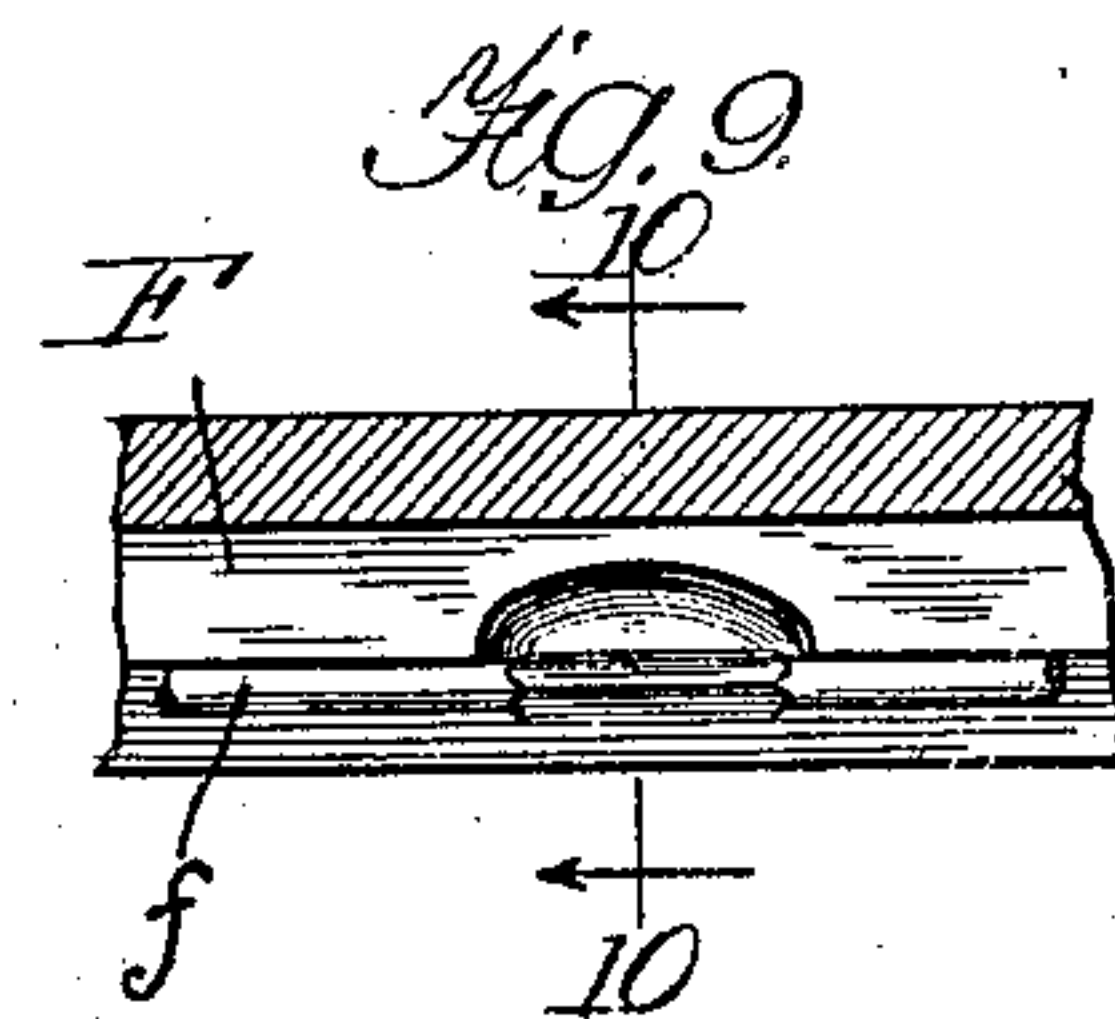
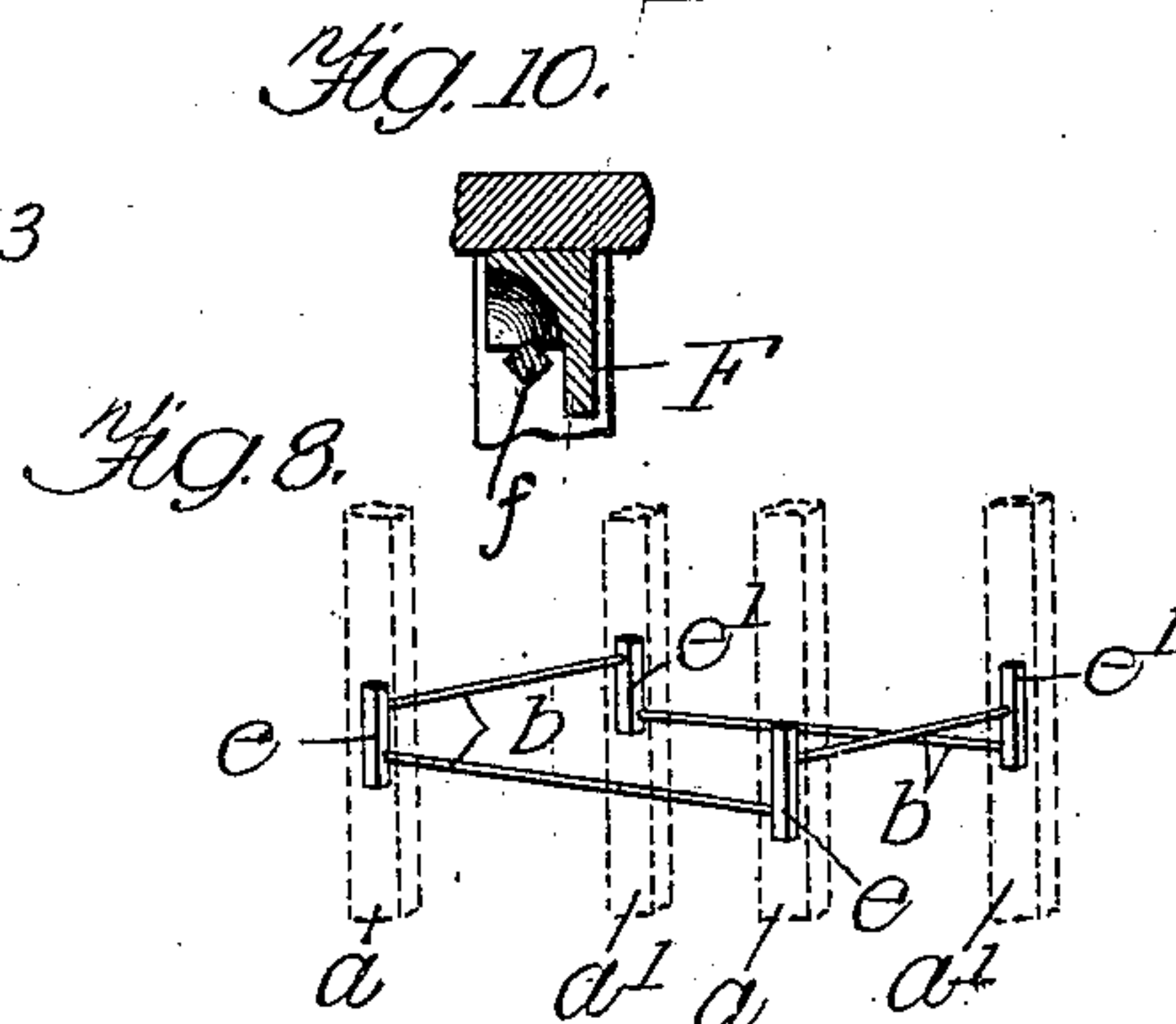
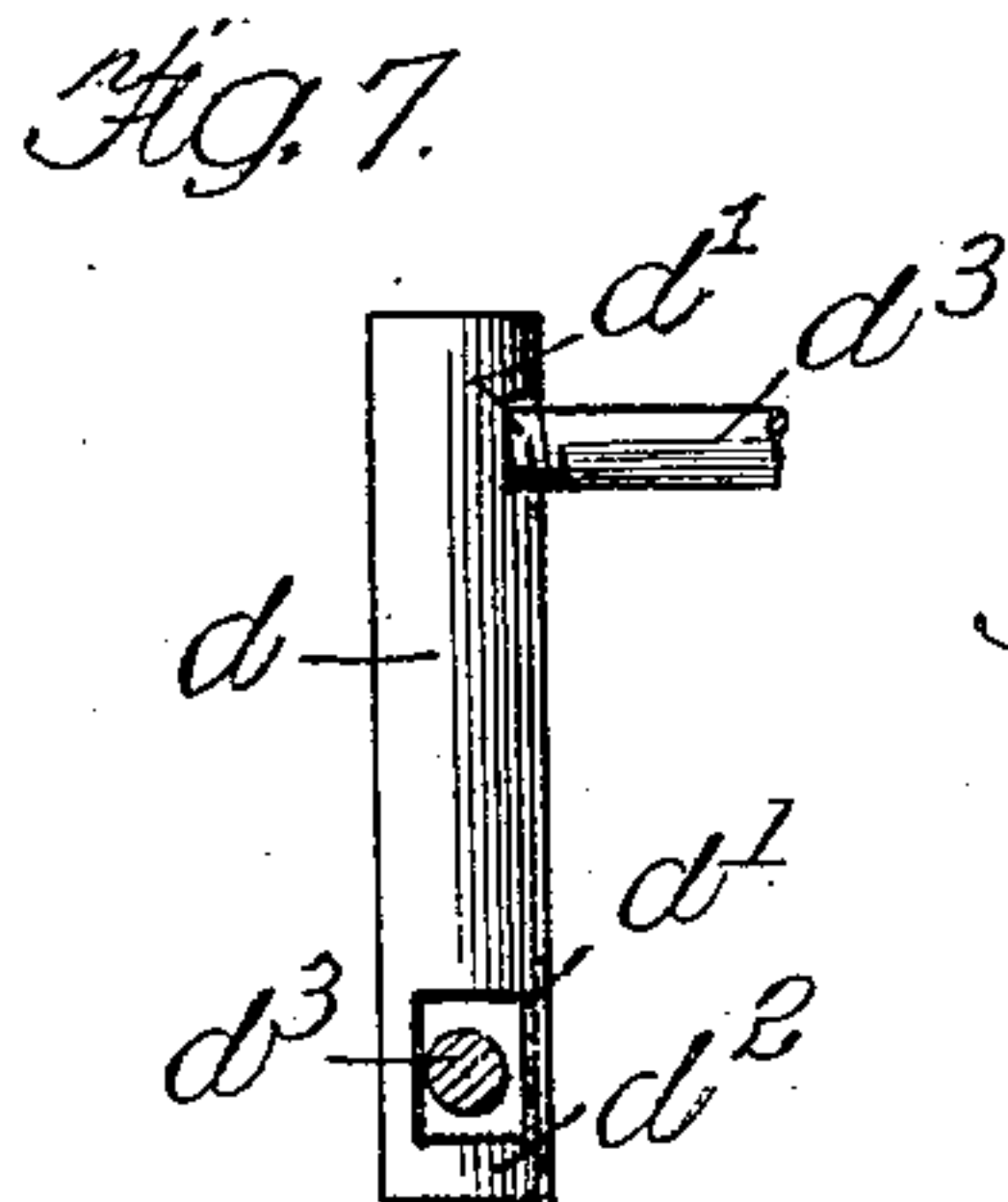
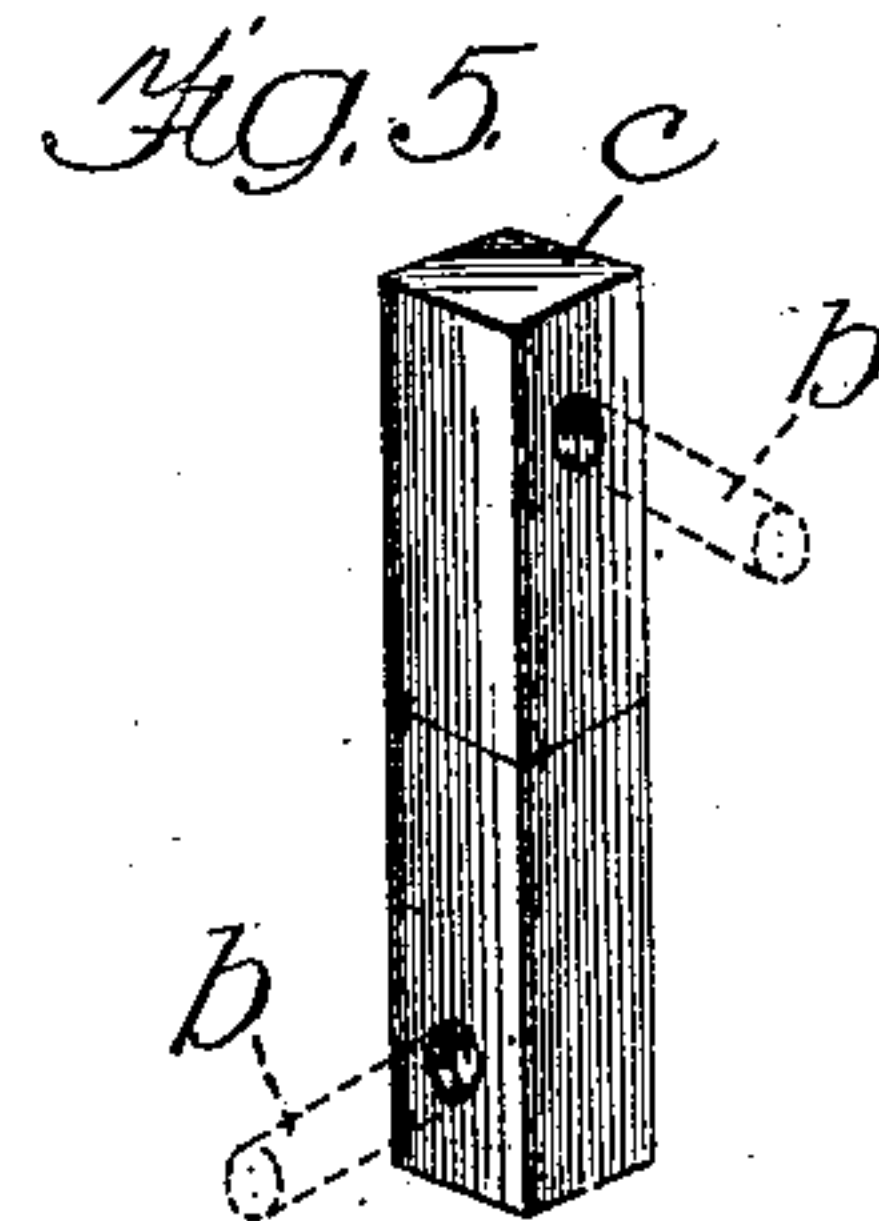
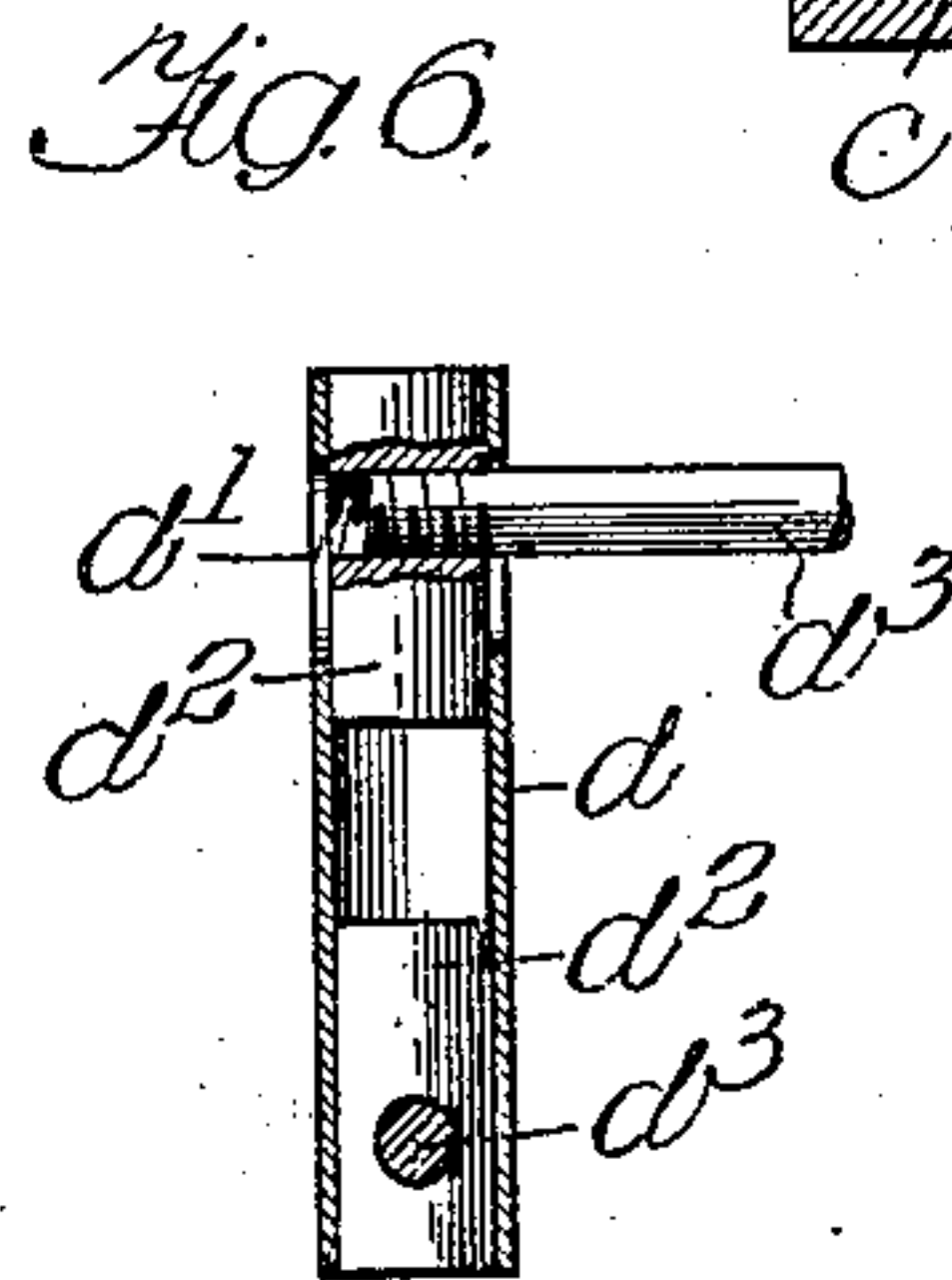
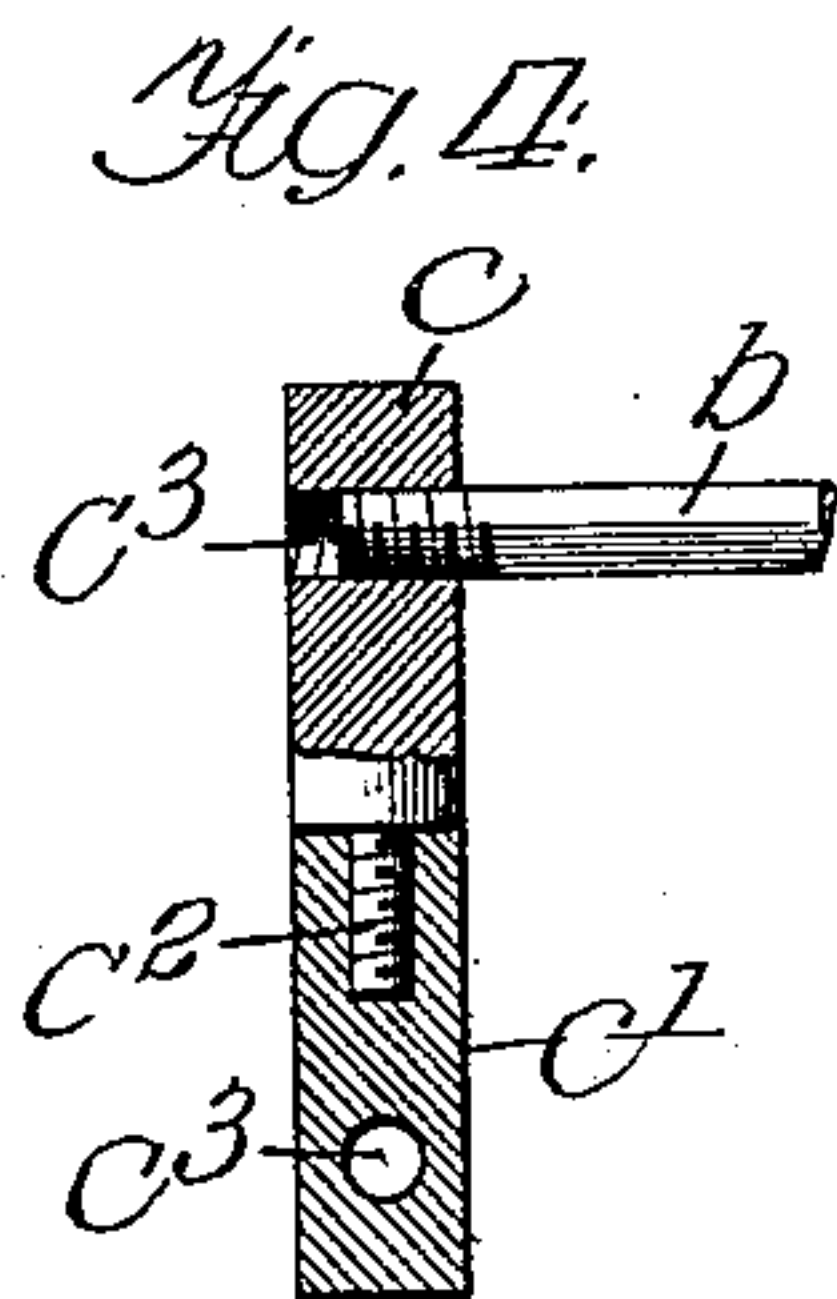
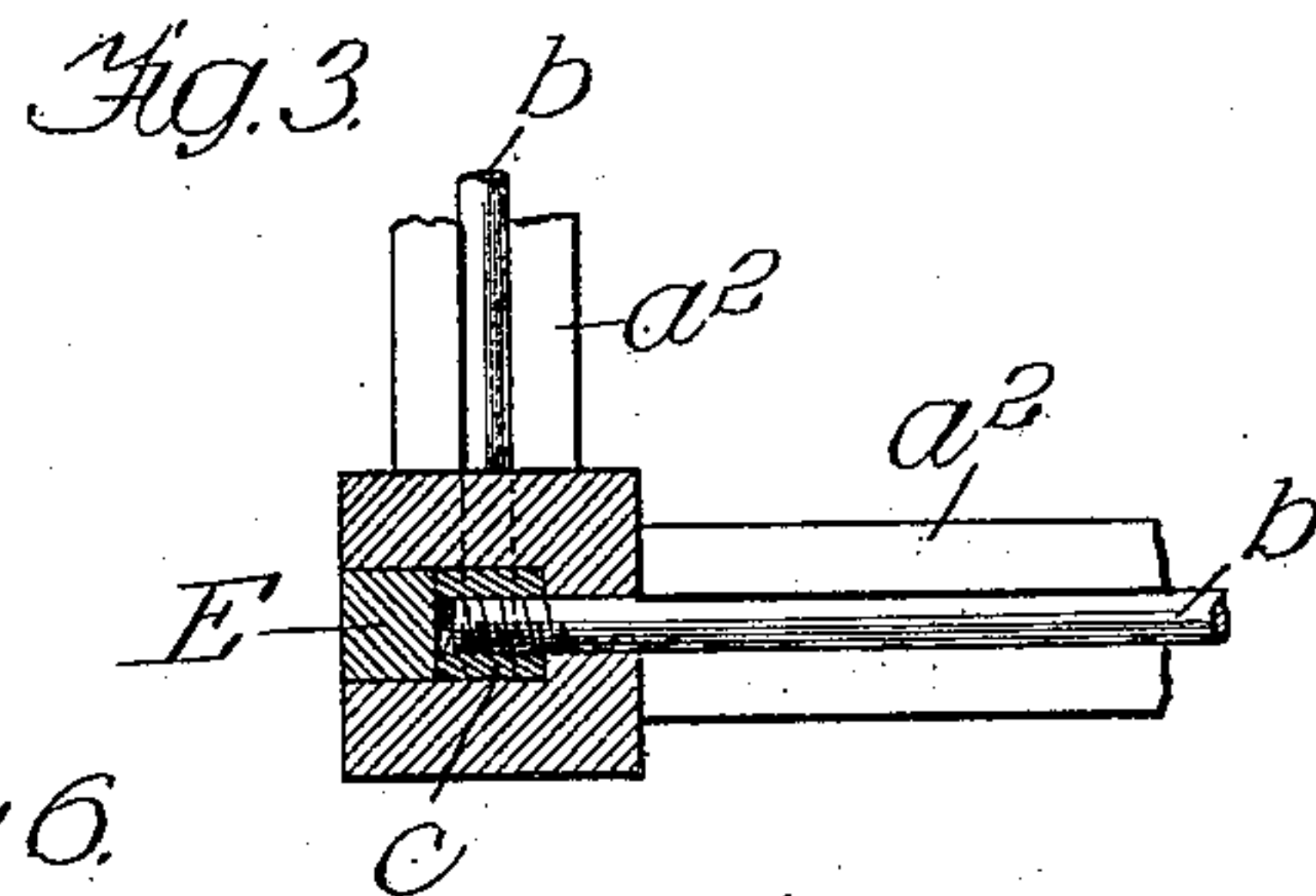
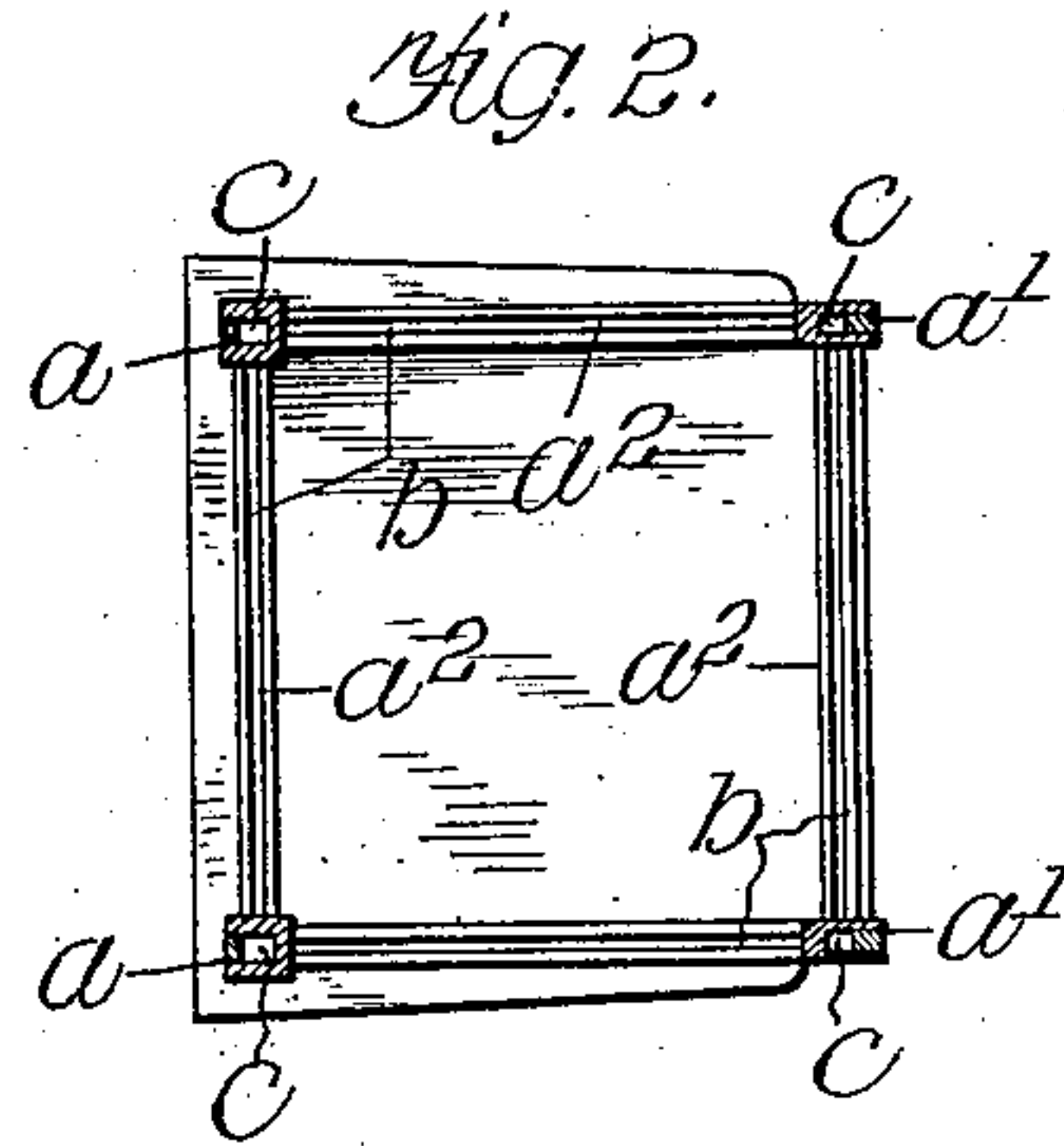
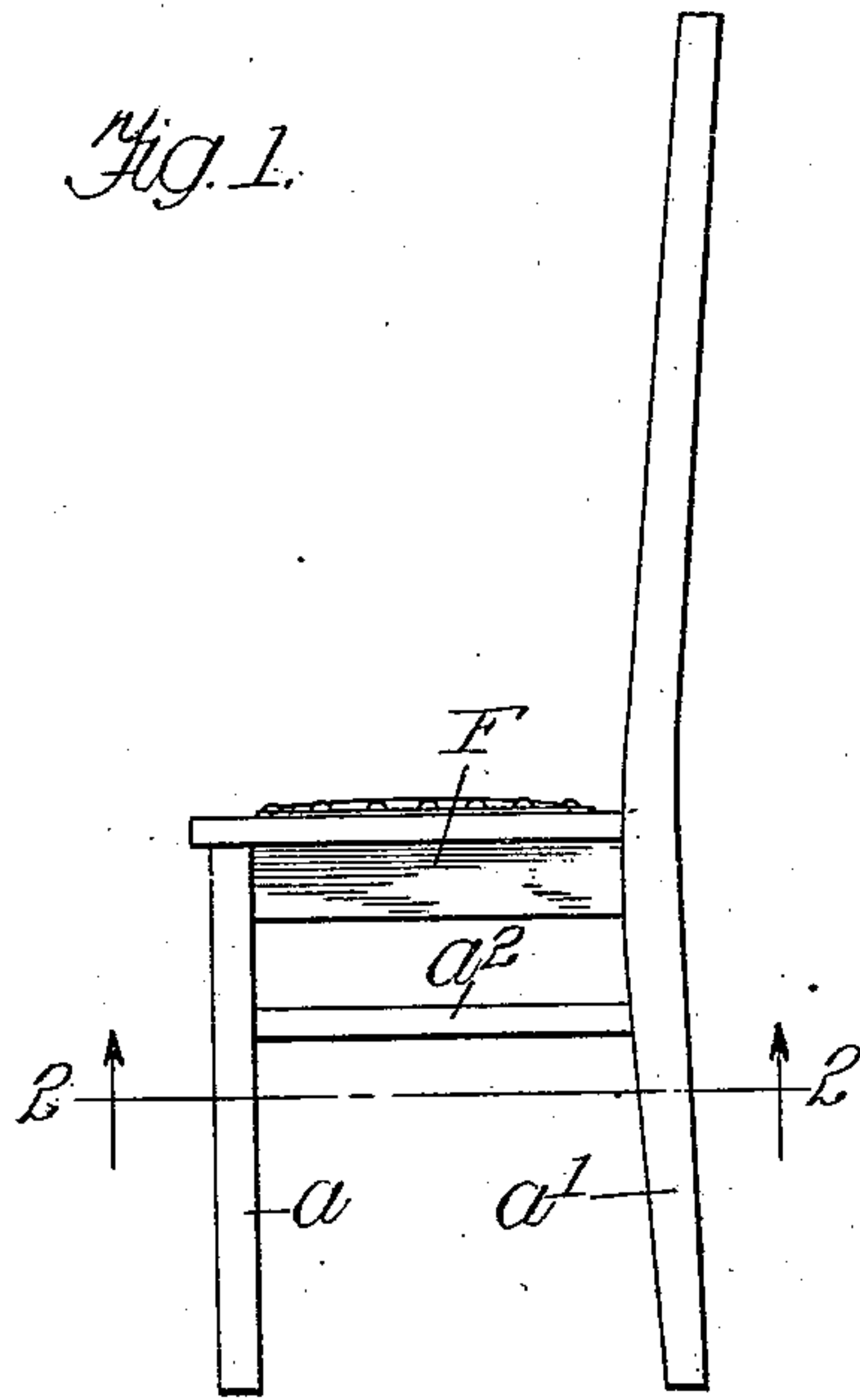


A. B. RUSSELL.  
CHAIR BRACE.

APPLICATION FILED NOV. 1, 1910.

991,648.

Patented May 9, 1911.



Witnesses:  
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Wellswood

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J. M. Russell - Atty.



# UNITED STATES PATENT OFFICE.

ARTHUR B. RUSSELL, OF CHICAGO, ILLINOIS.

CHAIR-BRACE.

991,648.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed November 1, 1910. Serial No. 590,162.

To all whom it may concern:

Be it known that I, ARTHUR B. RUSSELL, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Chair-Braces, of which the following, taken in connection with the drawings, is a description.

My invention has for its object the production of a brace for furniture such as chairs, tables, and the like, and is designed to prevent the supports or legs of such furniture from spreading under the weight sustained by them.

A further object of the invention is to provide a brace of this kind which will be entirely invisible from the outside of the chair or table, and one in which the brace is continuous and the joints thereof so securely locked together that when once assembled they cannot become loosened by usage and gradually work apart.

Other features of advantage in construction and arrangement of parts will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings I have illustrated what I now consider the preferred form of construction although changes may be made in the size, proportion and details thereof without departing from the spirit of my invention, and in these drawings Figure 1 is a side elevation of a chair embodying my invention; Fig. 2 is a view taken on line 2—2 of Fig. 1, looking in the direction of the arrows; Fig. 3 is an enlarged detail of one of the joints of the brace with the connecting rods passing through hollow rungs; Fig. 4 is a sectional detail of one of the braces or joints removed from the chair leg; Fig. 5 is a perspective view of the brace shown in Fig. 4 showing the position of the rods secured in place; Figs. 6 and 7 are respectively a sectional view and side elevation of a modified form of joint; Fig. 8 is a perspective view of the complete brace as assembled in the frame; and Fig. 9 illustrates the brace rods secured in a groove with the rod having an angular surface a portion of its length. Fig. 10 is a sectional view taken on line 10—10 of Fig. 9.

Referring to the drawing Fig. 1 represents the outward appearance of a chair equipped with my invention, the brace which

I have provided being concealed beneath or inside of the rungs of the supports, the joints for the same being arranged in sockets or recesses in the chair legs.

$a, a$  represent the front legs and  $a', a'$  the back legs of an ordinary chair.

$a^2, a^2, a^2, a^2$  are the rungs, extending laterally from each of the supports  $a, a'$ .

$b, b, b, b$  are rods, each having a right hand screw thread on one end and a left hand screw thread on the other.

The rungs  $a^2$  may be hollow or may have a groove extending lengthwise thereof into or through which the rods  $b$  are extended for a purpose hereinafter explained.

A joint fastening  $c$  is disposed in each leg or support, preferably at the juncture of the rungs  $a^2$  and the supports  $a, a'$ , either by mortising out a recess in which said brace or joint is arranged, or by providing a socket extending downwardly from the top of the chair leg. These fastenings may be made to form a rigid connection with the rods  $b$ , or they may be arranged to be slightly adjustable as is necessary in some cases.

In Fig. 4 I have shown a brace formed of two members, one of which,  $c'$ , has a socket formed therein which is interiorly screw threaded, into which is secured the exteriorly screw threaded shank  $c^2$  which projects from the second member. This construction will allow a slight lateral movement for the purpose of adjustment which is sometimes necessary in assembling the parts. These joints are preferably made in a single piece, but in two pieces if lateral adjustment is required. In either case they are provided with screw threaded openings therein  $c^3$ , each one of these openings being coincident with the openings in the chair legs or supports which are adapted to receive the rungs  $a^2$ .

In Figs. 6 and 7 I have illustrated another form of brace which is desirable for use also in case of lateral adjustment. In this construction I use a cylinder or sleeve  $d$  having openings  $d', d'$  therein. Inside of this sleeve are the securing members  $d^2, d^2$ , which are duplicates of each other, and which are provided with internally screw threaded openings coincident with the openings  $d'$  through which rods  $d^3$  extend and are engaged by the fastenings  $d^2$ . The sleeve with the securing members inside



thereof are arranged within the recesses in the supports *a*, *a'*, as shown at *e*, *e'*, Fig. 8, and utilized in the same manner as the angular securing members heretofore described.

After the chairs are assembled and the rods are tightened and adjusted the recesses are closed as at *E* (Fig. 3). In a chair or other article of furniture having some of its supports closer together than others, the slight lateral adjustment heretofore referred to is required, and in such cases the corner fastening members either arranged to turn on a pivot or to move in a sleeve permits the proper angle for each rod to meet the engaging joint at its opposite end.

In chairs or tables having no rungs extending from one support to the other, I provide grooves in the panel which extends from one support to the other directly beneath the top or seat, as shown at *F* in Fig. 1, either in the bottom or inside of the panel and extend the connecting rods in these grooves to meet the joint members at each corner. In Fig. 9 I have shown a sectional view of a panel having a groove therein, and near the center thereof a portion of the panel is cut away. The rods usually used in this construction are round (although not necessarily so) I have in this case provided a rod *f* having an outer angular surface a portion of its length as shown in Fig. 9 so that it may be readily grasped with a tool and turned into place to make the proper connection with the corner members.

It will thus be seen that I have provided a brace which is invisible in the finished chair, and which is a continuous construction, formed as is shown in practically a rectangle, so that each end of a brace rod is interlocked with the joint in a way which makes it impossible for the supports of a

chair or other article of furniture so braced to ever become loosened and pull apart.

In the drawing I have illustrated the brace rods connected to the joint fastenings by means of a screw threaded engagement, but as is obvious I contemplate welding these joints or securing them together in any other well known manner.

I claim:

1. A furniture brace comprising brace rods and coupling members, the coupling members adapted to be seated within the legs of the article of furniture, and the brace rods adapted to extend in the legs of the article of furniture, and each coupling member connecting the adjacent ends of two brace rods extending at right angles to each other to provide a continuous brace.

2. In a furniture brace, a series of vertically disposed coupling members seated in the furniture support, and concealed brace rods connected to the ends of and coupled together by said members and disposed at right angles with respect to the said members, thereby providing a continuous brace.

3. In a furniture brace, a series of vertically disposed coupling members seated within the legs of the article, pairs of concealed brace rods, each pair disposed at right angles with respect to the other pair, the rods of each pair being parallel, and means whereby the ends of the rods are secured to the ends of the coupling members to provide a continuous brace.

In testimony whereof I have hereunto signed this specification in the presence of two subscribing witnesses.

ARTHUR B. RUSSELL.

Witnesses:

A. V. WELDON,  
WELLS GOODHUE.