Oct. 11, 1932. F. J. MURPHY 1,882,439

MACHINE FOR TREATING FURS

Filed June 12, 1929 2 Sheets-Sheet 1

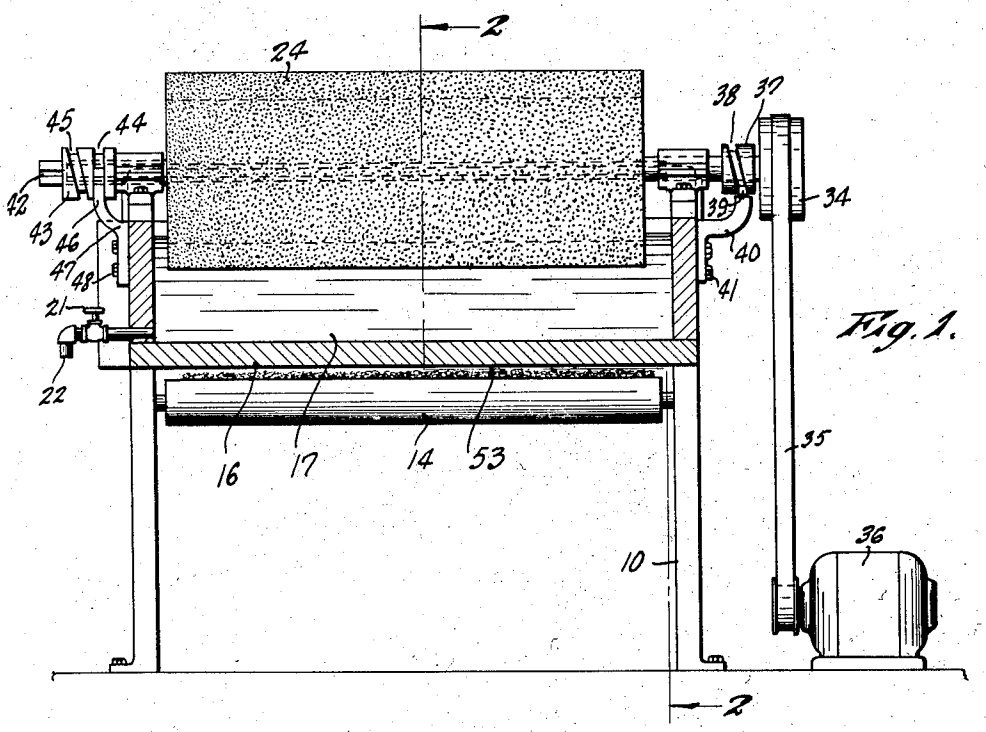


Fig. 1.

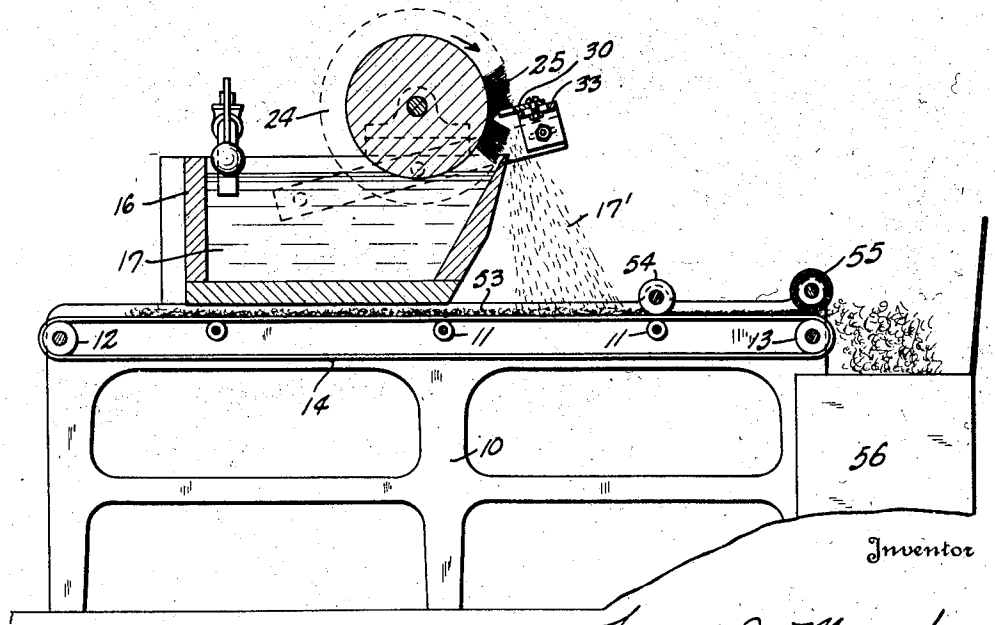


Fig. 2.

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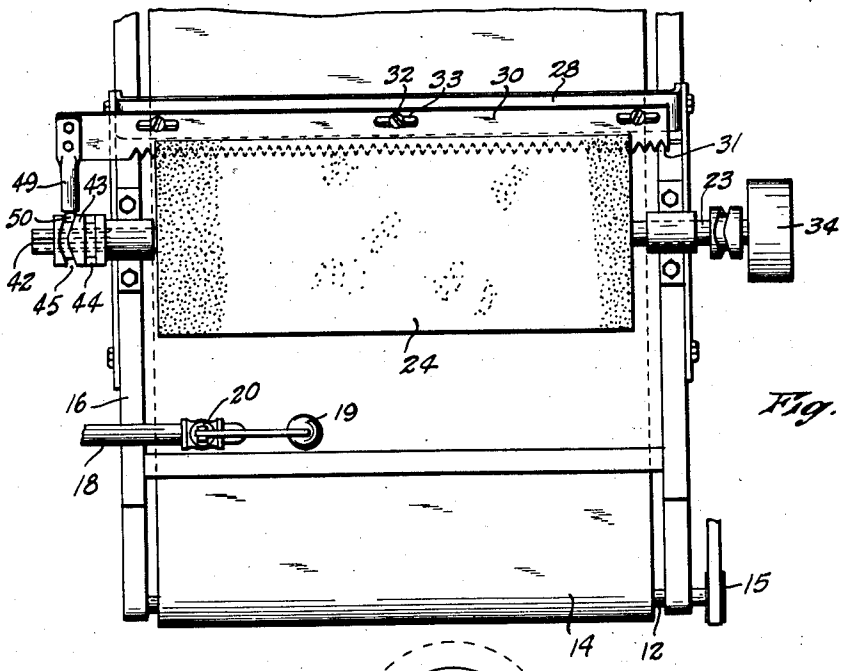


Fig. 3.

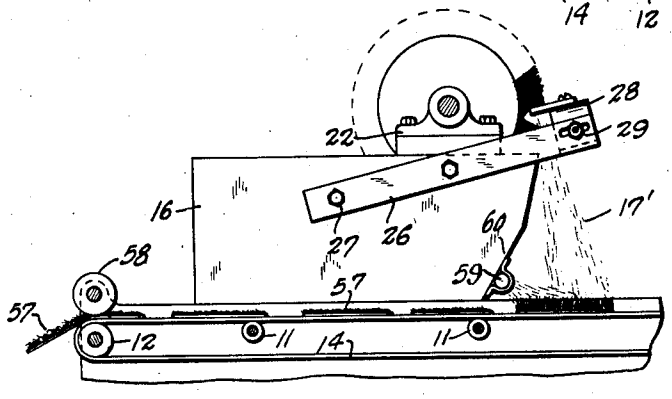


Fig. 4.

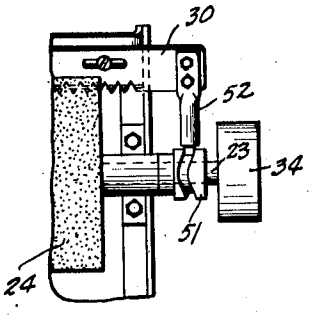


Fig. 5.

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UNITED STATES PATENT OFFICE

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MACHINE FOR TREATING FURS

Application filed June 12, 1929. Serial No. 370,241.

This invention relates to a loose fur and fur on the pelt treating machine and method, and has for an object to provide an improved machine and method for treating loose fur and fur on the pelt particularly such operations as where the loose fur and fur on the pelt is treated with a liquid as in carroting. It has for another object to provide a machine and method whereby the loose fur and fur on the pelt may be treated, such as carroted, more uniformly and satisfactorily than possible with the methods of the prior art and now generally in use.

It is a further object of this invention to provide a machine which will distribute the liquid at a uniform rate over the loose fur or fur on the pelt, which rate may be controlled as desired according to the nature of the loose fur or fur on the pelt to be treated.

It is an additional object of the invention to provide a means for raising the fur nap as it is being sprayed, whereby to insure the penetration of the liquid into the fur.

With the foregoing and other objects in view, the invention consists in certain novel features of construction, combinations and arrangements of parts as well as method of treating the fur as will be more fully described in connection with the accompanying drawings.

In these drawings,

Fig. 1 is a view of my fur treating machine taken from the front or in-feeding end.

Fig. 2 is a vertical section on line 2—2 of Fig. 1.

Fig. 3 is a top plan view of the invention partly broken away.

Fig. 4 is a side view of a modification adapted for fur on the pelt with the fur nap in place, rather than with the fur and hair separate from the skin.

Fig. 5 is a detail section showing a means for oscillating the spraying rack alone.

In the form shown the fur treating machine includes a stand or base 10 in which are mounted idle rollers 11 and end rollers 12 and 13 for an endless belt conveyor 14, the roller 12 having a power connection 15 thereto from any suitable source of controllable power whereby the speed of rotation of said roller, and hence rapidity of movement of the endless belt 14 may be controlled at will.

Mounted on the base 10 over the belt 14 is a tank 16 in which the liquid 17, for example so called carroting liquid to be used for treating the fur is kept at a desired depth by the inlet pipe 18 having a float 19 for automatically opening and closing the inlet valve 20 to maintain the proper depth. When it is necessary to drain the tank 16 for cleaning or other purposes a cut-off valve (not shown) in pipe 18 cuts off the inflow, and a drain valve 21 in drain pipe 22 serves to drain the tank.

Mounted on suitable bearings 22 on the edge of tank 16 is the spindle 23 of a rotary brush 24, the bristles 25 of which just dip into the carroting or fur treating liquid 17. Braces 26 bolted to the side of tank 16 as at 27 have a cross bar 28 adjustably bolted therebetween as at 29. A rack 30 having teeth 31 is slidably affixed to cross bar 28 by the bolts 32 in slot 33 therein. Spindle 23 is rotated by a drive wheel 34 thereon on which is a power belt 35 from any suitable source of power, in this case the motor 36. Affixed on spindle 23 is a cam 37 having a cam groove 38 in which is held a cam roller 39 on arm 40 bolted as at 41 to a side of tank 16. Thus as the spindle 23 is rotated, it will be oscillated back and forth. The other end of spindle 23 has splined thereto as at 42 a cammed wheel 43 in which is a circular groove 44 and a cam groove 45. Circular groove 44 has a finger 46 held therein by arm 47 bolted to a side of tank 16 as at 48 and this finger 46 serves to prevent wheel 43 from oscillating with spindle 23, but allows it to rotate therewith, due to its splined connection 42 thereto. An extension 49 affixed to the end of rack 30 has a roller 50 guided in cam groove 45, and rotation of spindle 23 and hence of wheel 43 serves to oscillate rack 30. The oscillation of rack 30 is in a different cycle than the cycle of oscillation of brush 24, due to the fact that the cam rollers 39 and 50 are placed at different angular degrees about their cam grooves, but this same effect may be procured by using different shaped cams, and the consequent

effect is that the rack and the brush oscillate in opposite directions and teeth 31 will cause bristles 25 to cast a spray 17′ on belt 14 or on the material being conveyed by the belt. With the brush 14 turning at a uniform rate, the amount of spray reaching the material on the belt may be varied and controlled by controlling the speed of the belt as it passes under the spray. It will be noted from Fig. 2 that as the bristles pass the rack 30 they are first bent back by this rack and then released so that they spring forward and flip or throw the liquid down onto the fur on the conveyor as indicated by the dotted lines 17′. Although it has been shown and described that both brush and rack oscillate, it is obvious that the device may be used with only one of these oscillating and the other fixed, as for instance is shown in the fragmentary view in Fig. 5, where spindle 23 has a cam 51 in which extension 52 from rack 30 serves to oscillate the rack while the brush does not oscillate.

The rotation of brush 24 serves to spray the liquid 17 over the belt 14 and the material carried thereon, which in Figs. 1 and 2, is loose fur or fur on the pelt 53. The relative lateral movement of the rack and the brush gives a more uniform distribution of the liquid on the fur. The loose fur 53 having been placed on belt 14, it is conveyed thereby under the spray 17′. A smooth heavy wringing roller 54 mounted over one of the rollers 11 serves to squeeze the fur after it has been sprayed thereby spreading the liquid uniformly throughout the fur. A brush 55 placed over roller 13 serves to mix the liquid somewhat more throughout the fur 53 and to discharge it into a conveniently placed receptacle 56. It will be understood that the liquid 17 may be any suitable liquid such as nitrate of mercury, or a mixture of quick silver and nitric acid, but any other desirable liquid may be used. As is well known carroting liquid is used to roughen the surface of the fibres of the fur or raise a sort of bur or barb on them so that they felt and stick together better.

When the machine is used to spray furs or pelts 57, that is skins with fur on the pelt, a roller 58 is added over roller 12 and serves to feed the pelts onto belt 14. A pipe 59 is attached across the belt 14 as at 60, and compressed air is fed therein from any suitable source and escapes through holes so placed that the air tends to blow the fur on the skins upright just as the spray 17′ reaches it. This allows the spray 17′ to penetrate the fur more uniformly and deeply to its roots in the skin. Formerly it was customary to brush the fur by hand in an attempt to get the liquid brushed by hand to penetrate, but it was difficult to get the liquid way down on the fur and secure uniform treatment, while the present method disclosed produces a better and more uniform product. Also, the use of this machine produces the finished product twice as quickly as the previous hand methods, and is easier and simpler to operate than any of the known hand methods. The roller 54 may be used in treating pelts if desired.

From the foregoing description, it is apparent that this invention provides an improved method of treating loose fur and fur on the pelt over the previous methods known, and that the machine provided for carrying out this method is simple and easy to operate.

Having thus set forth the nature of my invention, what I claim is:

1. A fur treating machine comprising a base, an endless conveying belt on said base, a tank supported by said base, a rotary brush dipping in said tank, a toothed rack mounted across the face of said brush, means for rotating said brush and for oscillating said brush and said rack relative to each other to spray the liquid from said brush to said belt.

2. A fur treating machine comprising a base, an endless conveyor on said base, a rotary brush on said base, a liquid containing tank, said brush dipping in said tank, a rack supported in contact with said brush, and means for rotating said brush and for oscillating the brush and the rack relative to each other.

3. A fur treating machine comprising a base, an endless conveyor on said base, a rotary brush on said base, a liquid containing tank, said brush dipping in said tank, a rack supported in contact with said brush, means for rotating said brush and for oscillating the brush and the rack relative to each other, and means for maintaining the liquid in said tank at a desired predetermined level.

4. A fur treating machine comprising a base, an endless conveyor on said base, a rotary brush on said base, a liquid containing tank, said brush dipping in said tank, a rack supported in contact with said brush, means for rotating said brush and for oscillating the brush and the rack relative to each other, and means raising the fur nap as it is treated with the liquid.

5. A fur treating machine comprising a base, an endless conveyor on said base, a rotary brush on said base, a liquid containing tank, said brush dipping in said tank, a rack supported in contact with said brush, means for rotating said brush and for oscillating the brush and the rack relative to each other, and means for spreading the liquid uniformly throughout the fur nap.

6. A fur treating machine comprising a base, an endless conveyor on said base, a rotary brush on said base, a liquid containing tank, said brush dipping in said tank, a rack supported in contact with said brush, means for rotating said brush and for oscillating the brush and the rack relative to each other,

and means for brushing the fur from the conveyor.

7. A fur treating machine comprising a conveying means for loose fur or fur on pelt, a liquid containing tank over said conveying means, means for maintaining the liquid at a predetermined depth, a rotary brush dipping in said tank, a rack contacting with said brush, means rotating said brush in said tank and against said rack to spray the liquid on said loose fur or fur on pelt as it is advanced by said conveying means, and means for oscillating the brush and the rack longitudinally relatively to each other.

8. A fur treating machine comprising conveyor means, a liquid containing tank over said conveyor means, a rotary brush dipping in said tank, a rack in contact with said brush, means for feeding the fur onto said conveyor means, means for rotating the brush against said rack to spray the liquid on the fur conveyor means and blower means for raising the fur nap as it is sprayed.

9. A fur treating machine comprising conveyor means, a liquid containing tank over said conveyor means, a rotary brush dipping in said tank, a rack in contact with said brush, means for feeding the fur onto said conveyor means, means for rotating the brush against said rack to spray the liquid on the fur conveyor means, blower means for raising the fur nap as it is sprayed, and means for wringing the sprayed fur to spread the liquid uniformly through it.

10. A fur treating machine comprising conveyor means, a liquid containing tank over said conveyor means, a rotary brush dipping in said tank, a rack in contact with said brush, means for feeding the fur onto said conveyor means, means for rotating the brush against said rack to spray the liquid on the fur conveyor means, blower means for raising the fur nap as it is sprayed, means for wringing the sprayed fur to spread the liquid uniformly tnrough it, and means for removing the fur from said fur conveyor means.

11. A fur treating machine comprising a base, an endless belt movably supported by said base, a tank over said belt for holding liquid, a rotary brush dipping in said liquid, a rack in contact with said brush, means for rotating said brush against said rack to cast a spray of said liquid on the material carried by said belt, a roller carried by said base in contact with said belt for wringing the spraying material on said belt, and a brush carried by said base for brushing the material from said belt.

12. A fur treating machine comprising a base, an endless conveyor movably supported by said base, a tank on said base, a rotary brush dipping in said tank, a rack in contact with said brush, means for rotating said brush against said rack to cast a spray on the material on said conveyor, an air pipe for directing a blast of air at the material on said belt to partially raise it from said belt as it is being sprayed, whereby to permit more thorough penetration of the material by said spray, and a roller for wringing the sprayed material.

13. A fur treating machine comprising an endless conveying belt, a tank supported above said belt, a rotary brush dipping in said tank, a toothed rack extending across the face of said brush, and means for rotating said brush against the rack and for oscillating said brush and rack relatively to each other to spray the liquid from said brush to said belt.

14. A fur treating machine comprising means for advancing the fur to be treated, means for blowing an air blast into the fur to partially raise and separate the fibers while they are dry, and means independent of said air blowing means for spraying liquid material onto the fibers after they have been raised by the blast and while in said partially raised and separated position.

15. A method of treating fur comprising blowing air alone against the fur nap to raise the same, and spraying a liquid against said fur independently of the blowing air after the nap has been raised by the air and while it is so raised.

16. A method of treating fur comprising blowing air alone against the fur nap to raise the same, spraying said fur with a liquid independently of the blowing air after the nap has been raised and while it is so raised, and then wringing the fur to distribute the spray uniformly.

In testimony whereof I affix my signature.

FRANK J. MURPHY.