

(No Model.)

2 Sheets—Sheet 1.

J. W. & R. C. PENFIELD.  
BRICK MACHINE.

No. 411,296.

Patented Sept. 17, 1889.

Fig. 1.

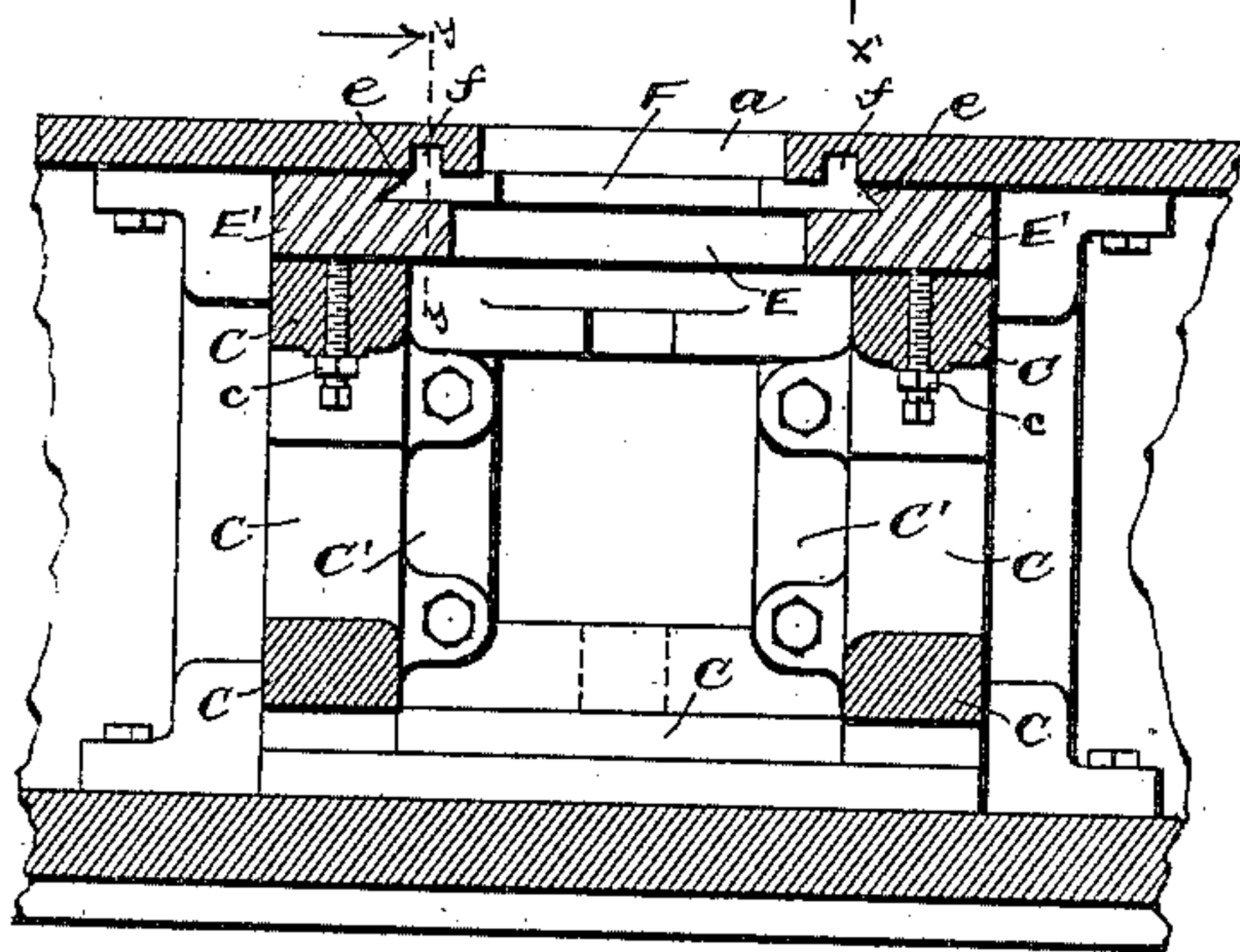
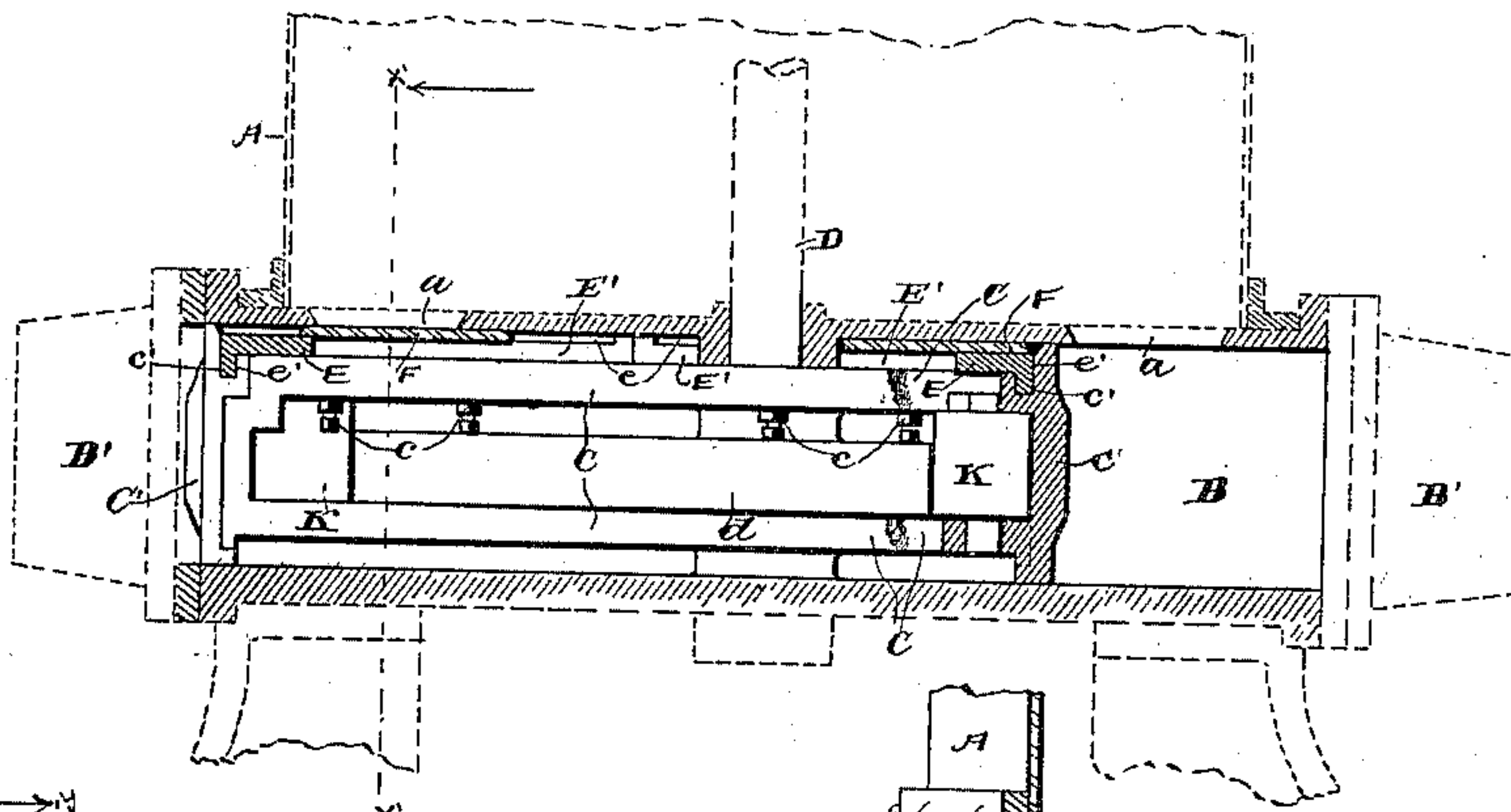


Fig. 2.

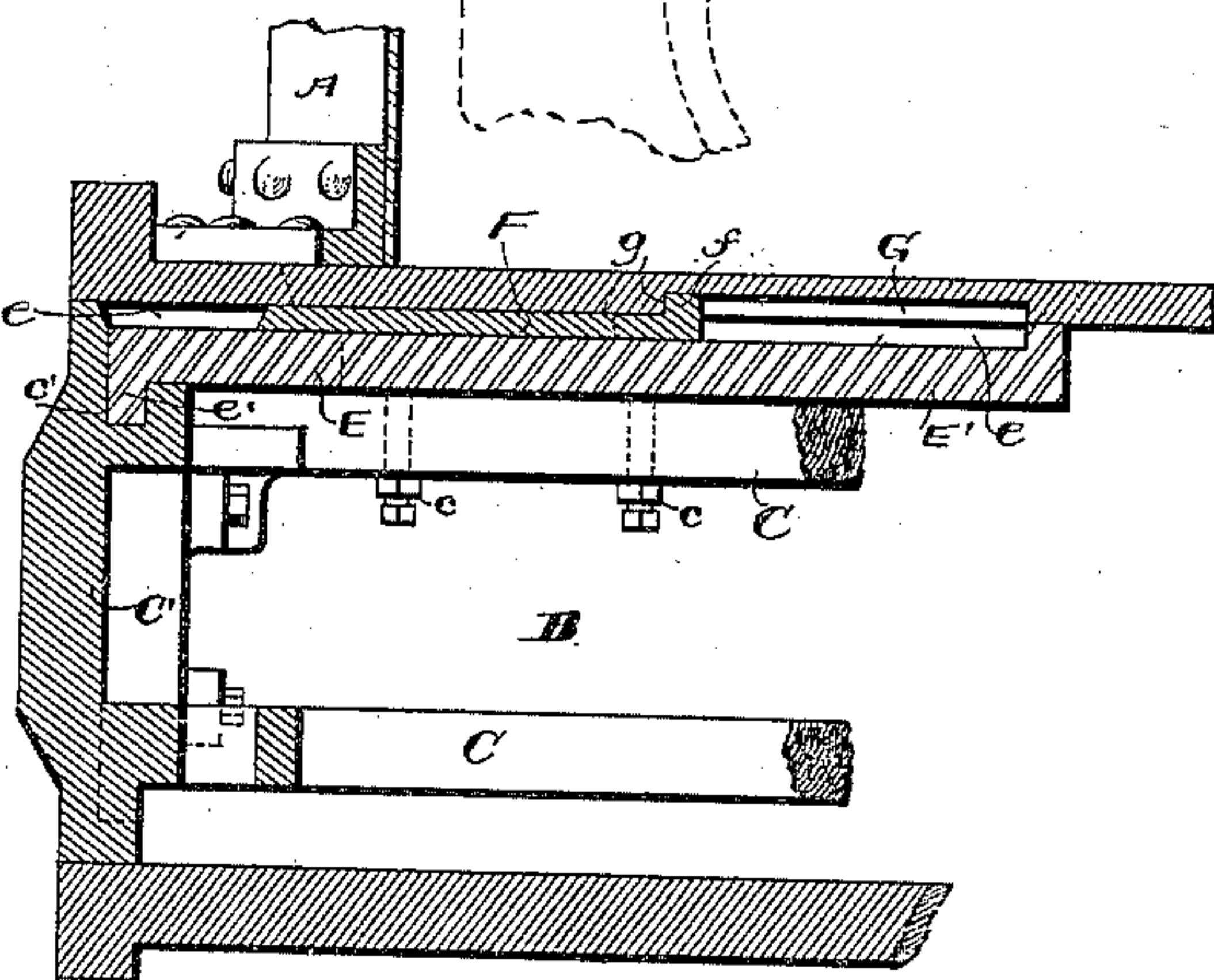


Fig. 3.

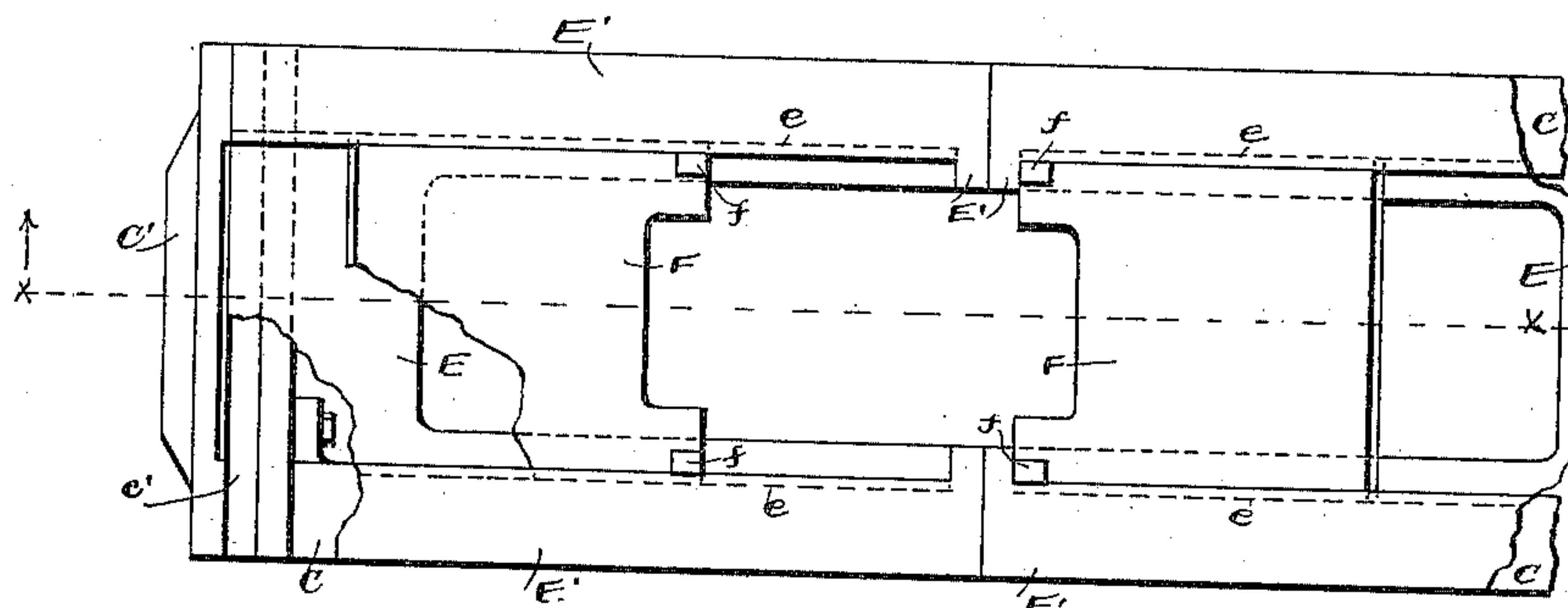


Fig. 4.

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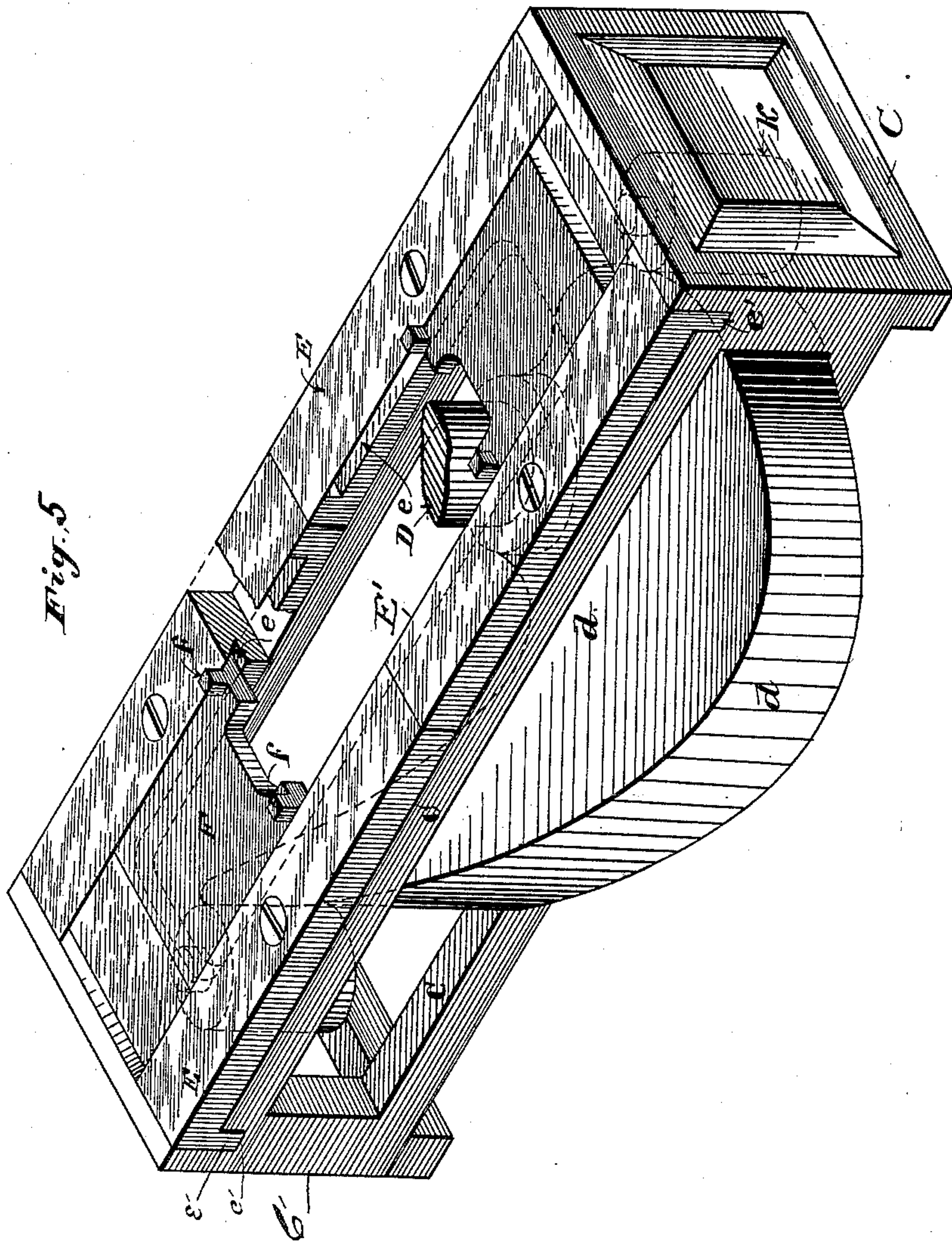
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J. W. & R. C. PENFIELD.  
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2 Sheets—Sheet 2.

No. 411,296.

Patented Sept. 17, 1889.



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*Inventors*  
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# UNITED STATES PATENT OFFICE.

JAMES W. PENFIELD AND RAYMOND C. PENFIELD, OF WILLOUGHBY, OHIO.

## BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,296, dated September 17, 1889.

Application filed November 17, 1888. Serial No. 291,170. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES W. PENFIELD and RAYMOND C. PENFIELD, of Willoughby, in the county of Lake and State of Ohio, have  
5 invented certain new and useful Improvements in Plungers and Attachments for Brick-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable  
10 others skilled in the art to which it pertains to make and use the same.

Our invention relates to improvements in plungers and attachments for brick-machines; and it consists in certain features of construction and in combination of parts hereinafter  
15 described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, on line  $x x$ , Fig. 4. Fig. 2 is an elevation, in transverse  
20 section, on line  $x' x'$ , Fig. 1. Fig. 3 is an elevation, in longitudinal section, on line  $y y$ , Fig. 2. Fig. 4 is a plan of the plunger, portions thereof being broken away to show the construction. Fig. 5 is a perspective view of  
25 the plunger and adjacent parts.

A represents an upright pug-mill, the material from which is discharged through openings  $a a$  in the bottom of the mill into the compression-chamber B, in which chamber  
30 operates the plunger that forces the material out through dies B'.

D is the pugging-shaft, the same extending through chamber B and having attached cam  $d$  for reciprocating the plunger, the cam being located inside said chamber and engaging anti-friction rollers K of the plunger.  
35

The construction of the plunger is as follows:

C C are metal side frames, and these are  
40 connected by end plates C', the latter fitting as close as may be the walls of the compression-chamber. Frames C are provided with a series of adjusting-screws  $c$  for supporting, holding, and adjusting the top plate E of the  
45 plunger, by means of which adjustment plate E may be made always to fit nicely the top walls of the compression-chamber, and this plate should be adjusted from time to time to take up the wear of the parts, such wear  
50 being mostly in a vertical direction. Plate E has a slot E', in which shaft D operates, the

slot being long enough to admit the reciprocations of the plunger, caused by the action of the aforesaid cam, without the plunger colliding with the shaft.

Heretofore it has been found difficult to  
55 prevent the material, under the great pressure employed, from being forced between the ends of the adjustable top plate and the end plates of the plunger and between the engaging edges of the top plate and cut-off plates, such material for obvious reasons being very objectionable when introduced inside the  
60 plunger where it could come in contact with the cam and with gearing below. (Not shown.) As an improvement we provide a deep groove  $c'$  in each plate C', this groove being located approximately, as shown, and we provide corresponding tongues  $c'$  at the ends of plate E,  
65 on the under side thereof, for fitting, respectively, in the grooves  $c'$ . The vertical adjustment of plate E to take up the wear of parts is never sufficient to draw these tongues out of their engaging grooves, and by means of such tongue-and-groove feature the material  
75 is prevented from entering inside the plunger.

The cut-off plates F are set into plate E flush on top, and are at their edges dovetailed together, as shown at  $e$ , Fig. 2, the edges of plate E being undercut and the edges of  
80 plate F being correspondingly beveled, the arrangement being such that plate F may slide endwise a limited distance on its bearings in plate E. Plate F has upwardly-projecting lugs  $f$ , that operate in groove G of the  
85 top walls of the compression-chamber. The outer end or shoulders  $g$  of these grooves, by engaging lugs  $f$ , stop the outward movement of plate F in position to close the adjacent openings  $a$ , by means of which material  
90 is prevented from entering inside the plunger through slot E'. With the reverse stroke of the plunger plate F, by engaging shaft D, is shifted toward the respective ends of the  
95 plunger. In other words, plate F rides on and moves with the plunger, except as it is stopped in the one direction by engaging the pugging-shaft and in the other direction by the aforesaid engagement of lugs  $f$  with shoulders  $g$ . While an end of the plunger is retired in-  
100 ward, the material is forced down from the pugging-mill through hole  $a$ , entering this



end of the compression-chamber in advance of the plunger. With the outward movement of this end of the plunger plate F is carried along with the latter until the plate is fairly inside and closes orifice *a*, whereupon plate F is estopped by the engagement of lugs and shoulders aforesaid and remains stationary, while the plunger-head still farther advances to force the material out through the oppos-  
10 ing dies. On the reverse stroke of the plunger plate F is carried inward until it engages shaft D, by which engagement plate F is held stationary, while the plunger continues its stroke inward.

15 We have chosen to illustrate our invention in connection with a double-acting plunger-machine having dies at either end of the compression-chamber; but our improvements are equally well adapted to the ordinary single-  
20 stroke machine.

What we claim is—

1. In a brick-machine, the combination, with a horizontally-reciprocating plunger hav-

ing end plate and top plate, the latter having vertical adjustment, of tongue-and-groove 25 connection between such plates, whereby the adjustment of the top plate does not break the tongue-and-groove connection between the two plates, substantially as set forth.

2. The combination, with a pug-mill having 30 a discharge-opening therein, of plate E and cut-off plate F, the latter being set in flush with the top surface of the former, plate E having undercut edges and plate F having 35 correspondingly-beveled edges for mutual engagement, forming substantially a sliding dovetail, substantially as set forth.

In testimony whereof we sign this specification, in the presence of two witnesses, this 25th day of August, 1888.

JAMES W. PENFIELD.

RAYMOND C. PENFIELD.

Witnesses:

L. W. PENFIELD,

W. W. WALLACE.