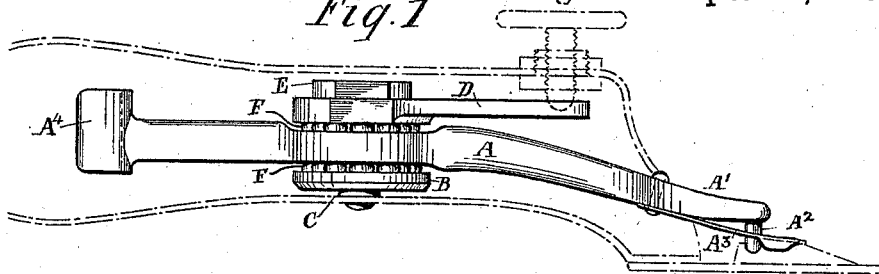


(No Model.)

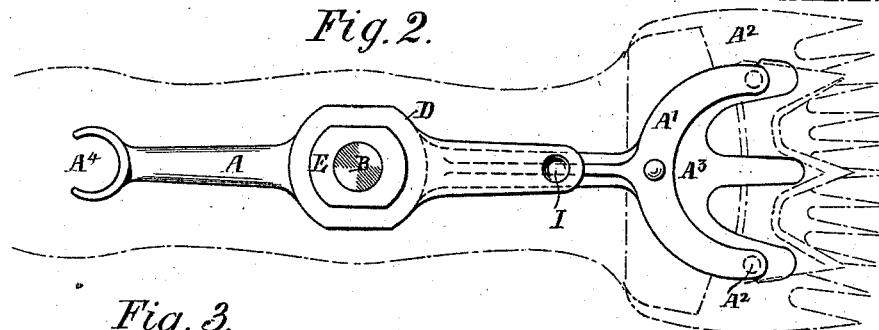
P. ASHBERRY & W. BARNES.  
CONSTRUCTION OF MECHANICAL CLIPPERS FOR WOOL OR HAIR.  
No. 526,359.

Patented Sept. 18, 1894.

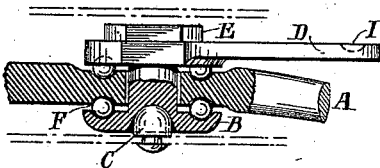
*Fig. 1*



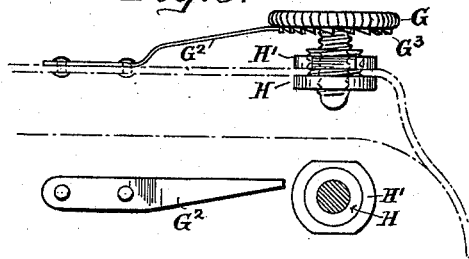
*Fig. 2.*



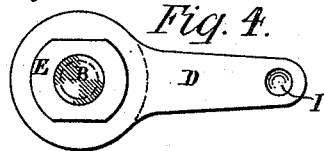
*Fig. 3.*



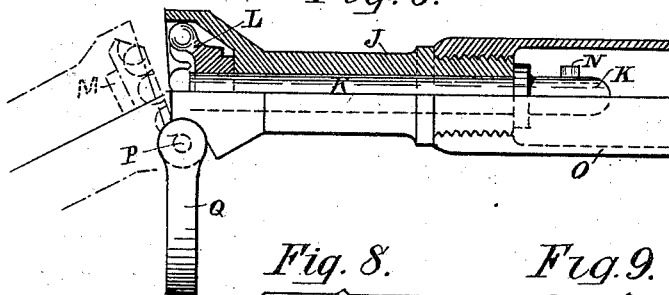
*Fig. 5.*



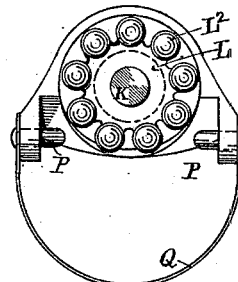
*Fig. 4.*



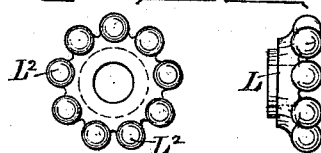
*Fig. 6.*



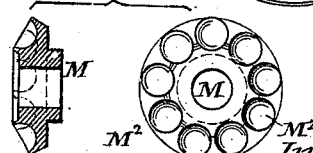
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

PHILIP ASHBERRY AND WALTER BARNES, OF SHEFFIELD, ENGLAND.

CONSTRUCTION OF MECHANICAL CLIPPERS FOR WOOL OR HAIR.

SPECIFICATION forming part of Letters Patent No. 526,359, dated September 18, 1894.

Application filed January 7, 1893. Serial No. 457,700. (No model.) Patented in England May 23, 1892, No. 9,720.

*To all whom it may concern:*

Be it known that we, PHILIP ASHBERRY, manager, and WALTER BARNES, ivory-worker, subjects of the Queen of Great Britain, and residents of Sheffield, in the county of York, England, have invented certain new and useful Improvements in the Construction of Mechanical Clippers for Wool or Hair; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and for which we have obtained a patent in Great Britain, No. 9,720, bearing date May 23, 1892.

This invention relates to improvements in the mechanical details or parts of clippers for wool and hair, such as are usually driven through the medium of flexible shafting, and it refers more particularly to the following parts of such apparatus: First, the vibrating arm which drives the cutter; second, the self adjusting vertical pillar; third, the tension lever.

Similar letters of reference indicate similar parts in all of the figures in the annexed drawings.

Figure 1, is a side elevation of the interior of a clipper; Fig. 2, a plan of same. Fig. 3, shows the vertical pillar, part of the arm, the antifriction balls, ball and socket joint, and the tension lever, parts being in section; Fig. 4, a plan of tension bar and nut; Fig. 5, a side view of pressure screw and retainer, with plan of retainer and nut; Fig. 6, a side view, in part section, of the joint, and the end where connected to driving shaft; Fig. 7, an end of joint piece (Fig. 6) showing wheel, and connected joint pins; Fig. 8, front and side view of male wheel; Fig. 9, front and side (in section) of female wheel.

The clipper in its configuration is of ordinary type, of convenient form to be held in the hand, having in front a reciprocating cutter to move to and fro across the face of a fixed cutter or comb, and a means at the back or opposite end, by which it can readily be connected with the end of a flexible driving shaft.

The apparatus is in two separable parts, hinged or pin-jointed together, in such a manner that they can be relatively turned to any required angle from the joint pins, thus en-

abling the shearer to turn the clipper in any direction. The working parts are inclosed in leather covered light metallic casing, and are easy of access.

The objects of the invention are to reduce the friction of the working parts to a minimum; to improve the construction, and to simplify the mechanism of those parts that require the attention of the shearer.

In carrying out our invention, we make the vibrating arm A, with its front end A', of a suitable form, such as crescent shaped for example, to carry the cutter (which is of the usual type) and for this purpose it is provided with two downwardly projecting driving pins A<sup>2</sup>, which pass through an intermediate elastic plate A<sup>3</sup>. The back end of the arm has a semi-tubular slide A<sup>4</sup>, to engage with an eccentrically held ball on the face of a disk, which is fixed upon the driving spindle, but this part of the mechanism is old. The elastic intermediate plate A<sup>3</sup>, is secured to the under side of the arm A, and has three projecting fingers as shown in Fig. 2, the center one preferably made stronger than the outside ones which are turned down on their outer edges to embrace the cutter. The center finger is also preferably raised a little above the plane of the outer fingers, so that when the requisite pressure, or tension as it is technically called, is applied, and the center finger is brought into contact with the upper face of the cutter, the more elastic side fingers will permit a slight rocking movement of the cutter if the opposing faces of the cutter and the comb, become uneven from wear or other cause. If either the cutter or the comb should be ground unevenly or "taper," as sometimes occurs, the more elastic side-fingers of said intermediate plate A<sup>3</sup> will bear first upon the cutter so as to tilt the arm A sidewise before the stronger center finger bears upon it, and uniform pressure upon the cutter from edge to edge is thus insured. In either case the peculiarly constructed intermediate plate operates to keep the cutting edges of the comb and cutter in effective relation to each other, and thus facilitates keeping the clipper in operative condition.

The vertical pillar or stud B, which carries the vibrating arm A, is supported upon

a spherical stud C, which enters a corresponding recess, and forms a ball and socket joint, which permits a small amount of self adjustment of the arm A, and intermediate plate A<sup>3</sup>, as above.

The tension-bar D, is screwed upon the vertical pillar B, and secured by the locknut E. The under side of the bar forms one of the faces in which annular grooves are made to receive the antifriction balls F, which carry the arm A. The front end of the tension bar D, extends toward the cutter, terminating underneath the end of a vertically moving screw G, indicated in Fig. 1, and shown more particularly in Fig. 5, and which passes from the outside through the casing, which is provided with a screw-threaded nut H, and with locknut H'. The point of the said screw, being preferably convex, takes into a recess I in the upper face of the tension bar as a bearing interlocking therewith to prevent any lateral movement of said tension bar. It is prevented from unscrewing by a spring detent G<sup>2</sup>, which enters the teeth G<sup>3</sup> on the under side of the head.

The joint piece J, shown in Fig. 6, forms the preferred connecting part between the driving shaft and the mechanism of the clipper. A short shaft K, is fitted into a corresponding hole made through the part J, and on the front end is fixed a wheel L, which engages with another wheel M, fixed upon the driving spindle before mentioned as carrying the disk and eccentric pin, that imparts the vibrating motion to the arm A. The projecting end of the shaft K, is provided with a stud N, which enters a slot in the tubular end of the flexible metallic shaft, and when turned into the termination of the slot which is made at a right angle with the first portion, it is securely held in what is known as a bayonet joint, and we protect this joint by a surrounding tubular sleeve O.

The junction of the part J, with the clipper must be so constructed, that the said parts may be quickly and easily separated and replaced in position again, and it is important that loose separate joint-pins should not be used, as they would be shaken loose by the vibration and constant movement of the working parts of the apparatus, and be lost. We therefore preferably connect the two joint-pins P, by riveting or otherwise fastening them to the end of the bow spring Q. By this arrangement when the pin holes of each part of the joint are in line, the pins are drawn apart by expanding the bow spring, and are passed into their respective holes as seen in

Fig. 7. The contraction of the spring prevents their escape.

The driving wheels L, and M, through which the rotary motion of the shaft K, is transmitted through the junction are preferably of peculiar construction, which enables them to gear together, and work with smoothness at any angle to which the clipper may be turned.

Instead of spur teeth, we preferably make one of the wheels L, Figs. 6, 7, and 8, with a circle of balls or spherical teeth L<sup>2</sup>, projecting from its periphery, and the companion wheel M, Figs. 6 and 9, has a corresponding number of cups or sockets M<sup>2</sup>, to engage with the balls, whatever may be their relative or angular position. The joint pins P are so placed that a line drawn through their centers would pass through the center of one of the spherical teeth on the wheel L in its lowermost position, and the spherical teeth are readily made of great driving strength so that one or two in mesh at one time shall be sufficient to transmit the necessary power.

The above described mechanical parts and devices when properly made and fitted together, with a casing, cutter and comb, of approved construction, will produce and constitute a mechanical clipper of the greatest perfection and simplicity, having a minimum of friction in its working parts, with great durability and facility of adjustment.

Having thus described the said improvements, we claim as our invention and desire to patent under this specification—

1. In a mechanical clipper for wool and hair, the vertical pillar B, supported upon a semi-spherical stud C, for self adjustment, in combination with a horizontally vibrating arm A, carried between two circles of balls F, and a tension bar D, and pressure screw G, substantially as hereinbefore specified.

2. In combination with a vibrating arm A, carried upon a vertical pillar capable of rocking upon its base in any direction, a tension bar D, extending toward the cutter, and having a bearing I which interlocks with the end or point of a pressure screw G, to receive its pressure and to prevent lateral movement substantially as specified.

In testimony that we claim the foregoing as our own we have affixed hereto our signatures, in presence of two witnesses, this 23d day of December, 1892.

PHILIP ASHBERRY.  
WALTER BARNES.

Witnesses:

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BERNARD E. DRURY.