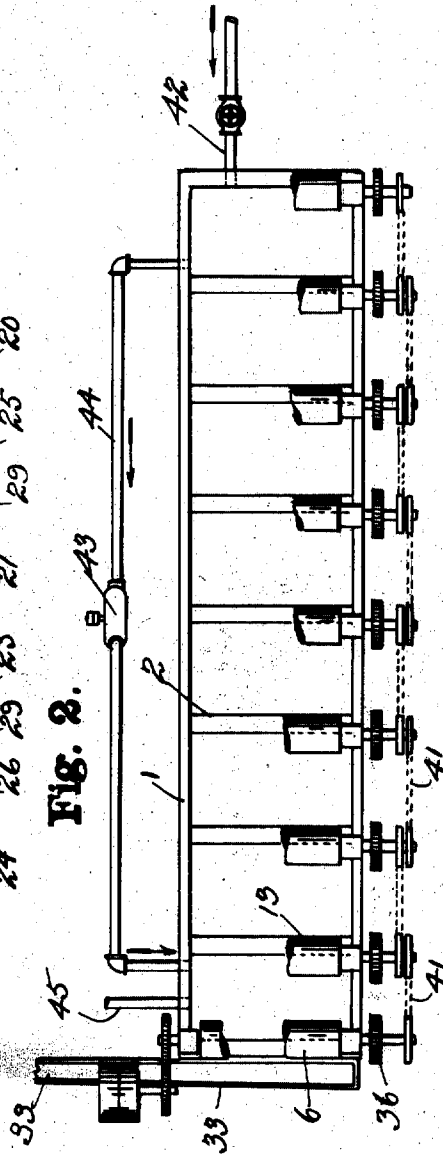
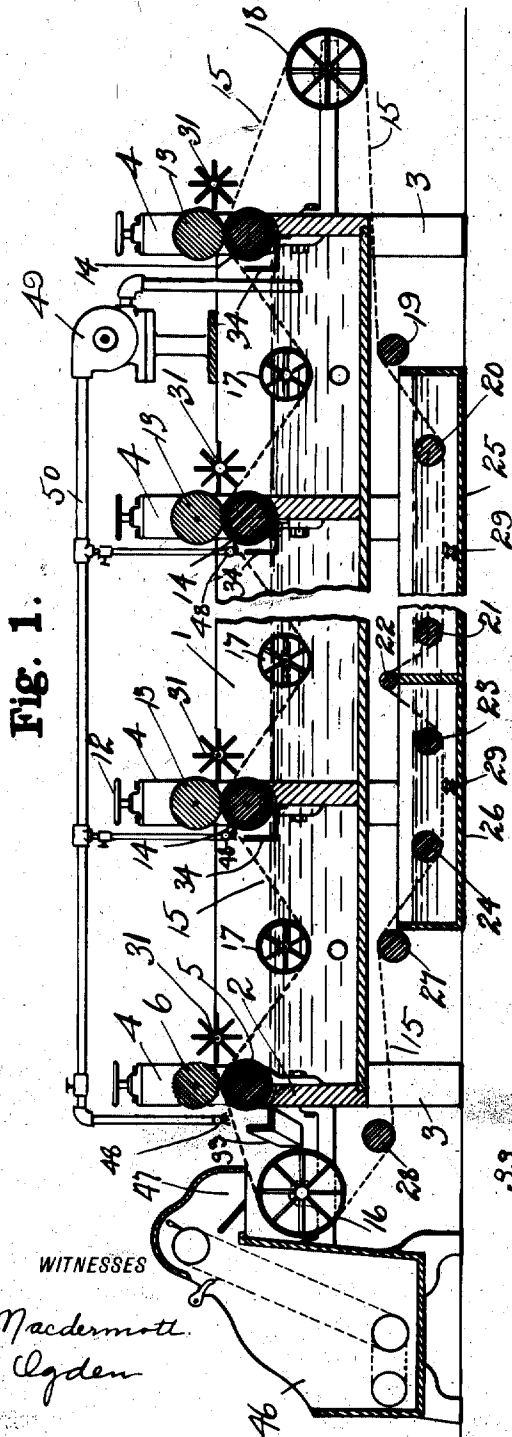


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WOOL-CLEANING MACHINE.
APPLICATION FILED NOV. 6, 1909.

1,008,426.

Patented Nov. 14, 1911.

2 SHEETS-SHEET 1.



INVENTOR
John R. Milson
BY
Howard E. Barlow
ATTORNEY

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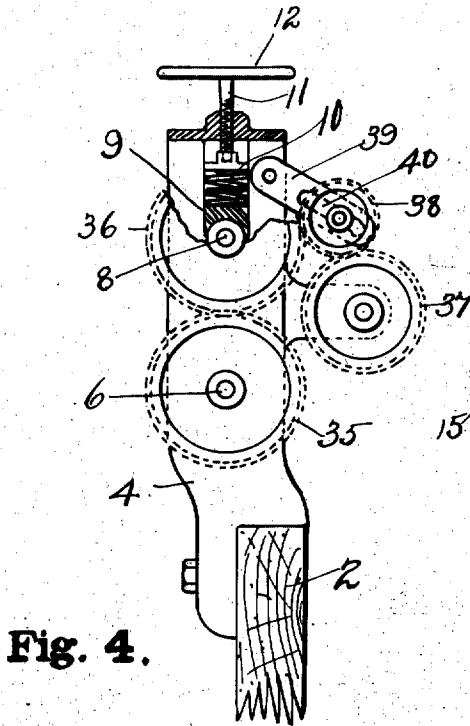


Fig. 4.

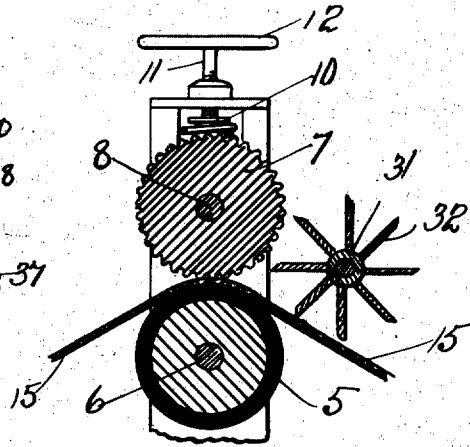


Fig. 3.

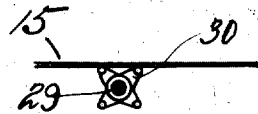


Fig. 5.

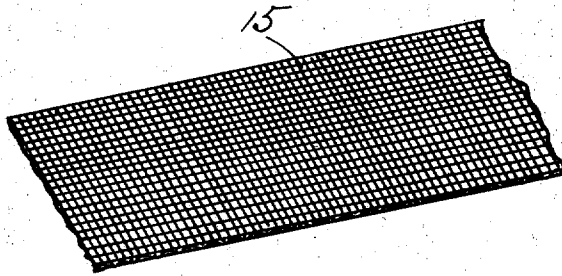


Fig. 6.

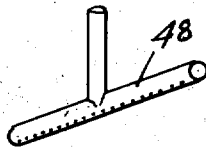


Fig. 7.

WITNESSES

J. L. Macdermott
E. D. Udden

INVENTOR

John R. Milson.
BY
Howard E. Barlow
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN R. MILSON, OF WATERTOWN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO ARNOLD LAWSON, OF WINCHESTER, MASSACHUSETTS.

WOOL-CLEANING MACHINE.

1,008,426.

Specification of Letters Patent. Patented Nov. 14, 1911.

Application filed November 6, 1909. Serial No. 526,544.

To all whom it may concern:

Be it known that I, JOHN R. MILSON, a citizen of the United States, residing at Watertown, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Wool-Cleaning Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention has for its object to provide a machine for rapidly and effectually cleaning or removing paint, tar, and other similar substances from wool clippings, and the like, without the aid of injurious dissolving chemicals or acids.

15 Where sheep are raised in large quantities, as on the western ranches, it has become a practice by the owners of the different herds to mark or brand each sheep with paint, tar, asphaltum, or other suitable mixture that cannot be washed away or removed by exposure to the elements and cannot be dissolved except by chemicals or acids of such strength or nature that they will also destroy the fiber of the wool. When the sheep is sheared these marked tufts, or that portion to which the marking mixture has adhered, are separated from the rest of the wool into lots, known in the market as "paint and tar clippings" which, owing to the great difficulty of cleaning the same, are of comparatively little value and are disposed of at a very low price to be worked up into an inferior class of goods. By passing these so called paint and tar clippings through my machine all of the foreign matter is completely removed leaving the wool entirely clean and restored to its original quality and value.

40 With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

45 In the accompanying drawings: Figure 1— is a sectional side elevation of my wool cleaning machine. Fig. 2— is a plan view of the machine. Fig. 3— is an enlarged detail showing the construction of the first set of rolls which operate upon the wool as it is carried therethrough by the apron of wire netting. Fig. 4— illustrates the arrangement of driving gears employed for each set of rolls. Fig. 5— is a detail illustrating the apron agitating roll. Fig. 6—

is a detail perspective view showing a portion of the continuous apron of wire netting. Fig. 7— is a detail of the liquid sprinkler pipe.

Referring to the drawings, 1 designates a large elongated tank for retaining water, or other cleansing liquids, the same to be constructed of any size or material. The tank shown may be divided by partitions 2 into any desired number of compartments, in the present instance 8 being used. This tank may be supported from the floor by legs 3, or other suitable means. A set of roll supporting frames 4 are preferably formed independent of the tank and bolted, or otherwise secured to each of the tank partitions 2. In the first roll frame is mounted a lower roll 5 faced with rubber, or other suitable flexible or yieldable material. This roll is mounted in suitable bearings in said frames and rotated through the shaft 6. The upper roll 7 in this first frame is mounted on shaft 8 and is preferably of brass and provided with a corrugated or toothed engaging surface, see Fig. 3, for the purpose of breaking up and separating the lumps or bunches of tar and paint so they may be more effectively acted upon by the succeeding set of rolls. This shaft 8 is mounted in suitable journals 9, which are adapted to be adjusted and pressed downward by a flexible tension through the spring 10, screw 11 and hand wheel 12. Each pair of pressing rolls 13 and 14, mounted in the other frames, may be like the first pair, with the exception that the upper brass roll 13 instead of being corrugated like roll 6 is preferably provided with a smooth working surface.

An apron of any desired form and constructed of porous, vascular, or other suitable material having apertures or cells of any form or nature into which the paint and tar on the wool may be forced and retained, may be employed, but for convenience I preferably use a continuous belt 15 of wire netting having a mesh of suitable size for receiving and conveying the wool. This belt is led over the driving pulley 16 between the first pair of pressing rolls 5 and 6, thence around a pulley 17 to immerse the wool in the first compartment, thence between the second pressing rolls into the liquid in the next compartment, and so on between the different pressing rolls and down into the

different tank compartments alternately throughout the length of the whole machine, after which it is led over the rear pulley 18 and back over the pulleys 19, 20, 21, 22, 23 and 24 into the auxiliary or apron cleaning tanks 25 and 26 beneath the main tank. This first tank 25 may contain powerful dissolving chemicals for softening and removing the paint and tar from the meshes of the apron, while the second tank 26 may contain a neutralizing acid or other cleaning material from which the apron emerges over roll 27 as clean and fresh as when it started, thence continuing on around roll 28, over the driving drum 16, and around again through the same cycle as before. In order to facilitate the cleaning of this apron while passing through the different cleansing solutions I have provided a shaft 29, see Fig. 5, with outwardly extending arms 30 arranged to rotate in the auxiliary tanks 25 and 26 beneath the apron, to come in contact with the same intermittently whereby the apron is raised quickly and allowed to fall, causing the liquor to circulate rapidly back and forth through its meshes to assist in removing the paint and tar therefrom.

Located in the rear of each set of pressing rolls is a draft, drawing or pulling roll or member 31 which is preferably constructed of a plurality of radial engaging arms 32 or outwardly extending vanes, the outer edges of which vanes are arranged to rotate in close proximity to the oppositely moving adjacent face of the upper presser roll for the purpose of clearing or freeing the same from any wool that may be carried over, while the lower edges of the draft roll just clear and move in the same direction with, but considerably faster than the adjacent face of the wire screen. This draft roll is driven by any suitable mechanism, not shown herein at a somewhat higher speed than the apron whereby it is caused to engage the wool and pull some of the tufts from the paint or tar which has been previously pressed into the meshes of the apron by the presser rolls, at the same time turning over and spreading out other pieces of wool so that upon passing through the next set of presser rolls said tarred portions may be in a position to be pressed into the meshes of the apron to again be acted upon by the next succeeding draft rolls, and so on, until all of the wool has been drawn away or separated from the tar and deposited in a perfectly clean condition at the end of the machine, the majority of the tar and paint being retained in the meshes of the apron and carried down into the dissolving tank where it is removed before the apron is again called upon to perform the same operation.

In order to facilitate the separating or removal of the paint and tar from the wool

after each operation of the pressing and draft rolls upon the same, it is carried down into the different compartments and immersed in a bath of soap suds, or other suitable solution, which may be either hot, warm, or cold, as desired, for the purpose of softening and loosening the paint and tar, allowing the same to be more readily pressed and retained in the meshes of the apron while being acted upon by the next succeeding set of rolls. A trough 33, open on its upper side, is located just outside of the first pair of rolls for receiving and conducting away any dirt or water which may be squeezed out of the wool in passing through said rolls, and an angular screen 34 is located under each succeeding set of rolls for the purpose of receiving any dirt or foreign matter which may drop from the wool in passing through the rolls and prevent the same from being deposited in the tanks.

The two pressing rolls in each set are driven in time with each other through gears 35 and 36 while the draft roll or member is driven somewhat faster than these rolls through the gear 37 and intermediate gear 38. This latter gear is mounted on the arm 39 which is slotted at 40 so that it may be readily adjusted to engage gears of different sizes on the draft roll so that the speed of the latter may be readily changed and regulated to suit different conditions under which the machine may be operated. In order that each set of rolls shall run in time with the others they are connected and driven through sprocket chains 41 which lead from one set to the next throughout the length of the machine.

Water may be admitted to the tank through the supply pipe 42 and it may be pumped from this last compartment to the first compartment by means of the pump 43 and pipes 44, said first compartment being drained through the outlet pipe 45, or any suitable or convenient means may be employed for supplying these different compartments with the required cleansing or softening solution. In order to further assist in softening or cleaning the paint or tar from the wool, and also from the holes in the apron, I have provided a perforated pipe 48, see Fig. 7, or other similar or suitable device, whereby a cleansing solution may be impelled by means of a pump 49 through the pipes 50 and forced through the apertures in this sprinkler pipe onto the wool while being conveyed by the apron to better prepare the same to be more effectively operated upon and cleaned by the separating devices, the liquid under pressure also serving to remove, to some extent, the paint and tar from the holes in the apron. These sprinkler pipes 48 may be located in front of each set of presser rolls,

if desired, as shown in Fig. 1, or in any other suitable position.

The operation of my improved wool cleaning machine may be more fully described as follows: The so-called paint and tar clippings after being separated from the rest of the wool are placed in the usual feeder 46, which feeds or deposits the same through the mouth portion 47 onto the traveling apron of wire netting 15, whereby the wool is carried forward to be first acted upon by the roughened or irregular surface of the corrugated roll 6, working against the lower roll 5, to break up and separate the lumps of tar and tufts of wool, and to press portions of the tar into the meshes of the wire netting. Upon emerging from these rolls the draft roll or drawing member 31 engages and pulls the tufts of wool from the tarred portions which have been pressed into the meshes of the wire, also stirs up, spreads and distributes the other tufts so that their tarred portions may come in contact with the wire netting to be effectively operated upon by the next succeeding set of rolls. In order to increase the effectiveness of the next rolls the wool is carried down into a bath of soap suds, or other suitable solution, which may be hot, if desired, to soften the paint or tar and render the same more pliable and easier to be pressed into the meshes of the wire apron. In this second set, and all of the succeeding sets of rolls the face of the lower roll is very soft and pliable, while the upper roll is preferably smooth and hard and may be adjusted by the hand wheel 12 to exert a strong yet yielding pressure on the tufts of wool as they pass therethrough, whereby the tar, paint or other sticky or pliable foreign matter, is forced down into the meshes of the wire and firmly retained herein. As the apron passes along the draft roll or member engages these tufts of wool and pulls and frees the same from the paint and tar now held fast in the meshes of the wire apron and also again stirring up and re-positioning other tufts of wool, after which said wool is again immersed in a suitable solution and the operation of squeezing and pulling and freeing the wool from the foreign matter is repeated again and again until this so treated wool is eventually deposited from the last rolls in a perfectly clean condition and restored to its original quality and value.

My invention is not restricted to the precise construction and arrangement of parts herein shown and described, as any device having a wool receiving apron and means for said apron for receiving and retaining foreign matter contained in said wool and means for pulling, freeing or separating the wool from said foreign matter so retained, will fall within the spirit and scope of my

invention, one practical embodiment of which has been herein illustrated and described without attempting to show all of the various forms and modifications in which the invention might be embodied. 70

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A device of the character described comprising wool receiving means, adapted to return foreign matter attached to said wool, means for forcing said foreign matter into said receiving means, and means for pulling and freeing the wool from said foreign matter so retained. 75 80

2. In a wool cleaning machine, a traveling apron for receiving and carrying the wool, adapted to receive and retain foreign matter retained in said wool, means for forcing said foreign matter into said apron, and means for pulling and freeing the wool from said foreign matter so retained. 85

3. In a wool cleaning machine, a traveling apron of porous material for receiving the wool, means for forcing foreign matter contained in said wool into the pores of said material, and means for pulling and separating the wool from said foreign matter retained in the pores of said material. 90

4. In a wool cleaning machine a wire netting for receiving the wool, means for forcing foreign matter contained in said wool into the meshes of said netting, and means for pulling and freeing the wool from said foreign matter retained in the meshes of said netting. 95 100

5. In a wool cleaning machine, a traveling apron of wire netting for receiving the wool, means for forcing foreign matter contained in said wool into the meshes of said netting, and means for pulling and freeing the wool from the foreign matter retained in the meshes of said netting. 105

6. In a wool cleaning machine, a traveling apron of wire netting for receiving the wool, means for forcing foreign matter contained on said wool into the meshes of said netting, means for pulling and freeing the wool from the foreign matter retained in the meshes of said netting, and means for subsequently cleaning said wire apron. 110 115

7. In a wool cleaning machine, a continuous traveling belt or apron of wire netting for receiving the wool, pressing rolls for forcing foreign matter contained in said wool into the meshes of said netting, and means for pulling and freeing the wool from the foreign matter retained in the meshes of said netting. 120

8. In a wool cleaning machine, a continuous traveling belt of porous material for receiving and carrying the wool, a pair of pressing rolls between which said belt and its layer of wool is designed to pass, said rolls being adapted to force the foreign mat- 125 130

ter contained in said wool into the pores of said material, and means for pulling and freeing the wool from the foreign matter retained in the pores of said material.

5 9. In a wool cleaning machine, a continuous traveling belt or apron of wire netting for receiving and carrying the wool, a pair of pressing rolls between which said apron and its layer of wool is designed to pass said
10 rolls being adapted to force the foreign matter contained in said wool into the meshes of said netting, and means for pulling and freeing the wool from the foreign matter retained in the meshes of said netting.

15 10. In a wool cleaning machine, a continuous traveling belt or apron of wire netting for receiving and carrying the wool, a pair of pressing rolls between which said apron and the wool upon it is arranged to
20 pass, one of said rolls having a hard working face and the other a yieldable working surface, whereby said hard faced roll is adapted to force the foreign matter contained in the wool into the wire mesh against
25 the yielding roll surface, and means for pulling and freeing the wool from the foreign matter retained in the meshes of said netting.

30 11. In a wool cleaning machine, a wire netting for receiving the wool, means for forcing foreign matter contained in said wool into the meshes of said netting, and a rotatable member adapted to engage, pull, and free the wool from the foreign matter
35 retained in the meshes of said netting.

40 12. In a wool cleaning machine, a continuous traveling belt or apron of wire netting for receiving the wool, pressing rolls for forcing foreign matter contained in said wool into the meshes of said netting, and a rotatable member adapted to engage, pull and free the wool from the foreign matter retained in the meshes of said netting.

45 13. In a wool cleaning machine, a continuous traveling belt or apron of wire netting for receiving the wool, pressing rolls for forcing foreign matter contained in said wool into the meshes of said netting, a rotatable member adapted to engage, pull and
50 free the wool from the foreign matter retained in the meshes of said netting, and means for subsequently cleaning the foreign matter from the meshes of said wire apron.

55 14. In a wool cleaning machine, a continuous traveling belt or apron of wire netting on which the wool is deposited, a plurality of sets of pressing rolls for forcing the foreign matter contained in said wool into the meshes of said netting, and means
60 adapted to operate after each set of rolls for pulling and freeing the wool from the foreign matter retained in the meshes of said netting, said pulling and freeing means be-

ing also adapted to agitate and re-position on the netting the remaining free portions 6 of the wool.

15. In a wool cleaning machine, a traveling apron of wire netting on which the wool is deposited, a plurality of sets of pressing rolls for forcing foreign matter contained 7 in the wool into the meshes of said netting, a tank, a guide roll for conducting the apron and wool through a liquid bath in said tank between each set of pressing rolls to facilitate the effective action of the pressing rolls 7 thereon, and means adapted to operate after each set of pressing rolls for pulling and freeing the wool from the foreign matter retained in the meshes of said netting.

16. In a wool cleaning machine, a traveling 8 apron of porous material on which the wool is deposited, a plurality of sets of pressing rolls for forcing foreign matter contained in the wool into the pores of said apron, a tank, a guide roll for conducting 8 the apron and wool through a liquid bath in said tank between each set of pressing rolls, means adapted to operate after each set of pressing rolls for separating the wool from the foreign matter retained in the 9 pores of said material, and means for subsequently cleaning the foreign matter from said apron.

17. In a wool cleaning machine, a continuous traveling apron of porous material 9 for receiving the wool, means for forcing foreign matter contained in said wool into the pores of said apron, means for pulling and separating the wool from said foreign matter retained in the pores of said apron, 1 a cleansing bath into which the apron is subsequently submerged, and means for vibrating said apron while in said bath.

18. In a wool cleaning machine, a continuous traveling belt of wire netting, a plu- 1 rality of sets of pressing rolls for forcing foreign matter contained in the wool into the meshes of said netting, a liquid bath to which the wool is subjected, means adapted to operate after each set of rolls for separating the wool from the foreign matter retained in the meshes of said netting, said separating means being also adapted to re- 1 position the remaining free portions of the wool on said netting, a cleansing bath to which the apron is subsequently subjected for removing the foreign matter from its meshes, and means for vibrating said apron while in said bath.

In testimony whereof I affix my signature 1 in presence of two witnesses.

JOHN R. MILSON.

Witnesses:

GEORGE JOHNSTON,
OLIVER R. MILSON.

It is hereby certified that in Letters Patent No. 1,008,426, granted November 14, 1911, upon the application of John R. Milson, of Watertown, Massachusetts, for an improvement in "Wool-Cleaning Machines," an error appears in the printed specification requiring correction as follows: Page 3, line 76, for the word "return" read *retain*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of December, A. D., 1911.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.