Aug. 31, 1926. **1,598,429**

H. F. FITCH

HAT FORMER FEEDER

Filed Feb. 6, 1926 2 Sheets-Sheet 1

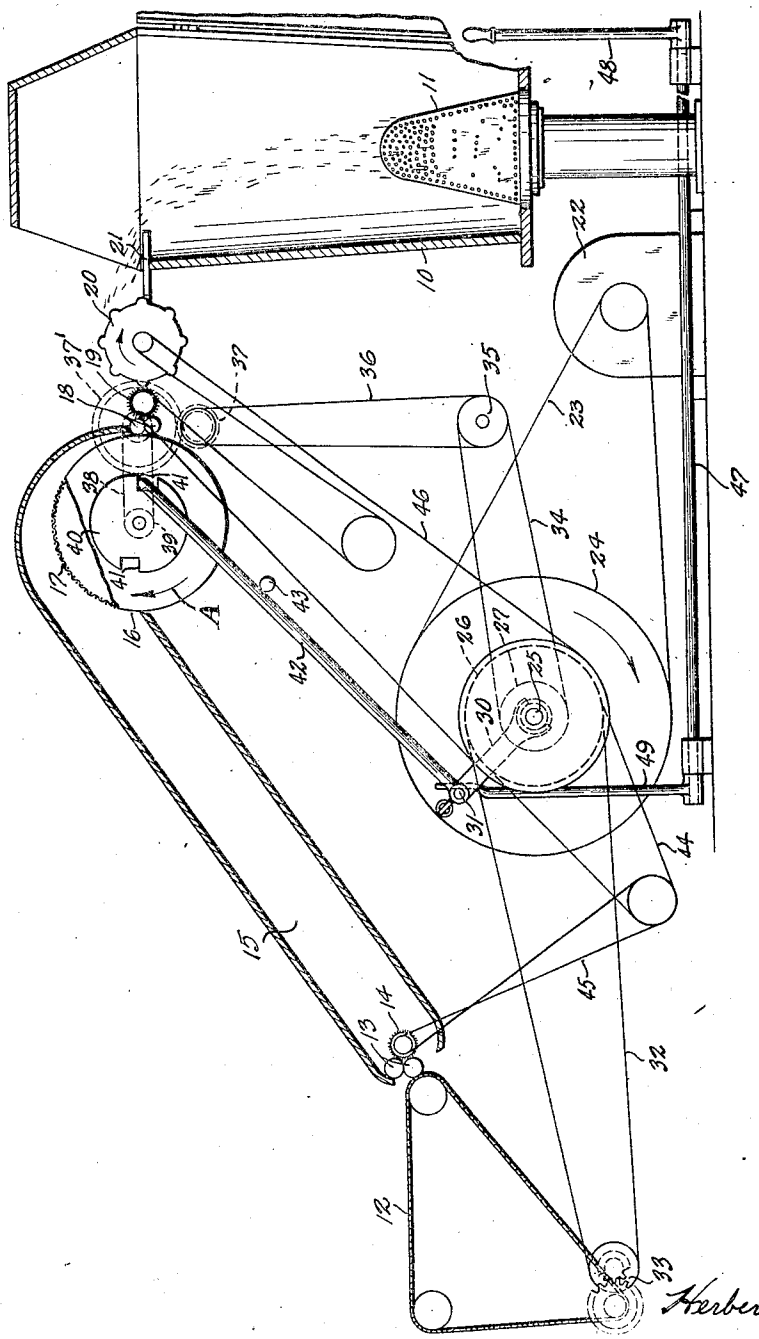


Fig. 1.

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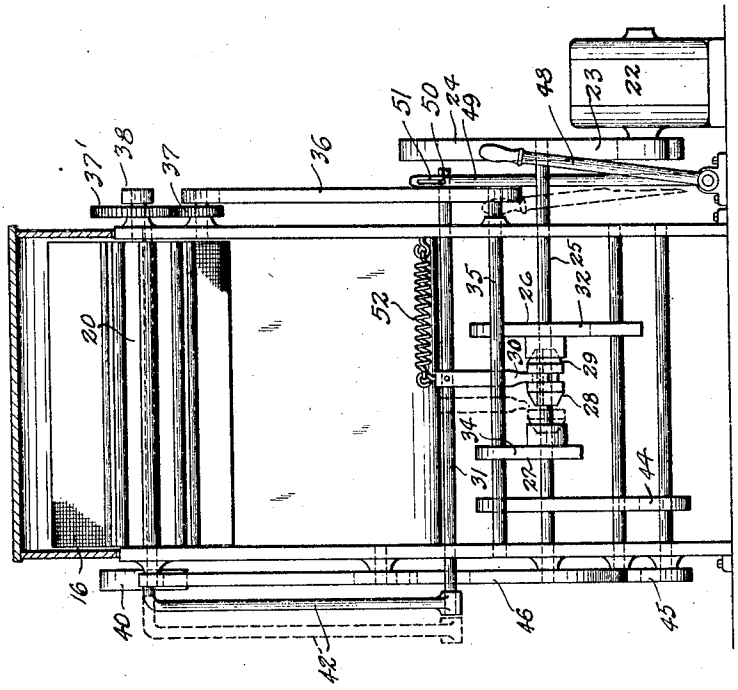


Fig. 2.

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UNITED STATES PATENT OFFICE.

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HAT-FORMER FEEDER.

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This invention relates to a feeder for feeding fur to hat formers. At the present time in these devices the common practice is to have a boy weigh out the proper amount of fur for a hat and place it on a constantly moving belt which conveys it to a picker by which it is thrown onto a movable conveyor, and which conveyor carries it to the feed rollers by which it is fed to another picker and some means for transferring it to the former. Under this arrangement a boy is required for each machine as he has to watch the machine very carefully to see that fur is fed at the proper time and so forth. It is also necessary for the coner, that is the operator of the former, to carefully watch the feeder to determine when the fur for a single hat has been entirely transferred to the former. The boy is also required, for best results, to feed the fur to the feeder at just the proper time to give best results in the hat forming operations, and if this feeding is not done at the proper time there may be variations in the hat or malformed hats, and so forth.

It is, therefore, an object of my invention to provide a feeder which will obviate these objections, which will feed the fur to the former in a more uniform manner, and at exactly the proper time to secure the best results, and one in which it is not necessary for the boy who weighs the fur to give all his attention to the feeding, and he may, therefore, weigh the fur for two machines.

It is also an object of the invention to do away with the moving conveyor for conveying the fur from the first picker to the second picker.

With the foregoing and other objects in view, I have devised the construction shown somewhat diagrammatically in the accompanying drawings forming a part of this specification, similar reference characters being employed throughout the various figures to indicate corresponding elements. In these drawings,

Fig. 1 is a partial side elevation and partial section of the former and the feeding means therefor shown somewhat diagrammatically, and

Fig. 2 is a rear end elevation of the feeder with the upper part broken away to more clearly show the construction.

In the drawing the former is shown at 10 with the usual perforated cone 11 therein which is connected to the usual suction device not shown. The feeder comprises a movable conveyor or belt 12 associated with the discharge end of which is a pair of feed rollers 13, and on the outlet side of these rollers is a picker roll 14. This picker and feed rolls are located at the lower end of an upwardly inclined chute 15 leading to a drum 16 mounted at the upper end of the chute. This drum is mounted to rotate about a horizontal axis and in the present construction comprises a foraminous cylindrical screen 17. At the opposite or delivery side of this drum is a pair of feed rollers 18, and a picker roll 19 is on the delivery side thereof. On the other side of the picker roll is a drum 20 which blows the fur over the platform 21 so that it is drawn into the former and deposited on the cone. Means is provided for driving the conveyor 12 and rotating the drum 16 by partial revolutions. In the present case during each operation the drum 16 makes a half revolution, and the driving mechanism for the drum and the conveyor 12 are so constructed and arranged that the conveyor is driven to feed fur to the feed rolls 13 and the picker 14 only when the drum 16 is stationary, and while the drum 16 is making this half revolution the conveyor 12 is stationary so that there is no fur fed to the drum at this time.

It will, of course, be obvious that various driving mechanisms for carrying out this operation may be provided, but by way of illustration I have shown a motor 22, such as an electric motor, belted by means of the belt 23 to a pulley 24 on the main drive shaft 25. Mounted on this shaft are two spaced pulleys 26 and 27 which are loose on the shaft but may be driven therefrom by means of the clutch cones 28 and 29 respectively, which are splined to the shaft and may be moved to engage correspondingly tapered recesses in the hubs of the pulley for driving the same. A fork 30 engages these cones to slide them on the shaft and is mounted on a transversely slidable rod 31 to shift the clutch cones from one pulley to the other. The pulley 26 is connected by a belt 32 to the driving means 33 for the conveyor 12 while the pulley 27 is connected by means of a belt 34 to a counter shaft 35 and from there by means of belt 36 to a pulley driving a gear 37 meshing with another gear 37′ which drives the feed rollers 18. There is also a driving means such as a belt 38 from this driving means to a

pulley 39 on the shaft of the drum 16. The drum shaft also carries a double cam or stop 40 having stop shoulders 41 arranged to engage the end of a bar 42 and hold the drum stationary while the fur is being deposited thereon. This bar is connected to the slidable bar 31 so as to be movable therewith and may be guided by a suitable guide 43. The picker 14 and the feed rolls 13 are driven from the main shaft 25 by means of belts 44 and 45, and the picker 19 and drum 20 are driven from the main shaft through the belt 46. The two pickers are driven constantly while the drum 16 and the conveyor 12 are driven alternately as above described. The driving mechanisms for the drum and conveyor are so arranged that they are controlled personally by the coner to start the drum 16 rotating to feed the fur deposited thereon to the former and at the same time stop the conveyor 12, while automatic means is provided for stopping the drum 16 at the end of a half revolution, that is, after the fur has been transferred therefrom to the former, and to then start the conveyor 12 so that the weight of fur which has been placed thereon will be transferred to and deposited on the drum 16 for the next feeding operation. This control is shown in the drawing as a shaft 47 extending to a position adjacent the coner with a lever 48 which may be controlled by him. The shaft also carries a lever 49 which is connected to the slidable shaft or rod 31 carrying the fork 30. This may be of any suitable connection such as a pin and slot connection 50 and 51. A spring 52 is provided to shift the bar 31 in the opposite direction at the end of the feeding operation.

The operation is as follows: As stated above the pickers 14 and 19 are driven constantly. We will assume the fur for a hat has been deposited on the drum 16 and the coner has removed the previously formed hat from the cone 11 and is prepared to form the next hat. He then throws the lever 48 to shift the rod 31 to the left as viewed in Fig. 2. This withdraws the end of the bar 42 from engagement with the stop shoulder 41 of the cam 40, thus releasing the drum 16, and shifts the cone clutch 28 into engagement with the pulley 27 to drive this pulley and from this pulley, through the belts 34 and 36, to drive the feed rolls 18 and the drum 16 in the direction shown by the arrow A in Fig. 1. At the same time the clutch 29 is moved from engagement with the pulley 26 which drives the conveyor 12. The conveyor 12 thus remains stationary during the rotary movement of the drum 16. While the drum is rotating the fur deposited thereon is fed to the rollers 18 from which it is thrown by the picker to the drum 20 which transfers it to the former. During this rotary movement of the drum 16 the end of the bar 42 rests on the face of the cam 40 and thus retains the bar 31 in the left hand position and the clutch in driving relation with the pulley 27. At the end of the half revolution, or when the fur deposited on the drum 16 has been transferred to the feed rollers 18 and is on its way to the former, the end of the bar 43 drops off the surface of the cam into the path of movement of the next stop shoulder 41 because the bar 31 is shifted to the right as viewed in Fig. 2, by the spring 52. This bar 42 thus stops the rotation of the drum 16 and the clutch cones 28 and 29 are shifted to the right as viewed in Fig. 2, so that the cone 29 will engage the pulley 26. Thus the driving connection to the drum 16 is broken, and the pulley 26 for driving the conveyor 12 is in driving relation with the main shaft 25. Therefore, as soon as the drum 16 stops rotating the conveyor 12 is started moving. While the conveyor 12 was stationary and the fur was being transferred from the drum 16 to the former the boy placed on the stationary conveyor 12 the proper weight of fur for the next hat. Thus as soon as the drum 16 stops rotating and the conveyor 12 starts moving the fur passes through the feed rolls 13 to the picker 14 by which it is thrown up the chute 15 and deposited on the wire screen or drum 16, and this operation is automatic. Therefore, while the coner is removing the previously formed hat from the cone and preparing for the next hat the fur for this hat is being deposited on the drum 16.

The rapid rotation of the picker 14 separates the fur as it comes through the feed rollers 13 and throws it into the chute 15, and the current of air caused by this rapid rotation of the picker upwardly through the chute carries the fur with it and deposits this fur on the screen of the drum 16, the air passing out through the drum. The fur by this arrangement is practically uniformly distributed over the surface of the drum so that on the feeding operation there will be a substantially uniform feed of fur to the former, giving a uniform operation of the former and a better hat.

By this arrangement the boy can weigh out the fur for one hat and place it on the conveyor 12 at any time when this conveyor is stationary, which is the time when the previous hat is being discharged from the drum 16 to the former, and he can then weigh out fur for another machine. As he is not required to watch the machine except to be sure to place the fur on the conveyor only when the conveyor is stationary, he can easily tend two machines while at the present time a boy is required for each machine. It will also be apparent that as soon as one charge of fur on the

drum has been transferred to the former and the drum stopped the next charge, or the charge which has been placed on the conveyor 12, will be automatically transferred to the drum 16 without any further attention. By use of the chute 15 between the conveyor and the drum the usual moving conveyor for carrying the fur from the picker 14 to the picker 19 is omitted, thus greatly simplifying the machine and giving a more reliable operation as the conveyor is very apt to cause trouble in operation. It is a simple matter to feed the required amount of steam to the fur by feeding it into the chute 15. Also, as the stopping of the feeding mechanism is automatic as soon as the charge of fur on the drum has been transferred to the former, the operator does not have to watch the feeding device as carefully as is required in the present construction.

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

1. In a feeder for hat formers, a rotary drum adapted to hold fur, means for transferring fur from said drum to the former, means for rotating the drum, a control for said latter means, and means for feeding fur to the drum only when the drum is stationary.

2. In a feeder for hat formers, a movable holder for fur, means for transferring fur from said holder to the former, means for driving the holder, means for controlling said latter means, and means for feeding fur to the holder only when the holder is stationary.

3. In a feeder for hat formers, a rotary drum adapted to hold fur, means for transferring fur from said drum to the former, means for rotating the drum by a series of partial revolutions, and means for feeding fur to the drum while the drum is stationary.

4. In a feeder for hat formers, a movable foraminous screen adapted to hold fur, means for transferring fur from the screen to the former, means for intermittently moving said screen, and means for causing a current of air through said screen and feeding fur to said current when the screen is stationary.

5. In a feeder for hat formers, a movable foraminous screen adapted to hold fur, means for transferring fur from the screen to the former, means for intermittently moving the screen to deliver the fur to the transfer means, and means for causing a current of air though the screen and feeding fur to the said current for deposit on the screen while the screen is stationary.

6. In a feeder for hat formers, a movable foraminous screen adapted to hold fur, means for transferring fur from the screen to the former, means for intermittently moving the screen to deliver the fur to the transfer means, means for causing a current of air through the screen and means for feeding fur to said current for deposit on the screen, only when the screen is stationary.

7. In a feeder for hat formers, a rotary drum comprising a foraminous screen, means for transferring fur from the drum to the former, means for causing a current of air through the screen and feeding fur to said current for deposit on the screen while the screen is stationary, and means for intermittently rotating the drum to deliver the fur to the transfer means.

8. In a feeder for hat formers, a rotary drum comprising a foraminous screen, means for transferring fur from the drum to the former, means for causing a current of air through the screen, means for rotating the drum in a series of partial revolutions to deliver the fur to the transfer means, and fur to the air current only while the drum is stationary.

9. In a feeder for hat formers, a movable holder for fur, feed rollers associated with said holder, means including a picker for transferring fur from said holder to the former; means for feeding fur to said holder comprising a movable conveyor, feed rolls associated with said conveyor, a picker associated with the feed rollers and a chute leading from the picker to the holder; means for moving the holder to deliver the fur to the first mentioned feed rollers, means for moving the conveyor to deliver fur to the second mentioned feed rollers, and control means to stop the conveyor while the holder is moving and to stop the holder while the conveyor is moving.

10. In a feeder for hat formers, a movable foraminous holder for fur, means for transferring fur from said holder to the former, a movable conveyor, feed rollers associated with said conveyor, a picker associated with the feed rollers, a chute leading from the picker to the holder, means for driving the holder, means for driving the conveyor, and control means for said driving means arranged to stop the conveyor while the holder is moving and to stop the holder while the conveyor is moving.

11. In a feeder for hat formers, a rotary drum comprising a foraminous screen, means for rotating said drum, means for transferring fur from said drum to the former, a movable conveyor, feed rolls associated with the conveyor, a picker roll associated with the feed rolls, a chute leading from the picker to the drum for conveying fur thereto, driving means for intermittently rotating the drum, driving means for the conveyor, and control means for the conveyor driving means arranged to permit movement of the conveyor only while the drum is stationary.

12. In a feeder for hat formers, a movable foraminous holder for fur, means for transferring fur from said holder to the former, a movable conveyor, feed rollers associated with said conveyor, a picker associated with the feed rollers, a chute leading from the picker to the holder, means for driving the holder, means for driving the conveyor, personally operated means for controlling said driving means to advance the conveyor to feed the fur to the transfer means and stop movement of the conveyor, and automatic means to stop the holder after the fur has been transferred and to then start the conveyor.

13. In a feeder for hat formers, a rotary drum comprising a foraminous screen, means for rotating said drum by partial revolutions, means for transferring fur from said drum to the former, a movable conveyor, feed rolls arranged to receive fur from the conveyor, a picker associated with the feed rolls, a chute leading from the picker to the drum, driving means for the drum and the conveyor, personally operated control means for starting the drum and stopping the conveyor, and automatic means for stopping the drum at the end of a partial revolution and starting the conveyor.

In testimony whereof I affix my signature.

HERBERT F. FITCH.