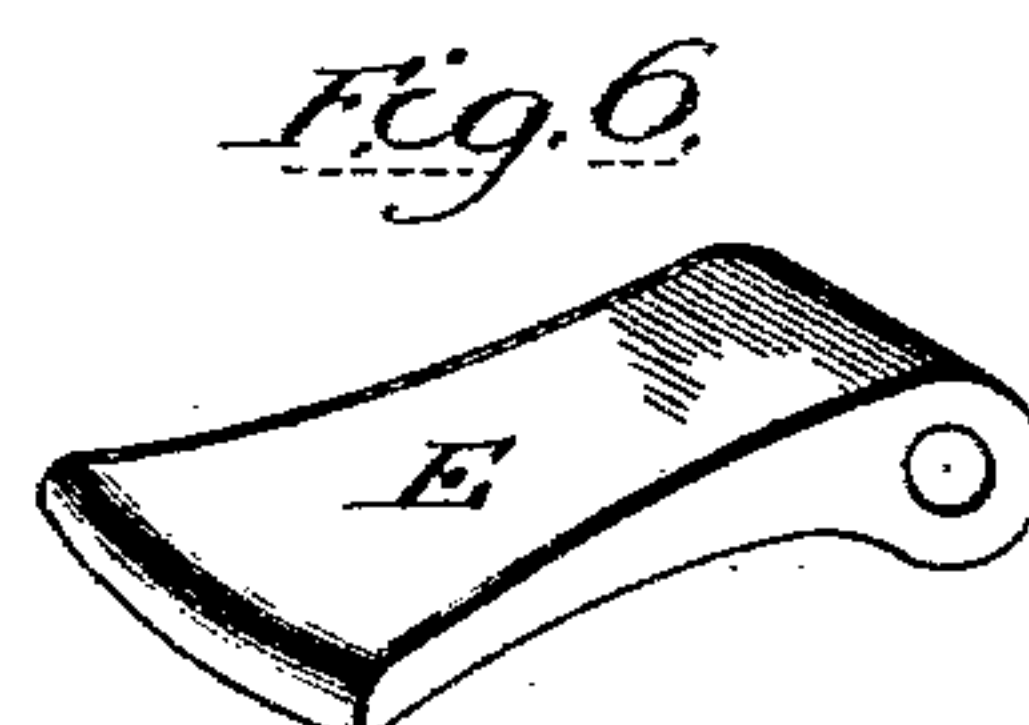
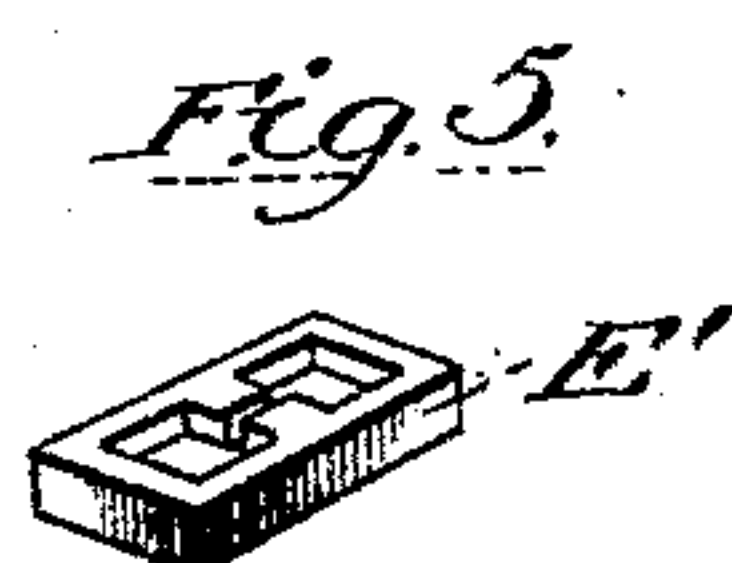
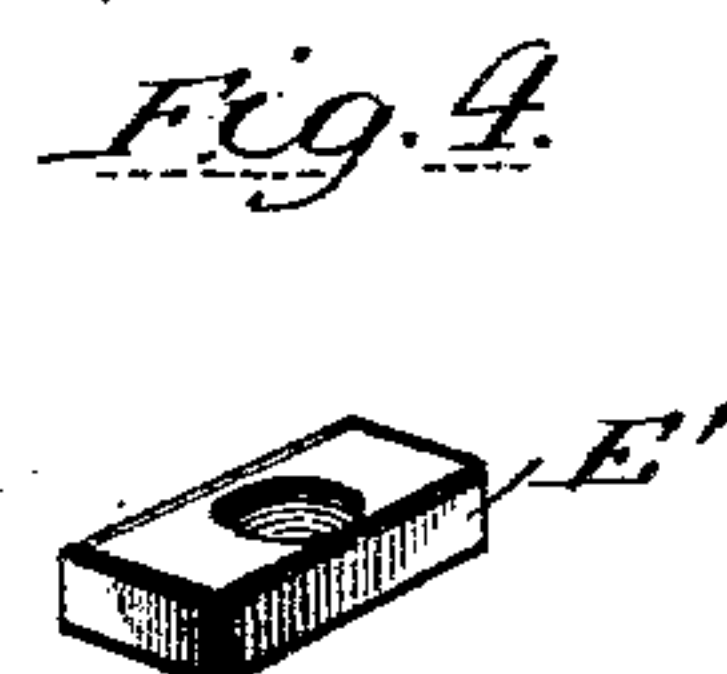
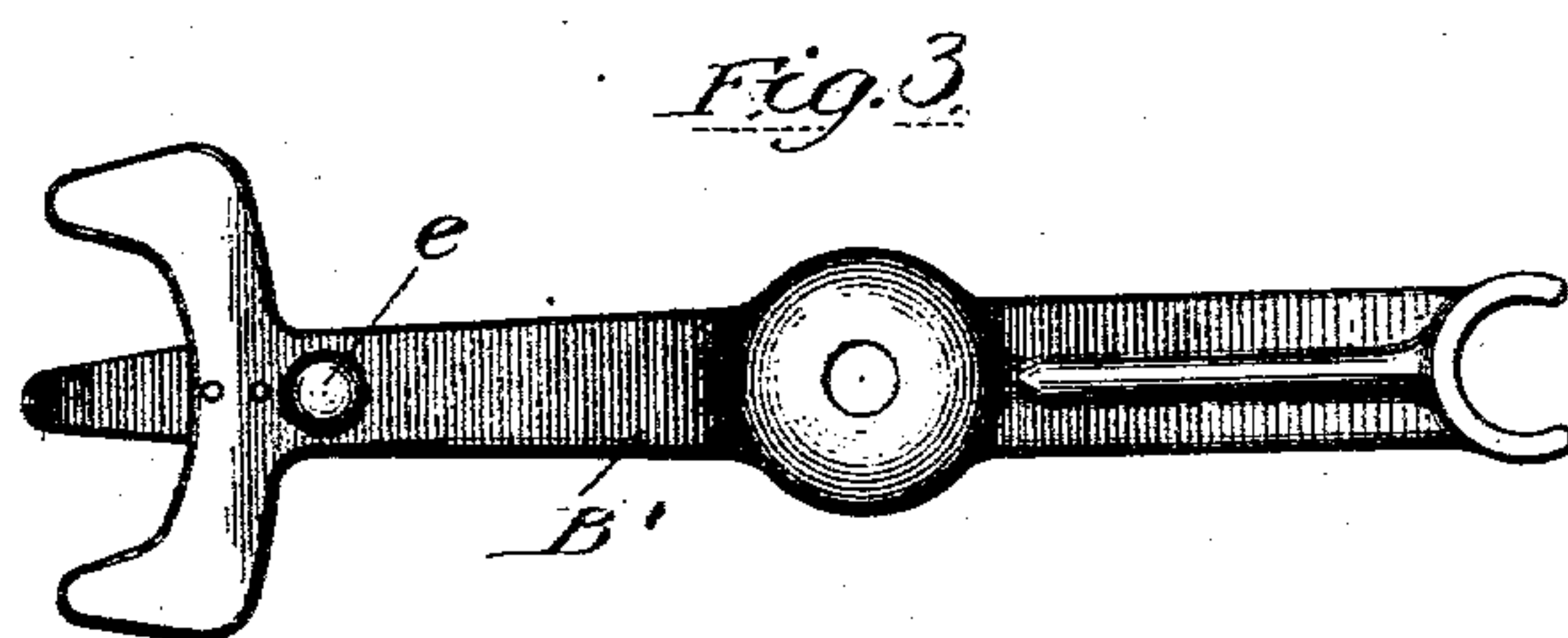
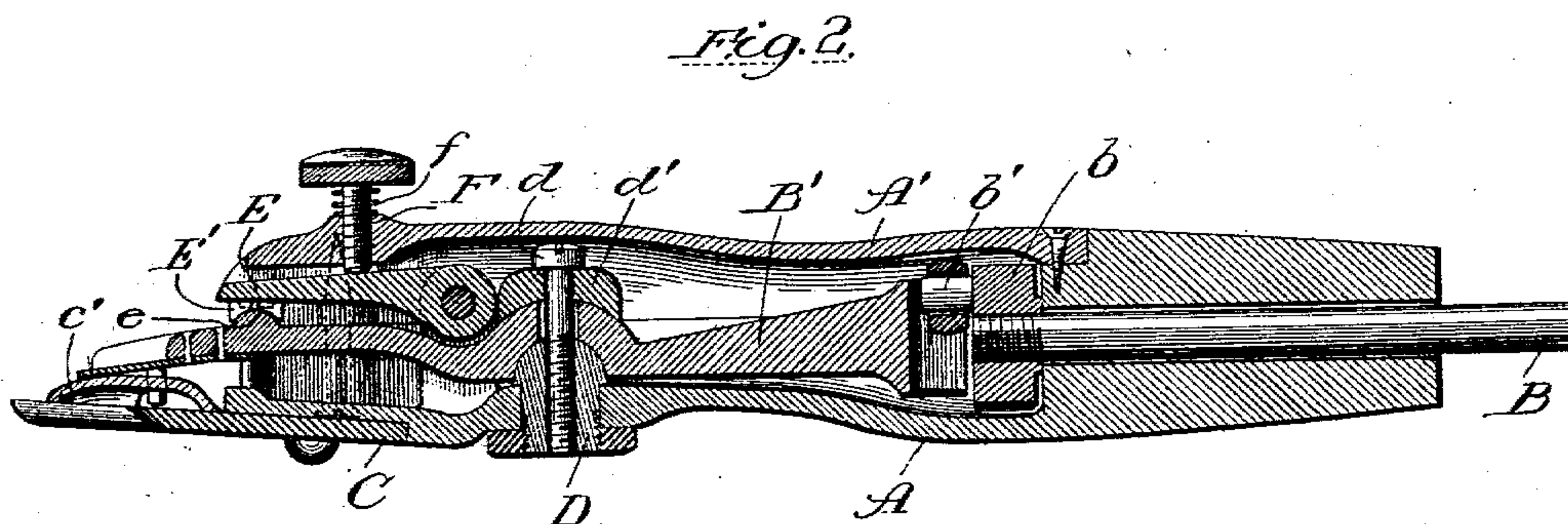
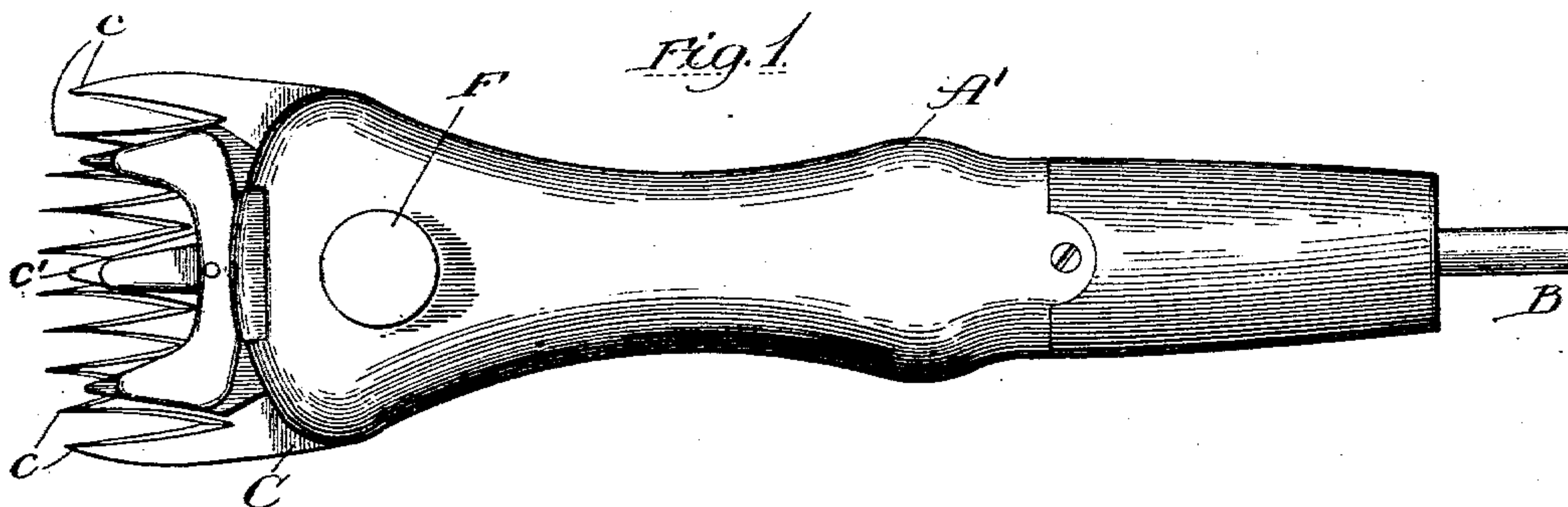


No. 720,915.

PATENTED FEB. 17, 1903.

A. HAWTREE.
ANIMAL CLIPPER.
APPLICATION FILED MAR. 19, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR HAWTREE, OF CHICAGO, ILLINOIS.

ANIMAL-CLIPPER.

SPECIFICATION forming part of Letters Patent No. 720,915, dated February 17, 1903.

Application filed March 19, 1902. Serial No. 98,930. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR HAWTREE, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Animal-Clippers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in animal-clippers, and more particularly is shown embodied as a sheep-shearing clipper designed to be operated from any source of power. Heretofore with devices of this class, owing to the high speed of operation, the pivoted parts have been subject to considerable wear, soon making the operation unsatisfactory, owing to the play resultant from such wear. Difficulty has been found also in securing a satisfactory means for adjusting the tension of the cutter-blades upon the guards.

The object of the invention is to provide a cheap, simple, and very durable construction which may be adjusted quickly for use and which when once adjusted is subject to little wear, such wear as may occur but serving to cause the parts to fit more perfectly together and to remain permanently adjusted.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a top plan view of a device embodying my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a top plan view of the knife-arm. Fig. 4 is a perspective view of the bearing-block for said knife-arm, showing said block inverted. Fig. 5 is a similar view showing the top of the block. Fig. 6 is a perspective view of the tension-plate.

In said drawings, A indicates a tubular handle or casing designed to contain the operating parts or mechanism and provided with a rigidly-secured cover A', which fits into the top of the same, as shown in Figs. 1 and 2, and which by its removal permits ready access to the interior.

B indicates a rotative shaft of any desired kind journaled axially in the rear end of the

casing and which when the device is in operation is connected by a universal joint with driving means of any desired kind. Said shaft B is provided at its inner end with a collar b, on which is secured a cam-roller b', eccentric therewith, which engages in the slotted rear end of the vibrating knife-arm B'. Said knife-arm B' extends forwardly in said casing and is pivoted near its middle by means affording a self-adjusting joint. Said bearing comprises, in the construction shown in the drawings, the round-topped stud D, provided axially with an upwardly-extending spindle d, which may be integral therewith or which may, if preferred, be a screw-bolt having threaded engagement with the stud. A concave bearing is provided on the under side of the arm B', complementary with the top of stud D, and the upper side of said arm is convex, and, as shown, a concave washer d' engages over the spindle d above the arm and engages the same against the rounded top of the stud. In the drawings the spindle is a screw-bolt which is headed and passes through the washer and arm and engages in the stud. Obviously should said spindle be constructed integral with the stud a jam-nut may be secured on the upper end thereof, if preferred, and act to force the washer into engagement with the arm. On the front end of said casing and rigidly secured with its under surface flush with the under surface of the casing is the comb C, which is similar to the guard heretofore used in devices of this class and is provided with forwardly-projecting pointed teeth c in the usual manner, which present sharp angular cutting-surfaces at their upper edges, which coact with the knife c'. Said knife, as shown, is provided on its front edge with a plurality of sharp-edged points concave on the under sides and rigidly secured on the under side of the outer end of the arm B', which on said outer end is spread laterally and divided into a plurality of horizontal points or prongs, as indicated in Figs. 1 and 3, to provide suitable bearing for the points of the knife. A tension device is provided to hold said knife at all times in positive bearing upon the comb. Said tension device comprises a horizontal shaft, secured transversely in the casing in advance of the pivot for the knife-

arm, and a forwardly-projecting tension-plate E, pivotally secured thereon and extending forwardly over and to a point adjacent to the outer end of the knife-arm. Said plate is relatively broad at its outer end, as shown in Fig. 6, and smooth on the under side thereof to provide a slide-bearing for the bearing-block E', which engages beneath the same, as is shown in Fig. 2, and which is concave on its under side to engage the ball projection e on the top of said arm. Said bearing-block is provided with connecting oil-recesses in the upper surface thereof to permit of being readily oiled. Near the front end of the cover A' is provided a tension set-screw F, provided with a milled head for manual engagement and passing through the cover into positive engagement with the tension-plate, as shown in Fig. 2. Means are provided for locking said tension-screw in an adjusted position, comprising a relatively strong coiled spring f, engaged on said screw, and which bears against the milled head thereof and against the top of the cover and acts to hold said screw in adjustment.

The operation is as follows: Said knife-arm is caused to vibrate by the revolution of the shaft B. When so operated, the bearing-block E', which engages on the arm and beneath the bearing end of the tension-plate, slides readily beneath the same, thus enabling the pressure of the knife upon the guard to be regulated by the tension set-screw F.

Inasmuch as the bearing of the bearing-block upon the knife-arm is in the form of a ball, and the same is also true of the pivot-bearing for the arm B', it follows that said bearings are self-adjusting and self-fitting, the natural wear of the same acting but to cause a better fit to the bearings.

While in the ball-joint shown the socket member is provided in the arm, it is obvious that the socket could be provided in the stud, if preferred, and the ball or self fitting and adjusting joint might be otherwise constructed with the same purpose and effect as herein shown. Obviously details of construction may be varied without departing from the principles of my invention.

I claim as my invention—

1. The combination with a casing, of an oscillating knife-arm therein, pivoted by means providing a self-adjusting ball-and-socket bearing, a comb having a plurality of sharp cutting edges, a knife carried on the outer end of the knife-arm and adapted to coact with the comb, a tension-plate adapted to bear downwardly near the outer end of said knife-arm, a sliding block beneath the tension-plate and complementary surfaces on the sliding block and knife-arm forming a ball-and-socket joint, and means for adjusting the downward pressure of said tension-plate.

2. In a device of the class described, a vibrating knife-arm pivoted near its middle by means affording a self fitting and adjusting bearing, a toothed comb a plurality of knives

secured on the knife-arm above said comb and cooperating therewith, a tension-plate extending forwardly of the pivot and a bearing-block engaged on the arm by means affording a ball-and-socket joint and adapted to slide beneath the tension-plate and means for adjusting the pressure of the tension-plate on the arm comprising a set-screw engaged in the casing and bearing against the tension-plate and a spring-lock on said set-screw.

3. The combination with a casing, of a comb on the end thereof, an oscillating arm therein pivoted near its middle by means forming a ball-shaped bearing, means for oscillating said arm, knives on the outer end of said arm adapted to cooperate with the comb, a hinged tension-plate secured in advance of the pivot and having a relatively broad front end, a self-adjusting bearing-block engaged on said arm and adapted to slide beneath the tension-plate and a set-screw engaged in the casing and engaging at its inner end on said tension-plate and means for locking the set-screw in position.

4. In a shearing device, a tubular casing, a centrally-pivoted vibrating arm therein said pivot comprising an upwardly - extended rounded stud adapted to fit into a complementary socket in the arm, a central aperture in said arm, a washer concave on its inner side adapted to engage on a complementary surface on the top of the arm and a bolt adapted to pass downwardly through said washer, arms and stud and forming the axis of the pivot.

5. The combination with a casing of the class described, of a knife-arm, means for vibrating said arm therein, a central pivot-bearing for said arm comprising parts on the pivot and above the same between which the arm engages forming a ball-shaped joint, and a tension-plate hinged in advance of the pivot and adapted to bear downwardly near its extremity on the arm, and a bearing-block interposed between the tension-plate and arm and adapted to be self-fitting and self-adjusting on the arm.

6. In a device of the class described, a tubular casing, a movable cover adapted to be rigidly secured thereon, a vibratory knife-arm pivoted in the casing centrally thereof, means for vibrating the arm, a rounded surface on one side of the arm and a concave surface on the other and complementary bearing-surfaces forming the pivot between which said parts on the arm are engaged and means for adjusting said bearing, a comb on the end of the casing and a coacting knife on the end of the knife-arm and a tension device adapted to adjust the pressure of the knife on the comb.

7. In a device of the class described, the combination with a casing, of an oscillating knife-arm therein, a comb having a plurality of sharp cutting edges, a knife coacting with the comb and carried on the outer end of the knife-arm, a saddle or bearing-block pivoted

on the knife-arm by means affording a ball-joint and a tension device beneath which said saddle or bearing-block engages and which acts to adjust the tension of the knife on the
5 comb.

8. In an animal-clipper the combination with the oscillating knife-arm, of a saddle or bearing-block pivotally engaged thereon near the outer end thereof and having a flat upper
10 bearing-surface, a tension device having a flat under surface adapted to bear on the up-

per surface of the saddle or bearing-block and means for adjusting the bearing pressure on the saddle.

In witness whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ARTHUR HAWTREE.

Witnesses:

C. W. HILLS,

ALFRED C. ODELL.