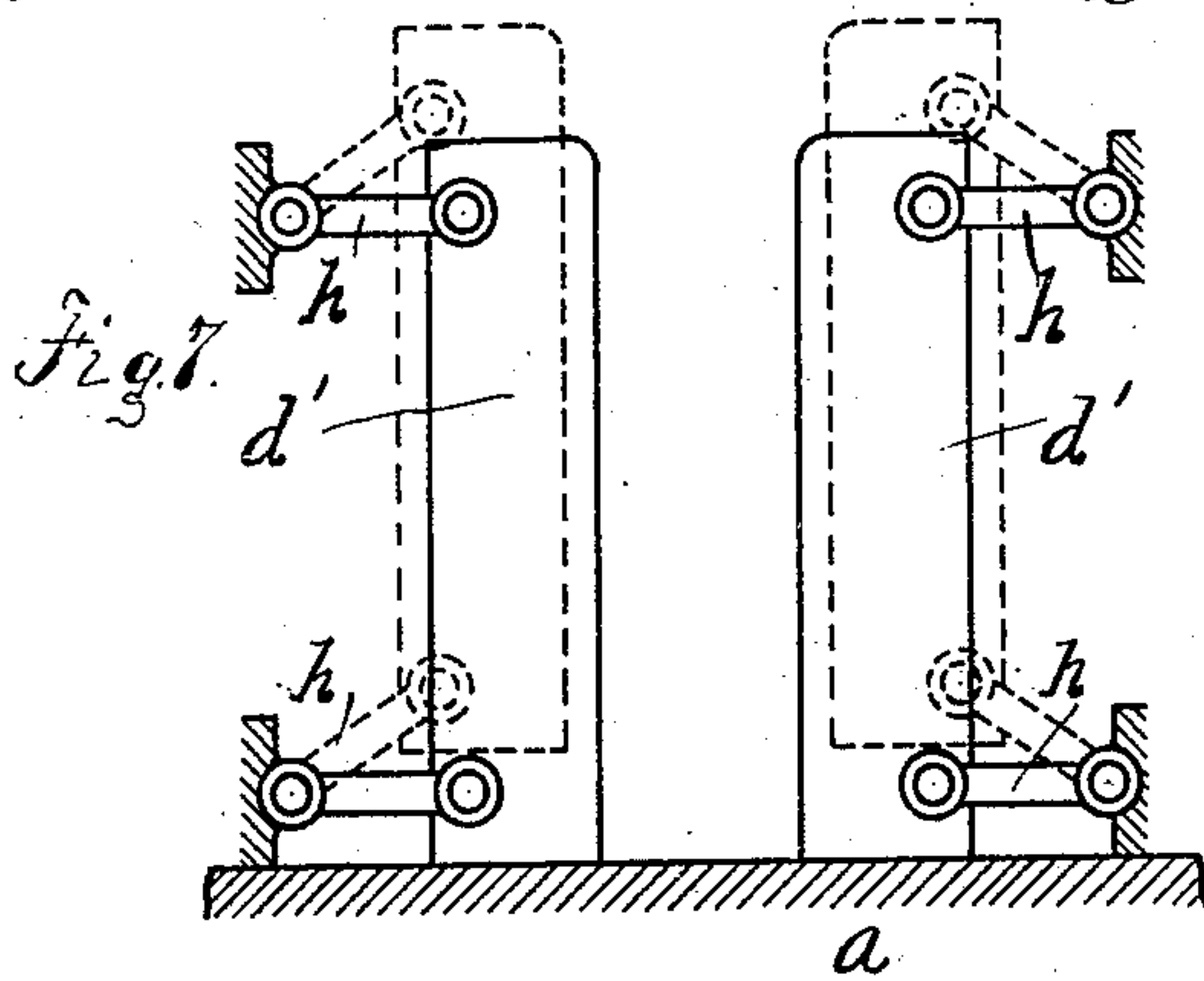
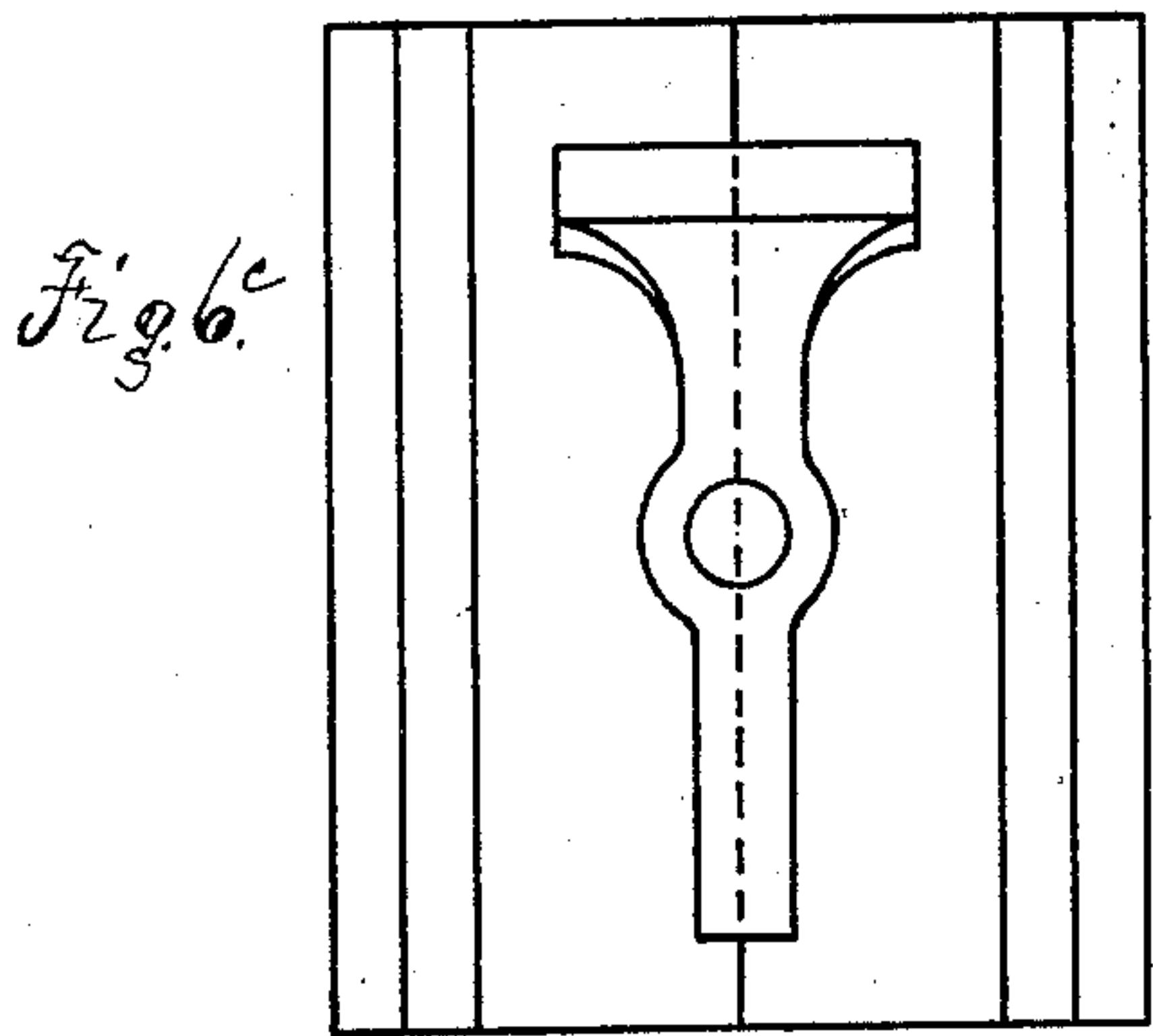
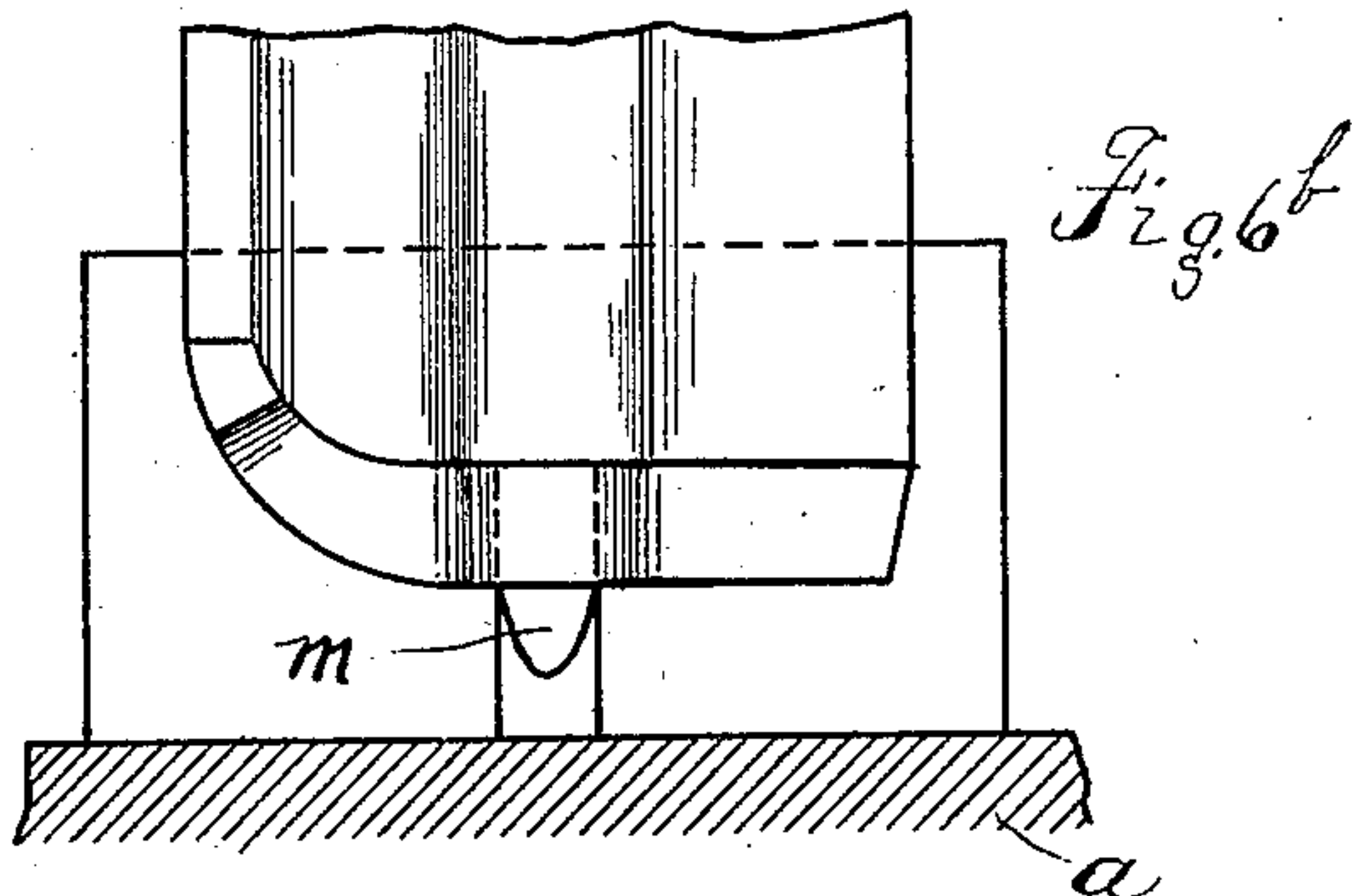
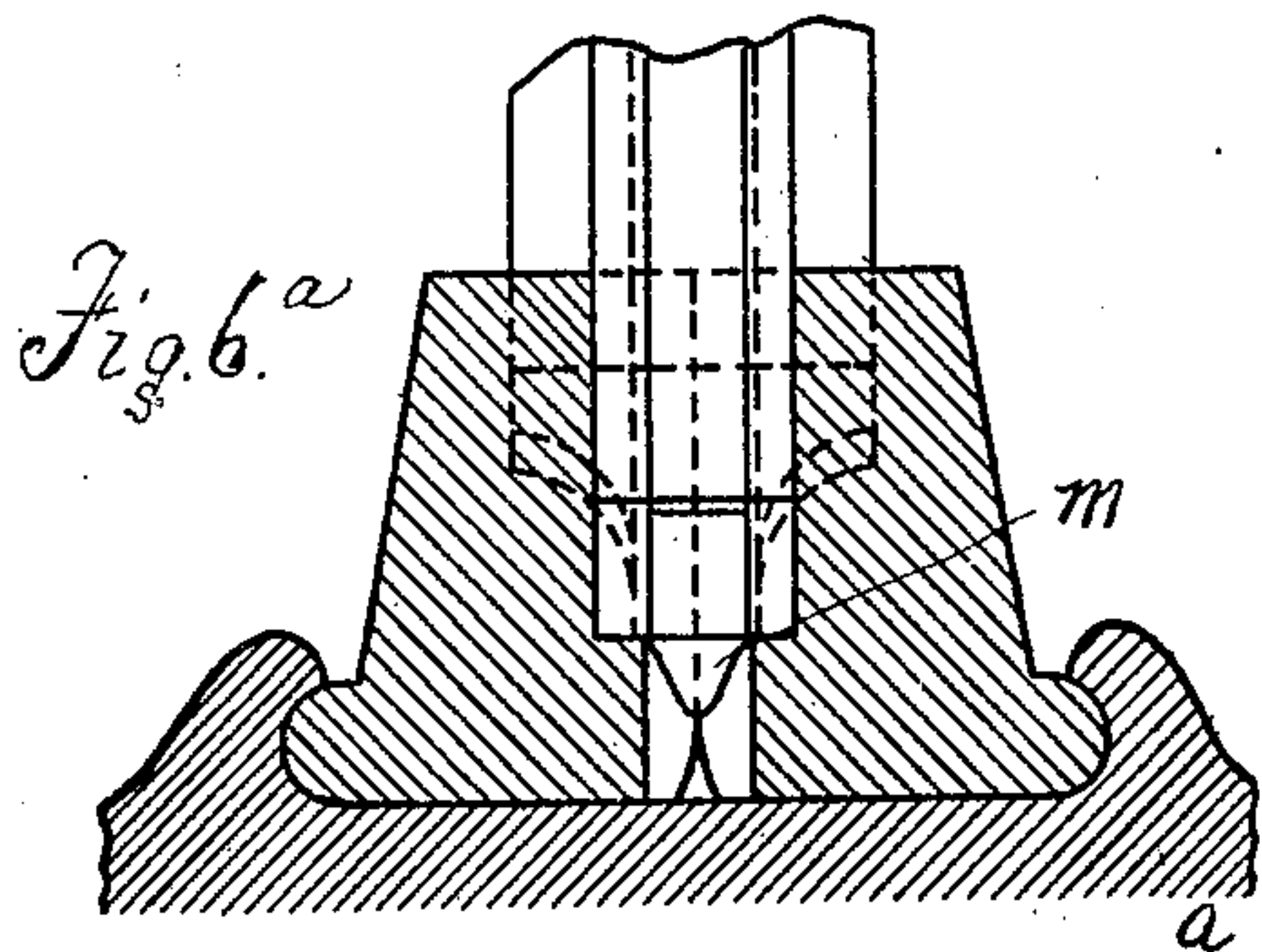
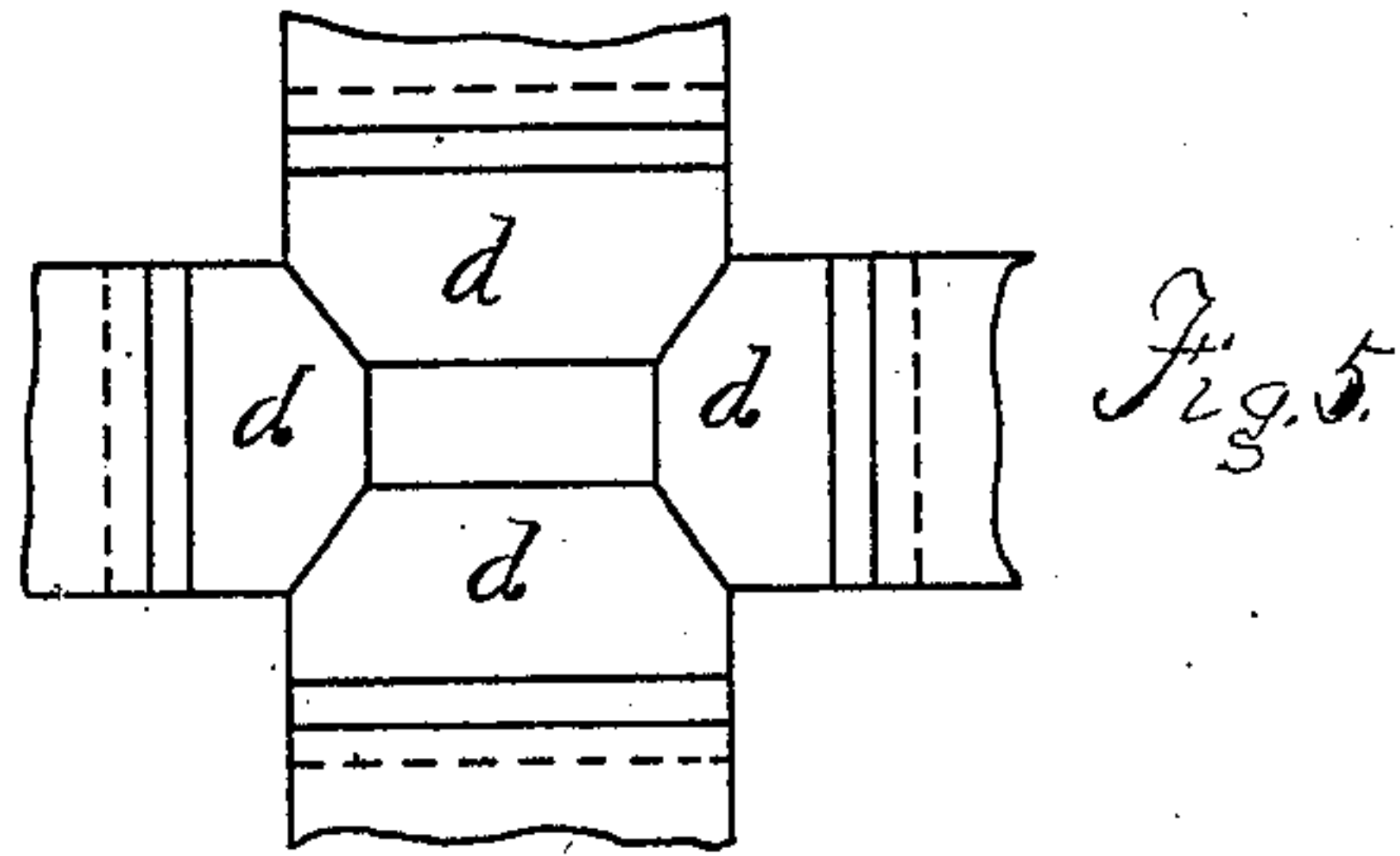
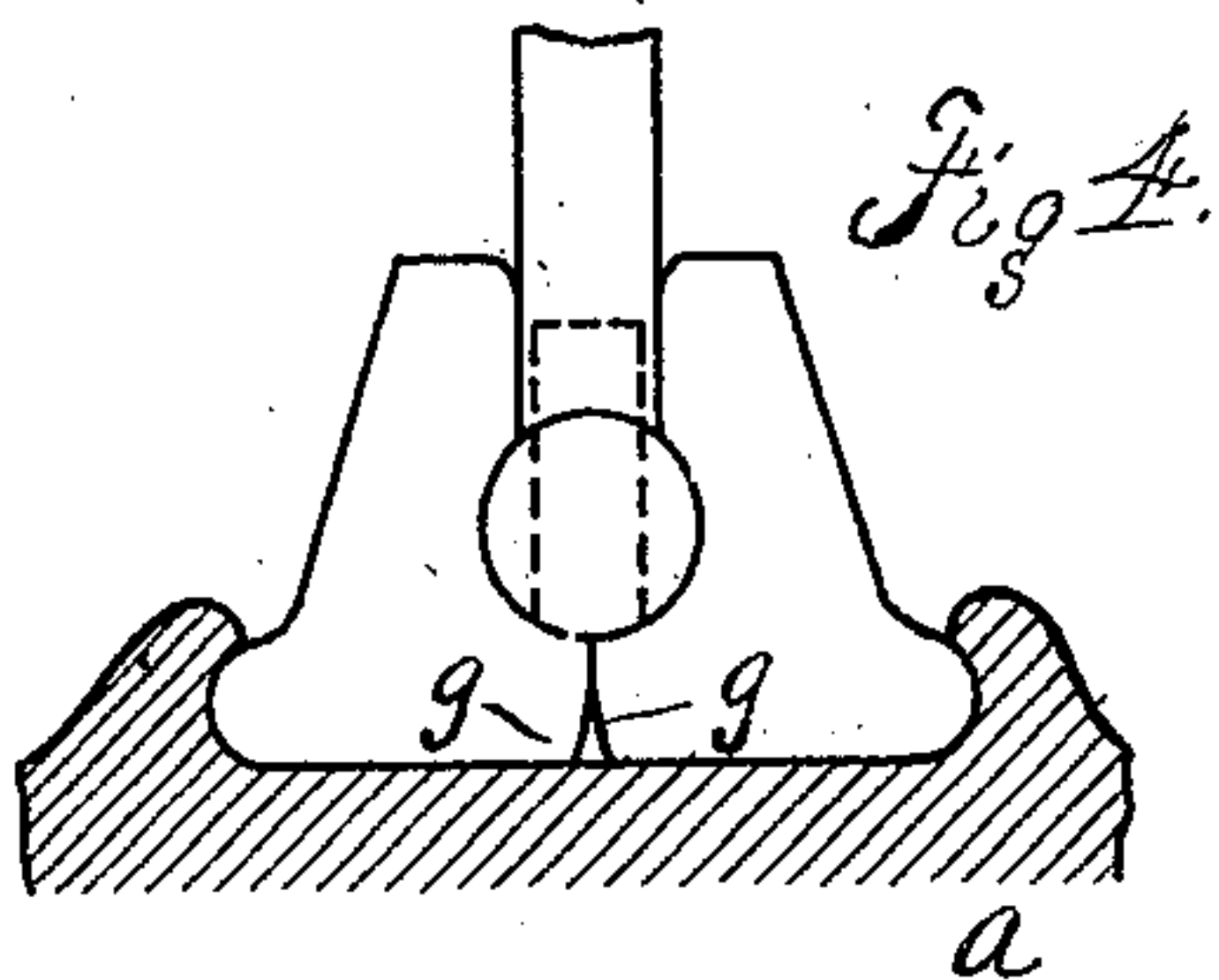
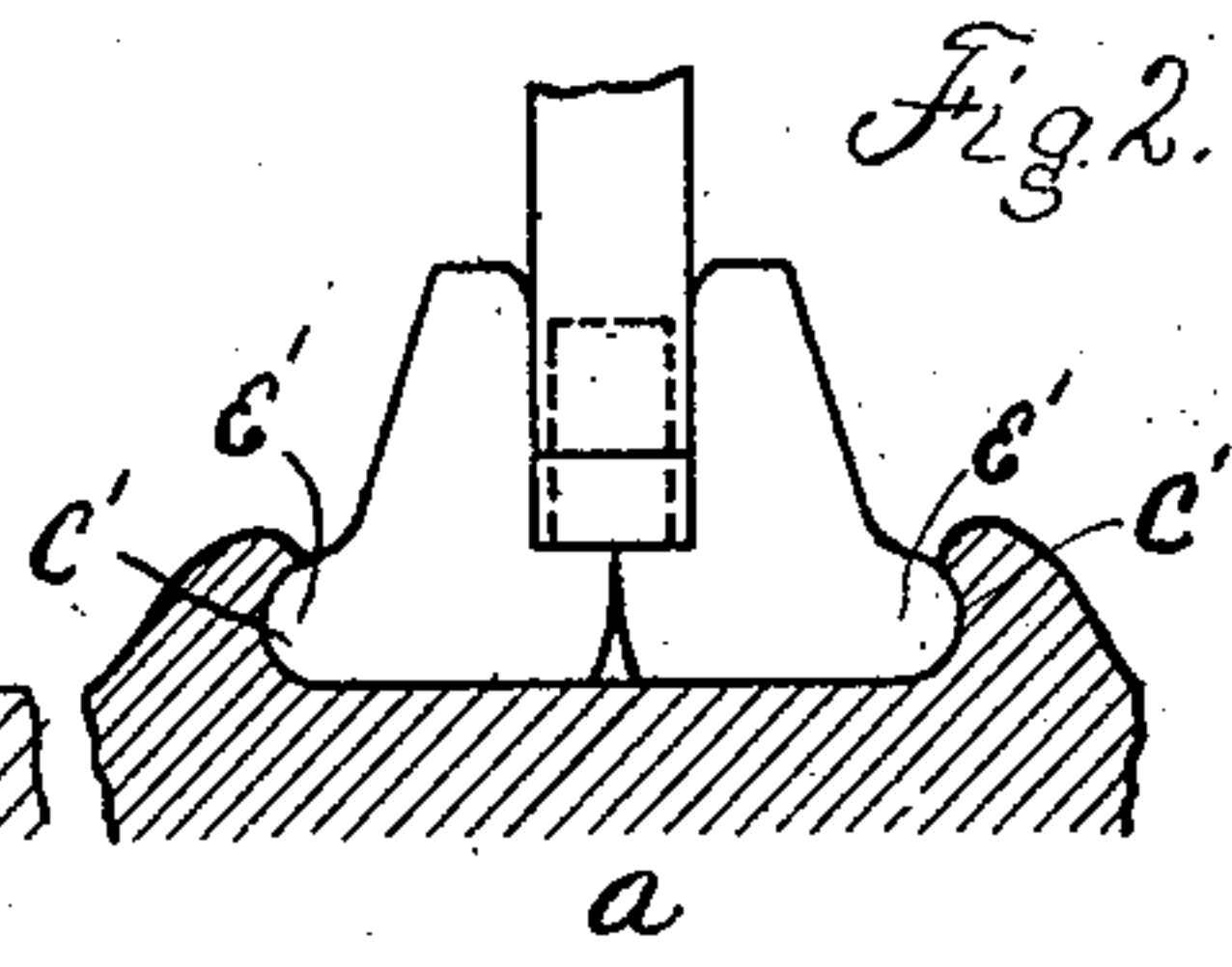
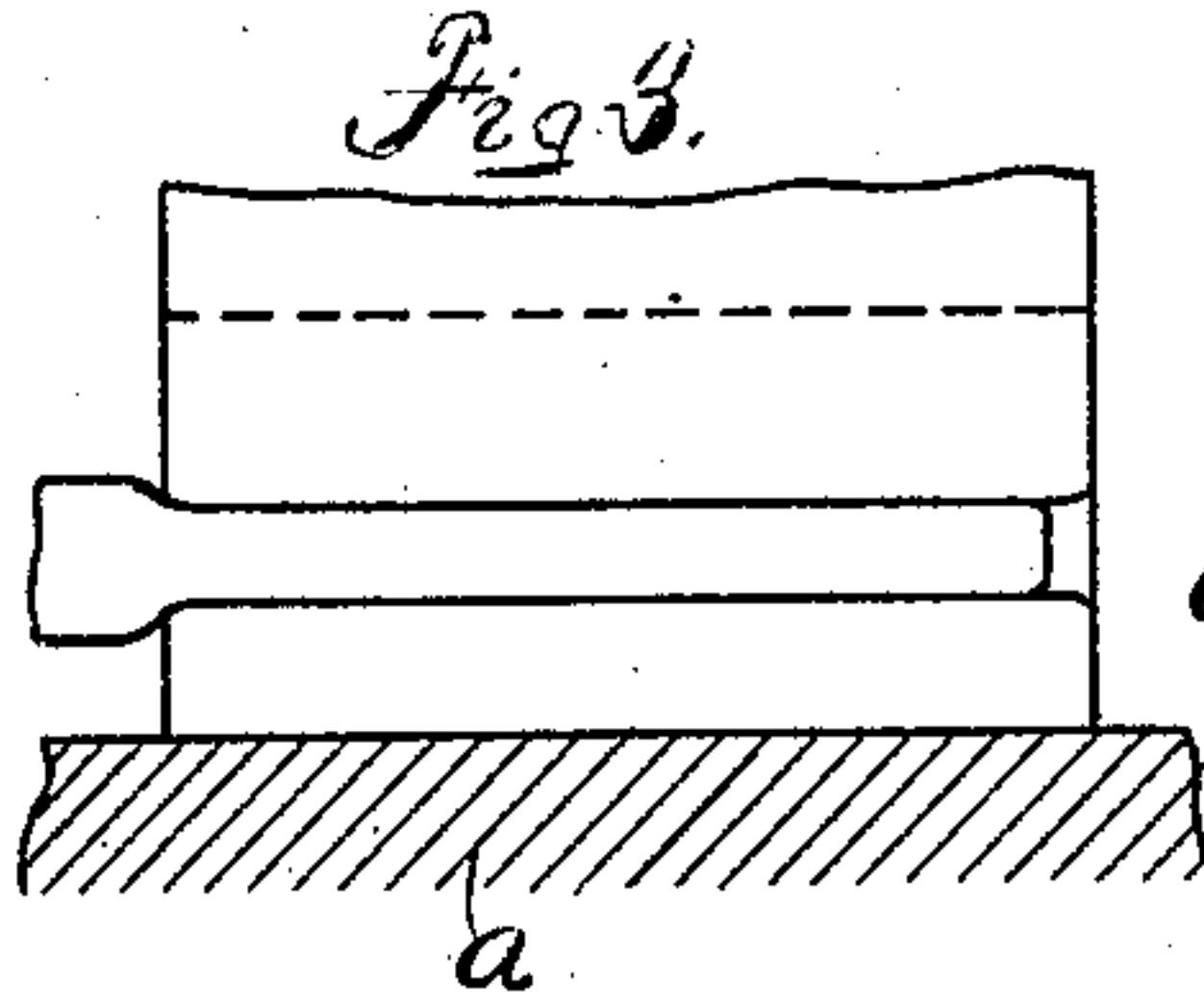
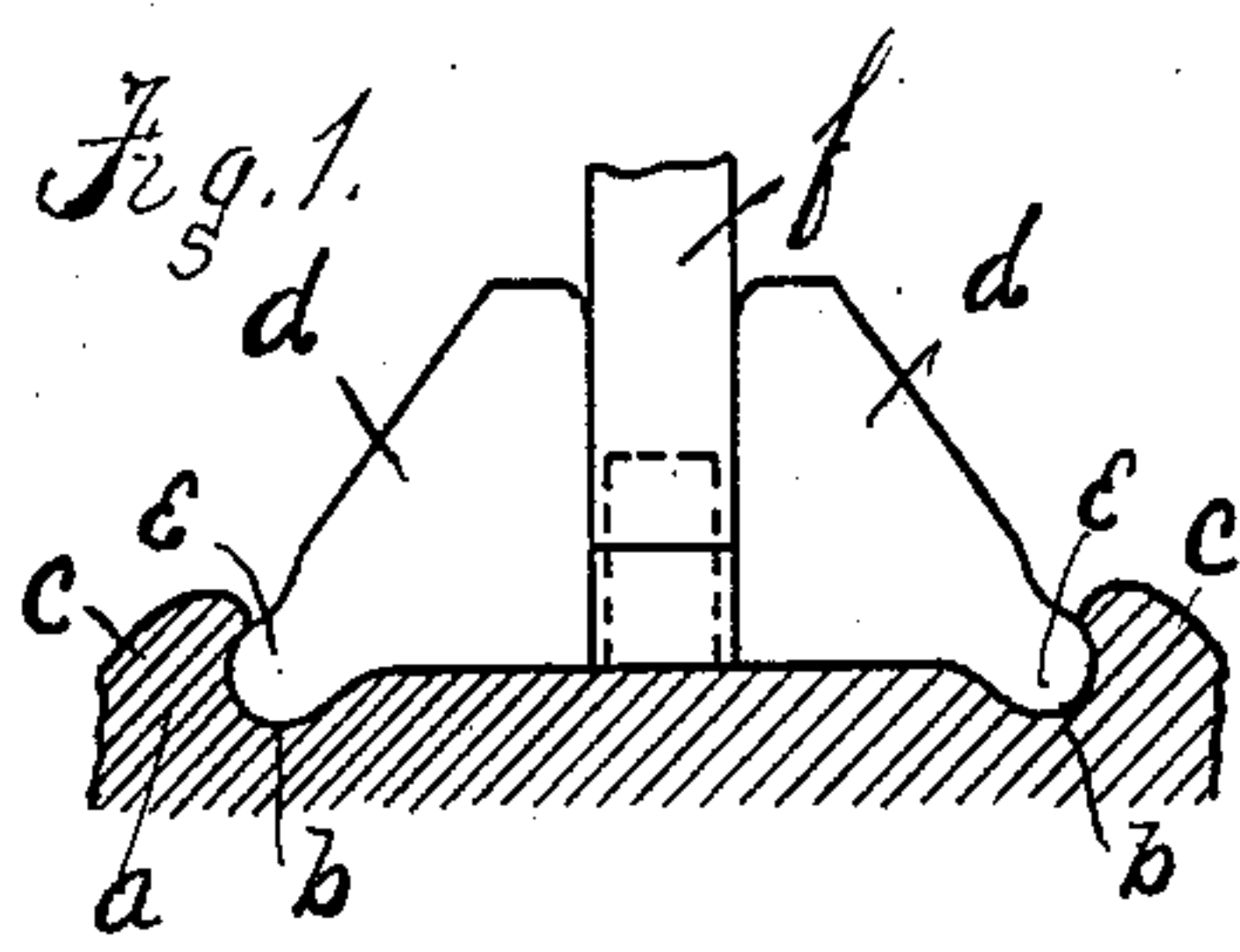


K. PRÖTT.
FORGE DIE.

(Application filed Dec. 22, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
Robt Aiton
Maude E. Aiton

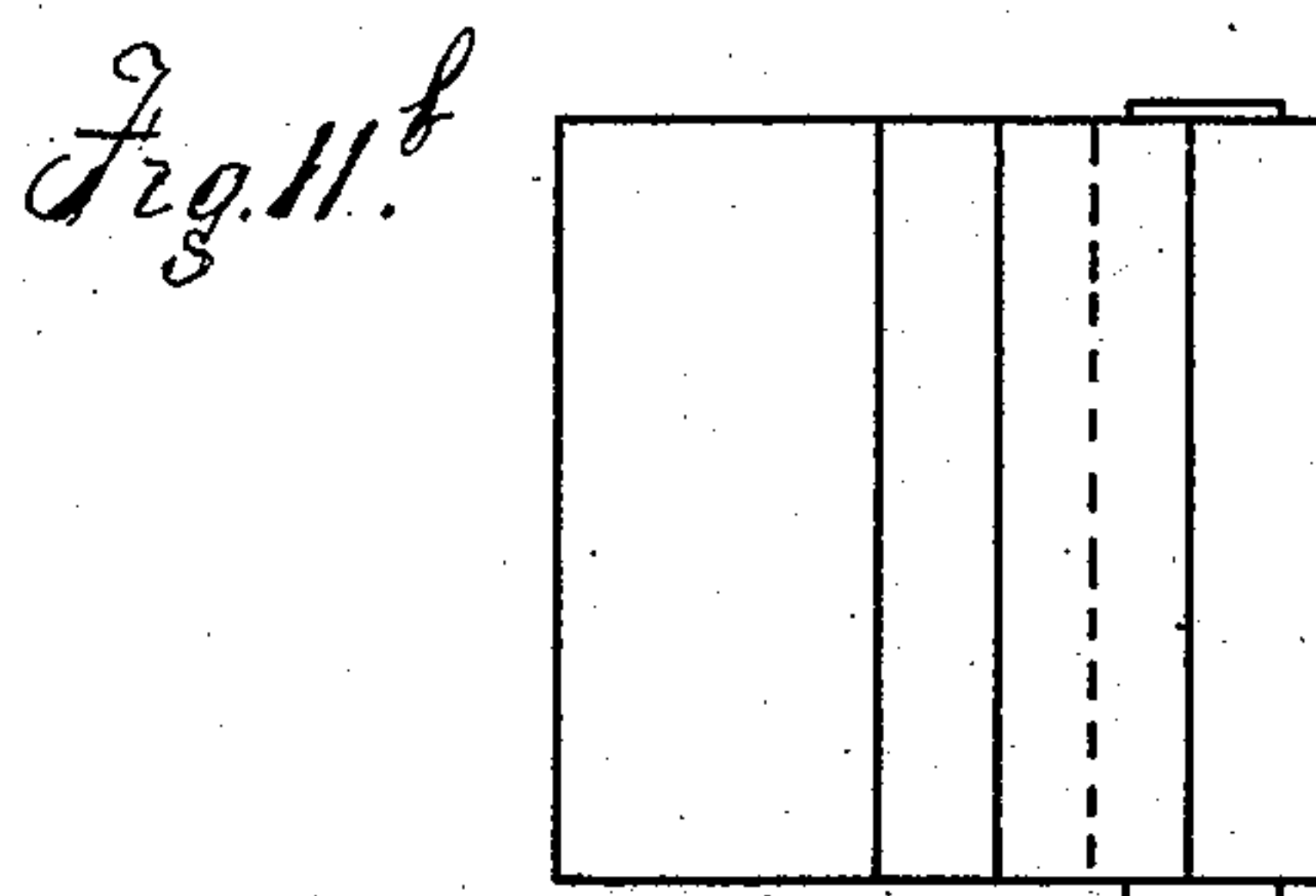
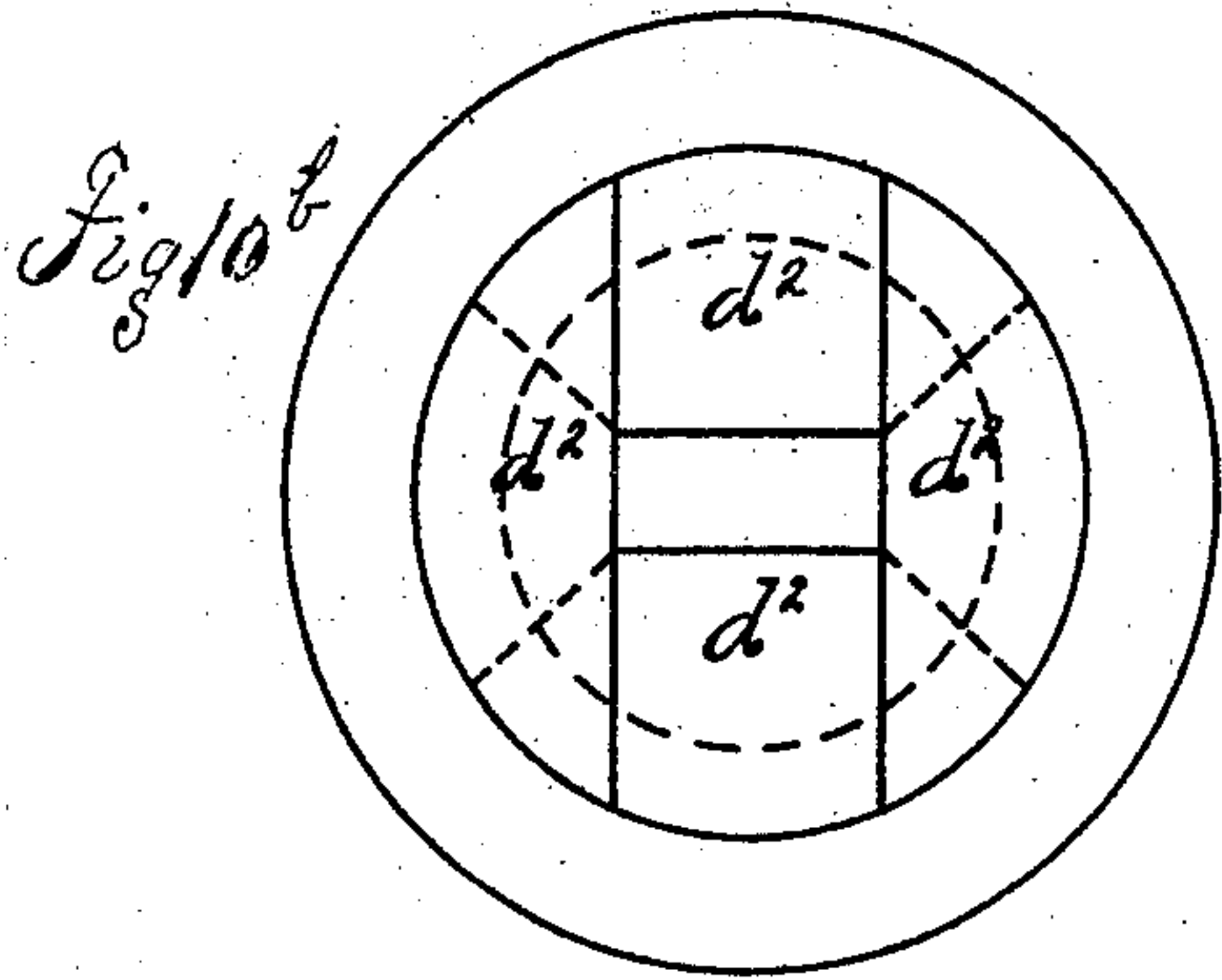
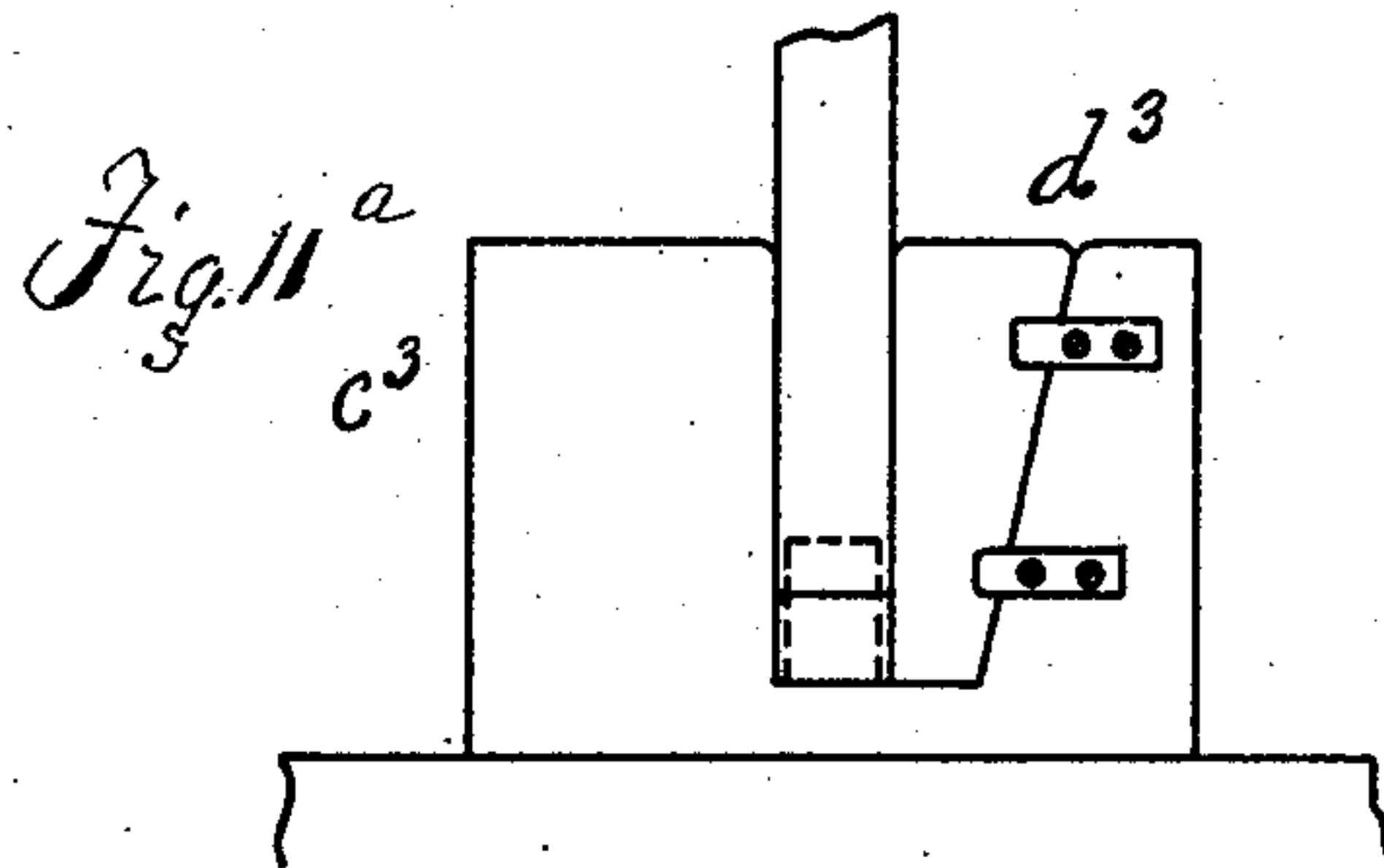
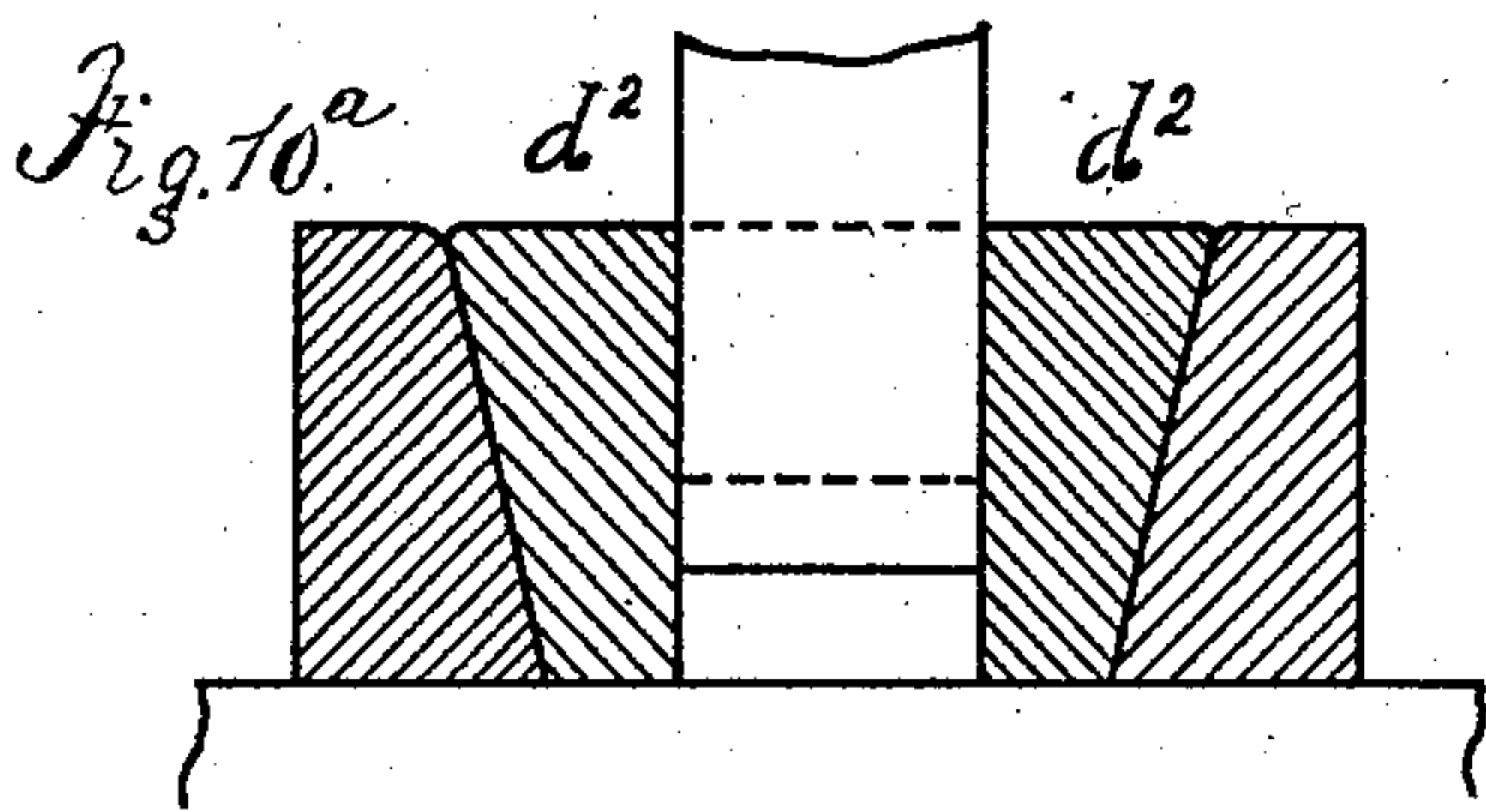
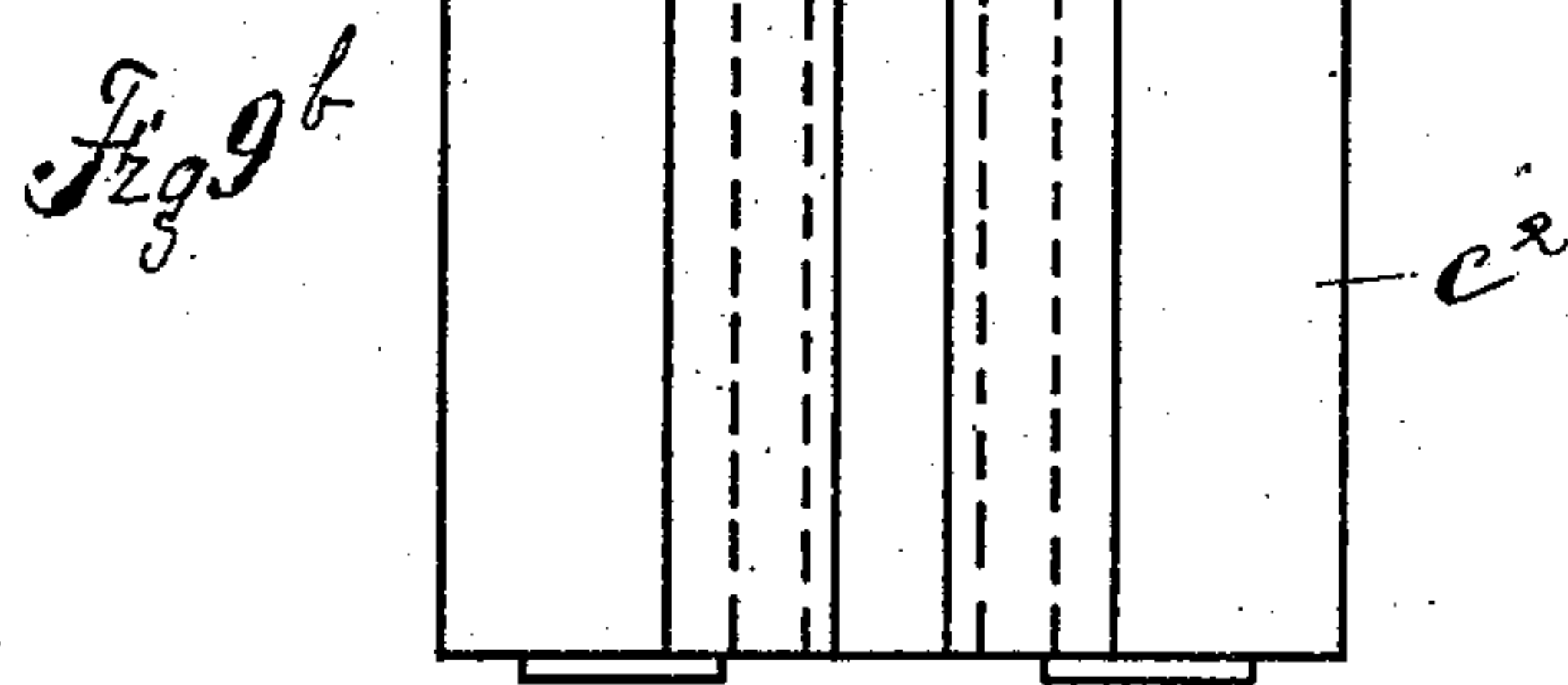
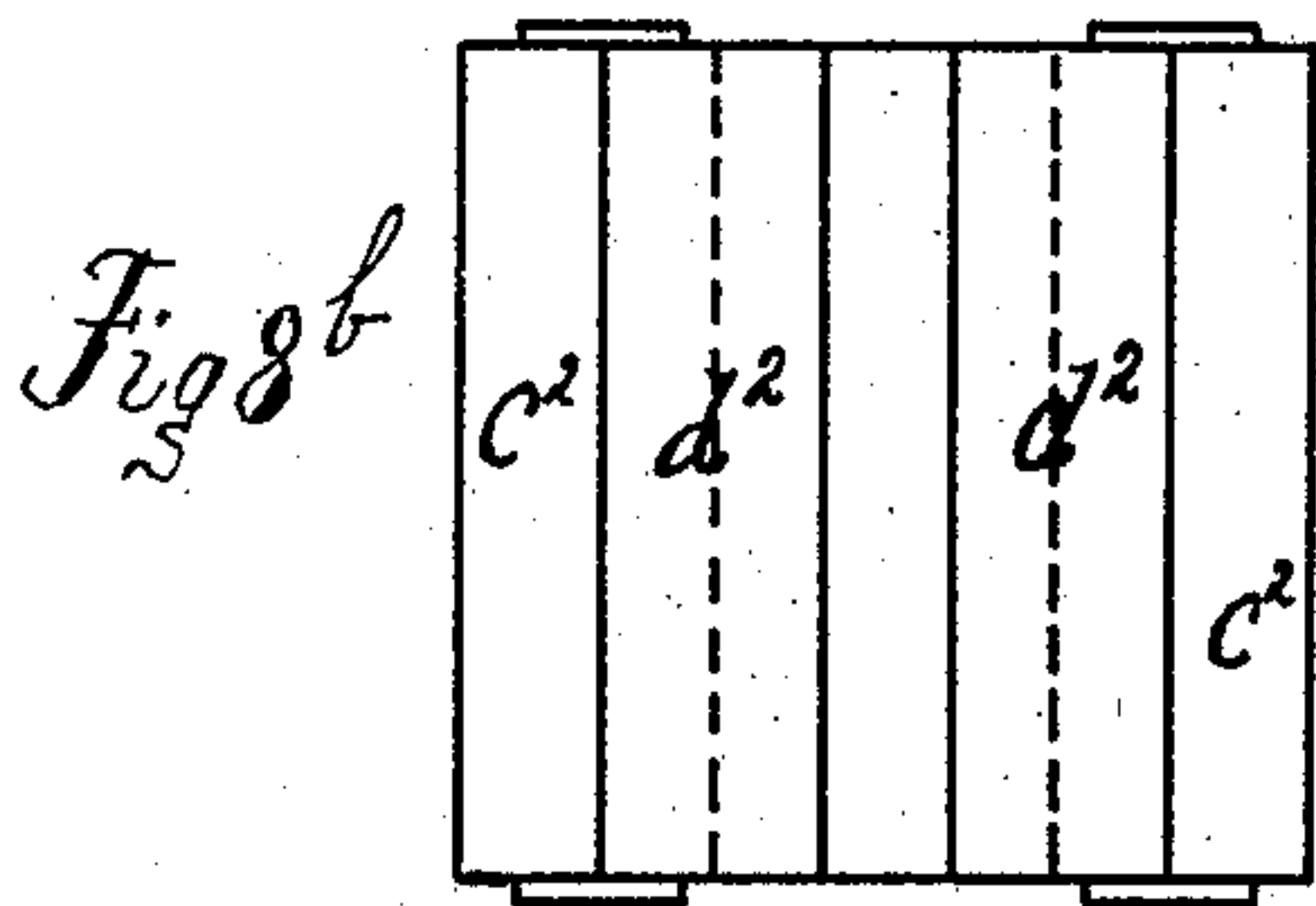
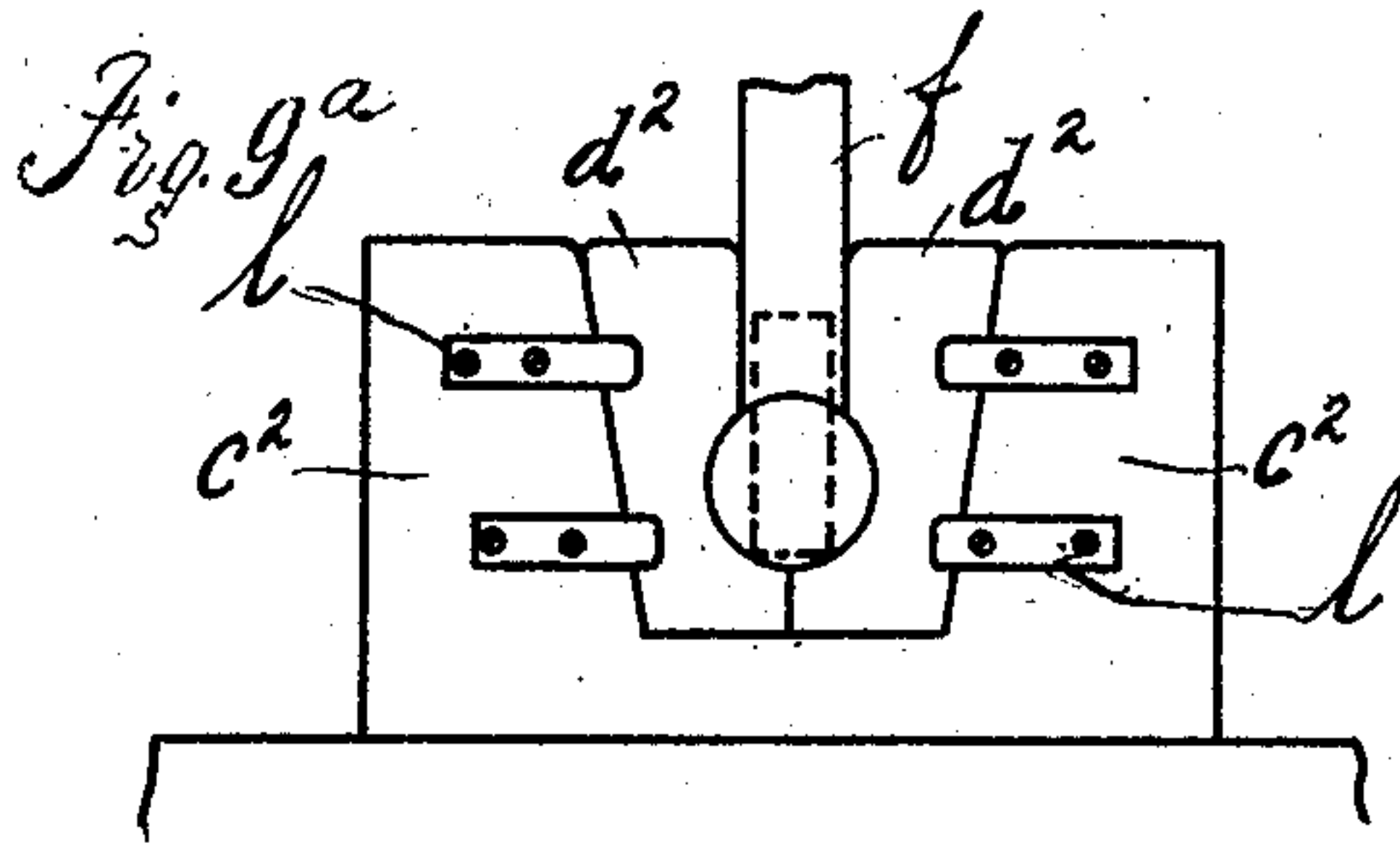
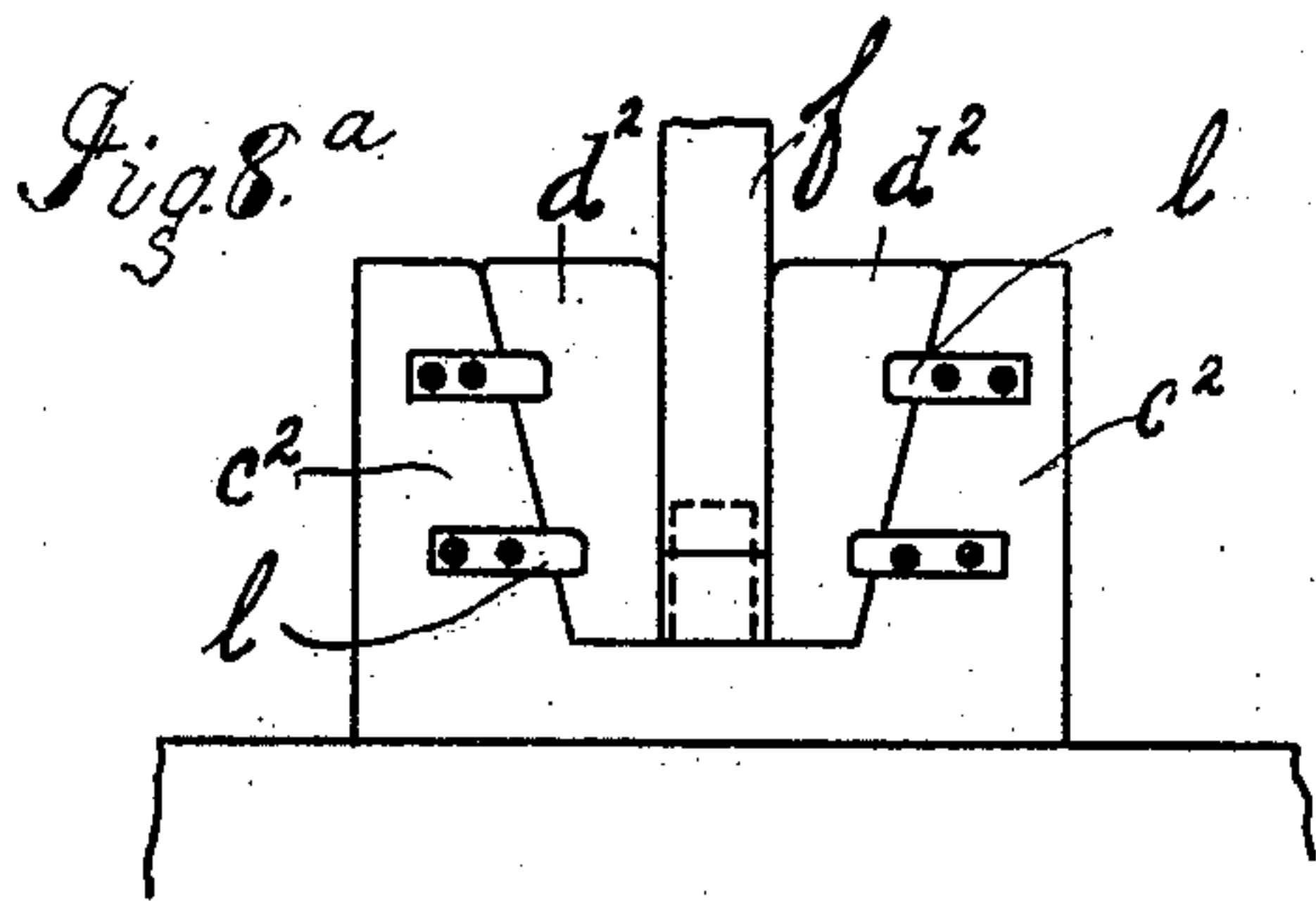
Inventor.
Karl Prött
by Thos. A. Aiton Att'y.

K. PRÖTT.
FORGE DIE.

(Application filed Dec. 22, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
Robt. Aiton.
Maude E. Aiton

Inventor.
Karl Prött
by Thos. A. Aiton
Atty.

UNITED STATES PATENT OFFICE.

KARL PRÖTT, OF HAGEN, GERMANY.

FORGE-DIE.

SPECIFICATION forming part of Letters Patent No. 683,068, dated September 24, 1901.

Application filed December 22, 1900. Serial No. 40,742. (No model.)

To all whom it may concern:

Be it known that I, KARL PRÖTT, a subject of the German Emperor, and a resident of Hagen Westfalen, Germany, have invented a new and useful Forge-Die, of which the following is a specification.

My invention relates to frames or dies employed in forging metals by means of a hammer, &c.; and it consists of a frame having cheeks so arranged as to form a solid and substantial die or frame for the metal piece, but which cheeks can be easily raised, so that ready access may be had to said piece whether its sides are perpendicular or oblique.

In the accompanying drawings, in which similar letters refer throughout to similar parts, Figure 1 is an end view of an open-end die with the lower end of the hammer embodying my invention. Fig. 2 is an end view of an open-end die with modified form of mounting the cheeks. Fig. 3 is a longitudinal section of Fig. 2. Fig. 4 is an end view of an open-end die for forging cylindrical articles. Fig. 5 illustrates a plan view of a die having inclosed ends. Figs. 6^a, 6^b, and 6^c illustrate, respectively, a vertical cross-sectional view, a longitudinal view with one cheek removed, and a plan view of a die used for forming a desired article, as here the cheek of a vise with the necessary punch for forming a hole therein. Fig. 7 is an end view illustrating other modifications for mounting the cheeks. Figs. 8^a and 8^b are respectively end and plan views of an open-end die, illustrating modifications in mounting the cheeks. Figs. 9^a and 9^b illustrate a die having cheeks mounted similarly to Figs. 8^a and 8^b with a different-shaped die. Figs. 10^a and 10^b show an inclosed die respectively in cross-section and plan view. Figs. 11^a and 11^b represent in elevation and plan views another modified form of construction.

As is well known in the art forged metal pieces having downwardly-converging sides can be easily removed from the die; but in the other instances, as where the piece has parallel vertical sides or is circular in form or has upwardly-converging sides, the finished piece is difficult of access. In order, therefore, to eliminate this disadvantage, I have invented a die with movable cheeks. In the construction thereof I employ a bed-plate

a, which is provided with parallel grooves *b*, Fig. 1, and upwardly and inwardly projecting flanges *c*. Cheeks *d* have rounded tailpieces *e* fitting into said grooves and partially beneath said flanges are mounted on said bed-plate and form between their adjacent faces the desired dies, in which the metal lump is placed and into which the head of the hammer *f* drops. For the purpose of clearly understanding the operation a work-piece of metal is shown in dotted lines in the several figures, with the head of the hammer thereagainst. In Fig. 1 the work-piece is illustrated as resting upon the bed-plate, whereas in the remaining figures the die is formed out of the cheeks, with the exception of the upper surface, which is of course formed by the hammer. It will be clearly understood that after placing the metal lump in position between the cheeks the hammer is dropped or a press-plunger is forced thereon, or any other pressure is brought to bear against the piece, whence the latter assumes the form of the die. The hammer in descending comes into frictional contact with the inner faces of the cheeks *d* aforesaid, which are thus pressed firmly down upon the bed-plate, forming thereby a solid and substantial die; but, however, when the said hammer is raised the cheeks can be easily swung about their points of pivot—*i. e.*, the said tailpieces resting in the said grooves—thus affording ready access to the forging. In place, however, of forming grooves in the bed-plate I may simply form the said flanges as at *c'*, (shown in Fig. 2,) while tailpieces *e'* are correspondingly formed on the said cheeks. In cases where the bottom of the die is formed in the cheeks themselves, as illustrated in all the figures with the exception of Fig. 1, the adjacent contacting surfaces are somewhat formed as illustrated at *g g*, Fig. 4. In place, however, of rotating cheeks, as shown in Figs. 1 to 6^c, inclusive, I may employ cheeks *d'* *d'*, mounted on small arms *h h*, (see Fig. 7,) or, in place of either of these, sliding cheeks *d'' d''*, moving against inclined faces formed in the inner sides of flanges *c'' c''*, as shown in Figs. 8^a, 8^b, 9^a, and 9^b, in which case guide-cleats *l l* are formed or fastened on the ends of the flanges to prevent the lateral movement of the cheeks, or as another modification the die may be formed

of a stationary flange d^3 and a single cheek. (See Figs. 11^a and 11^b.)

Whenever the forging to be made requires a closed die, I may employ a plurality of rotatable cheeks, as shown in Fig. 5, or a plurality of sliding cheeks arranged pyramidically. In case it is desired to forge some particular article or design, as a vise-cheek, the necessary die is formed in the cheeks, which may be rotatable, as shown in Figs. 6^a to 6^c, inclusive, or may be sliding. Any necessary punches, &c., may be arranged on the hammer, as *m*, (see Figs. 6^a and 6^b,) with corresponding openings formed in the cheeks. In all cases it will be seen that a die is formed in which the cheeks are movable and ready access is to be had to the forging and in which the said cheeks are brought firmly into a correct position by the downward movement of the hammer.

Having now described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a forge-die, a bed-plate, loosely and movably mounted cheeks supported on said bed-plate and a hammer mounted to frictionally directly engage the adjacent faces of said cheeks substantially as described.

2. In a forge-die, a bed-plate, loosely and

movably mounted cheeks having rounded tailpieces, and a hammer adapted to directly engage the adjacent faces of said cheeks, as set forth.

3. In a forge-die, a bed-plate and a plurality of rotatable cheeks thereon having their adjacent faces relatively disposed to be engaged directly by a hammer, as set forth.

4. In a forge-die, a bed-plate, a plurality of cheeks arranged pyramidally with their adjacent faces relatively disposed to be frictionally directly engaged by a hammer, as and for the purpose set forth.

5. In a forge-die, a bed-plate having parallel rounded grooves and inwardly-projecting flanges, and cheeks having rounded tailpieces loosely engaged in said groove and partially beneath said flanges for pivotal movement and having their adjacent faces relatively disposed and adapted to be frictionally engaged by a hammer, substantially as described.

In testimony whereof I have hereunto set my hand, this 10th day of September, 1900, in the presence of two witnesses.

KARL PRÖTT.

Witnesses:

OTTO KÖNIG,
HANS SCHADDE.