

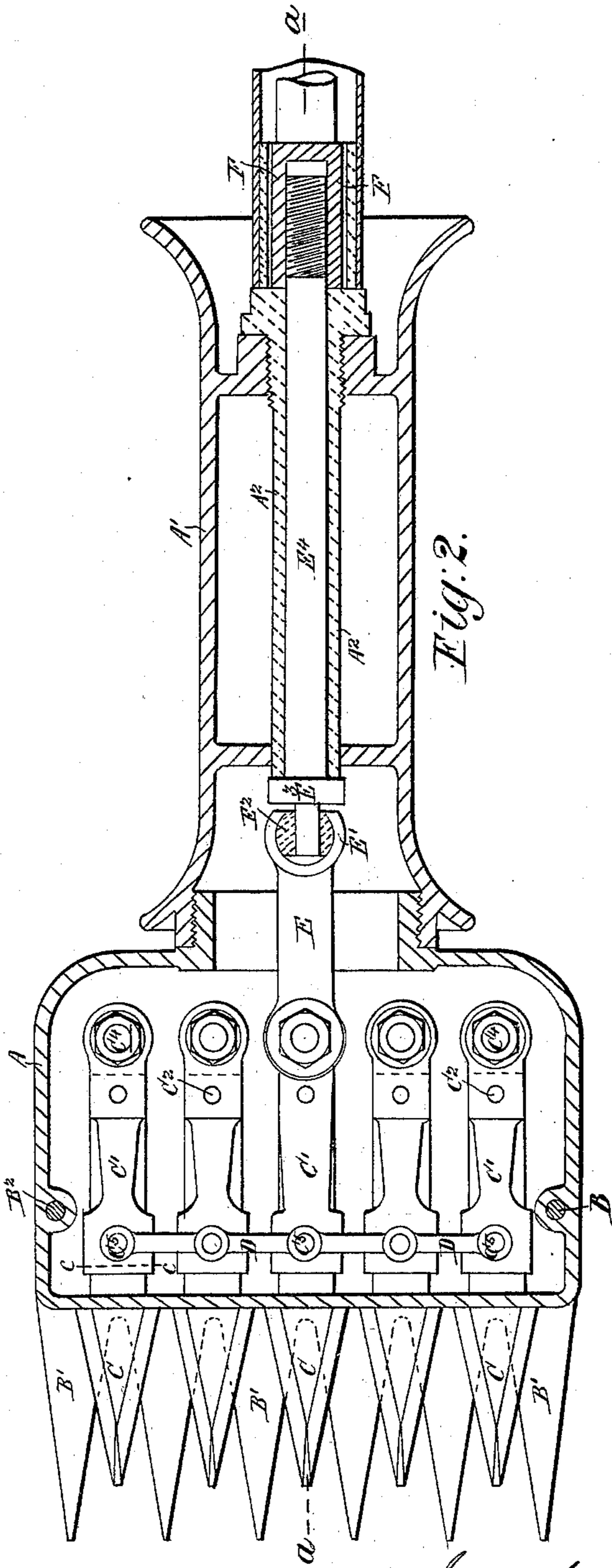
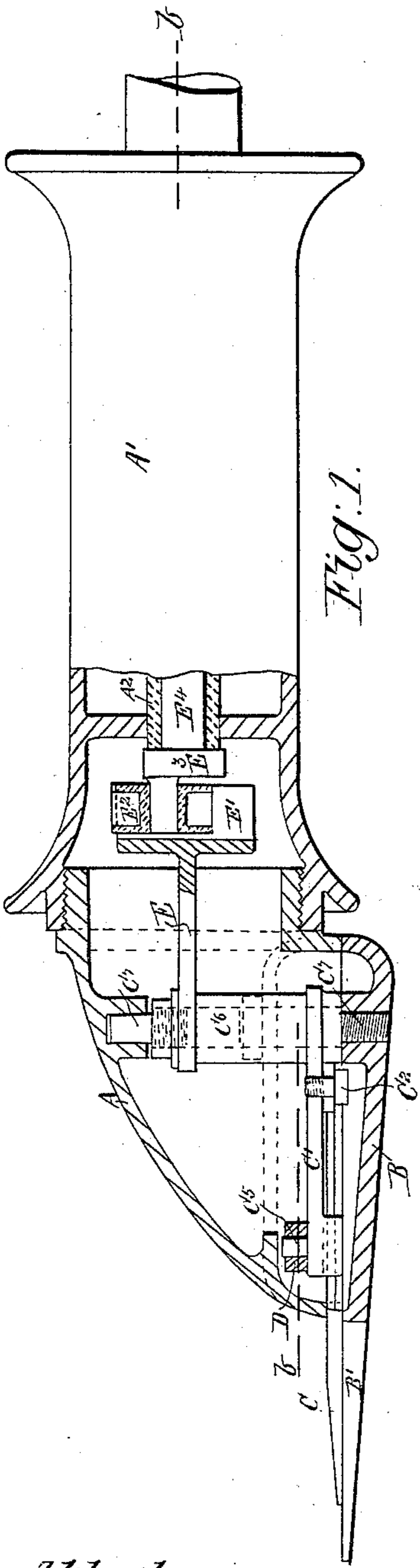
(No Model.)

3 Sheets—Sheet 1.

V. PETHERICK.
ANIMAL SHEARS.

No. 396,832.

Patented Jan. 29, 1889.



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(No Model.)

3 Sheets—Sheet 2.

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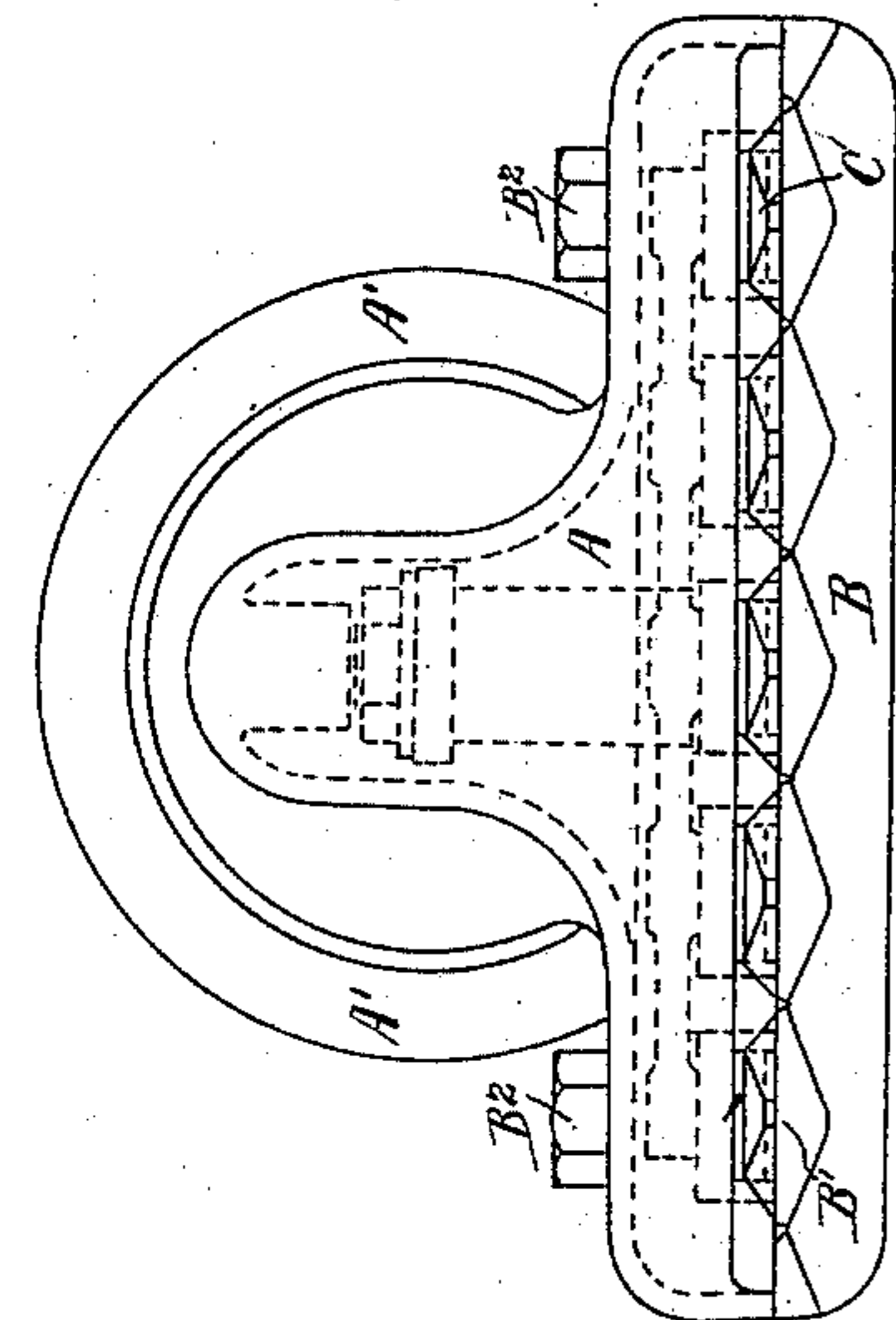


Fig. 3.

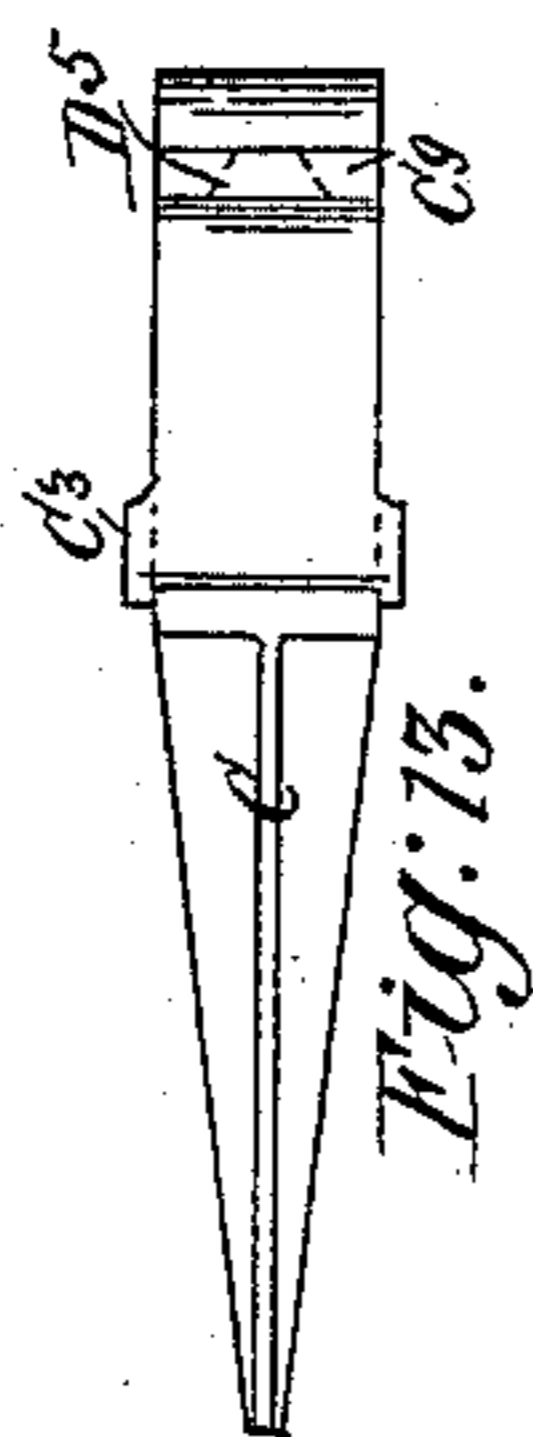


Fig. 13.



Fig. 14.

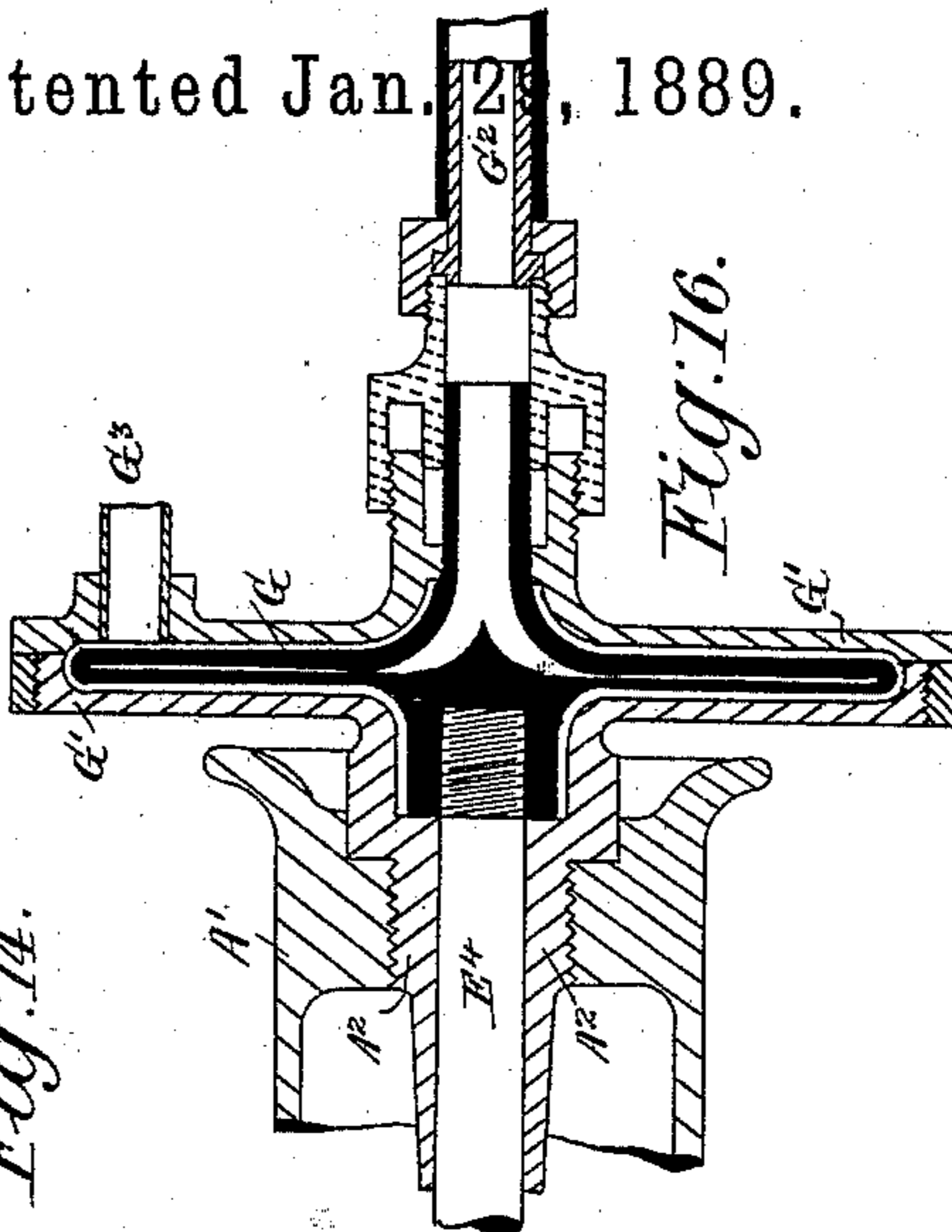


Fig. 16.

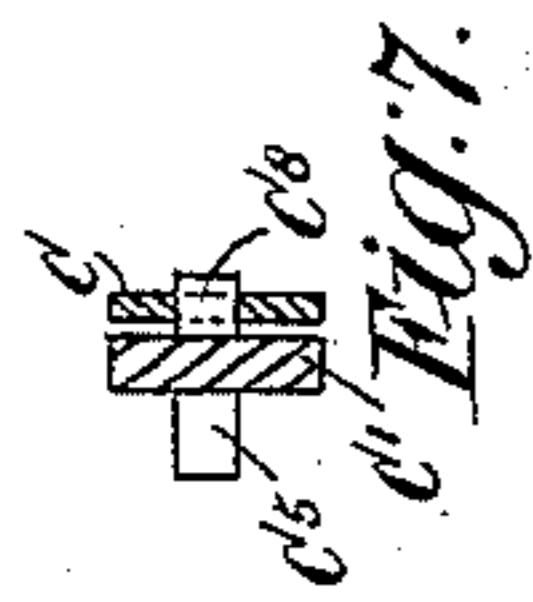


Fig. 7.

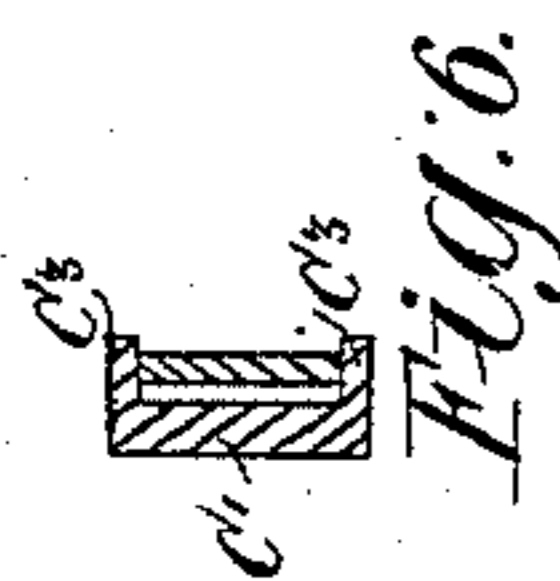


Fig. 6.

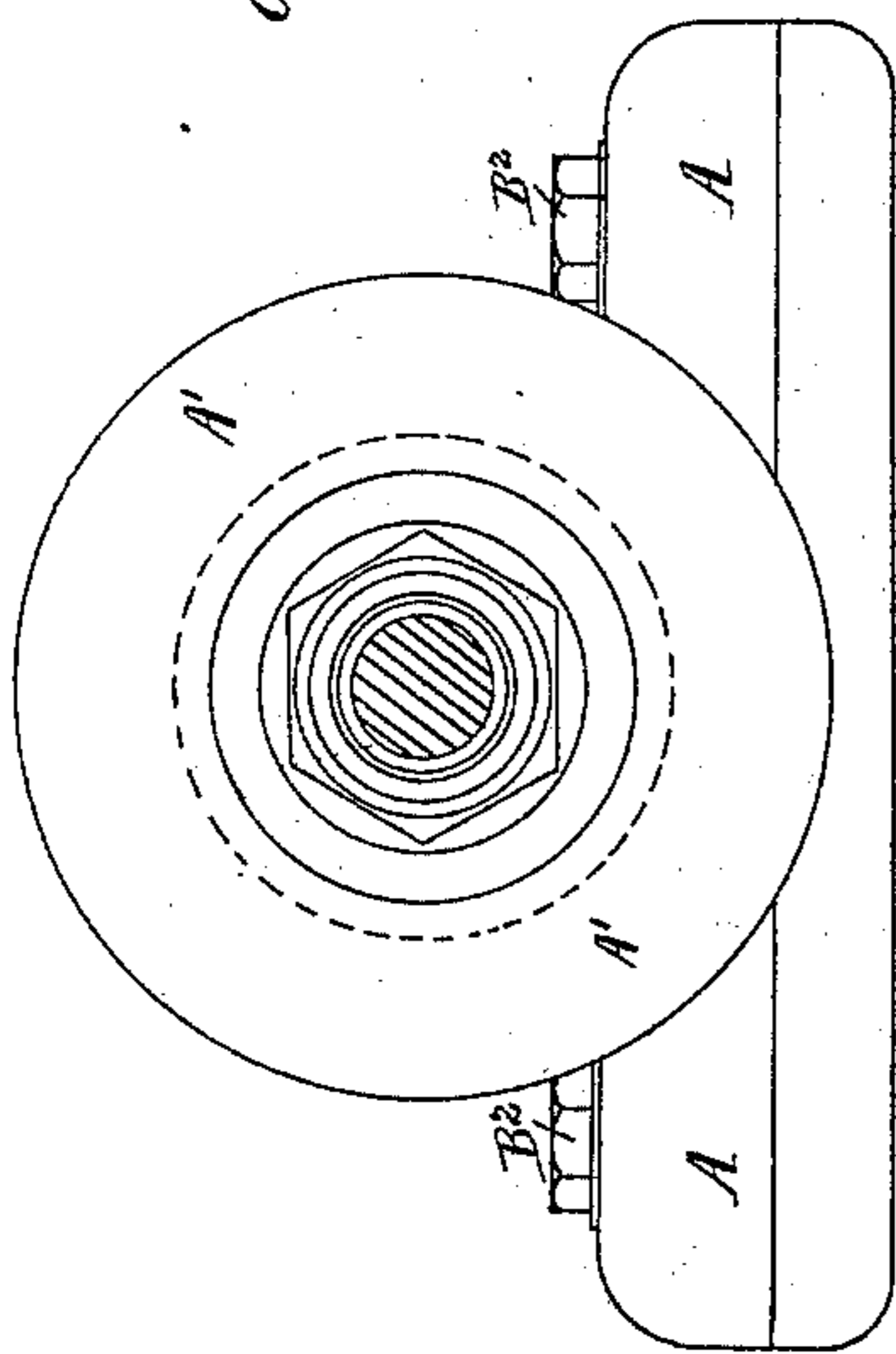


Fig. 4.

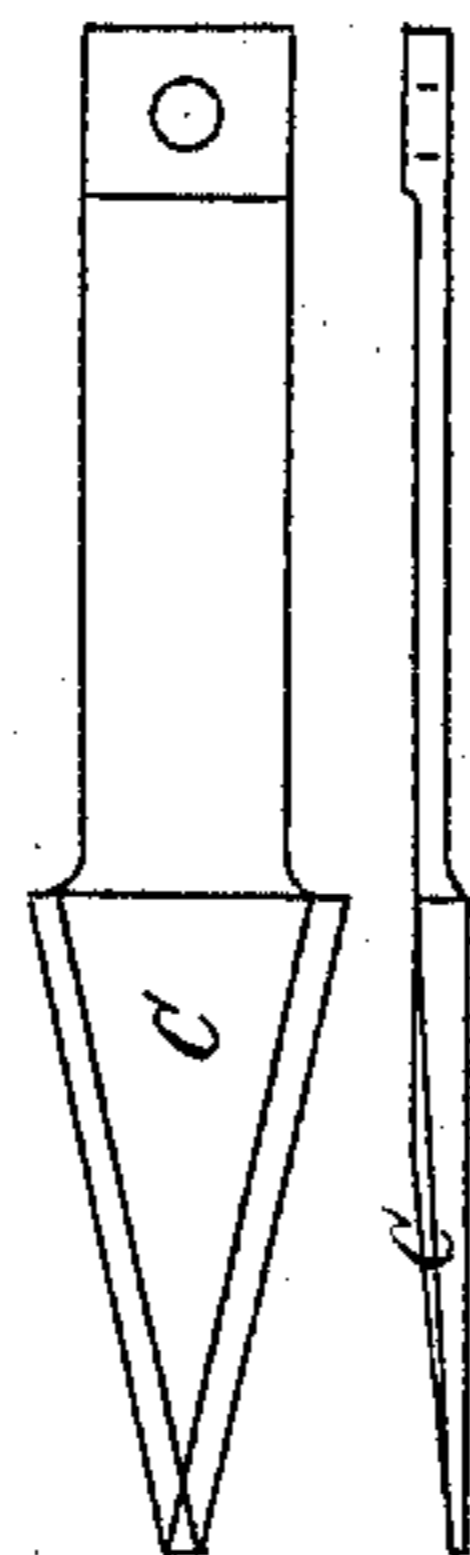


Fig. 5.

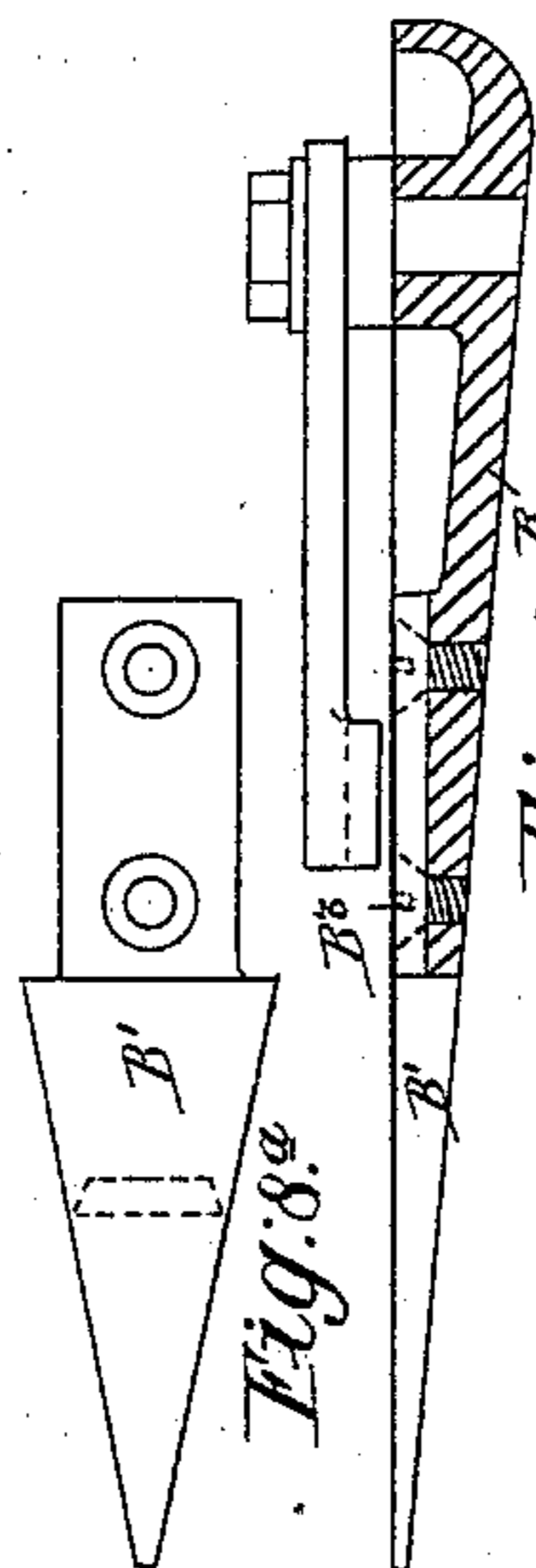


Fig. 8a.



Fig. 8.

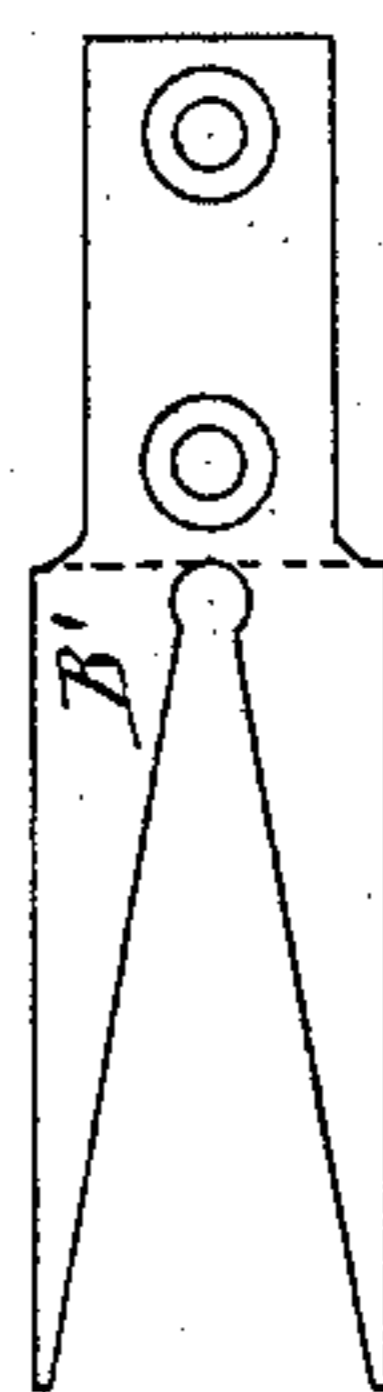


Fig. 8b.

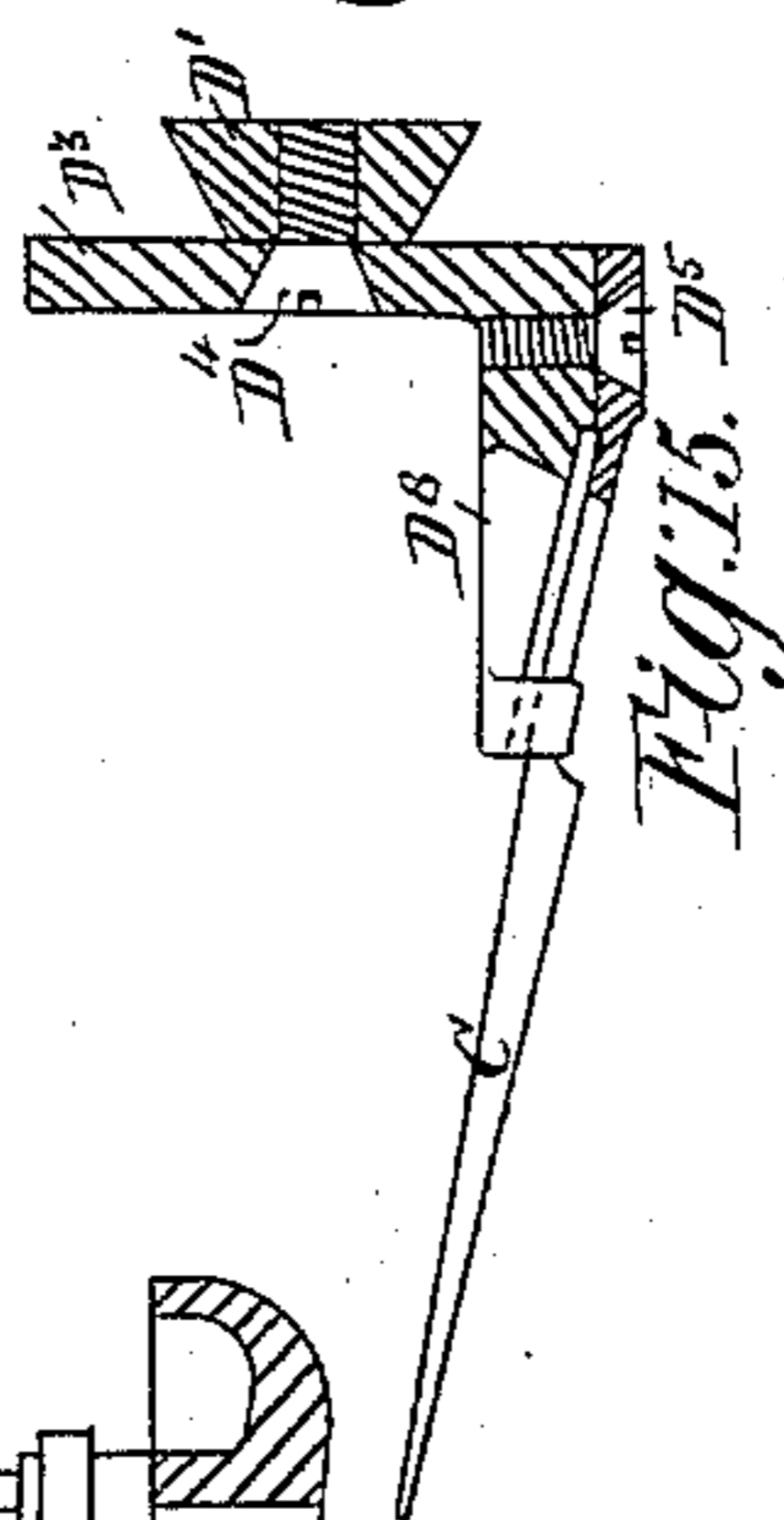


Fig. 15.

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(No Model.)

3 Sheets—Sheet 3.

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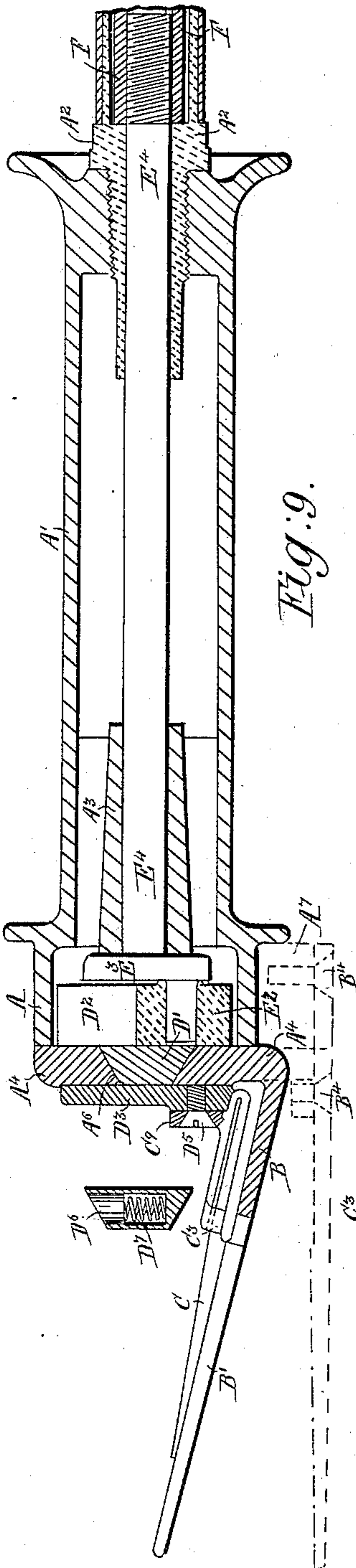


Fig. 9.

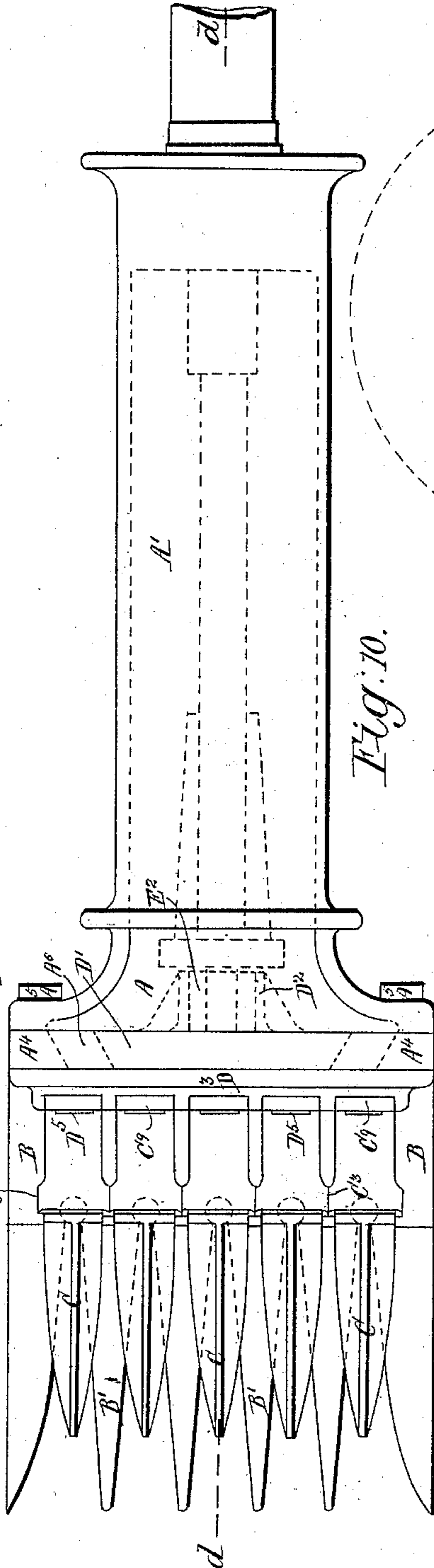


Fig. 10.

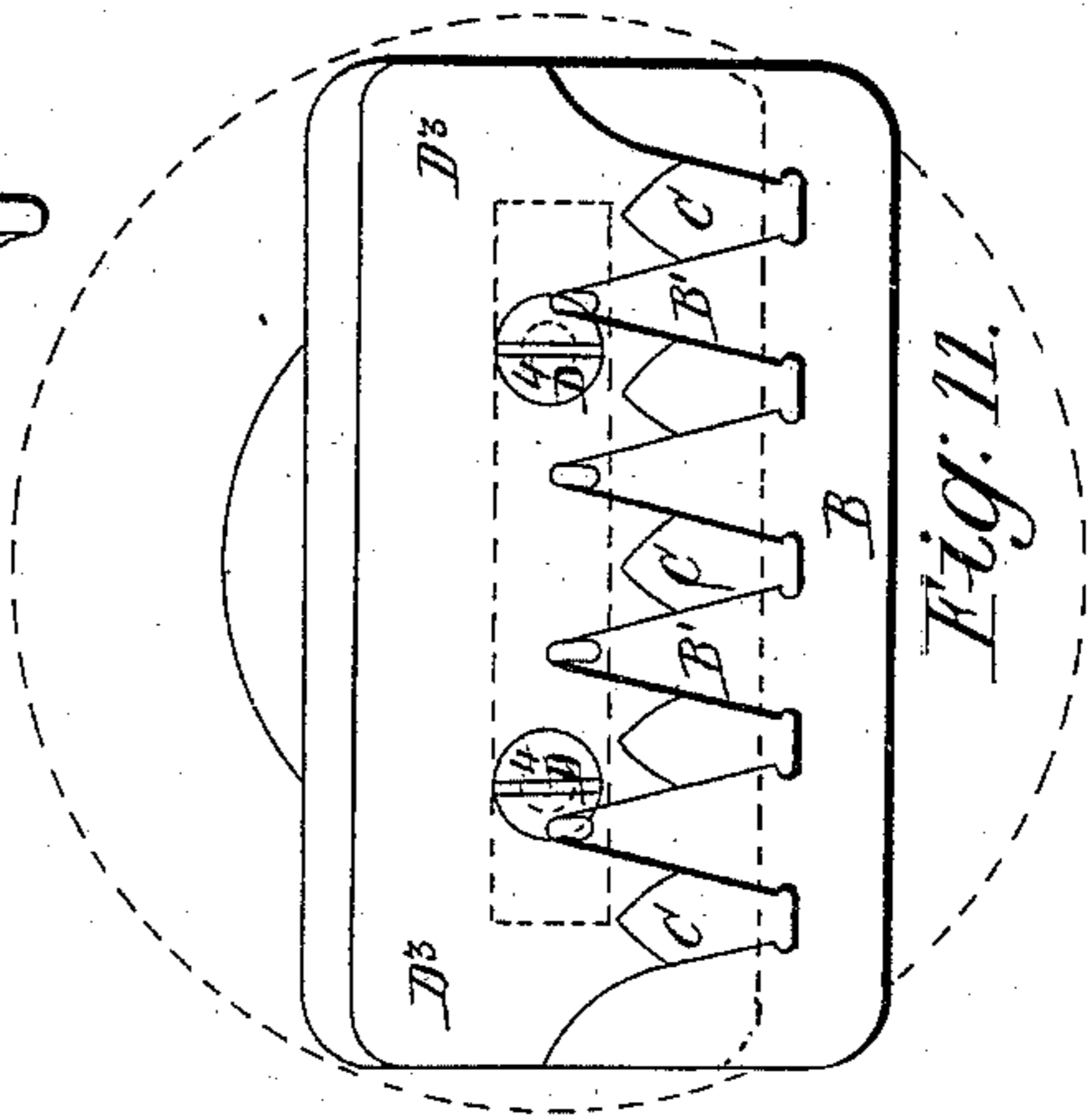


Fig. 11.

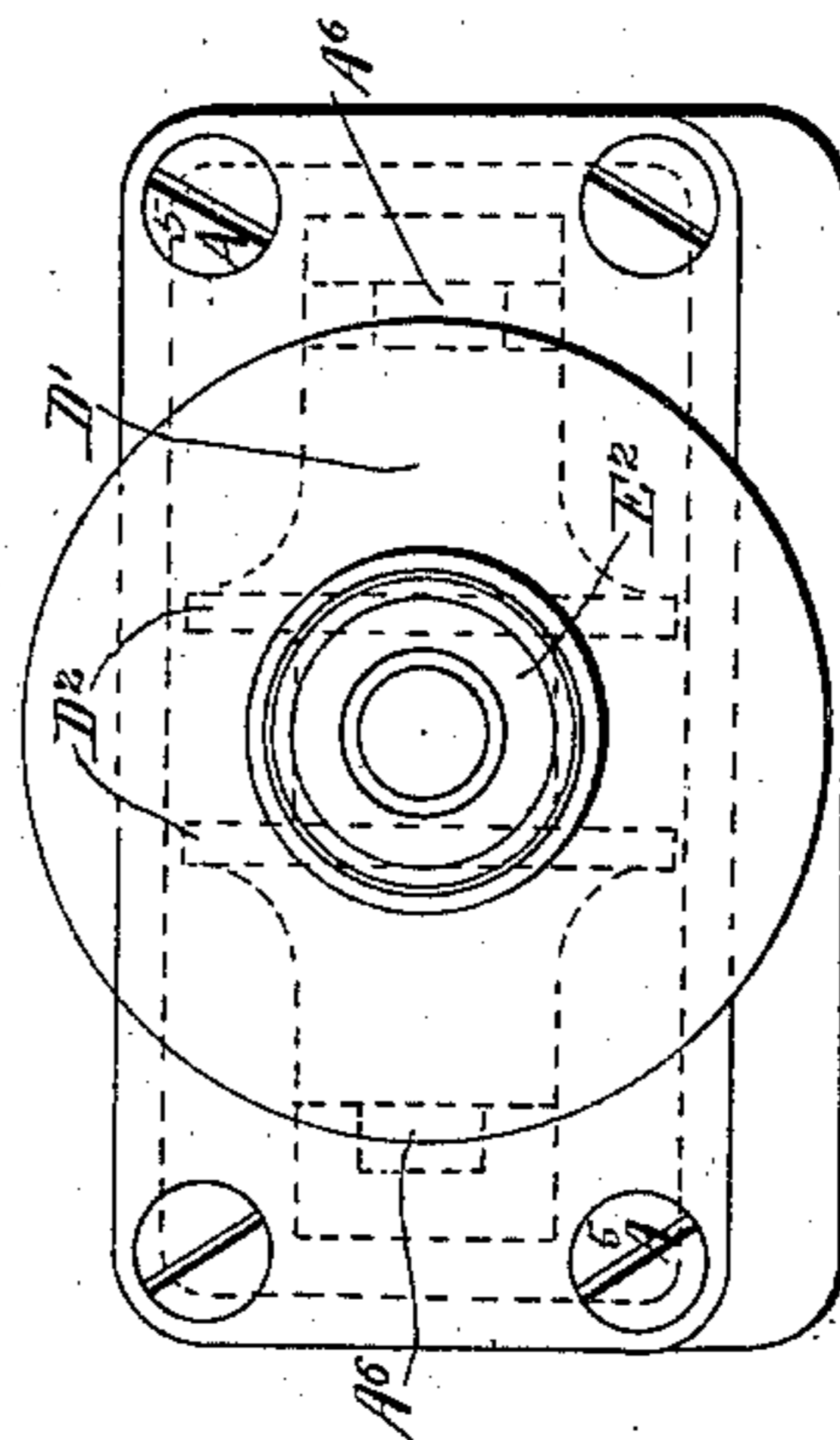


Fig. 12.

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UNITED STATES PATENT OFFICE.

VERNON PETHERICK, OF BRISBANE, QUEENSLAND.

ANIMAL-SHEARS.

SPECIFICATION forming part of Letters Patent No. 396,832, dated January 29, 1889.

Application filed December 8, 1887. Serial No. 257,343. (No model.)

To all whom it may concern:

Be it known that I, VERNON PETHERICK, engineer, a subject of the Queen of Great Britain, residing at Brisbane, in the British colony of Queensland, have invented new and useful Improvements in Animal-Shears, of which the following is a specification.

This invention of improvements in apparatus for shearing wool or clipping hair relates to the class which has a fixed comb-cutter secured to the fore end of a suitable casing or handle, and having arranged to work to and fro upon the face of such comb-cutter a series of reciprocating cutter-teeth supported and operated by mechanism carried by the casing. The main spindle of the mechanism carried by the handle or back part of the casing is coupled at its back end to a flexible shaft, through the medium of which motion is imparted to the apparatus; or such spindle may have a small motor attached to its back end, such motor being made suitable for steam, compressed air, or water, as desired, the necessary fluid being supplied under pressure to the motor through a flexible tube. Further, if desired, the main spindle can be driven by an electric dynamo-machine attached to it in a suitable manner.

To illustrate my invention I have devised two forms of the apparatus, which will be hereinafter fully explained with reference to their drawings. In the first form of apparatus the movable cutter-teeth each take a curvilinear motion across the teeth of the fixed cutter-comb, while in the second form of apparatus the movable cutter-teeth are carried across the comb-cutter in a line parallel with them. When the apparatus is driven by a motor worked by steam, compressed air, or water, the exhaust is carried away from the motor by means of a small pipe, which is led forward so as to strike upon the cutting mechanism, and thus keep the blades clear of wool, hair, or grit.

Referring to my drawings, Figure 1 is a part side elevation and a part vertical section of the first form of my shearing or clipping apparatus, the sectional part being shown on the line *a a*, Fig. 2. Fig. 2 is a sectional plan looking down from the line *b b* in Fig. 1. Fig. 3 is a view of the front end, and Fig. 4 a view of the back end, of such first form of apparatus.

Fig. 5 shows plan on top side view and cross-section (of the cutting part) of one of the movable cutter-teeth. Fig. 6 is a transverse section at *c c*, Fig. 2, showing the connection between the cutter-tooth and the arm which carries it. Fig. 7 is an alternative arrangement for such connection. Figs. 8, 8^a, and 8^b show details of an alternative construction of the fixed comb-plate when the teeth thereof are removable. Fig. 9 is a central longitudinal section on line *d d*, Fig. 10, showing in dotted lines a modified position for the cutters. Fig. 10 is a plan looking on top of the second form of my shearing and clipping apparatus, while Fig. 11 is a view of the front end, and Fig. 12 a view looking from the back end, of the said second form of apparatus. Fig. 13 is a plan and cross-section of the movable cutter shown in Fig. 9, and Fig. 14 a plan and cross-section of the fixed cutter shown by dotted lines in Fig. 9. Fig. 15 is a modified arrangement for the movable cutter-teeth and their supporting-plate shown in Fig. 9. Fig. 16 shows a central section through a motor for steam or compressed air, which I may employ with either form of apparatus.

In the first form of apparatus (shown in Figs. 1 to 7) *A* is the front part, and *A'* the back part or handle, of the casing screwed together, as shown. *B* is the fixed comb-plate, having the teeth *B'* formed on its front part. This plate is secured to the front casing, *A*, by the small screw-bolts *B²*. The movable cutter-teeth *C* are of the form shown, and are secured to the arms *C'* by the screw-pins *C²* and by being placed between the jaws *C³* at the front edges of the arms *C'*. These arms are centered at their back end on pins *C⁴*, screwed into the fixed comb-plate *B*, while on the upper side of their front ends are pins *C⁵*, which fit in the holes in the connecting-bar *D*. The central one of the arms *C'* has an upstanding boss, *C⁶*, on its pivotal end, and such boss is supported on the pin *C⁷*, which is screwed in a similar manner to the pins *C⁴* into the fixed comb-plate *B*, and pin *C⁷* also has a bearing in the upper part of the front casing, *A*.

At the upper end of the sleeve or boss *C⁶* is a backwardly-extending arm, *E*, having a vertical slot-piece, *E'*, formed at its end, and in such slot-piece there works a die or sliding block, *E²*, having a hole in it to receive the

pin of crank E^3 , which is arranged at the end of the main spindle E^4 , supported in the sleeve-bearing A^2 , arranged in the handle-piece A' . The back end of the main spindle is screwed to receive the coupling F of a flexible shaft, and the sleeve-bearing A^2 has a ferrule formed on it to receive the hose or other pliable covering for the flexible shaft. In Fig. 8 the comb-plate B is shown with its teeth B' secured to it by the small screws B^3 , and thus they can be easily removed for sharpening purposes or otherwise. Fig. 8^a shows the tooth with the cutting-edges at its sides, while Fig. 8^b shows a bifurcated tooth with the cutting-edges at its center. Fig. 7 shows that the jaws C^3 may be dispensed with, and a pin, C^8 , from the arm C' passes into a suitable hole in the movable cutter-teeth C . These movable and reciprocating cutter-teeth have an initial spring given them, so that as the cutting-faces wear it is taken up by such spring.

In the second form of apparatus (shown in Figs. 9 to 13) A is again the front part of the casing, and A' the back part or handle; but in this apparatus they are formed in the one piece. B is the fixed comb-plate, and B' its teeth. C are the movable cutter-teeth; E^3 , the crank at end of main spindle E^4 , working in the bearings A^3 , arranged in the handle, and the back end of the spindle E^4 , as before, has the coupling F for the flexible shaft and the ferrule on the bearing A^2 for its hose-cover. In this form of apparatus the fixed comb-cutter plate B is formed on the front plate, A^4 , which is secured to the part A by the screws A^5 . The front plate, A^4 , has a slot, A^6 , in it of a dovetail section to receive the sliding bar D' , which has the vertical jaws D^2 at its back part within the casing, and these jaws are arranged at a suitable distance apart to leave a slot or groove for the crank-pin sliding block E^2 to work in. To the front outer face of the bar D' a plate, D^3 , is secured by the screws D^4 , and this plate carries the moving cutter-teeth C , which are secured thereto by the countersink-headed screws D^5 . The teeth C in this form of apparatus have their stem bent upon itself to form a spring, and the upper parts of the stems have the lug C^9 on them to receive the before-mentioned screws D^5 , while the outer ends of such upper parts of the stems have the jaws C^3 on them to engage with their lower part.

If desired, the slide D' may be fitted with the compensating plugs D^6 , which are seated in suitable holes on the spring D^7 . Such plugs then take up the wear of the slide and so assist in preventing the cutting-faces of the teeth parting from each other as they wear.

In Fig. 9 a side view is shown by dotted lines, and in Fig. 14 a plan of an alternative construction of the comb-teeth B B' when they are arranged to lie at or about parallel with the main spindle, and when the teeth are removable, they being secured by the

screws B^4 to a suitable bed, A^7 , formed on the front part, A , of the casing.

In Fig. 15 is shown an alternative method of securing the movable teeth C to the plate D^3 , which latter has the projecting rib and arms D^8 formed on it, and to which the teeth are secured by screws D^5 .

In Fig. 16 is shown a central section of a motor, which may be driven either by steam, compressed air, or water, the motor-wheel G having a screwed boss at its back for connection to the main spindle E^4 , and such wheel being arranged in the casing G' , which is attached to the back bearing, A^2 . G^2 is the supply-pipe, and G^3 the exhaust-pipe, of the motor.

In constructing the fixed and moving blades to render their cutting action most efficient I undercut, hollow out, groove, or perforate them, so as thus to have the wearing-surfaces at their cutting-edges.

The mode of operation is as follows: The main spindle of either description of machine has motion imparted to it by any of the means described. Then if the machine be guided over the back of a sheep and the wool combed to between the teeth it will be immediately clipped or shorn off by the curvilinear action of the teeth of the first form of apparatus or by the reciprocity action of the teeth of the second form of apparatus. The motion in both apparatus is taken from the main spindle by means of a crank, while in the first form of apparatus such crank operates a rocking arm, the front end of which is attached to a bar connected to the set of pivoted movable teeth, while in the second form of apparatus the crank operates a sliding bar to which the moving teeth are secured.

Having thus described the nature of my invention and the manner of performing same, I would have it understood that what I believe to be new, and therefore claim as my improvements, in apparatus for shearing wool or clipping hair is—

1. The combination, with the tubular handle provided with bearings for the spindle and having the socket formed in its end, of the hollow cutter-head provided with a sleeve to engage the hollow handle for detachably connecting said parts together, substantially as set forth.

2. The combination of a hollow cutter-head, a stationary comb-plate forming the base of said cutter-head, movable cutter-teeth secured to the front ends of pivoted arms, the upstanding sleeve or boss on the central arm, the pin C^7 , having bearings in the upper and lower walls of the case, the backwardly-extending arm E , provided with a slot-piece at its rear end, and the rock-shaft or main spindle supported in bearings in the hollow handle-piece and having its crank-pin engaging said slot-piece, substantially as specified.

3. The combination of a tubular handle, a hollow cutter-head detachably connected

therewith, a stationary comb-plate detachably connected with and forming the base of said head, cutter-blades connected with said comb-plate and projecting beyond the front
5 wall of said head, movable cutter-teeth pivoted within said head on independent pivots, the pin C⁷, having bearings within the walls of the head, the connecting-bar connecting the movable cutters, the pin C⁷, the backwardly-extending arm E, having the slot-piece
10 at its rear end, and the rocking lever supported within the hollow handle-piece and

connected at its front end with the slot-piece on said arm E, substantially as set forth.

4. A cutter tooth or blade for animal-shears, 15 having a shank bent upon itself, and a bearing at the outer end of the bent portion for the body of the tooth, whereby an elastic cutter tooth or blade is obtained, substantially as and for the purposes specified.

VERNON PETHERICK.

Witnesses:

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CHARLES EDWARD GRAHAM.