

UNITED STATES PATENT OFFICE.

SAMUEL WALTER ALLEN, OF CHICAGO, ILLINOIS.

ANIMAL-SHEARS.

SPECIFICATION forming part of Letters Patent No. 697,771, dated April 15, 1902.

Application filed August 7, 1901. Serial No. 71,254. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL WALTER ALLEN, of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Animal-Shears, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce improvements in animal-shears whereby the solidity and durability of the working parts of the machine are augmented and whereby facility of operation is increased through elimination of friction between the working parts.

In the accompanying drawings, Figure I is a top plan view, partially in section, of my shears with the tension-nut removed. Fig. II is a longitudinal vertical section of the subject-matter of Fig. I, some of the parts being shown in elevation.

Referring to the numerals on the drawings, 1 indicates the bottom plate of the main frame of my machine, which is completed at one end by a comb-plate 2, projecting forwardly from a shoulder 3, and at the other end by a rearwardly-extending grasp or handle 4. The handle and its mountings for the accommodation of the revoluble shaft 5 may be substantially identical in construction with the corresponding parts shown in United States Patent No. 642,831, issued February 6, 1900, to Samuel F. Allen. The shaft 5 is designed to be operated as by a driving-shaft 6, connected therewith as by a universal gear connection 7.

To the inner end of the shaft 5 is fixed a head 8, provided with an eccentric pin 9, that works in a bearing provided for it in a cylinder 10. The cylinder 10 through vertical reciprocation within a sheath 11, which is broken away, as indicated at 12, on the side adjacent to the head 8, is designed to actuate a vibrator 15, of which the sheath 11 preferably constitutes a part. The vibrator 15 is adapted to oscillate about a stud 16, that is solidly seated in the bottom plate 1. The stud 16 is preferably secured to the bottom plate, as by means of a flange 17 on the inner side of the plate and a nut 18, screwed to its threaded extremity, on the outside of the plate. The vibrator is preferably provided with a collar 19, which affords a broad bearing about the stud 16. The vibrator is held in

proper operative relation to the head 8 and is delicately supported therein by a special contrivance for the purpose, as follows: Against the flat bottom of a recess 20 in the bottom plate 1 rests the convex face of the head 21 of a supporting-rocker 22, which is loosely connected with the vibrator 15, as through an adjustable screw-block 23, the face of the block being concave to accommodate the correspondingly convex end of the rocker 22. The head 21 of the rocker 22 preferably nearly fills the recess 20, but works loosely therein. The outer face of the collar 19 is spheroidal in contour and loosely fits a corresponding bearing 24 in a tension-lever 25, which at its forward end is provided with a cross-head 26, by which, as usual, it is connected to a vibratory cutter 27, of usual or improved construction. The tension-lever 25 terminates in a tailpiece 28 at its end opposite to that which carries the cross-head 26.

An important feature of the construction of my present invention is found in the fact that the tension-lever 25 is supported exclusively by its end that carries the cross-head 26 and by the vibrator 15 and that the tension applied to the tension-lever is secured by pressure applied through the stud 16. It will be seen that the tension-lever bears on the rear end of the vibrator and not on the front end thereof. The rocker 22 is employed for the purpose of receiving the pressure of the tension-lever communicated by the tension-nut 35 through the ball-bearings, thereby tending to relieve the vibrator of friction. The tension-lever does not bear upon the top of the collar 19 of the vibrator, but only on the sides thereof, and a certain space is provided between the tension-lever bearing 24 and the top of the collar 19 to allow for variable tension without bringing direct pressure to bear upon the vibrator about the stud 16. Vibratory movement is communicated from the vibrator 15 to the tension-lever 25, and for that purpose the vibrator is provided upon opposite sides of the pin 16 with a pair of jaws 29 and a pair of jaws 30. In assembling the parts the lever 25 is simply set in place, one end of it being confined between the jaws 29 and the tailpiece being confined between the jaws 30. This construction affords efficiency in operation and facility in assembling and

disassembling the parts. It may be observed that the stud 16 is reduced from above a shoulder 31^a, which is coincident with the top of the collar 19, the reduction in size being preferably made to conveniently provide a looseness of fit between the tension-lever 25 and the stud 16.

Above the bearing 24 and seated upon it is a block 31, having a concave face fitted to the contiguous face of the bearing 24. The block 31 is surmounted by an annulus 32, which is supported upon the block, as by ball-bearings 33, working in raceways provided for them in the opposing faces of the block and annulus, respectively. A close-fitting sleeve 34 is preferably slipped over the block 31 to cover the joints between it and the lever 25 and annulus 32, respectively. The stud 16 terminates beyond the annulus 32 in a threaded extremity, which carries a tension-nut 35. By means of the nut 35 any required tension may be exerted upon the tension-lever 25, but with a minimum increase of friction, owing to the character of the bearings about the stud 16, provided for the working parts between the nut and the bottom plate 1.

I provide a cap-plate 36, which is secured to side walls 37 of the frame, as by screws 38. This cap-plate is adapted to protect the principal working parts of the machine and also to afford a support for a spring-pawl 39, whose free end engages the teeth 40, formed upon the inner face of the nut 35. The free end of the spring-pawl is bent to conform to the shape of the ratchet-teeth 40, so that the teeth may engage with it and resist the tendency of the nut to rotate in the opposite direction, thereby securing the tension obtained by screwing the nut against the face of the annulus 32.

What I claim is—

1. In a shearing-machine the combination with a frame, vibrator, vibrator-stud, and means for actuating the vibrator, of means additional to the stud for supporting the vibrator in operative position.

2. In a shearing-machine the combination with a frame, vibrator, vibrator-stud, and means for actuating the vibrator, of means for supporting the vibrator located between its stud and the means by which the vibrator is operated.

3. In a shearing-machine the combination with a frame, vibrator-stud, vibrator, and means for operating the vibrator, of a flat-bottomed recess in the frame, and a rocker provided with a convex head, located in the recess and supporting the vibrator.

4. In a shearing-machine the combination with a frame, vibrator-stud, vibrator, and means for actuating the vibrator, of two pairs of jaws upon the vibrator, and a tension-lever resting in said jaws and operatively connected thereby with the vibrator.

5. In a shearing-machine the combination with a frame, vibrator-stud, vibrator, and means for actuating the vibrator, of an externally spheroidal collar upon the vibrator, a tension-lever provided with a corresponding bearing, and means for assembling the parts.

6. In a shearing-machine, the combination with a frame, vibrator-stud, vibrator, and means for actuating the vibrator, of a tension-lever carried by the vibrator, a nut on the stud, and ball-bearing members between the tension-lever and nut.

7. In a shearing-machine the combination with a frame, vibrator-stud, vibrator, and vibrator-actuating mechanism, of an externally spheroidal collar upon the vibrator, a tension-lever provided with a corresponding bearing, a block upon said bearing around the stud, an annulus, intermediate ball-bearings between the annulus and the block, and a nut working against the annulus on the threaded extremity of the stud.

8. In a shearing-machine the combination with a frame, vibrator-stud, vibrator, and vibrator-actuating mechanism, of an externally spheroidal collar upon the vibrator, a tension-lever provided with a corresponding bearing, a block upon said bearings around the stud, an annulus, intermediate ball-bearings between the annulus and the block, a nut working against the annulus on the threaded extremity of the stud, and a sleeve surrounding the annulus and block.

In testimony of all which I have hereunto subscribed my name.

SAMUEL WALTER ALLEN.

Witnesses:

G. ETZCORN,
HARRY HOFFMAN.