April 27, 1926. 1,582,324

W. S. WHITCOMB

SHEEP SHEARING MACHINE

Filed Sept. 3, 1921

Fig. 1.

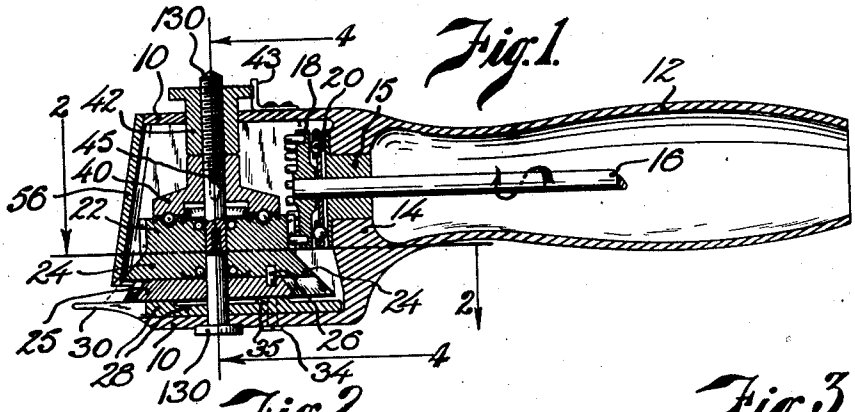


Fig. 2.

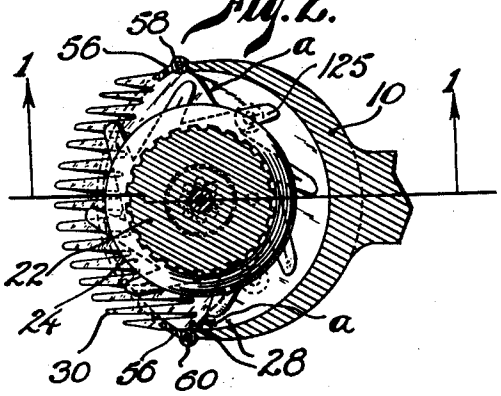


Fig. 3.

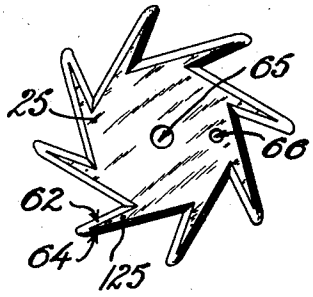


Fig. 4.

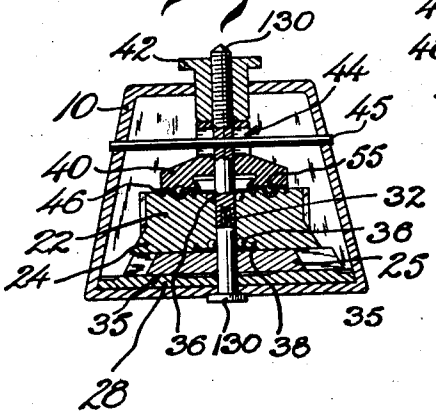


Fig. 5.

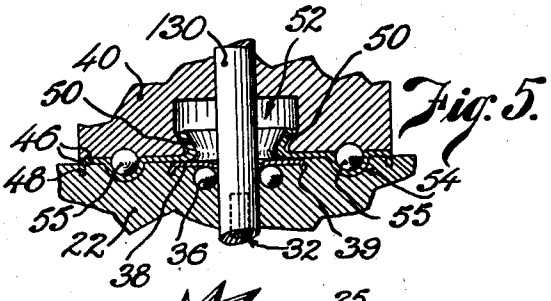


Fig. 6.



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UNITED STATES PATENT OFFICE.

WINFRED S. WHITCOMB, OF LARAMIE, WYOMING.

SHEEP-SHEARING MACHINE.

Application filed September 3, 1921. Serial No. 498,382.

To all whom it may concern:

Be it known that I, WINFRED S. WHITCOMB, a citizen of the United States, residing at Laramie, in the county of Albany and State of Wyoming, have invented certain new and useful Improvements in Sheep-Shearing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The object of this invention is to provide a comparatively simple, cheap and efficient sheep shearing machine which is power driven and wherein substantially all vibration is eliminated.

This object is accomplished by means of rotary parts, the cutter being rotated by means of a rotary pressing block which urges the cutter against a comb and is itself driven from a suitable drive shaft. The cutter fingers are preferably sharpened on both edges to assist the cutting operation at the rear edge of a finger when the wool is crowded against it and between the teeth of the comb by the following finger. The device is so constructed that the chief operating parts may be readily removed, and a door is provided for access to the operating parts.

In the drawings, wherein one embodiment of the invention is disclosed:

Fig. 1 is a central longitudinal section through the device; as indicated by line 1—1 of Fig. 2;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a plan of the cutter;

Fig. 4 is a cross section taken on line 4—4 of Fig. 1;

Fig. 5 is an enlarged sectional detail on the plane of Fig. 1;

Fig. 6 is a plan of a modified form of cutter.

The machine comprises a casing 10 having a hollow handle 12 and an internal partitioning wall 14 in which a bearing 15 is mounted for a drive 16 which extends through the handle. A stud wheel is carried on the end of the shaft 16 as indicated at 18 and its driving position is determined by means of bearings 20 to insure positive engagement with a gear wheel 22 in the form of a driving block having a flared extension 24 below the gear teeth. The block 22 bears upon the cutter 25 and the extension 24 thereof engages the cutting fingers 125 of the cutter and insures their proper cooperation with the comb 28, and its teeth 30.

The block 22 and the cutter 25 are rotatable upon a two-part shaft 130 having a left-hand threaded joint 32 within the block 22 for ready removal of the lower part from the casing in which it is mounted. One or more pins 26 in the block 22 serve to drive the cutter 25, while the comb 28 is held against rotation on the shaft 130 by means of positioning screws 34. The center portion and the rear portion of the comb are cut out as indicated to provide a center oil receptacle or reservoir and a clearance space for the cutting fingers 125 at the rear, thus leaving a substantially annular bearing face 35 for the cutter 25, which is flush with the upper faces of the teeth 30 of the comb. At the sides of the comb the up-standing face 35 widens out toward the casing and the wall a thus formed on each side is at such an angle that the bases of the cutting fingers 125 will ride up on the elevation first and the tips thereof will follow, the tips of said fingers leaving the elevation on the opposite side first and the bases thereof last. This construction takes unnecessary strain from the cutting fingers.

Ball bearings 36 are provided in the block 22 for engagement with the shaft 130 and these are retained by means of a plate 38 having a depending flange 39 entering a recess in the block for maintaining the balls in position when the parts are removed. Immediately above the driving block 22 is a bearing block 40 against which a tension nut 42 engages, the latter being threaded on the upper part of shaft 130 and held in adjusted position by a spring detent 43. Block 40 has its stem provided with a vertically elongated slot 44 for receiving a positioning pin 45 which passes through the upper shaft portion 130 and is anchored in the side walls of casing 10. Shaft 45 prevents the upper shaft portion from rotating and the slot 44 permits the necessary vertical movement of block 40 during adjustment. A plate 46 is disposed between the two blocks 22 and 40 and has an outer annular positioning flange 48 seated in a groove in the block 22, and an inner upstanding flange is expanded into a cavity 52 in the block 40 as indicated at 50 for retaining plate 46 on

block 40 when the various parts are removed from the machine. Ball races are pressed into the plate 46 and fit in corresponding depressions in the block 22 as indicated at 54 for the purpose of receiving balls 55. Thus when the block 22 is removed, balls 55 are held against block 40 in the ball races thereof.

When in operative condition, the moving parts are enclosed by means of a door 56 which may be hinged to the casing 10 at one side as at 58 and provided with a suitable latch at the other side as at 60. This door terminates closely adjacent the ends of the cutting fingers so that the tips thereof and the ends of the comb teeth may project beyond the door, while the door itself acts as a guard to keep the wool out of the driving parts. At the same time the annular extension 24 on the driving block 22 overhangs the spaces between the bases of the cutting fingers allowing the wool to be wedged thereinto for shearing without permitting it to work up into the driving mechanism. The advancing edge of each cutting finger 125 is tapered off to a knife edge as indicated at 62 and the trailing edge is also tapered off to a knife edge as seen at 64. In this manner the trailing edge assists in the shearing operation when the advancing edge crowds the wool thereagainst and into the end of the space between adjacent comb teeth. The wool is permitted to clear from the machine by reason of the taper at the ends of the cutting fingers, the minimum amount of such taper which will be effective being seen in the form of Fig. 3 and the maximum being seen in the form of Fig. 6 wherein the cutting teeth will still be sufficiently reinforced by the block 22 to prevent springing at the shearing line. The pitch of the cutting edge of each finger is such as to prevent pushing of the wool away from the cutting point and to insure shearing; the line of this edge is tangenital to a circle concentric with the axis of the cutter and having a radius about two-fifths of that of the cutter.

The cutter is provided with an aperture 66 to receive the driving pin 26 on the block 22.

By unscrewing and removing the lower section of the shaft 130 and the positioning screws 34, the comb 28 may be removed. The cutter 25 will then drop off of the driving pin 26 and it may be removed for regrinding. If desired the gear block 22 may be removed also. If the device is inverted when the comb 28 is removed and the cutter is lifted from block 22, the latter need not be disturbed.

From the foregoing it will be seen that I have provided a rotary shearing or clipping machine which is positive in its operation and by reason of its rotary movement almost entirely eliminates vibration. This permits high speed with prolonged life of the machine and materially relieves the operator. At the same time the present construction decreases friction to such a great extent that heating up of the device and actual blistering of the operator's hands which occurs with other types of machines, is avoided. The door 56 serves as a guard and prevents the sheared wool from working into the machine and clogging the same.

I claim:

1. A shearing machine comprising a comb, a rotary cutter having projecting cutting fingers to cooperate with the comb, and a block engaging the cutter and having an overhanging portion to engage the base portions of the cutting fingers.

2. A shearing machine comprising a casing, a two-piece shaft therein having a removable portion, a cutter rotatable on said removable shaft portion, a comb cooperating therewith, a driving block engaging said cutter, and tensioning means on a fixed portion of said shaft engaging said block.

3. In a shearing machine, a casing, a two-part shaft having its upper and lower ends mounted in the casing, the lower part of the shaft being removable from the upper part and from the casing, a comb carried in the lower part of the casing, a cutter engaging the comb and rotatable upon the lower part of the shaft and removable from the casing when said lower part of the shaft is removed, and means to drive the cutter and maintain the same in engagement with the comb.

4. In a shearing machine, a casing, a two-part shaft having its upper and lower ends mounted in the casing, the upper part being fixed in the casing and the lower part being removable from the upper part and from the casing, a comb in the lower part of the casing, a cutter engaging the comb and rotatable upon the lower part of the shaft, a driving block engaging the cutter, non-rotatable means slidable upon the upper part of the shaft and engaging the driving block, and tensioning means engaging the slidable means for urging the cutter into engagement with the comb.

5. In a shearing machine, a comb, a cutter rotatable on the comb, a driving block engaging the cutter, means for urging the driving block into engagement with the cutter and the cutter into engagement with the comb as the cutter and comb wear, a gear on said block whose teeth extend perpendicularly to the axis of rotation, and a driving gear whose teeth extend parallel to its axis and engage the gear teeth on said block, whereby disengagement due to movement of the block in taking up wear is prevented.

6. In a shearing machine, a casing, a shaft

having its upper and lower ends mounted in said casing, a comb within the casing and about the shaft, a cutter engaging the comb, means for driving the cutter, means for maintaining engagement of the cutter with the comb, both of said means and said cutter being mounted on said shaft, and a cross pin extending through said shaft to prevent rotation thereof and of said engagement-maintaining means.

In testimony whereof I affix my signature.

WINFRED S. WHITCOMB.