Dec. 17, 1929. H. B. FANTON 1,740,289

FUR MIXING AND DUSTING MACHINE

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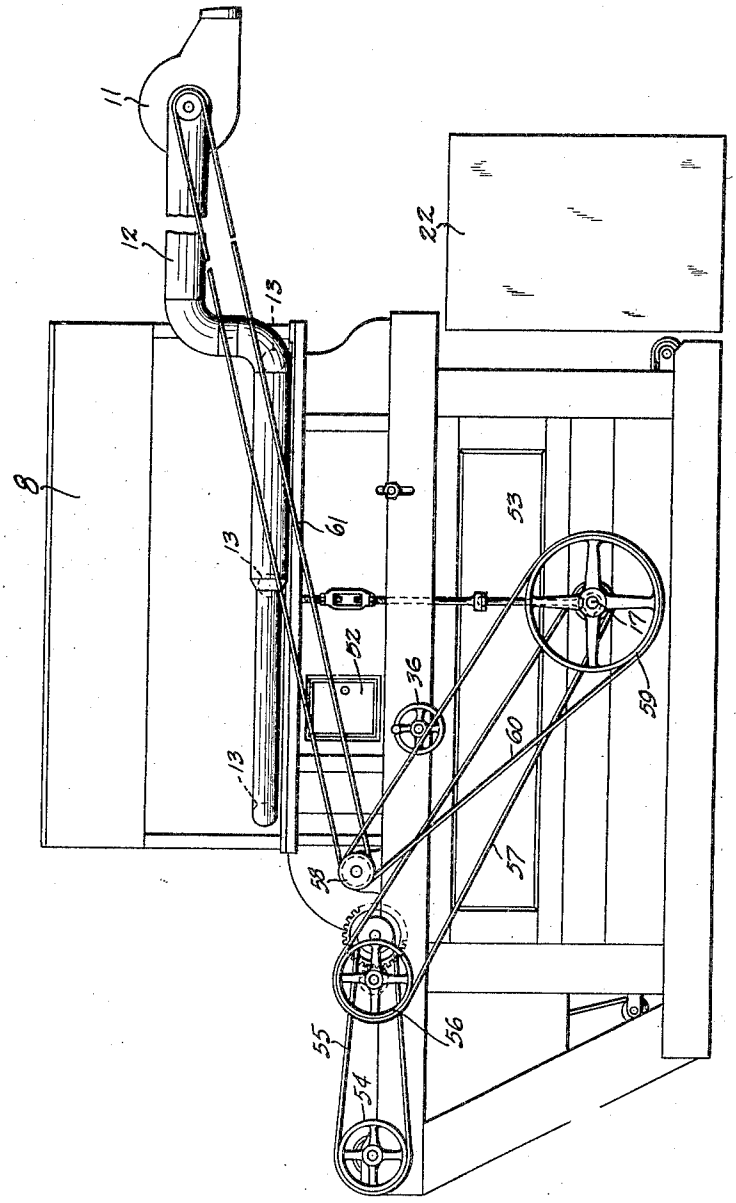


Fig. 1.

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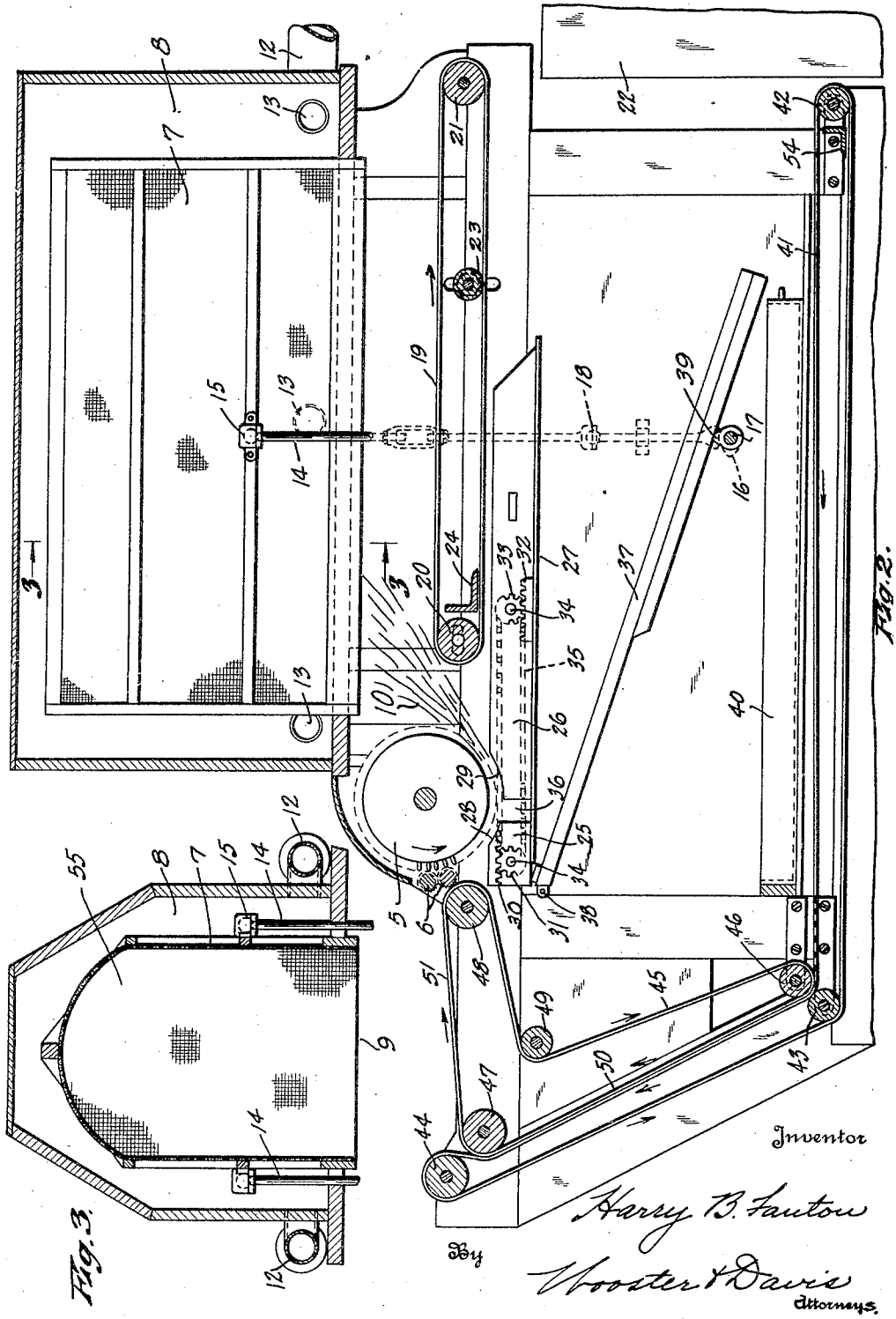


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE

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FUR MIXING AND DUSTING MACHINE

Application filed February 11, 1929. Serial No. 339,125.

This invention relates to a machine for cleaning and mixing fur, particularly fur for the manufacture of hats, and has for an object to provide a machine which may be used either as a dusting machine to remove dust and dirt from the fur, or a fur mixing machine, or both.

It is also an object of the invention to provide a device of this character in which the fur may be thoroughly cleaned without the escape of dust and dirt into the room with the consequent discomfort to the workmen or injury to their health.

It is a further object of the invention to provide a machine which will recover the fine fur from the waste material of the usual fur blower and clean this fine fur so that it can be used.

With the foregoing and other objects in view, the invention consists in certain novel features of construction combinations and arrangements of parts as will be more fully disclosed in connection with the accompanying drawings. In these drawings,

Fig. 1 is a side elevation of the machine.

Fig. 2 is a longitudinal vertical section through the machine, and

Fig. 3 is a transverse section of the dusting device.

The machine as illustrated comprises a rotary picker 5 of the usual construction with a pair of feed rolls 6 at the forward side thereof for feeding the material to the picker and cooperating therewith to separate the fur and remove it from the pieces of skin. To the rear and above the picker is a screen 7 enclosed in a box or chamber 8. The screen 7 is preferably of substantially inverted U-shape or that is, it is of a box construction open at the bottom 9 so that the fur thrown up by the picker enters through this open bottom thereof, as indicated at 10, in Fig. 2. The space 8 outside of this screen is connected to a suitable suction device, such as a suction fan 11, through suitable pipes 12 which pipes have branches 13 leading to the lower part of the space 8 outside of the screen 7. The screen is mounted for up and down movement so that it can be shaken or jarred to prevent the fur adhering to the inside of the screen and remaining there. Thus this screen is mounted on upright rods 14 on each side thereof connected to the screen by any suitable means, such for example, as ball and socket connections 15, and at their lower ends rest on cams 16 on a transverse shaft 17. As the shaft rotates these rods are forced up and down by the cams, giving a jarring or shaking movement to the screen 7. If desired, there may be a ball and socket joint 18 in the rods 14 to allow for any lateral movement and prevent binding.

Below the lower open side 9 of the screen 7 is a flexible belt conveyor 19 of canvas or other suitable material running over suitable guide rollers 20 and 21. This conveyor runs in the direction of the arrow, and receives the fine fur which drops from the screen 7 and carries it rearwardly where it deposits it in a stock box or any other suitable container, and there may be a vertically adjustable idler 23 running on the lower part of the conveyor to vary the tension thereof and keep it tight. It is also preferred to provide an angle member 24 on the top side of the lower run of the conveyor adjacent the roller 20 to pick up and collect any fur which might pass through the upper run of the conveyor or in any other way lodge on the top of the lower run, and prevent this fur becoming lodged in or about the roller 20. The roller 20 is adjustable toward and from the picker to regulate the fineness of the fur.

Mounted below the picker 5 is a gate comprising two movable sections 25 and 26. These sections are mounted to slide toward and from each other in suitable supporting guides 27 and on their upper walls have curved surfaces 28 and 29 substantially concentric with the picker, which surfaces may be lined with zinc or other suitable material. The section 25 has a rack 30 meshing with a gear 31, while the section 26 has a rack 32 meshing with a gear 33, the two gears being on shafts 34 which are connected by a chain and sprocket connection 35. One of the shafts 34 is provided with a hand wheel 36 outside the enclosing walls of the machine whereby the two shafts 34 may be rotated to shift the sections 25 and 26 of the gate toward

and from each other. When the sections are together the fur fed to the picker is carried through the base between this gate and the picker and is thrown upwardly into the screen 7, the dust and dirt from this fur being drawn off by the suction means 11 thoroughly cleaning the fine fur which is caught by the screen 7 and then shaken down onto the conveyor 19 and removed in a thoroughly cleaned condition. If, however, the fur to be cleaned contains pieces of skin and considerable hair and other undesirable elements the gate sections 25 and 26 are shifted away from each other providing an opening 36 beneath the picker. Now as the picker is operated the heavier elements, such as the pieces of skin and so forth, are thrown by centrifugal action and gravity through the opening 36 while the lighter fur is carried around by the picker and the stream of air flowing with the picker incident to its rapid rotation is thrown and carried up into the screen 7 and thoroughly cleaned, as above described. Below the opening 36 is an inclined riddle or screen 37 which is pivotally mounted at its upper end, as shown at 38, and adjacent its lower end is mounted on suitable cams 39 on the shaft 17 so that it is shaken or jarred. This riddle may be of any suitable type but is preferably composed of a series of parallel steel wires running longitudinally of the screen such as is disclosed in my copending application Serial No. 310,860, filed October 6, 1928, for separator for fur, wool and cotton. This riddle receives the material passing through the opening 36 and separates the fur and pieces of skin from the hair, dirt or other articles which pass through the riddle and are collected in a box 40 beneath the same. This box is supported within the casing of the machine and may be removed by withdrawing it through the rear end or there may be a removable panel in the side wall of the machine.

Below the riddle 37 and the pan 40 is a flexible belt conveyor 41 running over rollers 42, 43 and 44. This conveyor extends to the rear of the lower end of the riddle 37 so that the fur, pieces of skin, and other elements which do not pass through the riddle are deposited on this conveyor and are carried thereby back to the forward end of the machine and are fed again to the picker. It will be noted from Fig. 2 that the forward portion of the conveyor 41 between the rollers 43 and 44 is inclined upwardly and forwardly and is closely adjacent another flexible conveyor 45 running over guide pulleys 46, 47, 48 and 49. The forward upwardly extending run 50 of this conveyor is closely adjacent and to the rear of the upwardly moving run of the conveyor 41 so that the two together grip the fur and other elements coming from the riddle 37 and carry them automatically to the upper run 51 of the feed conveyor and carry them to the feed rolls 6 where they are again presented to the picker. The pieces of clean skin and other articles may be picked from the upper portion 51 of the conveyor and removed, and new uncleaned fur may be deposited on this conveyor and fed to the picker.

Access to the device 24 for removing fur which may be accumulated thereby may be had through the door or panel 52 in the side of the enclosing casing and there may also be a removable panel 53 for giving access to the riddle 37 and other interior elements of the machine. An angle member 54 similar to the member 24 may be provided above the lower run of the conveyor 41 adjacent the roller 42 to collect fur which may be lodged on the lower run of the conveyor 41. With the above device fur is thoroughly cleaned as it is thrown and carried by the stream of air to the enclosed space 55 within the screen 7 in a thoroughly separated condition so that the dust and dirt is easily separated therefrom and drawn off through the suction pipes 12. The fine clean fur is shaken from the screen onto the conveyor 19 and deposited in the stock box 22. If the material to be cleaned is merely fine fur with dust and dirt the gate sections 25 and 26 are closed and this cleaning and dusting operation is the only one performed. If, however, the material to be cleaned includes other elements as pieces of skin, hair and so forth, the gate sections 25 and 26 may be opened so that these pieces of skin and other heavier elements are separated from the fine fur, and it is cleaned and separated from the hair and dirt. Under these conditions the machine operates to dust and clean the fine fur as well as to separate it from the pieces of skin, hair and other heavier pieces. The partially cleaned material is again fed back to the picker and passes again through the machine so that the fine fur is eventually thoroughly separated from the other materials and is thoroughly cleaned. It will also be apparent that the fur in passing through the machine is thoroughly mixed as well as being cleaned. The various conveyors, picker, feed rollers, and so forth, are driven from any suitable source of power and from each other, as shown in Fig. 1. A pulley 54 drives the roller 44 and a belt 55 runs therefrom to the feed rollers. A pulley 56 is geared to the rollers and a belt 57 runs therefrom to a pulley on the shaft 17. The picker is driven from any suitable source of power, not shown, and a pulley 58 on the picker shaft may drive the shaft 17 through a pulley 59 thereon and a belt 60. Another belt 61 may run from the picker shaft to the blower 11.

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

1. In a fur mixing and dusting machine, a rotary picker, means for feeding fur to the picker, an open bottomed hollow screen over

the picker at the opposite side thereof, a casing enclosing the screen and spaced therefrom, an exhaust fan connected with the space surrounding the screen, means for jarring the screen to prevent sticking of fur thereto, and a conveyor under the screen to receive fur as it drops from the screen.

2. In a fur mixing and dusting machine, a rotary picker, feed rolls on one side of the picker, an open bottomed box screen over the picker on the opposite side to receive fur therefrom, a casing enclosing the screen and spaced therefrom, a suction fan connected to the space outside the screen, means for shifting the screen, a conveyor under the screen, an inclined riddle under the picker, and conveyors leading from the lower end of the riddle to the feed rollers.

3. In a fur mixing and dusting machine, a rotary picker, means for feeding fur to the picker, an inverted screen above the picker to receive fur therefrom, a casing enclosing the screen and spaced therefrom, an exhausting device connected to the space between the casing and the screen, means for jarring the screen, and a conveyor beneath the screen.

4. In a fur mixing and dusting machine, a rotary picker, means for feeding fur to the picker, an inverted screen above the picker to receive fur therefrom, an exhausting device connected to the space on the opposite side of the screen, a gate beneath the picker, a riddle beneath the gate to receive discharges from the picker when the gate is open, and means for shifting the gate.

5. In a fur mixing and dusting machine, a rotary picker, means on one side of the picker for feeding fur thereto, a screen on the opposite side to receive fur from the picker, a movable gate beneath the picker, a riddle below the gate to receive material discharged therethrough and means for shifting the gate to regulate the proportion of material discharged to the riddle and the screen.

6. In a fur mixing and dusting machine, a rotary picker, means on one side of the picker for feeding fur thereto, a screen on the opposite side to receive fur from the picker, a movable gate beneath the picker, an inclined riddle below the gate to receive the material discharged therethrough, a conveyor leading from the lower end of the riddle to the feeding means, and means for shifting the gate to regulate the proportion of material discharged to the riddle and the screen.

7. In a fur mixing and dusting machine, a rotary picker, means on one side of the picker for feeding fur thereto, an open bottomed box screen on the opposite side of the picker to receive fur therefrom, a suction device connected with the space on the outside of the screen, means for jarring the screen, a conveyor to receive fur therefrom, a movable gate under the picker, an inclined riddle beneath the gate, means to adjust the gate to regulate the proportions of material discharged to the riddle and screen, and a conveyor from the lower end of the riddle to the feeding device.

8. In a fur mixing and dusting machine, a rotary picker, a feeding device on one side of the picker, an inverted box screen on the opposite side of the picker, a gate below the picker comprising two relatively movable sections having curved top walls substantially parallel to the outer surface of the picker when closed, and means for shifting the gate sections toward and from each other to provide a discharge opening beneath the picker.

9. In a fur mixing and dusting machine, a rotary picker, a feeding device on one side of the picker, a screen on the opposite side of the picker to receive fur therefrom, a gate below the picker comprising two relatively movable sections having curved top walls adjacent the picker, means for simultaneously shifting said sections in opposite directions to provide a discharge opening beneath the picker or to close the same, and means beneath said gate to receive the particles discharged through the opening.

10. In a fur mixing and dusting machine, a rotary picker, a pair of feed rolls at one side thereof, an open bottomed box screen on the other side of the picker to receive fur therefrom, a suction device connected to the space outside said screen, means for jarring the screen, a conveyor under the screen to receive the fur dropping therefrom, a gate under the picker comprising a pair of movable sections having curved upper walls under the picker, means for shifting said sections in opposite directions to provide a discharge opening beneath the picker or close the same, an inclined riddle beneath said opening, and conveyor means leading from the lower end of the riddle to the feed rolls.

In testimony whereof I affix my signature.

HARRY B. FANTON.