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PATENT REQUEST: PETTY PATENT

We, HENRY DAVID RAIN E BELL and RICHARD CHARLES ALLAN MCDONALD, being the person(s) identified below as the Applicant, request the grant of a petty patent to the person identified below as the Nominated Person, for an invention described in the accompanying complete specification.

Full application details follow.

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Invention Title: "Wool and Lock Saver"

8025155 22/10/91
NOTICE OF ENTITLEMENT
(To be filed before acceptance)
(Complete Associated with Provisional)

I/We ________________

H.D.R. BELL & R.C.A. MCDONALD

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the applicant in respect of an application for a patent for an invention entitled ________________

WOOL AND LOCK SAVER

filed under Australian Application No. ________________, state the following:-

H.D.R. BELL & R.C.A. MCDONALD

the person(s) nominated for the grant of the patent,

[X] *is/*are the actual inventor(s)

or

[ ] has, for the following reasons, gained entitlement from the actual inventor(s):

The person(s) nominated for the grant of the patent *is/*are:

[X] the applicant(s) of the provisional application(s) listed on the patent request form

or

[ ] entitled to make a request under Section 113 of the Act in relation to the provisional application(s) listed on the patent request form.

Signed: ___________________________  Date: ____________

Status: ___________________________  

F B RICE & CO PATENT ATTORNEYS
Complete with Associated Provisional
PCT with Associated Provisional
Claim

1. A wool and lock saver, comprising a frame including opposing frame members, and a row of bristles, the base of the row of bristles being supported between the opposing frame members to maintain the row of bristles in fixed relation to the frame, the wool and lock saver being adapted for mounting across a sheep exit chute of a shearing shed or the like with the bristles upstanding across the base of the sheep exit, whereby to allow sheep to pass through the sheep exit but to reduce the amount of wool or wool locks carried through the exit, and wherein at least one of the frame members presents a curved surface to the base of the row of bristles, whereby to reduce the risk of fracture when the bristles are bent against the at least one frame member.
Invention Title:

WOOL AND LOCK SAVER

The following statement is a full description of this invention including the best method of performing it known to us:-
WOOL AND LOCK SAVER

The present invention relates to a means for reducing the amount of wool lost in the form of "locks" or small pieces of wool which may escape a shearing shed through the sheep exit doors.

After sheep have been sheared inside a shearing shed, they are passed out through sheep exit doors into a sheep pen. Wool locks, which would normally be swept up in the shearing shed for processing later on as part of the "wool harvest" may pass out through the sheep exit doors, perhaps by being carried by the sheep or blown by a breeze. This leads to a substantial amount of waste in wool which could otherwise be sold and/or used in the manufacture of wool products.

If these wool locks could be prevented from exiting the shed, then they could easily be gathered during the day's shearing.

The present invention provides a wool and lock saver, comprising a frame including opposing frame members, and a row of bristles, the base of the row of bristles being clamped between the opposing frame members to maintain the row of bristles in fixed relation to the frame, the wool and lock saver being adapted for mounting across a sheep exit chute of a shearing shed or the like with the bristles upstanding across the base of the sheep exit, whereby to allow sheep to pass through the sheep exit but to reduce the amount of wool or wool locks carried through the exit.

In operation, the wool and lock saver is mounted so that the bristles extend upwards, covering the bottom portion of the sheep exit chute. The sheep exit chute may be simply in the form of a rectangular opening from the shearing shed.

The row of bristles is arranged to be of such height and width that it does not substantially impede the
The present invention provides a wool and lock saver, comprising a frame including opposing frame members, and a row of bristles, the base of the row of bristles being supported between the opposing frame members to maintain the row of bristles in fixed relation to the frame, the wool and lock saver being adapted for mounting across a sheep exit chute of a shearing shed or the like with the bristles upstanding across the base of the sheep exit, whereby to allow sheep to pass through the sheep exit but to reduce the amount of wool or wool locks carried through the exit, and wherein at least one of the frame members presents a curved surface to the base of the row of bristles, whereby to reduce the risk of fracture when the bristles are bent against the at least one frame member.

In operation, the wool and lock saver is mounted so that the bristles extend upwards, covering the bottom portion of the sheep exit chute. The sheep exit chute may be simply in the form of a rectangular opening from the shearing shed.

The row of bristles is preferably arranged to be of such height and width that it does not substantially impede the
progress of the sheep through the exit, but is effective to reduce the number of wool locks being carried out on or by the sheep's legs and by any breeze passing through the shearing shed. The row of bristles is also resilient enough to return to its substantially upright position after the sheep's legs have passed therethrough as it goes through the sheep exit.

The height of the row of bristles from the base of the sheep exit is preferably in the range of 10-20 cms, most preferably between 16-19 cms. The thickness of the row of bristles is most preferably between 1/2-3 cms in width.

The opposing frame members are preferably arranged such that a substantially curved surface is presented by the frame members to at least one side of the base of the row of bristles, being the side which the bristles are bent towards when the sheep pass through. Because the bristles are bent against the curved surface the risk of fracture of the bristles at the base is reduced.

Preferably, a curved surface is presented to both sides of the row of bristles.

In one embodiment the wool and lock saver of the present invention comprises a pair of elongate substantially cylindrical members, such as a pair of steel tubes, for example, which are clamped to each other with the row of bristles held in between them by the clamping action.

This arrangement means that the base of the row of bristles abuts a substantially curved surface, being the surface of a cylindrical member. When a bristle is forced to bend, because a sheep is passing through, for example, it bends against a curved surface. This results in less danger of damage to the base of the bristle, which damage could mean that the bristle would not return to its upright position. This arrangement therefore has the
advantage of being a rugged arrangement while at the same time providing for maximum possible lifetime of the device.

The row of bristles preferably consists of a number of bristles the bases of which are fixed in an elongate strip member, such as a doubled over steel strip, for example, so as to provide a secure mounting.

The bristles are preferably formed by taking a single bristle element and folding it over in the middle, and fixing the fold of the bristle in the elongate strip member by clamping action of the strip member on the bristle about the fold. The two ends of the single bristle element will then extend up from the elongate strip member, forming two extending bristles. This bristle arrangement advantageously results in a more rugged device which will last longer.

In a further embodiment, the opposing frame members comprise a first member which presents a curved surface to the base of the row of bristles and a second member in the form of a ramp leading up to the base of the row of bristles. The ramp allows the sheep to pass easily up to the wool and lock stopper and reduces the effort required to force the sheep out the exit chute.

The frame members in this embodiment are preferably formed from a single element, preferably being pressed from sheet metal.

The row of bristles is preferably constructed as discussed above.

Features and advantages of the present invention will become apparent from the following description of an embodiment thereof, by way of example only, with reference to the accompanying drawings, in which:-

Fig. 1 shows a front view of a device in accordance with a first embodiment of the present invention when fixed across the opening of a sheep exit chute (which is shown schematically);
Fig. 2 shows a side view of the device of Fig. 1 fixed across the sheep exit chute;
Fig. 3 shows a top plan view of the device of Fig. 1;
Fig. 4 shows a bottom plan view of the device of Fig. 1;
Fig. 5 shows a cross-sectional detail along line XX of Fig. 3, and
Fig. 6 shows a schematic side on view of a further embodiment of a wool and lock saver in accordance with the present invention.

The wool and lock saver, generally designated by reference numeral 1 in Fig. 1 of the drawings, comprises a frame 4 mounting a row of bristles 2.

As can be seen from Figs. 1 and 2, in use the device 1 is mounted at the base of a sheep exit chute from a shearing shed, or from any other building where sheep are sheared. The frame 4 is provided with a pair of flanges 6, 7 extending from the side of the frame 4, as can be seen in all figures. The flanges 6, 7 have holes therein (6a, 7a - Fig. 4) for the reception of screws, nails, or the like in order to fix the device 1 to the floor of the exit chute 3. Screws are indicated in Figs. 1 and 2 by reference numerals 6b, 7b respectively.

Note that in Figs. 1 and 2 the chute floor 3 and exit chute 5 are shown only schematically. The device of the present invention can be used at any convenient exit for sheep from a shearing shed or anywhere sheep are being sheared.

The frame 4 comprises a pair of tubular members 10, 11, preferably steel or aluminium tubing. The members 10, 11 are clamped towards each other by a pair of nut and bolt arrangements 12, 13 at opposite ends of the frame 4. The bolt 12a, 13a passes through holes drilled in the tubes 10, 11 and is fastened by nut 12b, 13b.

The bristles 2 are mounted in a folded over metallic
The bristles consist of a series of bristle elements which are folded over in the middle and inserted in and clamped in the metal strip about the fold. The two ends of the bristle element therefore extend from the metal element to give two bristles. The metal element is clamped between the two frame members so that, in use, the bristles are substantially upstanding relative to the sheep exit.

An advantage of this arrangement is that the frame members may be unclamped from each other and the bristles removed for replacement with another bristle/metal element arrangement. This facilitates the replacement of worn bristles.

In operation, sheep are sheared in the shearing shed and then forced out through the sheep exit door to a sheep pen. The device acts to brush the sheep's legs as they pass through the sheep exit, brushing off any bits of wool carried on or by the sheep's legs which were not collected during the shearing and keeping them in the shearing shed where they can be swept up later on and used in wool products. The device is also effective in preventing egress of wool locks if any breeze is blowing through the shearing shed.

The bristles are of such material that they have enough resilience to return to their upstanding position after a sheep's legs have passed through.

The tubular frame has the advantage that a curved surface is presented to the base of the row of bristles. When a sheep passes through the bristles, therefore, and they are bent over towards one or other frame member they will not shear because a curved surface (reference numeral - Fig. 5) is presented to them which provides the base of the bristles with support.

In the specifically described embodiment, frame has been shown upstanding from the floor of the wool shed.
In other embodiments, the frame may actually be inset into the floor, facilitating ease of exit of the sheep.

In yet another embodiment the frame may be supported on a right angled bracket for fixing against a door sill, for example.

In the preferred embodiment, the frame members 10, 11 are 12 mm steel pipes, and the bristles 2 stand between 16-19 cms from the shearing shed board 3. The width of the grouping of bristles is in the order of 2-3 cms, at the end of the bristles away from the frame 4.

A further embodiment of the invention is illustrated schematically in Fig. 6, from a side on view.

In this embodiment, opposing frame members 20, 21 are formed from a single element, generally designated by reference numeral 22. The single element 22 is preferably formed by pressing sheet metal into the shape shown in the drawing. Member 20 has a flat, leading area 20a which forms a ramp on the sheep approach side of the wool and lock saver. This ramp reduces the effort required to force the sheep out of the exit chute. Both members 21, 20 are arranged to present a curved surface to the base of the row of bristles 2, whereby to reduce the chances of fracture of the bristles 2 when they are bent over.

The element 22 extends the full length of the wool and lock saver with the same profile as shown in Fig. 6. The device is mounted to a sheep exit chute in operation, in a similar manner to the embodiment illustrated in Figs. 1 to 5. Flanges (not shown) may be provided with screw holes, similarly to the embodiment of Figs. 1 to 5.

Alternatively screw holes may be provided in the element 22, for example at the front of ramp 20a.

The row of bristles 2 may be fixed in a metal element 13 in a similar manner to that discussed above in relation to the first embodiment. The element 22 preferably has enough "spring" between opposing members 20 and 21 to
allow element 13 and bristles 2 to be slotted between members 20 and 21 and also removed when worn, for replacement.

Sheet metal for the element 22 may be in the order of 1/8" thick.

Opposing members 20, 21 need not be formed from a single element. They could be formed from separate elements.

In both embodiments the bristles are preferably made from black polypropylene solid filament of 0.18" thickness, ultraviolet stabilised, and approximately 15" long.

This material is resistant to fibrillation, meaning that the bristles do not split at their top ends.

The present invention is also useful in "crutching" which is another wool harvesting operation.

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A wool and lock saver, comprising a frame including opposing frame members, and a row of bristles, the base of the row of bristles being supported between the opposing frame members to maintain the row of bristles in fixed relation to the frame, the wool and lock saver being adapted for mounting across a sheep exit chute of a shearing shed or the like with the bristles upstanding across the base of the sheep exit, whereby to allow sheep to pass through the sheep exit but to reduce the amount of wool or wool locks carried through the exit, and wherein at least one of the frame members presents a curved surface to the base of the row of bristles, whereby to reduce the risk of fracture when the bristles are bent against the at least one frame member.

2. A wool and lock saver in accordance with claim 1, wherein the opposing frame members comprise a pair of substantially rigid elongate substantially cylindrical members which are clamped to each other by clamping means, the row of bristles being mounted with the bristle bases fixed in an elongate strip member, the elongate strip member being clamped between and by the substantially cylindrical members so that the bristles extend away from the cylindrical members in a direction substantially perpendicular to their length.

3. A wool and lock saver in accordance with claim 1, wherein the opposing frame members comprise a first member which presents a curved surface to the base of the row of bristles, whereby the risk of fracture of the bristles is reduced when sheep pass through because the bristles are bent against a curved surface, and a second member opposing the first member, the second member being in the form of a ramp leading up to the base of the row of bristles.

DATED this 19th day of May 1992

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