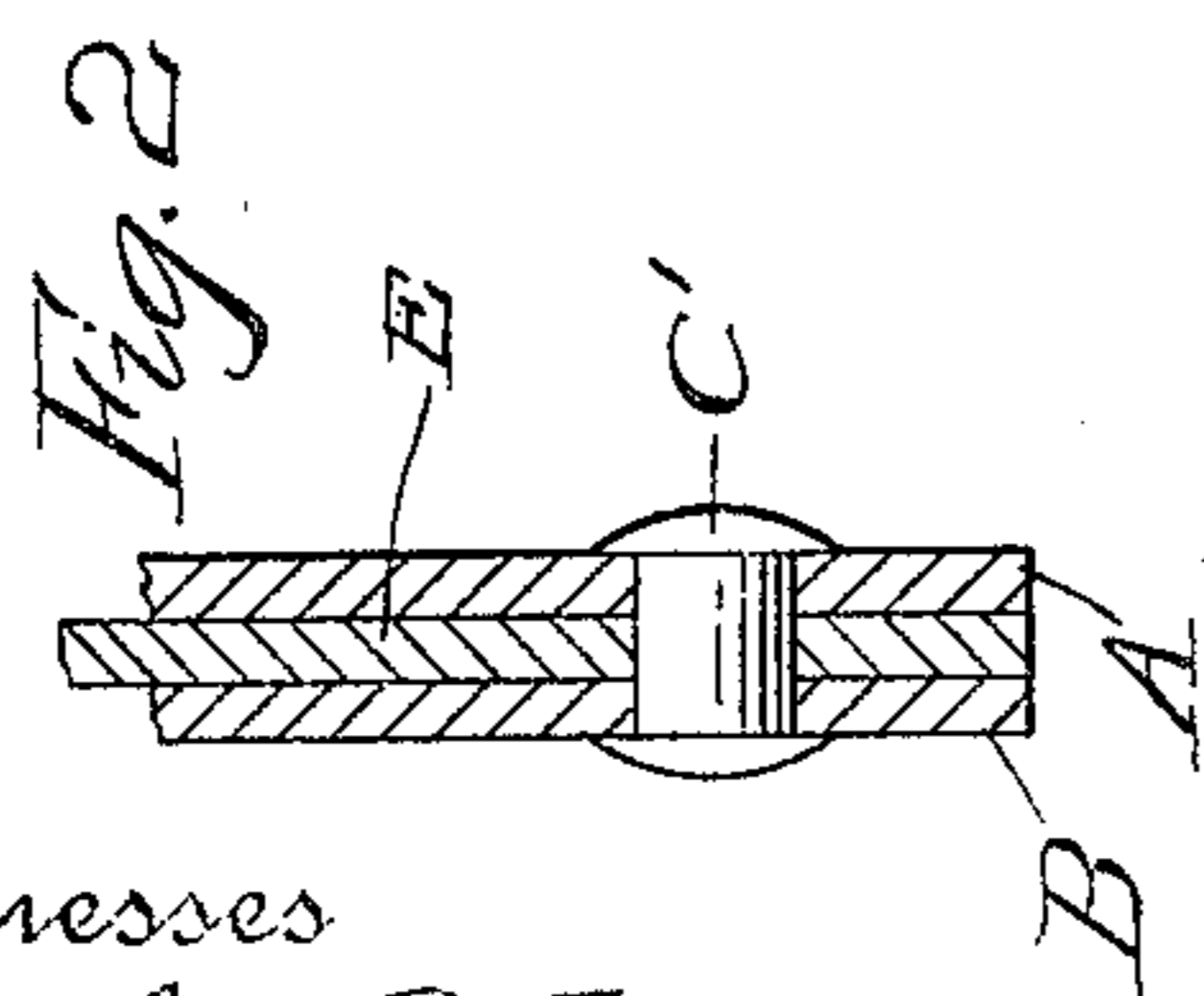
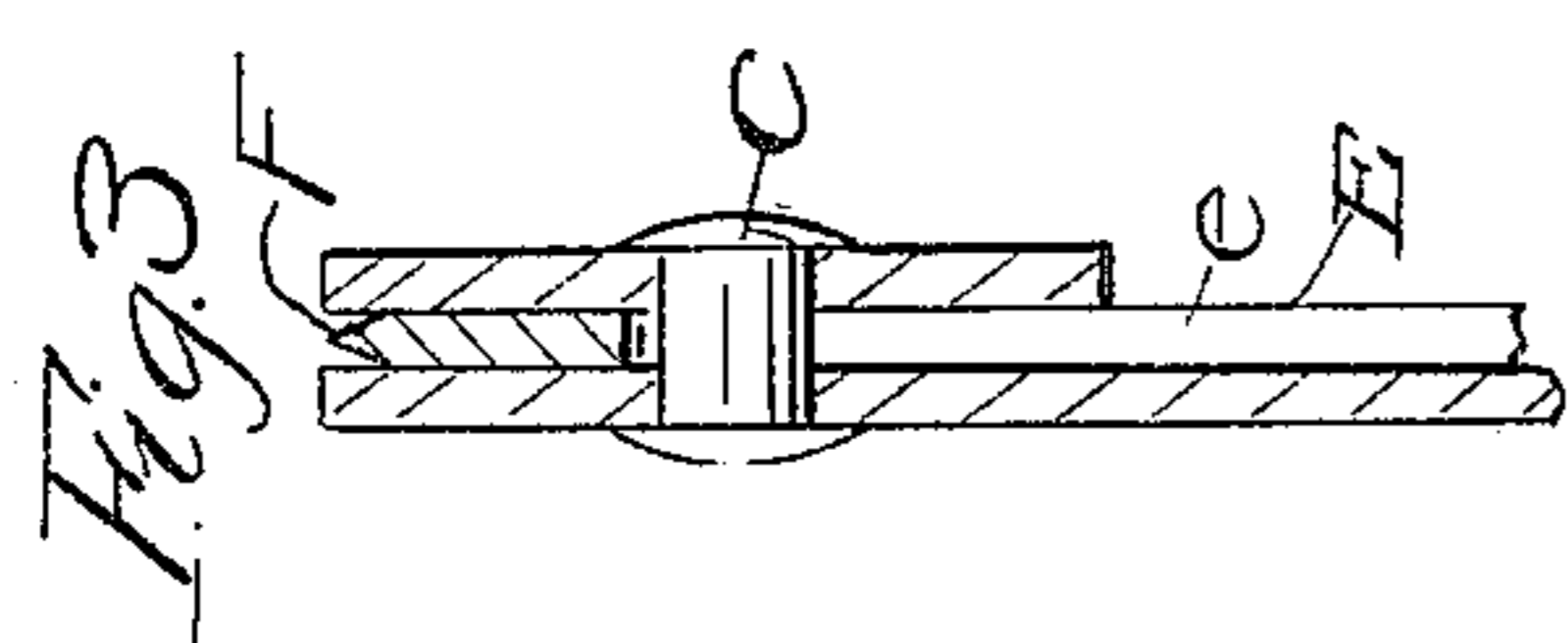
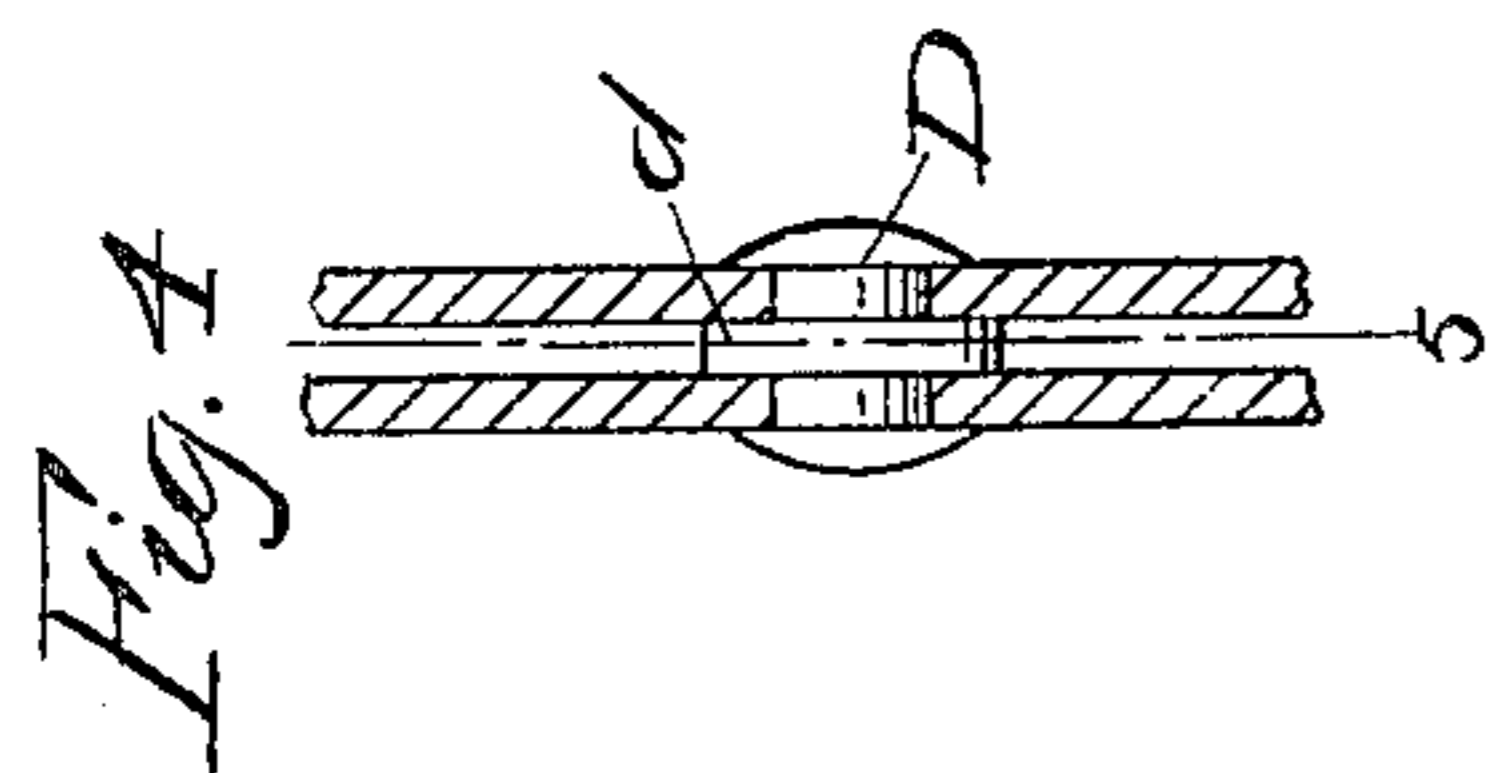
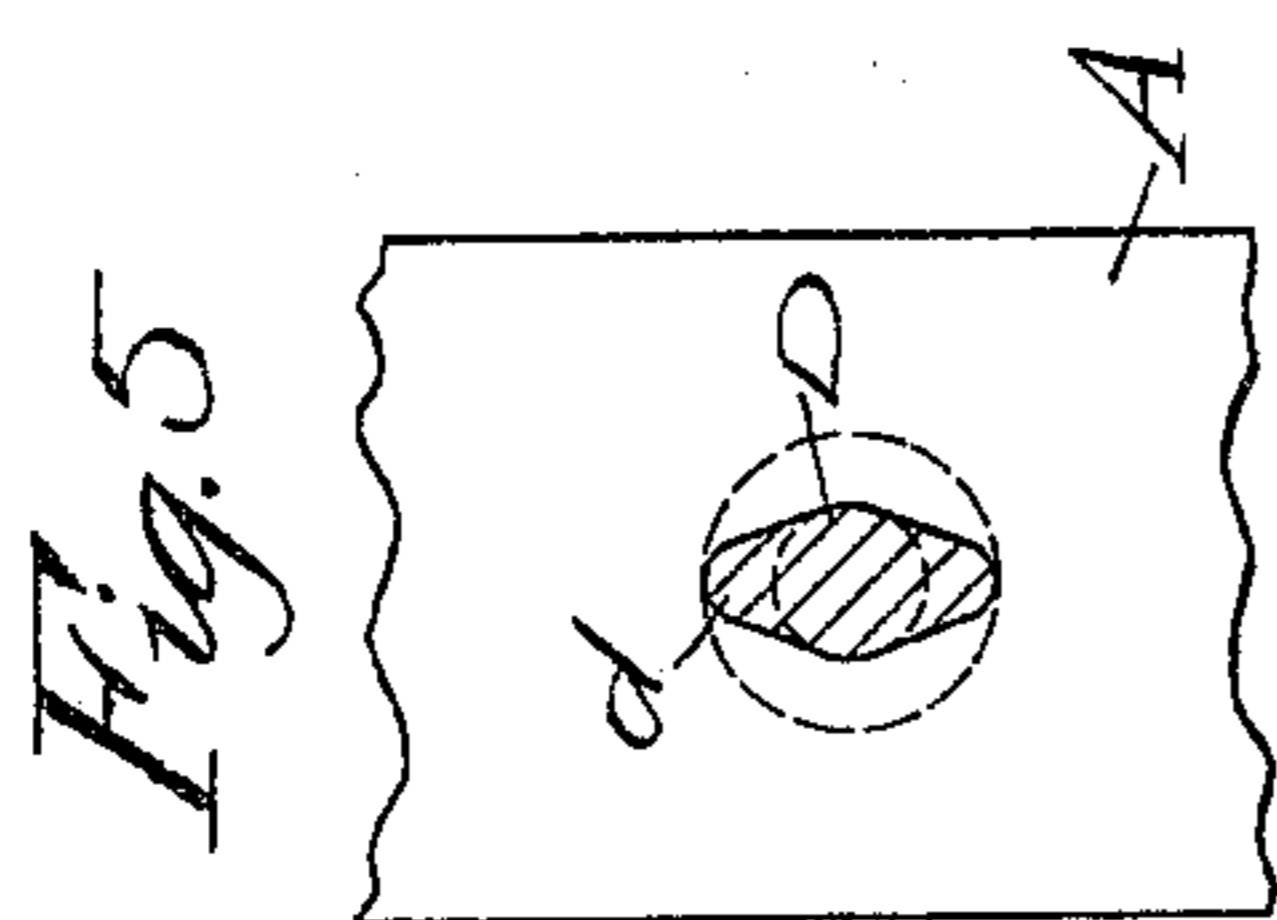
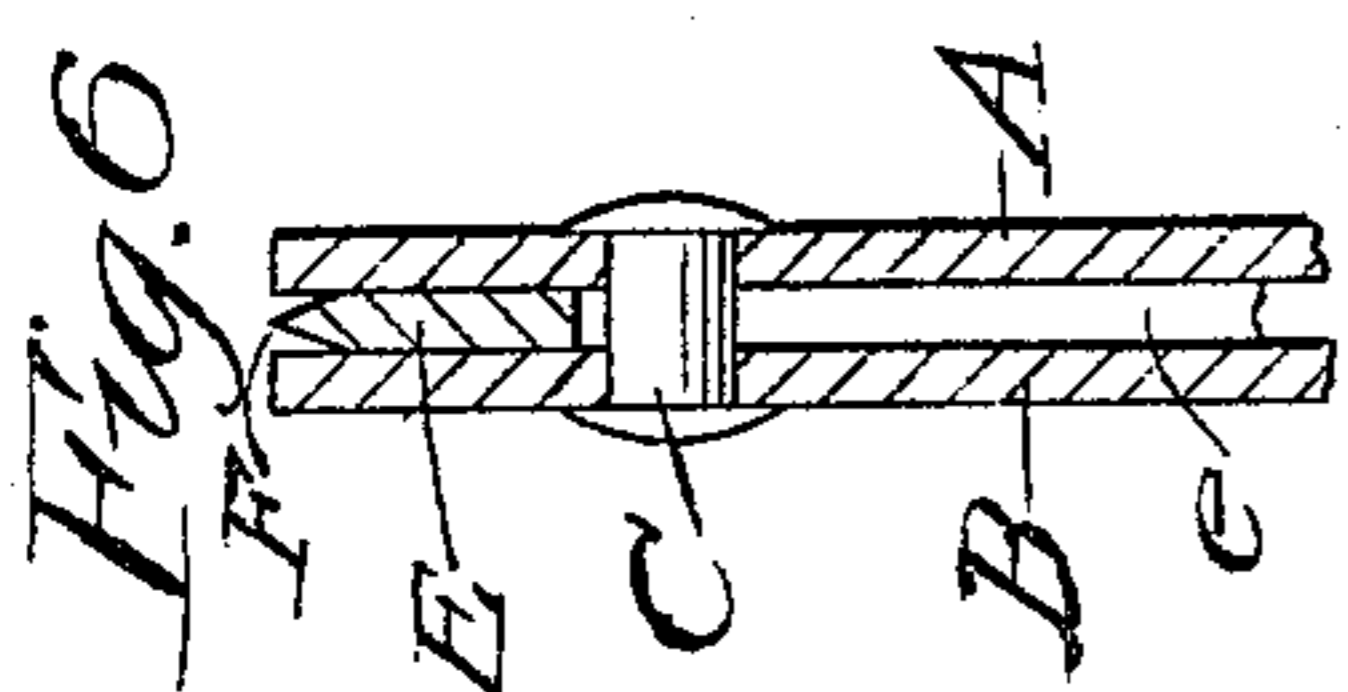
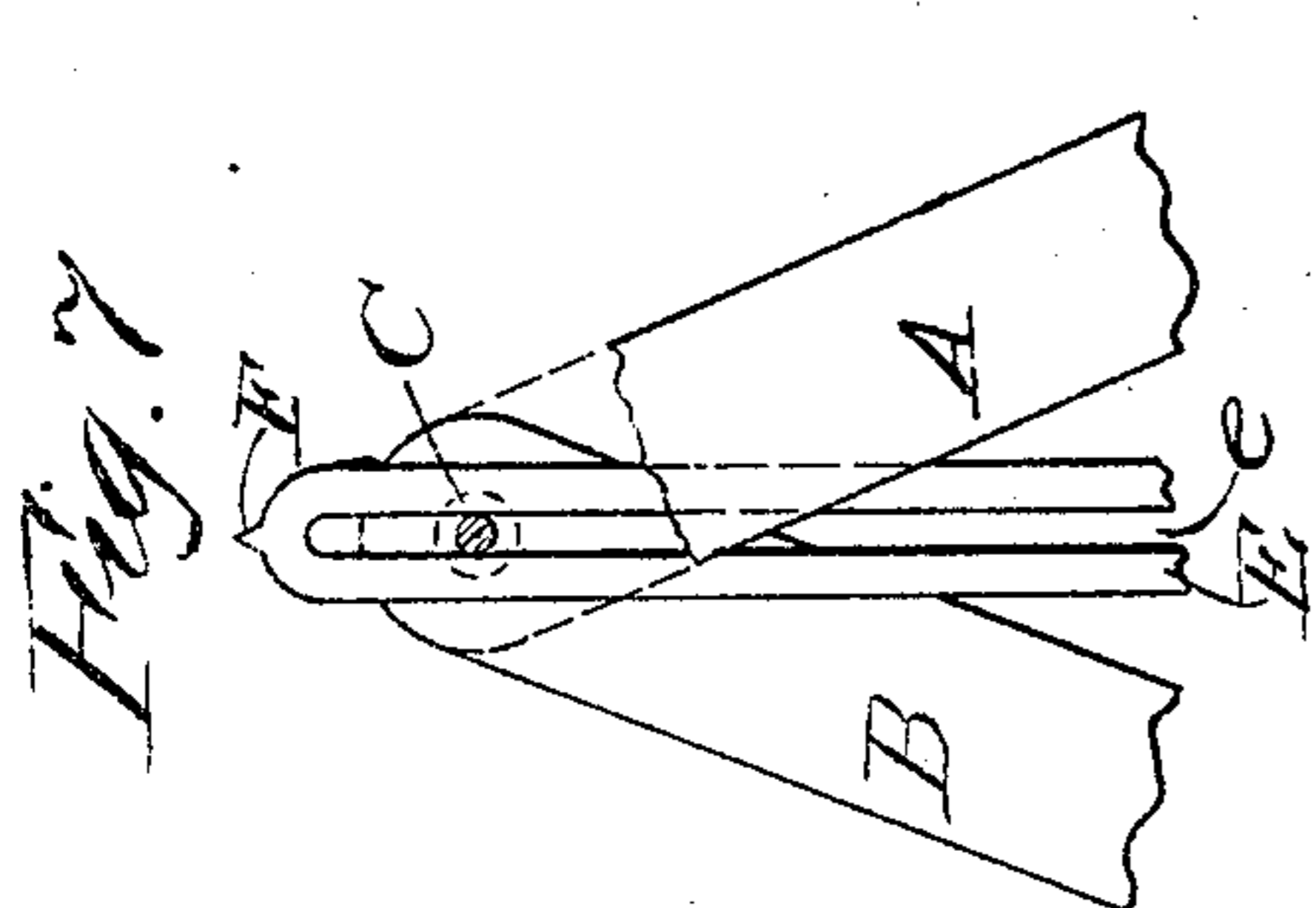
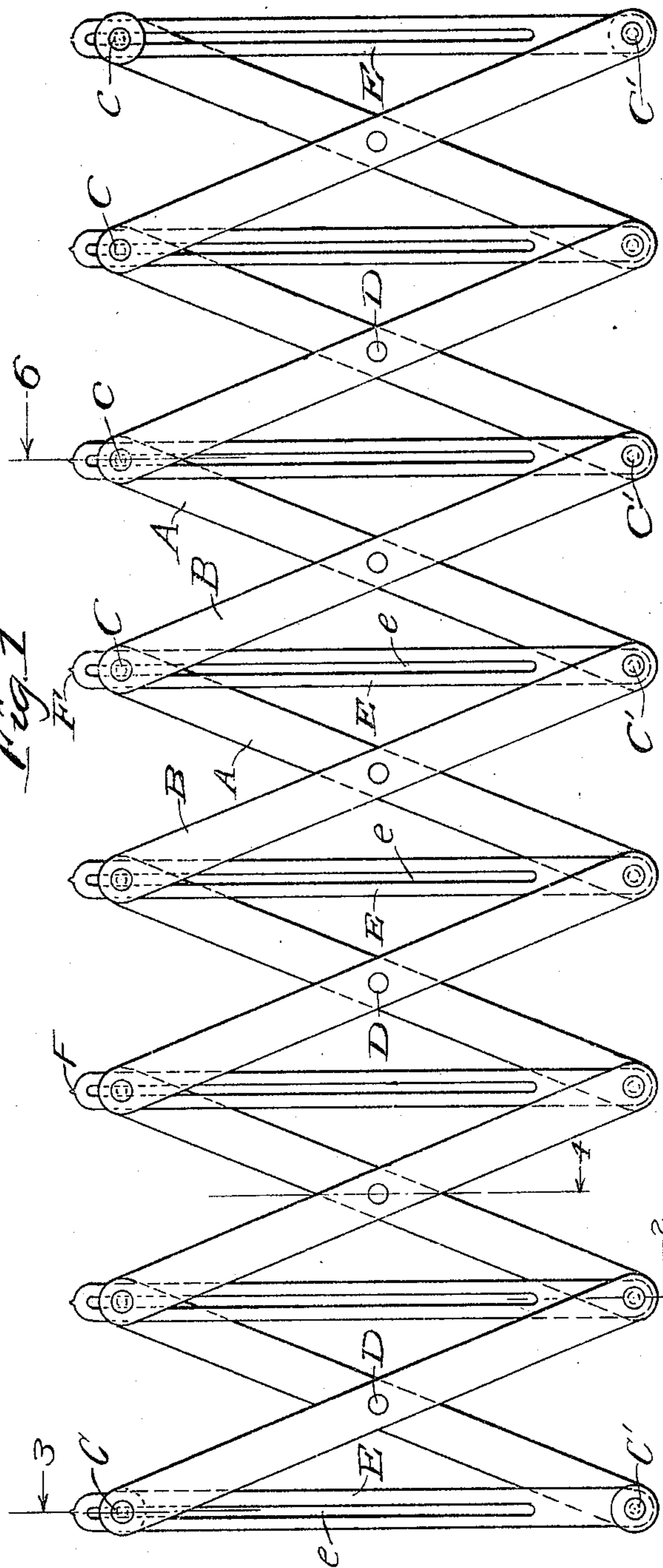


F. F. HOUGH.
SPACING DEVICE.
APPLICATION FILED NOV. 9, 1904.



Witnesses
Paul A. Talbot
Dunham D. Patton



Inventor
Frank F. Hough
By his Attorney
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UNITED STATES PATENT OFFICE.

FRANK F. HOUGH, OF SEATTLE, WASHINGTON.

SPACING DEVICE.

No. 803,230.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed November 9, 1904. Serial No. 232,057.

To all whom it may concern:

Be it known that I, FRANK F. HOUGH, a citizen of the United States of America, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Spacing Devices, of which the following is a specification.

My invention relates to a multiple-spacing device adapted to space any distance within its capacity into various numbers of equal space, such work, for instance, as laying out the positions of buttons, buttonholes, tucks, and skirt-gores on garments.

The object of my invention is to produce a device of this kind of a simple, reliable, and cheap character and in general to simplify and improve such devices.

My invention comprises the parts and combinations of parts, which will hereinafter be particularly set forth in the claims.

The drawings show my invention in the form which is now preferred by me.

Figure 1 is a plan view of my device partly extended. Fig. 2 is a fragmentary section on line 2 of Fig. 1. Fig. 3 is a fragmentary section on line 3 of Fig. 1, the pointer or indicator bar being in its withdrawn position. Fig. 4 is a fragmentary section on line 4 of Fig. 1. Fig. 5 is a fragmentary section on line 5 of Fig. 4. Fig. 6 is a fragmentary section on line 6 of Fig. 1, the pointer or indicator bar being in its withdrawn position. Fig. 7 is a detail view, parts being broken away.

My invention has been designed particularly for use by tailors in laying off the positions for buttons, buttonholes, tucks, and the like, but is also applicable to similar laying off of regular spaces, as is frequently required by architects and engineers.

As a basis for my device I employ a frame consisting of two sets of arms or bars A and B, the bars of one set being pivoted at their ends to the ends of the bars of the other set by means of pins C C' and pivoted at their centers to the centers of the bars of the other set by means of pivots D.

E indicates longitudinally-slotted pointer-bars the intermediate of which are supported at one end upon pins C' and have the pins C received in their slots, and the outer or end pointer-bars are similarly engaged with corresponding pins provided on the outer ends of the end bars A and B. These longitudinal slots in the bars afford a convenient guide

for a pencil or crayon in marking off the spaces on the goods and are preferably extended throughout as much of the length of the bars as convenient.

The pointer-bars E lie between the two sets of bars A and B, and the pivots D are provided with means for holding apart the bars A and B, so as to provide room for the reception of the pointer-bars E when the device is closed. This may be done in various ways. I have shown a preferred method of accomplishing this result in Figs. 4 and 5. This consists of making the central portion *d* of the pivot as a shoulder, said shoulder, however, extending only upon two opposite sides of the pivot, as is clearly shown in Fig. 4, whereby the width of the pivot is not increased in a direction transverse to the bar. I prefer that this shoulder be of general diamond shape, as shown in Fig. 5.

The position of the parts shown in Fig. 1 is that assumed when the device is partially extended. I prefer that those ends of the pointer-bars adjacent the pins C be provided with sharp points F, which may be brought to bear upon the goods or patterns to mark the spaces. I also prefer that these ends of the pointer-bars E and also the adjacent ends of the bars A and B be so proportioned that when the device is closed the small points F be withdrawn inside of the ends of the bars A and B, so that the said points are thus protected against damage.

My device is preferably constructed of small strips of metal, but may of course be made of any other suitable material. When folded it occupies but very small space and may be extended so as to space a considerable distance. It may also be extended to such a point as to make the spacing anything desired within a wide range. It is only necessary to know the number of spaces desired within a given distance in order to expeditiously and exactly secure this spacing.

It is evident that the details of construction of my device may be varied without, however, making any essential change in the principles of my invention. I do not, therefore, wish to be limited to the exact construction shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is—

1. A spacing device comprising two sets of frame-bars, the bars of each set being pivoted together at their ends and the bars of the two

sets being pivoted together at their centers, and pointer or indicator bars each pivoted upon an end pivot at one side of the device between the frame-bars, said pointer-bars each having
5 a slot receiving the companion end pivot at the other side of the device, the slotted ends of the pointer-bars being pointed, said pointed ends lying between the projecting ends of the frame-bars when the device is closed.

10 2. A spacing device comprising two sets of frame-bars, the bars of each set being pivoted together at their ends and the bars of the two sets being pivoted together at their centers, and pointer or indicator bars each pivoted upon
15 an end pivot at one side of the device between the frame-bars, said pointer-bars each having a slot receiving the companion end pivot at the other side of the device, the center pivots of the frame-bars having shoulders to hold the
20 frame-bars apart, said shoulders being flattened with their short dimension transverse the frame-bars.

3. A spacing device comprising a series of bars pivoted together at ends and center to form an extensible frame, and a series of 25 pointer-bars operatively connected to said first-named bars, said pointer-bars having their pointed ends lying within the bounds of the extensible frame when the device is closed.

4. A spacing device comprising a series of 30 bars pivoted together at ends and center to form an extensible frame, and a series of transverse pointer-bars supported thereby, the last-named series of bars having their pointed ends projected when the frame is extended and 35 lying between the adjacent ends of the frame-bars when the frame is closed.

Signed at Seattle, Washington, this 27th day of October, 1904.

FRANK F. HOUGH.

Witnesses:

EDWARD J. MANCHE,
ERNEST B. HERALD.