Aug. 8, 1933. A. F. BARKER 1,921,064

HAND MECHANICAL FLEECE DEBURRING MACHINE

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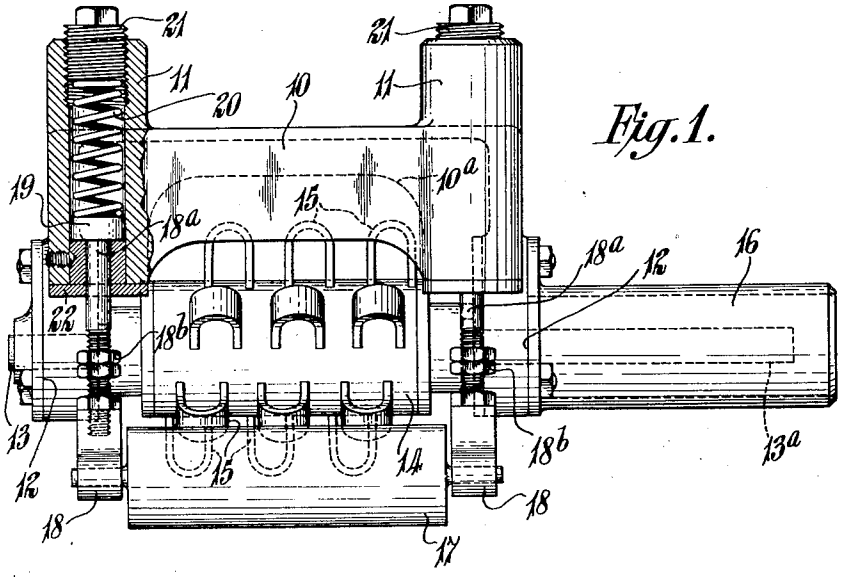


Fig. 1.

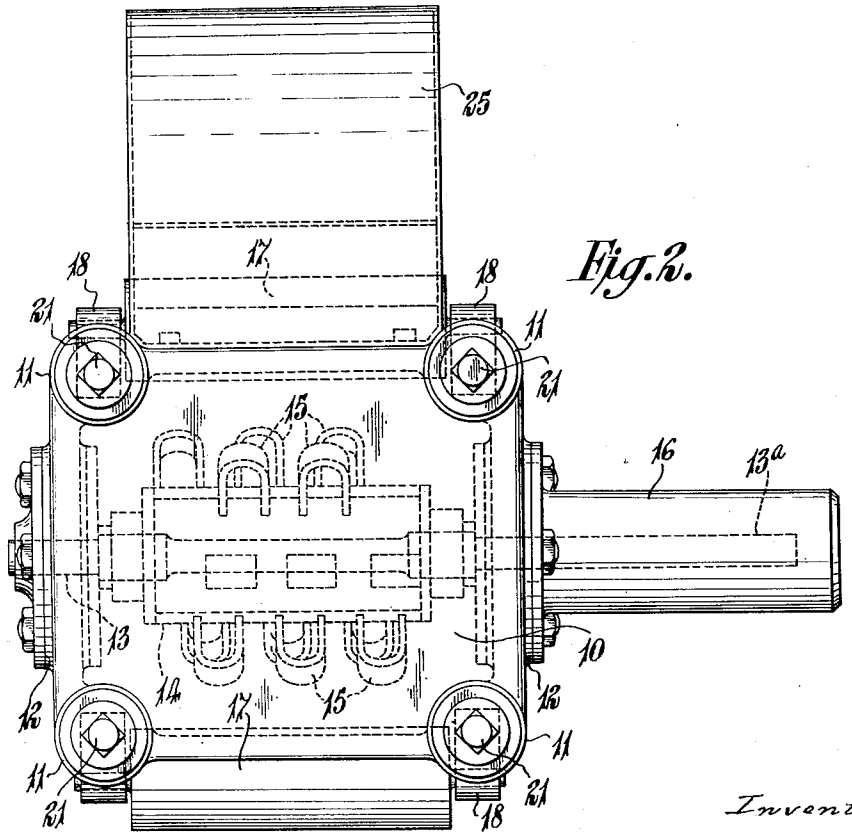


Fig. 2.

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Fig. 3.

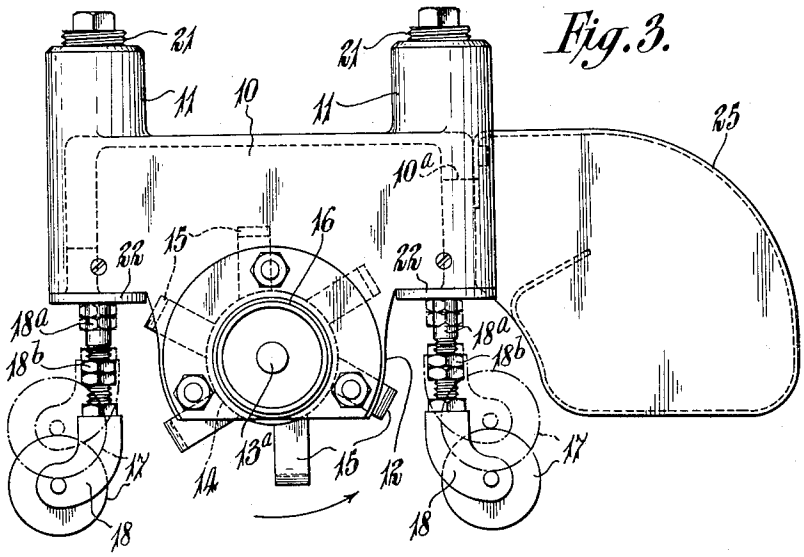
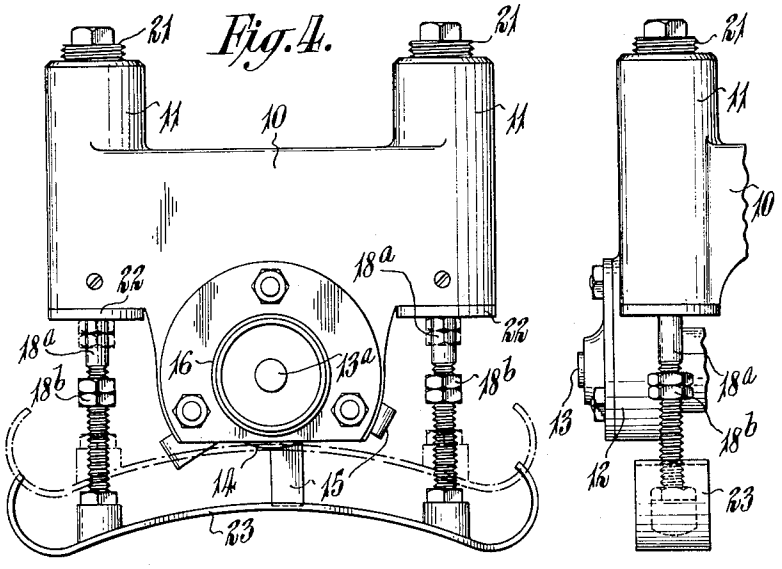


Fig. 5.

Fig. 4.



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HAND MECHANICAL FLEECE DEBURRING MACHINE

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16 Claims. (Cl. 119—91)

This invention relates to apparatus for use in de-burring the wool or hair held by the skin or pelt of an animal, and is more particularly adapted for use in de-burring the wool or hair of a live animal such as, for example, a sheep before the latter is sheared.

The object of the invention is to provide mechanically operated means which can be conveniently applied and guided by hand for this purpose.

According to this invention I provide mechanically driven de-burring apparatus adapted to be manually applied and to be so guided to effect the removal of burrs or the like from hair or wool attached to the skin or pelt of an animal.

In order to carry the invention into effect I may provide a frame or support of any desired width, in which is rotatably mounted, on suitable bearings, a winged roller comprising a member provided, preferably in spiral formation, with a series of de-burring loops or beaters of any convenient construction suitable for the extraction of burrs or the like from wool or hair. The winged roller or de-burring element is rotated by any suitable means such as a flexible shaft driven from a manually operated or power driven device.

In order to regulate the penetration of the beaters into the wool or hair I provide suitable guiding means which may, for example, comprise spring held rollers extending longitudinally of the de-burring element, or alternatively I may provide spring held guiding plates preferably arranged transversely of the de-burring element and at the outer ends thereof. The guiding means, when in the out-of-action position, are level with or extend below the lower surface of the downwardly directed beaters; the spring controlled movement of the guides may be adjustable and the resilient mounting of the said guides enables the operator to press the beaters, when in use, more or less deeply into the fleece, and so follow the contours of the animal's body, in order to engage and so remove the burrs or foreign matter from the wool or hair.

In order that the above description may be more clearly understood, one form of the apparatus is shown in the accompanying drawings in which:

Figure 1 is an elevational view of a manually applied de-burring machine;

Figure 2 is a plan view thereof;

Figure 3 shows a corresponding view of the machine in end elevation;

Figure 4 is an elevational view of a modified form of guiding member, and

Figure 5 is a fragmentary view at a right angle to Figure 4.

Referring to Figures 1, 2 and 3, a four sided frame or supporting block 10 is provided, at each of its four corners, with a vertical extending housing or guide member 11. End flanges 12, extending downwardly from the frame 10, are adapted to house suitable bearings in which is rotatably mounted a spindle or shaft 13. The latter carries a cylindrical member 14 on which are arranged, preferably in spiral formation, a series of burr disengaging loops or beaters 15. A hollow extension piece 16 is bolted to the face of one of the end flanges 12 or formed integral therewith to provide a handle for the apparatus, while an extension 13*a* of the shaft 13 extends through the hollow member 16 to form a connection for the mechanical driving means employed to rotate the de-burring element. Guiding rollers 17 extending longitudinally of the frame and below thereof, are positioned to either side of the de-burring element. The guide rollers 17 are rotatably mounted in bearing members 18 which latter are supported from the main frame 10 by means of upwardly extending stem-pieces 18*a*. The latter are slidably supported in the housings 11 as shown in Figure 1. Each stem-piece 18*a* is provided at its upper extremity with a disc or flange 19 which slidably fits in the housing 11 and serves as a seating for a helical compression spring 20. The upper extremities of the guiding members 11 are drilled and tapped to receive threaded plugs 21 by means of which the compression, exerted by the helical springs 20 upon the rollers 17, may be varied. The lower extremity of each stem-piece 18*a* is threaded to engage the locking nuts 18*b* which latter serve to adjust the positions of the rollers, relative to the beaters 15 when the machine is in use. Flanged members 22 are inserted in the lower extremity of each housing 11 to retain in the housing the respective discs 19 and springs 20. The members 22 may be retained in position by set screws as shown in Figure 1.

In operation, the machine is connected, by means of a flexible shaft for instance, to a convenient source of driving power and is held, when in operation, by means of the handle 16. The manner of application is similar to that of using power driven fleece shears. When applied to the fleece of a live animal such as, for example, a sheep, the latter is positioned as for

the shearing operation and then the de-burring machine is applied to the fleece. By suitable hand-pressure upon the machine the guiding rollers are pressed upwardly, as shown in chain-dotted lines in Figure 3, against the compressive force of the springs 20 and the beaters are thus allowed to penetrate more or less deeply, as desired, into the fleece. The latter is parted in a regular manner and the burrs or similar foreign matter removed.

A suitable opening 10*a* (Fig. 1) is provided in the front side of the frame 10, to provide a passage for the clearance of the burrs as the latter are freed by the revolving beaters.

Deflecting plates, which it is not necessary to illustrate in the accompanying drawings, may be provided to deflect the freed burrs and so prevent the latter from again alighting on, and adhering to the de-burred object. A receptacle 25 may be attached to the machine in an easily removable manner, as shown more particularly in Figure 3, in order to collect the burrs thus removed from the de-burred object, and liquid nozzles could be associated with the de-burring element in order to spray water or suitable liquid compounds upon the object during the de-burring thereof.

In an alternative construction, as shown in Figures 4 and 5, the guiding rollers 17 are replaced by curved plates 23, which latter are positioned transversely of the de-burring element and at either end thereof. Each plate 23 is resiliently supported in a manner similar to that above described in reference to the rollers 17, and the guiding plates act in a similar manner; or each spring support may be provided with a separate curved plate or surface adapted to rest upon and travel over the surface to be treated. If desired, both the guiding rollers 17 and plates 23 could be incorporated in the one machine in which case the spring housings 11 would be modified accordingly.

It will be appreciated from the above description that more than one de-burring element together with the corresponding beaters may be provided in the one machine and driven by a suitable arrangement of gearing. The single de-burring element also could be rotated through a geared drive instead of through a direct drive as shown in the accompanying drawings. The de-burring element may comprise any type of roller or support on which the beaters would be arranged as desired.

I claim.

1. Manually applied de-burring apparatus, comprising in combination a frame, a supporting member, rotatably mounted in the said frame, looped beaters mounted in helical formation on the said supporting member, and means for mechanically rotating the said supporting member.

2. Manually applied de-burring apparatus, comprising in combination a frame, a handle provided on the frame, a supporting member rotatably mounted in the said frame, looped beaters mounted in helical formation on the said supporting member, means for mechanically rotating the said supporting member, and a readily detachable receptacle to collect the burrs detached by the said beaters.

3. Manually applied de-burring apparatus, comprising in combination a frame, a handle attached to the frame, a shaft rotatably mounted in the said frame, a cylindrical member mounted on the shaft, looped beaters mounted on the cylindrical member, adjustable means for controlling the penetration of the said looped beaters, means for rotating the said shaft, and means for collecting the burrs freed by the said apparatus.

4. Manually applied de-burring apparatus, comprising in combination a frame, a supporting member rotatably journalled in the frame, looped beaters mounted on the supporting member, means for rotating the said supporting member, and guiding members associated with the said beaters and adapted to accommodate the contour of an animal's body.

5. Manually applied de-burring apparatus, comprising in combination a frame, a supporting member rotatably supported by the frame, looped beaters mounted on the supporting member, means for rotating the said supporting member, and resiliently mounted guiding members associated with the said beaters and adapted to accommodate the contour of an animal's body.

6. Manually applied de-burring apparatus, comprising in combination a frame, a supporting member rotatably mounted in the said frame, looped beaters mounted on the supporting member, means for rotating the said supporting member, resiliently mounted guiding members, and means for adjusting the movement of the said guiding members relatively to the said beaters.

7. Manually applied de-burring apparatus, comprising in combination a frame, a handle attached to the frame, a supporting member rotatably mounted in the said frame, looped beaters mounted on the said supporting member, means for rotating the said supporting member, guiding rollers associated with the beaters, and resilient mountings to support the said guiding rollers.

8. Manually applied de-burring apparatus, comprising in combination a frame, burr-disengaging members rotatably mounted in the said frame, guiding members associated with the said burr-disengaging members and curved to accommodate the contour of an animal's body, resilient mountings to support the guiding members, and means for adjusting the movement of the said guiding members relative to the burr-disengaging members.

9. Manually applied de-burring apparatus, comprising in combination a four-sided frame having a clearance provided in one side, a hollow handle attached to the said frame, a shaft rotatably mounted in the said frame and extending partly through the hollow handle, a supporting member mounted on the said shaft, looped beaters mounted in helical formation on the supporting member, guiding members associated with the said looped beaters and curved to accommodate the contour of an animal's body, resilient mountings to support the said guiding members, means for adjusting the movement of the said guiding members relatively to the said looped beaters, and a burr receptacle removably attached to the said apparatus.

10. Manually applied burr-disengaging apparatus, comprising a frame, guide members supported by said frame, a rotary burr-disengaging element mounted in said frame, and positioned intermediate the said guide members, and resilient supports adapted to hold said guide members so that under pressure the latter move relatively to the burr-disengaging element to accommodate the contour of an animal's body.

11. Manually applied de-burring apparatus,

comprising a frame, a rotor mounted in said frame, burr-disengaging members mounted on said rotor, guide members positioned one to each side of said rotor and longitudinally thereof, and means for resiliently supporting said guides so that under varied manually-applied pressure the said guides alter their position relatively to the associated de-burring members in order to accommodate and engage the contour of an animal's body.

12. Manually applied de-burring apparatus, comprising a frame, a supporting member rotatably mounted in the said frame, burr-disengaging beaters mounted on the supporting member, resiliently mounted roller guides positioned to each side of the said supporting member and longitudinally thereof, and means for mechanically rotating the supporting member.

13. Manually applied de-burring apparatus, comprising in combination a box-like structure having a clearance gap in its undersurface and provided with two opposed bearing lugs, a sleeve-like hollow handle attached to and extending from one side of said box, a drive shaft journalled in said bearing brackets and adapted to extend into the said handle, a rotor mounted on said shaft in alignment with the gap in the undersurface of said box-like structure, beaters mounted upon said rotor, two opposed pairs of spring casings provided on said box-like structure, downwardly projecting supporting rods spring held one in each said pocket, means for adjusting the tension of the springs holding the rods, bearing blocks secured one to the lower extremity of each rod, and rollers rotatably mounted in said bearing blocks and positioned parallel to said drive shaft.

14. Manually applied de-burring apparatus, comprising in combination a box-like structure having a clearance gap in its undersurface and provided with two opposed bearing lugs, a sleeve-like hollow handle attached to and extending from one side of said box, a drive shaft journalled in said bearing brackets and adapted to extend into the said handle, a rotor mounted on said shaft in alignment with the gap in the undersurface of said box-like structure, beaters mounted upon said rotor, two opposed pairs of spring casings provided on said box-like structure, downwardly projecting supporting rods spring held one in each said pocket, means for adjusting the tension of the springs holding the rods, blocks attached to the lower extremities of said rods, and a rigid strip attached to each pair of said blocks and curved to accommodate the contour of an animal's body.

15. In manually applied de-burring apparatus as claimed in claim 13, a receptacle attached to the box-like structure for collecting the freed burrs.

16. Manually applied de-burring apparatus comprising, in combination, a frame, a supporting member rotatably mounted in said frame, looped beaters mounted in helical formation on said supporting member, means for rotating said supporting member, and resiliently mounted guiding members associated with said beaters.

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