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CLUTCH CONTROL FOR MOTOR DRIVEN SHEARS

Filed Jan. 26, 1928

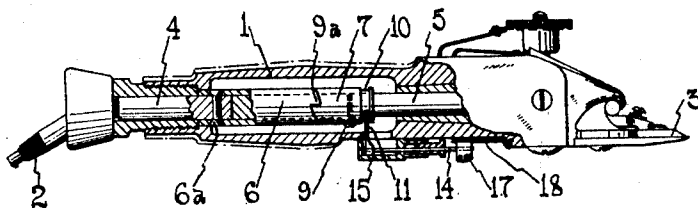


FIG. 1.

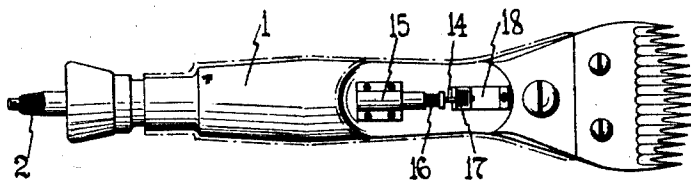


FIG. 2.

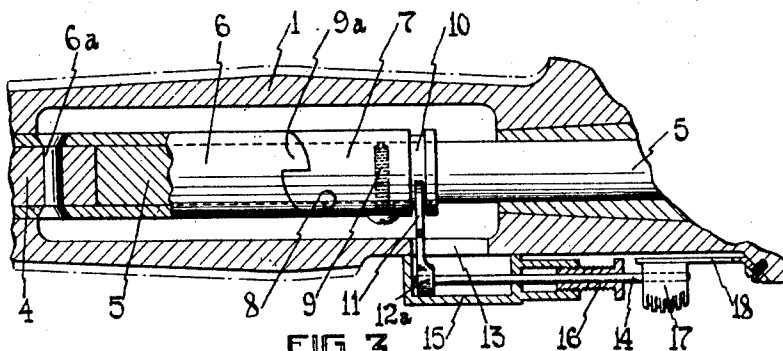


FIG. 3.

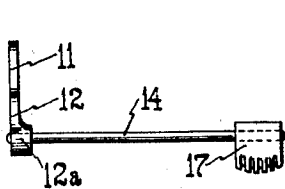


FIG. 4.

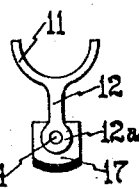


FIG. 5.

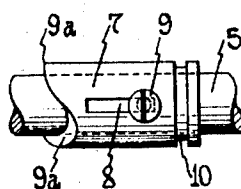


FIG. 6.

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CLUTCH CONTROL FOR MOTOR-DRIVEN SHEARS

Application filed January 26, 1928, Serial No. 249,698, and in New Zealand February 8, 1927.

This invention relates to handpieces of sheep shearing machines and has for its object the provision of an improvement in said handpieces, whereby stopping and starting of the cutters thereof is facilitated.

At the present time sheep shearing machines are mostly equipped with overhead cutter stopping and starting means operated through a pull rope, and in some cases by a tray or support actuated by the handpiece being placed therein, and also upon being relieved of the weight of the handpiece, while it has also been proposed to insert clutch mechanism in the flexible drive to the handpiece adjacent the latter, for putting the cutters into and out of action as required.

With none of the forms of cutter stopping and starting means mentioned, is it possible for an operator to actuate said means with the hand gripping the handpiece, and as the other hand is nearly always occupied in holding the sheep to be shorn, it will be seen that the operator is seriously inconvenienced in stopping and starting the cutters, and more often than not has to drop the handpiece in order to obtain a free hand to actuate the stopping and starting means, and with cutters and the mechanism of the handpiece being driven at a high rate of speed, the practice is dangerous both to the operator and to the handpiece.

The improvement provided by the present invention enables an operator to actuate the cutter stopping and starting means, with the hand gripping the handpiece and without releasing the latter, simply by pressure applied by one or more of the fingers of said hand.

The improvement consists in providing in a handpiece a cutter driving shaft in two portions, with a clutch fitted between said portions and adapted to be operated by a clutch shifter actuated from outside the handpiece, to cause said shaft portions to be drivably connected together, or to be disconnected from each other, to drive the cutter, or allow same to remain stationary as may be desired.

The improvement will be more particu-

larly described with the aid of the accompanying drawing, wherein:—

Figure 1 is a part sectional elevation of a handpiece fitted with the improvement and

Figure 2 is an inverted plan view thereof while

Figure 3 is an enlarged part section of the parts comprised in the invention and

Figure 4 a side view and

Figure 5 an end view of the clutch shifter and

Figure 6 a detail view of the sliding clutch member.

In carrying out the improvement the shaft, in the handpiece 1 provided for transmitting the drive, from the flexible or joined shaft 2 attached to the tail end of the handpiece, to the cutter 3 is formed in two separate portions 4, 5 in axial alignment with each other, portion 4 being driven by the shaft 2 as before, while portion 5, operates the cutter 3 in the usual manner.

A tubular clutch member 6 made a fixture by a rivet 6a or the like on the shaft portion 4 extends beyond the inner end of the latter, and receives the inner end of shaft portion 5, whereby the inner or meeting ends of said portions 4, 5 are maintained in true axial alignment with each other.

A further tubular clutch member 7 containing a longitudinal slot 8 is slidable along the shaft portion 5, but turns with the latter through a screw 9 screwed into said shaft portion 5, being passed through the slot 8.

The inner or meeting ends of the tubular clutch members 6 and 7 are formed with teeth 9a or are shaped so that said ends can be interlocked with each other to cause said clutch members 6 and 7 to rotate together or drivably connect the shaft portions 4 and 5.

The clutch member 7 contains a circumferential groove 10 in which is engaged a fork 11 having a stem 12 the latter passing through a longitudinal slot 13 in the underneath portion of the handpiece casing and being provided at its lower end with a boss 12a which is secured to a short horizontal rod 14 contained in a housing 15, secured

to the underside of the handpiece casing, to make an oil tight joint therewith.

The rod 14 emerges from the forward end of the housing 15 through a stuffing box provided with a gland 16, the outer end of said rod 14 having secured thereon a finger piece 17 the inner face of which is in frictional contact with an outwardly pressing spring plate 18 secured to the hand-piece casing.

The finger piece 17 is fitted to the hand-piece 1 so that when the latter is gripped around its centre in the place usually provided for being gripped, with the fingers of the operator under the handpiece, said finger piece 17 can be readily moved towards or from the cutter end of the handpiece, merely by pressure applied by a finger or fingers of the hand gripping the handpiece and without relaxing the hold of the latter. It will therefore be readily seen that if the finger piece 17 be moved towards the cutter end of the handpiece the sliding clutch member 7 will be moved from engagement with the clutch member 6 on the shaft portion 4 and that the latter can rotate without driving the shaft portion 5, whereas if the reverse movement be imparted to the finger piece 17, the clutch members 6 and 7 will interengage or lock by means of their teeth 9a with each other, and drivably connect the shaft portions 4 and 5.

By the means just described the user of the handpiece is enabled to stop and start the cutter, with the hand gripping the handpiece and has no occasion to relax his grip thereof in order to effect such stopping and starting.

The stuffing box and gland 16 are provided to prevent the escape of oil held within the handpiece, while the spring plate 18 engaging the finger piece 17 prevents movement of the latter by the vibration resulting from the high speed at which the operating parts of the handpiece are driven.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

In a clutch control for motor driven shears, including the usual handle, drive shaft, and shaft driven from the drive shaft, a clutch member fitted and fixed to the drive shaft and extending beyond the end thereof to receive the end of the driven shaft, a clutch member rotatable with the driven shaft and slidable thereon into and out of coactive engagement with the first mentioned clutch member, manually operable means having operative engagement with the second mentioned clutch member to provide for actuation thereof, the said manually operable means including a stem and a finger piece upon the stem extending beside and in spaced relation to the handle of the cas-

ing of the shears, and a resilient leaf mounted upon the said handle and bearing frictionally against that side of the finger piece which is presented toward the handle.

In testimony whereof I affix my signature.

GEORGE FARGHER HIGHT.

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