

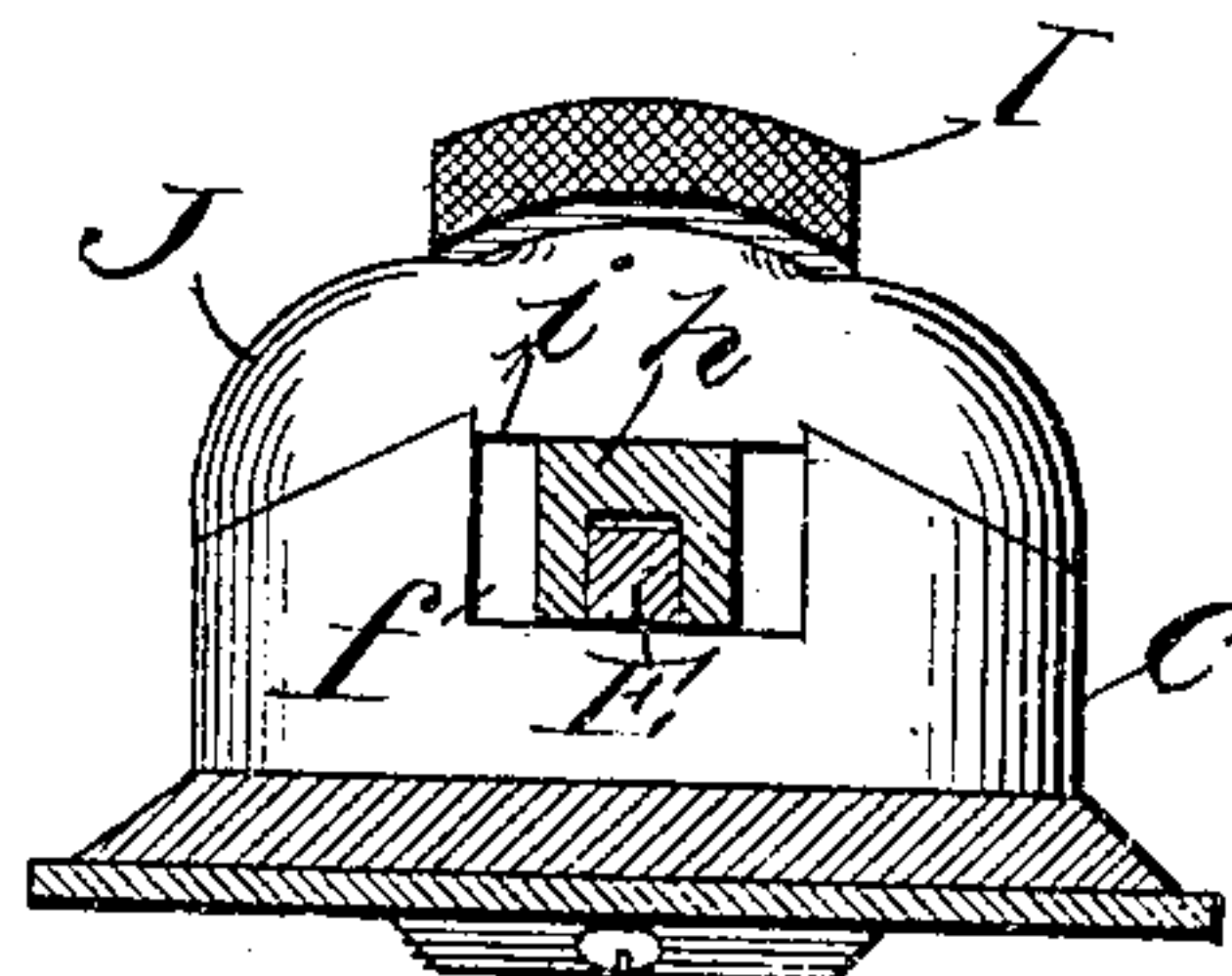
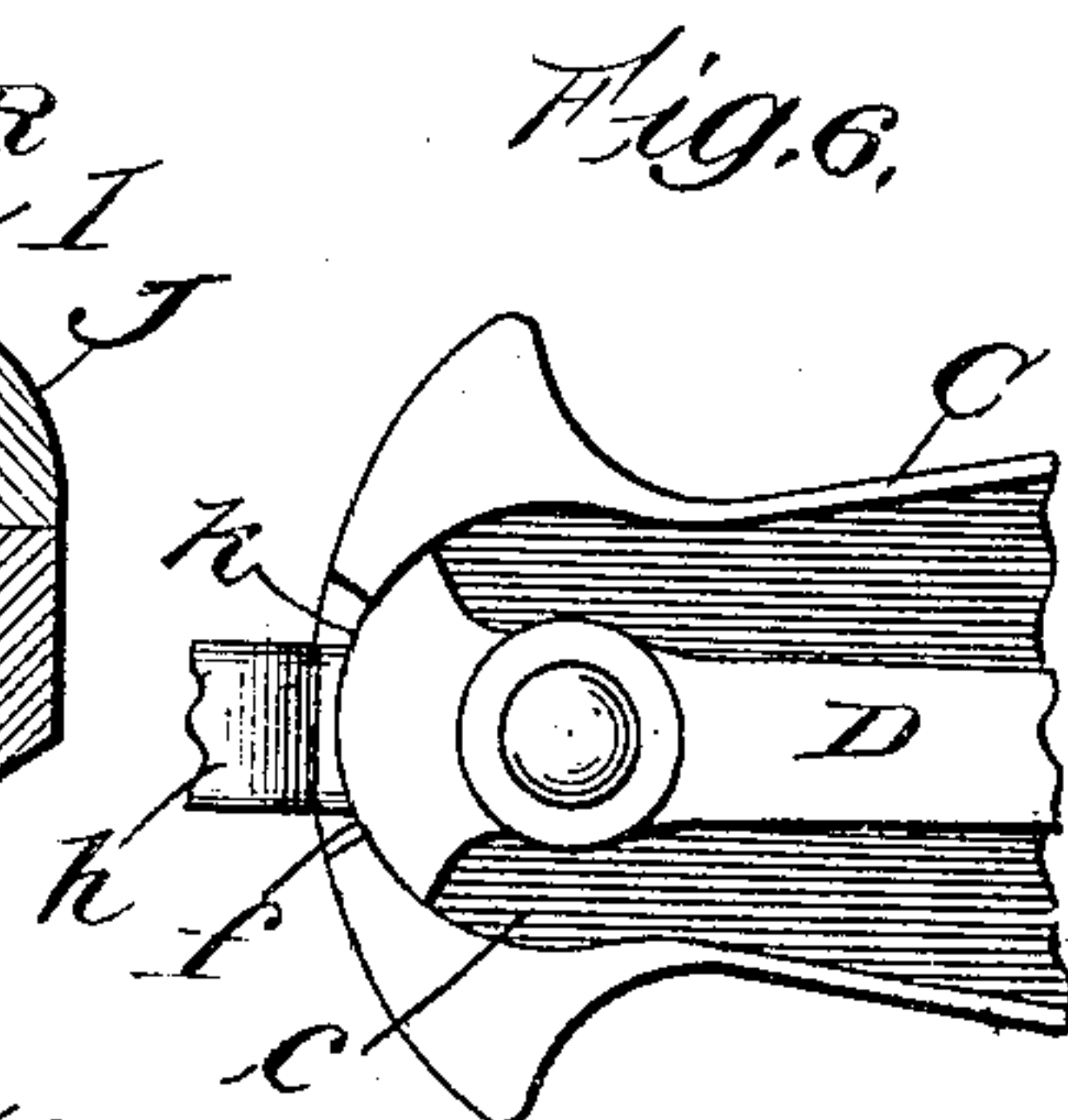
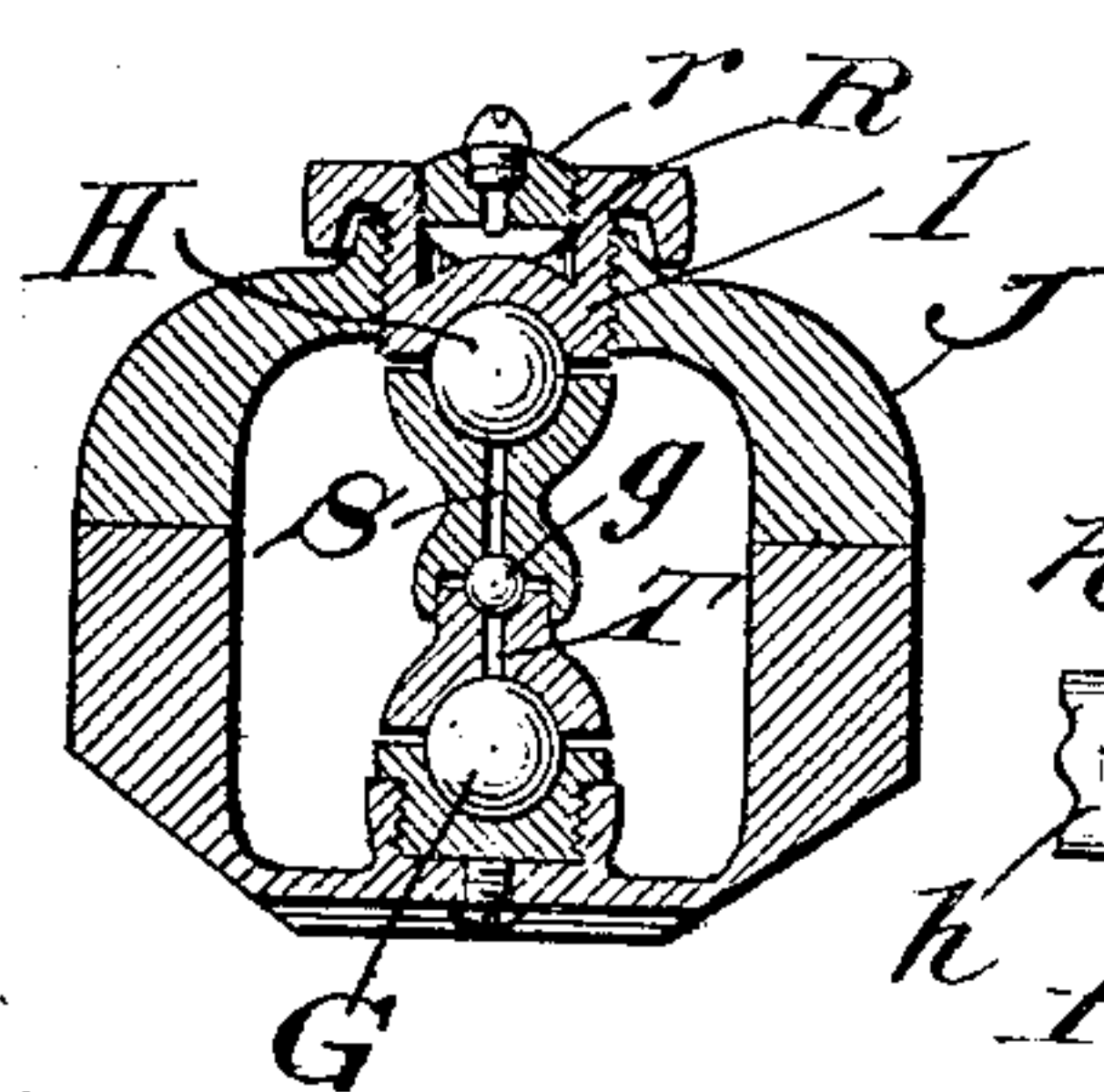
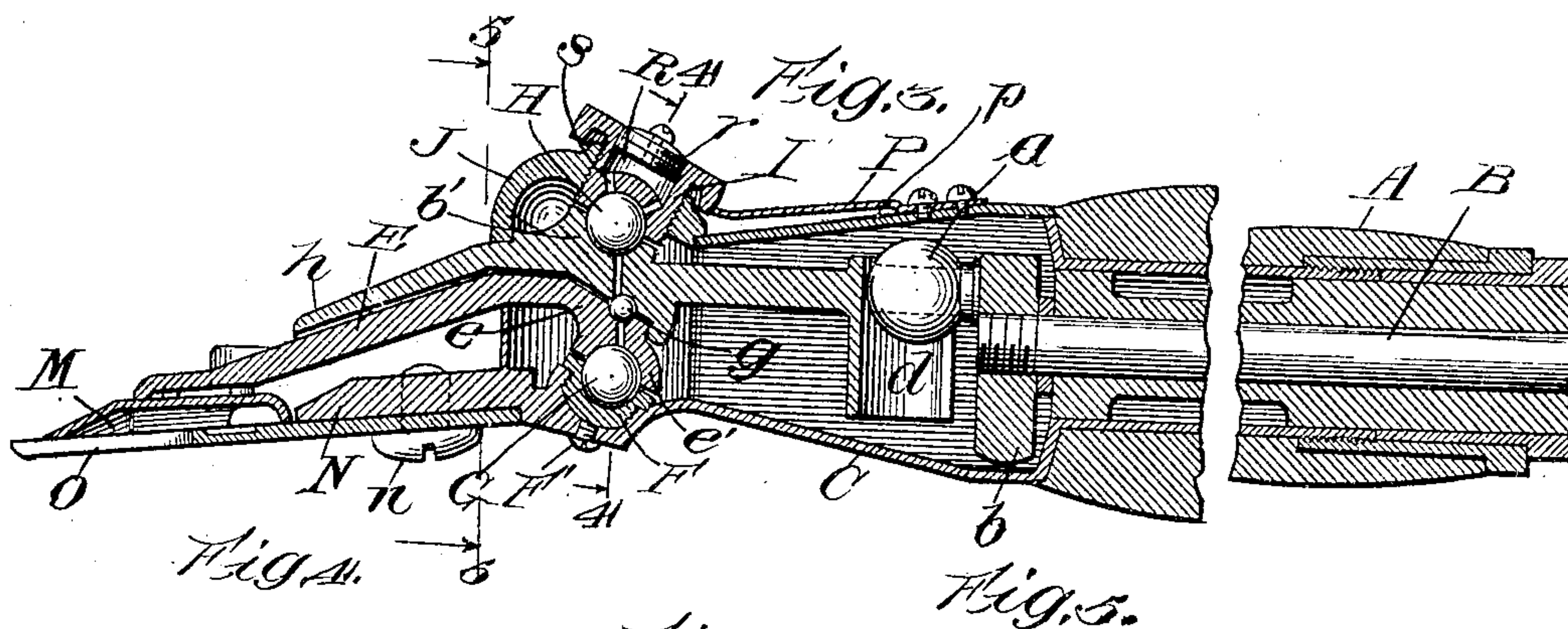
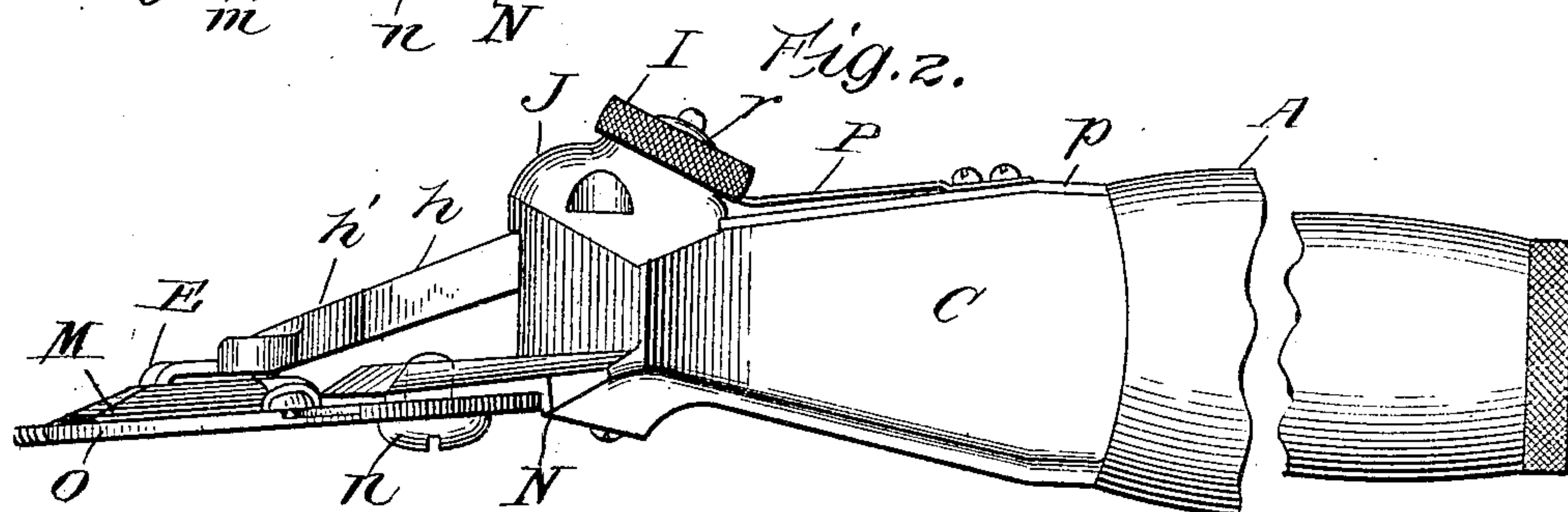
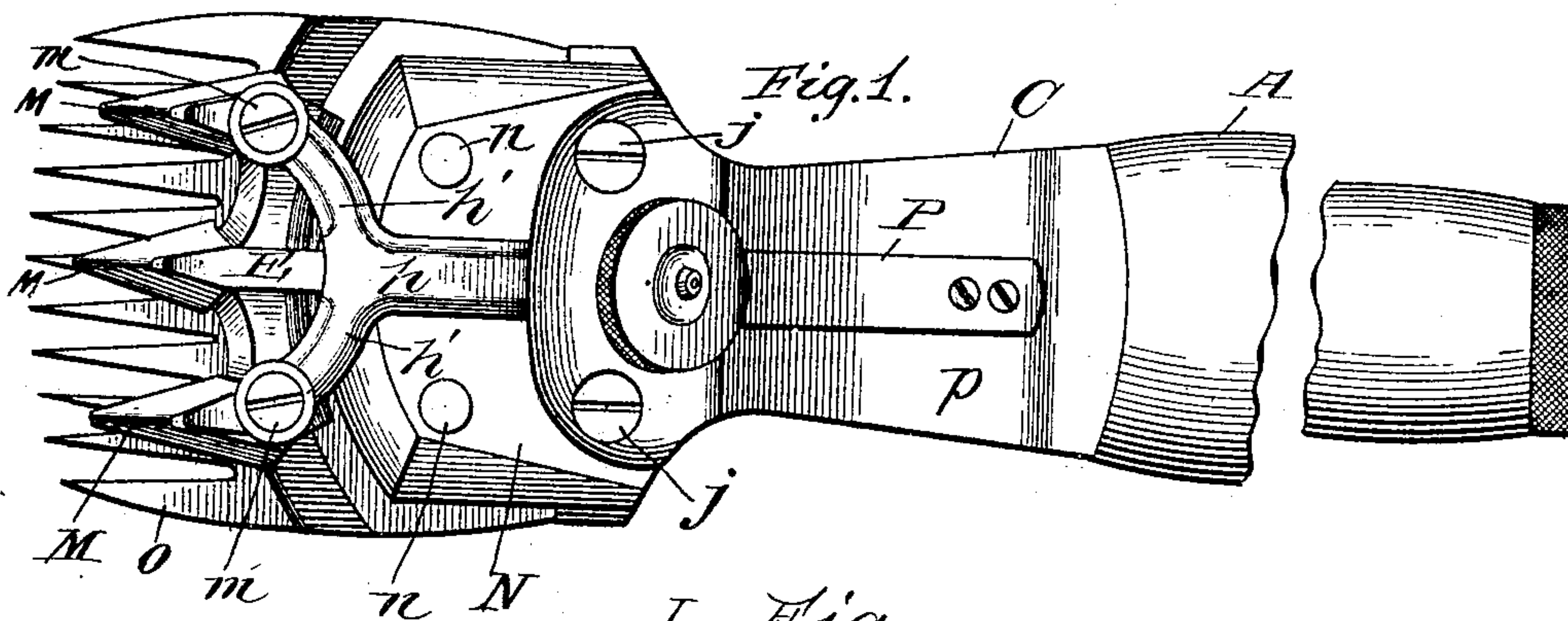
No. 814,113.

PATENTED MAR. 6, 1906.

H. S. BURLEY.

## ANIMAL SHEARS.

APPLICATION FILED FEB. 23, 1904.



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# UNITED STATES PATENT OFFICE.

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## ANIMAL-SHEARS.

No. 814,113.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed February 23, 1904. Serial No. 194,947.

*To all whom it may concern:*

Be it known that I, HARRY S. BURLEY, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheep-Shearers, of which the following is a full, clear, and exact description.

The object of my invention is to provide a slight-weight sheep shears or clippers the construction of which is such that the cutters vibrating upon the comb always wear equally and the pivot of the vibrating fork and tongue carrying said cutters is confined within a dust-proof housing and is provided with ball-bearings that reduce the friction to a minimum, which latter have adjusting devices that have a forward thrust, thereby permitting the wear of the cutters to be taken up. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of my invention with a portion of the handle thereof broken away. Fig. 2 is a side view thereof. Fig. 3 is a longitudinal central section of the same. Fig. 4 is a transverse section taken on the angular dotted line 4 4 looking in the direction indicated by the arrows. Fig. 5 is a similar view taken on dotted line 5 5 looking in the direction indicated by the arrows. Fig. 6 is a plan view of the broken-away forward portion of the hollow portion of the holder or handle of the shears with the cap and plate covering the same removed and with the forward portion of the extension of the vibrator broken away.

Referring to the drawings, A represents a suitable handle, and B a shaft which has suitable bearings therein and extends longitudinally therethrough and is engaged and revolved by mechanism at its rear end in the manner now in common use and has its forward end extended into the channel of the hollow casing C and provided with a crank b, that has a stud a with a spherical end projecting forward therefrom. The casing from its point of connection with the handle gradually decreases in transverse dimensions until near its forward end, where it increases in lateral dimension to provide an interior chamber c, the inner wall of the inclosed forward end of which is struck from the pivotal center of the vibrator D, as shown in Fig. 6 of

the drawings. This vibrator consists of a longitudinally-disposed lever which is fulcrumed or pivoted at about its center of length in the forward part of the casing and extends to the rear from said pivotal point and terminates in a vertically-disposed enlargement d, which is provided with a vertical groove in its rear surface, into which the spherical end of the stud a of the crank enters and in this way vibrates the vibrator when shaft B revolves.

At its pivotal center the vibrator is provided with a boss b', the under flat surface of which is inclined to the rear and rests on the upper correspondingly-inclined surface of the pivotal boss e of the tongue E, which comprises a longitudinally-elongated member that projects forward out of a suitable port-hole f in the forward end wall of the casing C and carries on its forward end one of the cutters of the shears, as will hereinafter more fully appear. In order to minimize the contact between these engaging surfaces of the bosses of the vibrator and the tongue, I insert in suitable concavities whose centers are intersected by the axis of the pivot of the vibrator and tongue a single antifriction-ball g.

The upper surface of the boss of the vibrator and the under surface of the boss of the tongue are inclined at the same angle as their engaging surfaces, and the latter is provided with a ball-bearing cup e' therein, which is opposed to a similar bearing in the head of a gage-screw F, which latter is tapped into the thickened bottom of the forward end of the casing at right angles to the inclined plane of the under surface of the boss of the tongue and is locked in any position to which it may be adjusted by a set-screw F', that is tapped through the bottom of the casing from the under side. A ball G is seated in these bearings e' in boss e and in the gage-screw, and thus provides an antifriction pivot-bearing, which reduces to the greatest extent possible the friction which would otherwise be generated at this point. The upper surface of the pivot-boss of the vibrator is also provided with a suitable bearing-concavity of about the same proportions as that in which ball G is journaled, and a ball H is journaled therein, whose upper portion is journaled in a similar concave bearing in the adjacent end of an adjusting-screw I, which is tapped through the cover J.



The cover J is of such shape that it fits upon the upper edges of the vertical walls of the forward end of the casing and is screwed in position by the screws *j j* and thoroughly closes the top of the forward end of said casing. The adjusting-screw I extends through said cover at right angles to the inclined upper surface of the boss of the vibrator, and thus, considering the direction of the pressure, when screw I is manipulated to press down on the ball-bearing H the tendency is to tilt said pivot forward slightly, and thus, as will hereinafter be made apparent, press the cutters of the shears down upon the comb of the same. The forward arm *h* of the vibrator extends forward from the pivotal boss thereof out through the port-hole *f* in the forward end of the casing, and between said boss and the inner vertical walls of the casing in which the port-hole is made said arm *h* is provided with a symmetrical enlargement, and the curvature of its forward edge corresponds to the curvature of the inner surface of the end wall of said casing and constitutes a closure *k*, which engages said surface when the vibrator is rocked from side to side in such manner as to close said port-hole *f* and prevent the dust from getting into the casing. The possibility of the dust, dirt, sand, and grit getting into the casing is further guarded against by providing the front edge of the cover J where it bridges over the port-hole with a drop edge *i*, which fits between the ends of the port-hole and reduces the height of said port-hole to exactly the vertical dimensions of arm *h* of the vibrator just in front of the closure *k* thereof.

The under side of the arm *h* is channeled its entire length, and the tongue E, which extends forward from boss *e*, is of such dimensions and such shape that it occupies and is confined in the channel of the under side of arm *h* and projects out of and beyond the same at the crotch of the bifurcations or branches *h'*, with which the forward end of said arm is provided. The forward end of tongue E terminates in about the same transverse plane as the ends of bifurcations *h'*, and all have arrow-shaped cutters M M M secured thereto by means of screws *m m* and have upper marginal edges beveled to provide a cutting edge, as shown.

The bottom of the forward portion of the casing is projected forward from the base of the end walls thereof to form a shelving N, and secured to the under depressed surface of this shelving by means of screws *n n* is the comb O. The cutters M rest upon the teeth of the comb and by means of the mechanism hereinbefore described are vibrated rapidly back and forth from side to side over the teeth of the comb, and as the shears are applied to the animal in proper manner the cutters clip the wool gathered between the teeth. Owing to grit and dirt and sometimes defect-

ive construction of the tongue and the bifurcations of the vibrator the latter might see-saw or rock on the tongue and but one cutter carried by the bifurcation *h'* and the cutter carried by the tongue do effective work, and thus make said cutters wear unevenly, or sometimes said cutters do not engage and press down hard enough upon the upper surface of the comb to enable them to do effective work. The former objection is overcome by making the depth of the channel in the under surface of arm *h* deeper than the thickness of the tongue, so that in practice only one side edge of the tongue is engaged by the vibrator, and the latter objection is overcome by the adjustment-screw I.

The circumferential edges of the head of screw I are preferably milled, and the screw is prevented from involuntary movement by a longitudinally-disposed leaf-spring pawl P, the rear end of which is secured by screws or otherwise to the top plate *p*, covering the upper side of the casing back of the cover J and the forward end edge of which is serrated and normally engages the milled edge of the head of said screw I. The top of screw I is also bored out to form an oil-cup R, which is closed by a screw-plug *r*, and the bottom of this oil-cup has passages *s* leading therefrom to the bearings of the ball H, so that the oil can thoroughly lubricate the same. The bearings of ball H in the boss of the vibrator also have a vertical passage S for the oil to flow therefrom to the ball *g*, and the boss *e* of tongue E likewise has a vertical passage T for the oil to flow therefrom to the ball G, thus insuring the perfect lubrication of the bearings of the pivot of the vibrator and tongue without the possibility of dust, dirt, grit, or wool getting into the same or any way interfering with the actuating mechanism of the shears.

What I claim as new is—

1. Sheep-shears comprising a vibrator, a tongue, cutters carried by the forward ends thereof, a handle the forward part or casing of which incloses the pivot of said vibrator and tongue and the rear arm of the former, and is provided with a dust-proof port-hole in its forward end wall in front of the said pivot out through which the forward arm of said vibrator and said tongue extend, a cover for the forward part of said casing above said pivot the forward edge of which bridges said port-hole and has a drop edge restricting the vertical dimensions of the same, and a comb secured to and projecting from said casing and engaged by said cutters.

2. Sheep-shears comprising a vibrator, a tongue, cutters carried by the forward ends thereof, a handle the forward part or casing of which incloses the pivot of said vibrator and tongue and the rear arm of the former, and is provided with a dust-proof port-hole in its forward end walls in front of the said



pivot out through which the forward arm of said vibrator extends, which latter has an enlargement closing said port-hole, the curvature of the engaging edges of said enlargement and the inner surface of the end walls of said casing being struck from the center of said pivot, out through which port-hole said tongue extends, and a comb secured to and projecting from said casing and engaged by said cutters.

3. Sheep-shears comprising a vibrator, a tongue, cutters carried by the forward ends thereof, a handle the forward part or casing of which incloses the pivot of said vibrator and tongue together with the rear arm of the former and is provided with a dust-proof port-hole in its forward end walls in front of the said pivot out through which the forward arm of said vibrator extends, which latter has an enlargement closing said port-hole, the curvature of the engaging surface of said enlargement and the inner surface of the end walls of said casing being struck from the center of said pivot, and out through which port-hole said tongue extends, a cover for the forward part of said casing above said pivot, the forward edge of which bridging said port-hole has a drop edge restricting the vertical dimensions of the same, and a comb secured to and projecting from said casing and engaged by said cutters.

4. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of all of said ball-bearings being in alinement, cutters carried on the forward ends of said vibrator and tongue, and a comb engaged thereby.

5. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of all of said ball-bearings being in alinement, means for simultaneously tilting said pivot forward, cutters carried on the forward ends of said vibrator and tongue, and a comb engaged thereby.

6. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator and below said tongue respectively, the axes of which aline, cutters carried by said vibrator and tongue, a dust-proof casing in which said pivots are housed, and out through the forward end of which said vibrator and tongue extend, and a comb secured to and projecting from said casing and engaged by said cutters.

7. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, the bearings of the upper pivot alining with those of the lower pivot

and adjustable in a vertical inclined plane intersecting the center thereof and a point in front of the center of the lower pivot, and an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of all of said ball-bearings being in alinement.

8. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, the bearings of the lower pivot alining with those of the upper pivot and said bearings adjustable in a vertically-inclined plane intersecting the center thereof and a point to the rear of the upper pivot.

9. Sheep-shears comprising a vibrator, a tongue engaged thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, the bearings of the upper pivot alining with those of the lower pivot, and are both adjustable, the former in a plane intersecting the center of the upper pivot and a point in front of the center of the lower pivot, and the latter in a plane parallel to the plane of adjustment of the upper bearings.

10. Sheep-shears comprising a vibrator, a tongue actuated thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, a screw having a concave bearing in its end for the upper ball-bearing, and adjustable in a vertical plane intersecting said bearing, and a point in front of the lower ball-bearing, and an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of all of said ball-bearings being in alinement.

11. Sheep-shears comprising a vibrator, a tongue actuated thereby, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, screws above the upper pivot and below the lower pivot respectively having concave seats in their ends for the bearing-balls, and adjustable longitudinally, the upper in a plane intersecting the center of the upper bearing-ball and a point in front of the lower bearing-ball, and the lower screw in a plane parallel to the upper screw.

12. Sheep-shears comprising a vibrator, a tongue actuated thereby, a ball-bearing separating the pivotal bosses thereof, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, screws above the upper pivot and below the lower pivot respectively having concave seats in their ends for the bearing-balls, and adjustable longitudinally, the upper in a plane intersecting the center of the upper bearing-ball and a point in front of the lower bearing-ball, and the lower screw in a plane parallel to the upper screw.

13. Sheep-shears comprising a bifurcated vibrator the under surface of the forwardly-



extending arm of which is channeled longitudinally, a tongue the thickness of the shaft of which is less than the depth of said channel through which it extends and beyond which it projects to an extent corresponding to that of the bifurcations of said vibrator, a ball-bearing pivot above said vibrator, a ball-bearing pivot below said tongue, and an antifriction-ball inserted between and separating the bearing-bosses of said vibrator and tongue.

14. Sheep-shears comprising a vibrator; a tongue engaged thereby, a pivot above said vibrator; a pivot below said tongue; the bearings of the upper pivot alining with those of the lower pivot and adjustable in a vertical inclined plane intersecting the center thereof and a point in front of the center of the lower pivot; and an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of said pivots and said antifriction-ball being in alinement.

15. Sheep-shears comprising a vibrator; a tongue engaged thereby; a pivot above said vibrator; a pivot below said tongue, the bearings of the upper pivot alining with those of the lower pivot and are both adjustable, the former in a plane intersecting the center of the upper pivot and a point in front of the center of the lower pivot, and the latter in a plane parallel to the plane of adjustment of the upper bearings.

16. Sheep-shears comprising a vibrator; a tongue actuated thereby; a pivot above said vibrator, a pivot below said tongue, a screw having a concave bearing in its end for the upper pivot and adjustable in a vertical plane intersecting said pivot, and a point in front of the lower pivot; and an antifriction-ball interposed between the engaging bosses of said vibrator and tongue, the axes of said

pivots and said antifriction-ball being in alinement.

17. Sheep-shears comprising a vibrator; a tongue actuated thereby, a pivot above said vibrator, a pivot below said tongue, screws above the upper pivot and below the lower pivot respectively, the upper in a plane intersecting the center of the upper pivot and a point in front of the lower pivot and the lower screw in a plane parallel to the upper screw.

18. Sheep-shears comprising a vibrator; a tongue actuated thereby, a ball-bearing supporting the pivotal bosses thereof, a pivot above said vibrator, a pivot below said tongue; screws above the upper pivot and below the lower pivot respectively having concave seats in their ends for the pivots and adjustable longitudinally, the upper in a plane intersecting the center of the upper pivot and a point in front of the lower pivot; a lower screw in a plane parallel to the upper screw.

19. Sheep-shears comprising a bifurcated vibrator, the under surface of the forwardly-extending arm of which is channeled longitudinally; a tongue the thickness of the shaft of which is less than the depth of said channel through which it extends and beyond which it projects to an extent corresponding to that of the bifurcations of said vibrator; a pivot above said vibrator; a pivot below said tongue; and an antifriction-ball inserted between and supporting the bearing-bosses of said vibrator and tongue.

In testimony whereof I have hereunto set my hand this 16th day of February, 1904.

HARRY S. BURLEY.

Witnesses:

FRANK D. THOMASON,  
WALTER M. CAHILL.