmed, as shown and described.

5. In combination with the box L, the cut-off M adapted to sever the clay at each end of the bricks, as and for the purpose set forth.

6. The combination, with the yielding cut-

off M, of the link U with vertical and horizontal pivots *g h*, forked lever T, and cam S, constructed and operating substantially as shown and described, for the purpose specified.

7. In combination with the cut-off operating mechanism, the reducing-gear Q for driving the same from the tub-shaft D.

8. The expelling-point E, constructed with deep spiral flanges and with the socket *u* and feather *t*, to receive the grooved tenon *s* on the end of the tub-shaft, as shown, for the purposes set forth.

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Witnesses:

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WM. S. GREENLY.