No. 709,522. Patented Sept. 23, 1902.

J. K. STEWART.

SHEARING TOOL OR CLIPPER.

(Application filed Apr. 14, 1902.)

(No Model.)

Fig. 1.

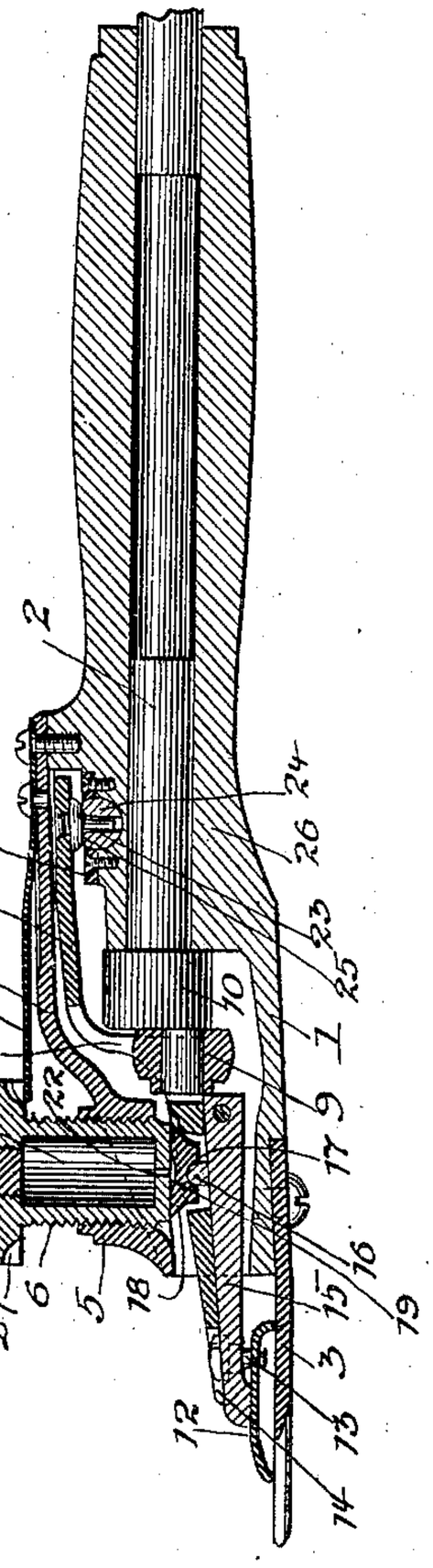
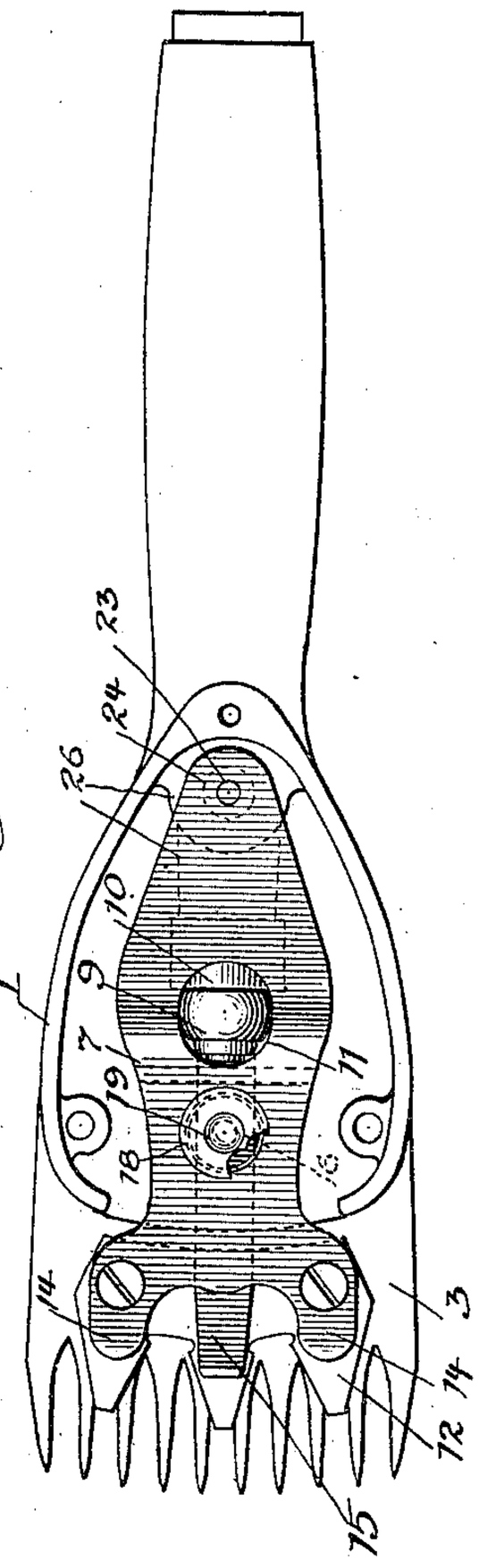


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN K. STEWART, OF CHICAGO, ILLINOIS.

SHEARING TOOL OR CLIPPER.

SPECIFICATION forming part of Letters Patent No. 709,522, dated September 23, 1902.

Application filed April 14, 1902. Serial No. 102,736. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. STEWART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shearing Tools or Clippers, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention is an improvement in shearing-tools of the class which comprise a comb or fixed cutter, a vibrating cutter, an oscillating arm for operating the latter deriving power through the medium of a shaft extending through the handle of the tool; and it consists in detail improvements in the construction of the pivots and bearing parts of the cutter-operating levers, as set out in the claims.

In the drawings, Figure 1 is a section axially through the driving-shaft of my improved clipper. Fig. 2 is a plan view of the case and operating parts therein with the cap removed.

The familiar and customary parts of a tool of this type are the main body of a case 1, in which are formed at the rear end, which constitutes the handle, bearings for the shaft 2, by which the cutter is operated.

3 is the comb or fixed cutter, attached to the forward end and under side of the case 1.

4 is a cap or cover plate forming a part of the case and attached above the main body 1 and in the construction illustrated having the threaded boss 5, through which the tension-screw 6 is inserted, as more particularly hereinafter described.

7 is the main or primary cutter-actuating lever. It is fulcrumed at its rear end in bearings formed or supported on the body of the case 1 and is engaged by the crank-stud and roll 9 on the cross-head or disk 10 of the shaft forward of its bearing in the case, said roll operating in a vertical cylindrical guide-channel 11 in the operating-lever, with the effect of oscillating the lever horizontally, while the crank-stud and roll have a free path vertically in said cylindrical guide-channel. At the forward end the lever 7 engages the vibrating cutter 12 by means of the downwardly-projecting studs 13, while it bears upon said cutter by its terminal fingers 14 14.

15 is the auxiliary pressure-lever, pivoted to the main cutter-actuating lever 7 and extending under it in a close-fitting channel which prevents any side motion. It bears at the forward end on the vibrating cutter 12 at the middle point, and it is through this pressure-lever that the terminal fingers 14 14 of the actuating-lever 7 are caused to press upon the vibrating cutter toward the ends as the pressure-lever presses upon the same at the middle. This construction is a familiar one, and it is not peculiar to the present invention. The auxiliary pressure-lever 15 has, just a little forward of its pivot, an upstanding boss, stud, or knob 16, which protrudes into an aperture 17 in the cutter-actuating lever 7, and within said aperture there is seated upon the top of said knob a saddle 18, having a downwardly-concave seat to fit the knob and adapted by such seat to rock over it in any direction. The saddle is widely extended at the top to form a broad upper face, and said face is slightly concaved at the center. The stud or knob 16, when at the middle position of its path of vibration, is substantially in line with the axis of the tension-screw 6, and said tension-screw, set through the cap of the case, terminates at the lower end in a flat face which bears upon the upper flat face of the saddle 18, the central cavity 19 in said flat upper face of the saddle being enough less in extent than the diameter of the lower flat face of the tension-screw so that in the entire range of vibration of the cutter-actuating lever said cavity does not pass beyond the margins of the end of the tension-screw. The tension-screw is made hollow, the cavity 20 adapting it to constitute an oil-cup, which can be filled from the top through the aperture closed by the screw 21, a small oil-port 22 being made in the bottom of the cavity opening through the center of the flat-faced end of the screw into the concavity 19, formerly described, in the top of the saddle, so that the oil may be delivered into said concavity freely and lubricate the surfaces of the saddle and tension-screw in the vibrating action.

The rear end of the cutter-actuating lever has a downwardly-extending spindle 23, which is journaled in the spherical segment-ball 24, said segment-ball being apertured vertically

for the spindle and preferably slightly rounded at the upper end of the aperture to seat a correspondingly-rounded shoulder 25 at the base of the spindle. The ball 24 is lodged in a box formed by spherically cupping the upper side of the bearing 26 of the shaft 2 and capping the bearing with a suitable annular cap 27 to retain the ball while allowing it sufficient range of rolling action in any direction to fully accommodate the movements of the vibrating cutter as it accommodates itself to the track on which it moves on the comb or fixed cutter. The oscillating or vibrating movement for cutting, it will be understood, is obtained about the axis of the spindle 23, said spindle turning in the ball and not requiring the ball to turn in its seat, such action of the ball being provided for and occurring only in accommodating the cutter in its adjustment and adaptation to the track on which it vibrates, as above stated.

The usual means may be employed to hold the tension-screw against accidental displacement—to wit, a spring 28 engaging the notches 29 in the flanged head of the screw.

I claim—

1. A shearing-tool, comprising a fixed cutter and a vibrating cutter, a lever by which the latter is held in contact with the former, said lever having an upstanding knob or boss, a saddle having a downwardly-concave seat by which it is lodged upon the top of the knob, said saddle having a flat extended upper face, means for vibrating the cutter, and a tension-screw set through the top of the case having a flat lower end bearing upon the flat upper face of the saddle.

2. A shearing-tool, comprising a fixed cutter and a vibrating cutter, a lever by which the latter is held in contact with the former, said lever having an upstanding knob or boss, a saddle having a downwardly-concave seat by which it is lodged on the knob, said saddle having an extended flat upper face provided with a central concavity, means for vibrating the cutter, and a tension-screw set through the top of the case, terminating at the lower end in a flat face which bears upon the upper flat face of the saddle beyond the margin of the concavity in the latter, said tension-screw having an oil-cavity, and an oil-port leading from such cavity opening through its lower terminal flat face above the concavity of the saddle.

3. A shearing-tool, comprising a fixed cutter and a vibrating cutter, a tension-lever by which the latter is held in contact with the former, a lever for actuating the vibrating cutter and the tension-lever, said cutter-actuating lever being apertured and the tension-lever being exposed from above through such aperture, an upstanding knob or boss on the tension-lever, a saddle extending into such aperture and having a downwardly-concave seat by which it is lodged on the knob or boss, said saddle having a broadly-extended flat upper face, and a tension-screw set through the case, having a flat face at the lower end, bearing upon the flat upper face of the saddle.

4. A shearing-tool, comprising a fixed cutter and a vibrating cutter, and a lever for actuating the latter, having at its end remote from its engagement with the cutter a downwardly-projecting spindle, a ball having a vertical aperture to afford bearings for the spindle, a spherical seat in which such ball is retained, a longitudinal shaft and a crank-stud thereon engaging the lever forward of its fulcrum in the ball to vibrate it about the axis of the spindle, and means mounted on the case forward of the crank engagement with the lever for causing the lever to press upon the vibrating cutter.

5. A shearing-tool, comprising a fixed cutter and a vibrating cutter, a lever for actuating the latter, a ball to which said lever is pivoted for such vibration at its end remote from its engagement with the vibrating cutter, a spherical seat in which such ball is retained, a longitudinal shaft, and a crank-stud thereon engaging the lever forward of its pivot in the ball to vibrate it about said pivot, and means mounted on the case forward of the crank engagement of the shaft with the lever for causing the lever to press upon the vibrating cutter.

6. A shearing-tool, comprising a fixed cutter and a vibrating cutter, a lever for actuating the latter, a longitudinal shaft and a crank-stud thereon engaging the lever to vibrate it, a ball to which the lever is pivoted for such vibration, having a spherical seat above the bearing of the longitudinal shaft rearward from the crank engagement of said shaft with the lever, and means mounted on the case forward of said crank engagement for causing the lever to press upon the vibrating cutter.

In testimony whereof I have hereunto set my hand at Chicago, Illinois, in the presence of two witnesses, this 11th day of April, A. D. 1902.

JOHN K. STEWART.

In presence of—
T. J. CLARK,
ASA J. MOORE.