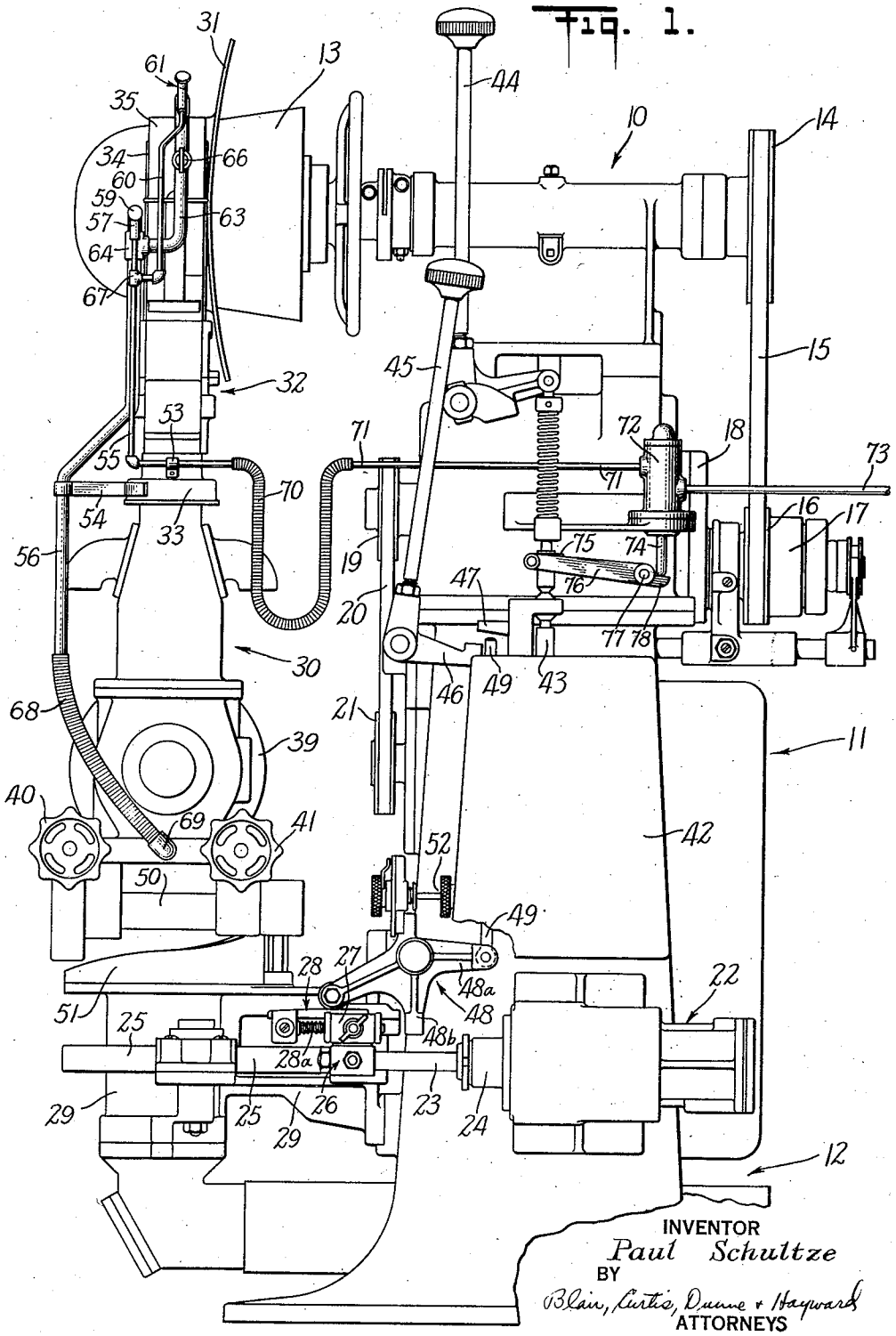
Oct. 28, 1941. P. SCHULTZE 2,260,957

APPARATUS FOR GREASING AND LURING HATS

Filed April 11, 1939 4 Sheets-Sheet 1

Fig. 1.



INVENTOR
Paul Schultze
BY
Blair, Curtis, Dunne & Hayward
ATTORNEYS

Oct. 28, 1941. P. SCHULTZE 2,260,957

APPARATUS FOR GREASING AND LURING HATS

Filed April 11, 1939 4 Sheets-Sheet 2

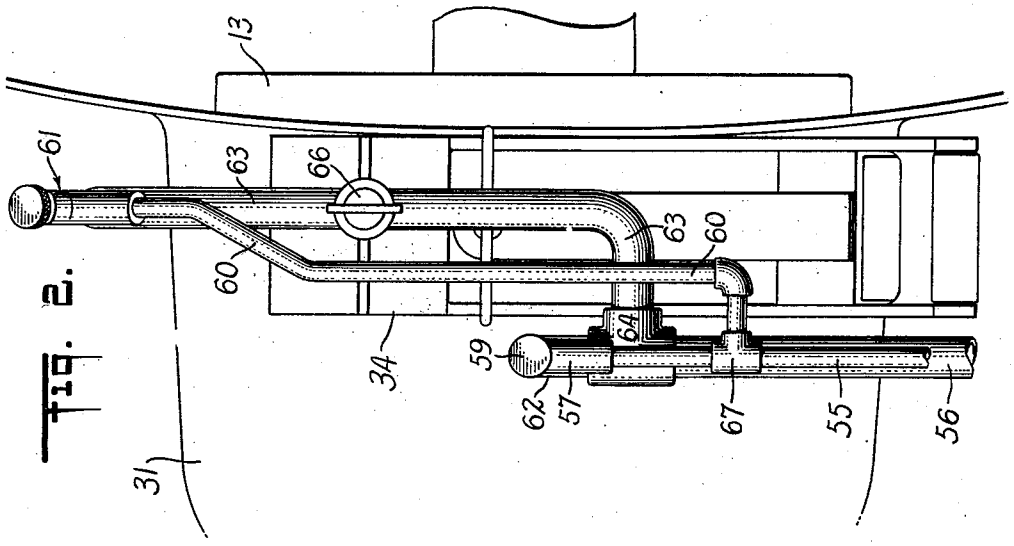


Fig. 2.

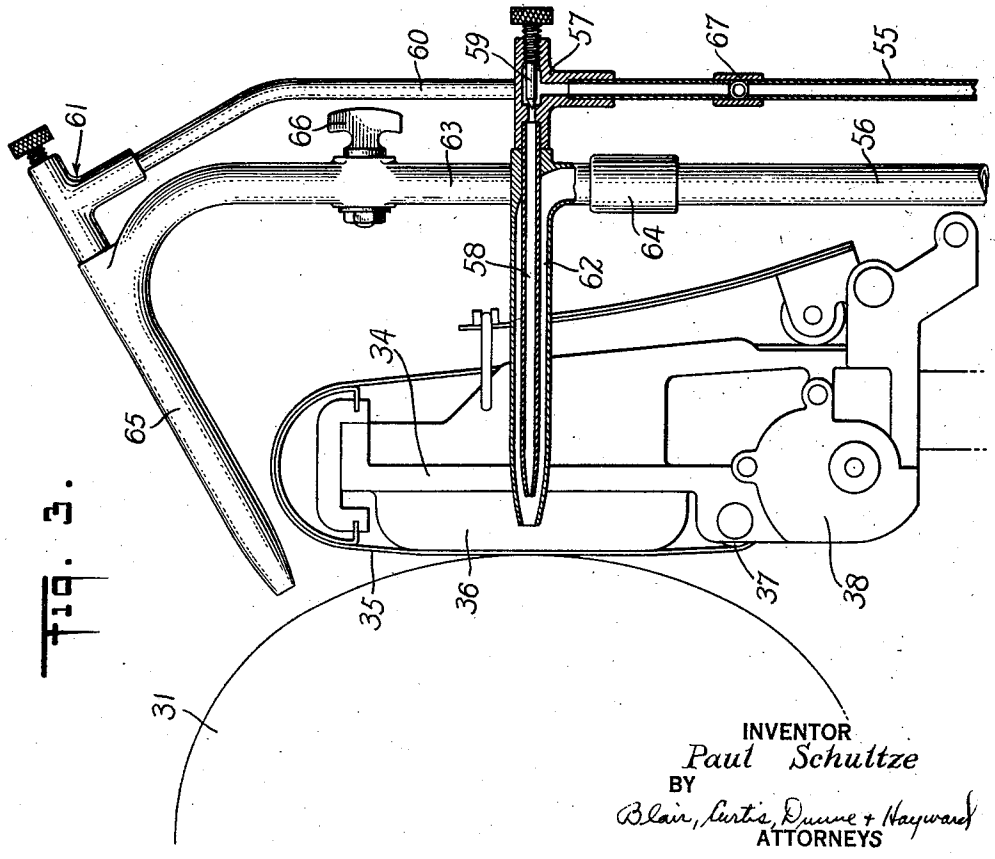


Fig. 3.

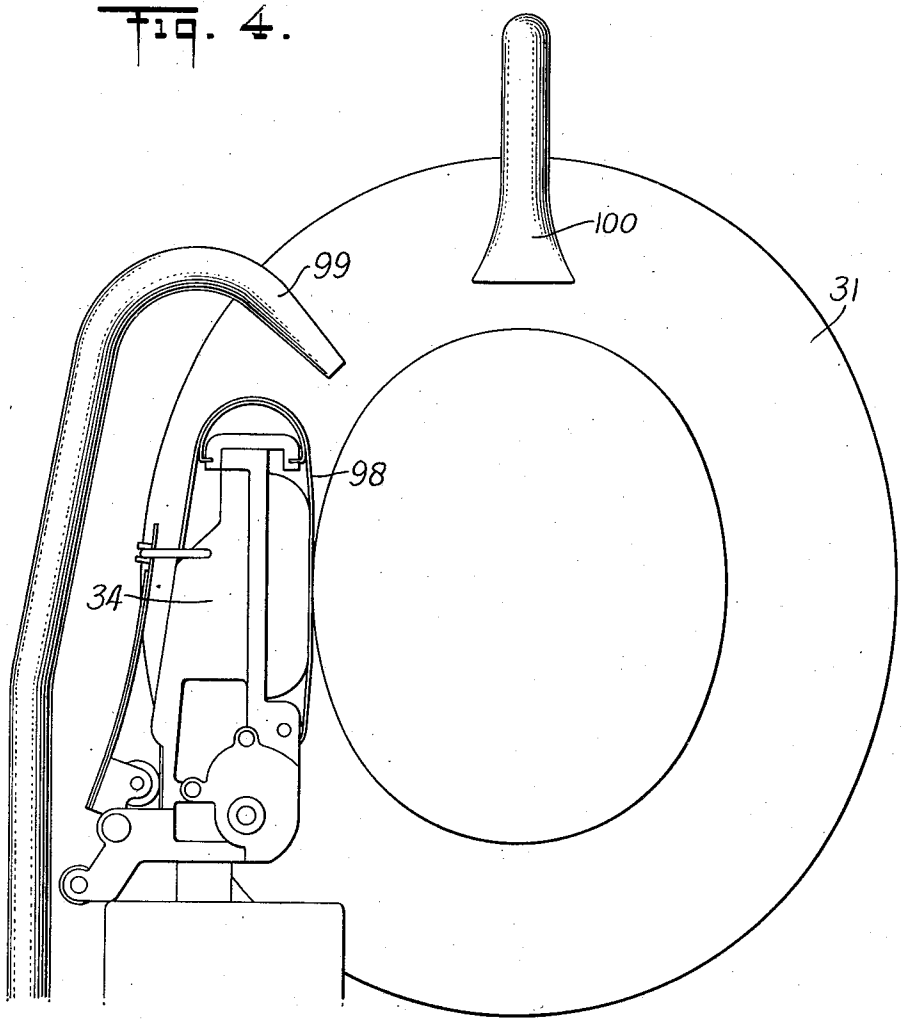
INVENTOR
Paul Schultze
BY
Blair, Curtis, Dunne & Hayward
ATTORNEYS

Oct. 28, 1941. P. SCHULTZE 2,260,957

APPARATUS FOR GREASING AND LURING HATS

Filed April 11, 1939 4 Sheets-Sheet 3

Fig. 4.



INVENTOR
Paul Schultze
BY
Blair, Curtis, Dunne + Hayward
ATTORNEYS

Oct. 28, 1941. P. SCHULTZE 2,260,957

APPARATUS FOR GREASING AND LURING HATS

Filed April 11, 1939 4 Sheets-Sheet 4

Fig. 5.

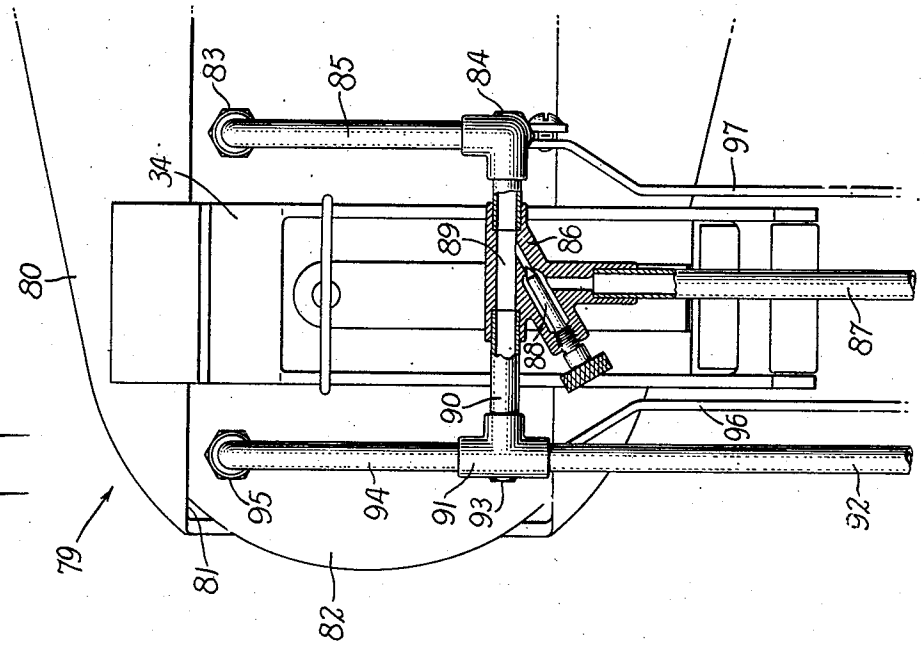
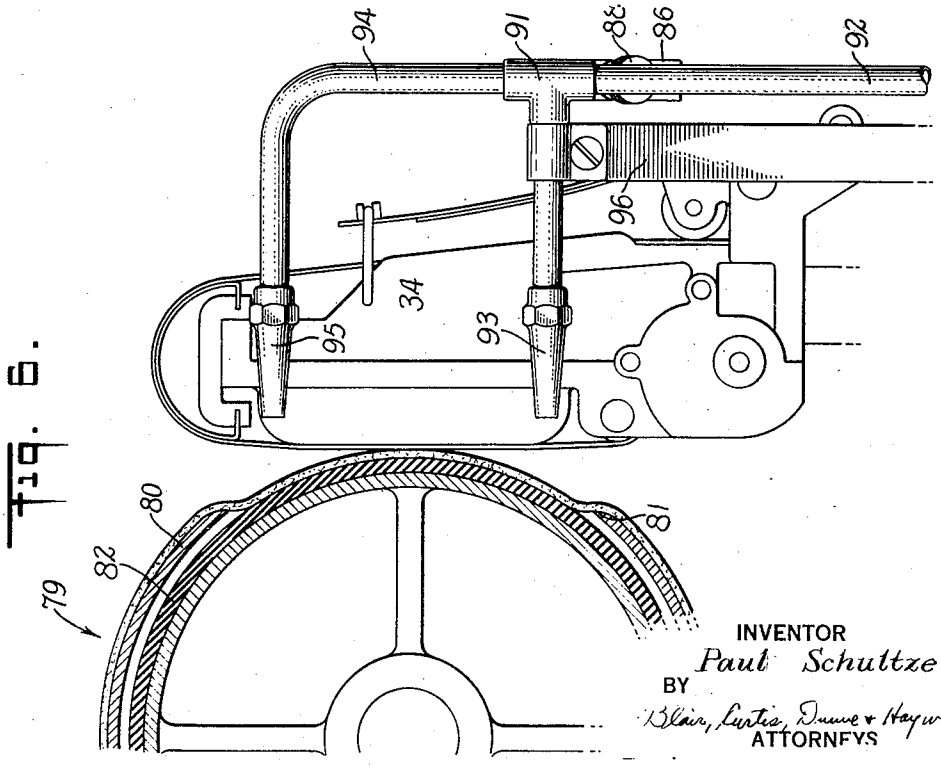


Fig. 6.



INVENTOR
Paul Schultze
BY
Blair, Curtis, Dunne & Hayward
ATTORNEYS

Patented Oct. 28, 1941 2,260,957

UNITED STATES PATENT OFFICE

2,260,957

APPARATUS FOR GREASING AND LURING HATS

Paul Schultze, Danbury, Conn., assignor to Doran Brothers, Incorporated, Danbury, Conn.

Application April 11, 1939, Serial No. 267,224

23 Claims. (Cl. 223—20)

This invention relates to a method of and apparatus for finishing a hat, and more particularly to a greasing and luring machine and a method of greasing and luring.

One of the objects of this invention is to provide a greasing and luring machine which is sturdy and durable under conditions of rigorous use, and which does not necessitate the use of highly skilled labor in operation. Another object is to provide a greasing and luring machine which is capable of efficiently and automatically applying a greasing and luring compound to a hat without producing streaks or spots thereon. Another object is to provide a greasing and luring machine capable of meeting high production requisites and at the same time reducing hat spoilage to a minimum. Another object is to provide a machine of the above nature capable of effecting uniform application of grease or oil to the hat at a substantially constant temperature. Another object is to provide a method of greasing and luring a hat which is not predicated on the experience of highly skilled labor. Another object is to provide a method of the above nature whereby a series of hats is uniformly greased and lured, each hat receiving a uniform amount of grease or oil without the production of streaks and spots thereon. Other objects will be in part apparent and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, arrangements of parts and in the several steps and relation and order of each of the same to one or more of the others, all as will be illustratively described herein, and the scope of the application of which will be indicated in the following claims.

In the drawings, which show several possible embodiments of my invention,

Figure 1 is a side elevation of my machine;

Figure 2 is a fragmentary elevation of the greasing pad and grease applicators of my machine;

Figure 3 is a fragmentary side elevation, partly in section, of the apparatus shown in Figure 2;

Figure 4 is a fragmentary elevation of a modified form of my machine;

Figure 5 is a fragmentary elevation, partly in section, of another modification of my machine; and,

Figure 6 is a fragmentary side elevation of the apparatus shown in Figure 5.

Similar reference characters refer to similar parts throughout the various views of the drawings.

One of the final operations in finishing a felt hat comprises the application of grease or oil thereto. In greasing a hat with conventional apparatus, and by conventional methods, the hat is mounted on a hat block, and as the block is manipulated by the workman, he rubs the hat with hot grease, usually by a heated pad covered with a strip of cloth which acts as a vehicle for the grease. The workman heats the pad by first passing it over a hot iron. Practically all greasing is manually effected by highly skilled workmen of long experience, because a high degree of skill is almost prerequisite for satisfactory greasing. The grease must be hot when applied to the hat, and yet not so hot that its viscosity is such that it can fall in drops from the luring pad and spot the hat. If the grease is not hot enough it streaks the hat when manually applied, regardless of the skill of the workman. Carelessness or lack of skill also causes streaks on the hat as the pad cannot abruptly be applied to the hat without creating streaks or spots. The pad must be applied with gradual pressure and with a sweeping motion because of the dryness and absorptive capacity of the dry hat. Obviously this is a difficult manual operation.

There is considerable difficulty in maintaining the greasing pad against the hat with a uniform pressure, because of the oval contour of the hat. As the greater diameter of the hat passes the greasing pad, the pressure of the pad against the hat tends to increase. If the workman does not relieve the pressure, excessive grease is applied. The reverse of this condition results when the lesser diameters of the hat pass the pad. Unless great care is taken to compensate for these conditions, a blotchy hat results which is useless as a finished product.

Hand greasing, by its nature, is carried on at non-uniform temperatures and pressures, as the pad must necessarily be periodically removed from the hat to be reheated or replenished with grease. This periodic regreasing and reheating of the pad results in non-uniform grease application causing streakiness. Furthermore, after the pad has been applied to the hat it is difficult, if not impossible, to manipulate the pad in a manner to rub the grease into the hat, rubbing being one of the best ways to thoroughly grease the hat without streaking or spotting it.

After the hat has been sufficiently greased it must be lured. The conventional luring methods contemplate manual stroking of the hat in one direction with a dry hot cloth to lay the nap of the hat in one direction. This method, as well as the apparatus employed in its practice is subject to the same objections as noted with respect to the greasing operation, i. e. considerable manual skill is prerequisite, high production is impossible, and imperfect luring is the rule, rather than the exception, because of temperature and pressure variations and the fallibility of manual labor as compared with automatic machinery.

Accordingly, it is another object of this invention to provide a greasing and luring machine

and a method of greasing and luring which overcomes the above difficulties in a thoroughly practical and efficient manner.

Referring now to Figure 1, my machine in general comprises a head, column and base generally indicated at 10, 11 and 12, respectively. Head 10 forms a bearing for a spindle, one end of which carries a hat block 13, and the other end of which carries a pulley 14 which is driven by a belt 15 trained around a pulley 16 which comprises a portion of a clutch 17. Clutch 17 has a driving connection with a motor 18 which also drives a pulley 19 connected by a belt 20 to a lower pulley 21. Pulley 21 is provided to drive an oil pump (not shown) suitably mounted within column 11. Thus motor 18 rotates hat block 13 through its operative connection thereto by clutch 17, pulley 16, belt 15, pulley 14 and the spindle in head 10. Reference to my Patent No. 2,137,250 issued November 22, 1938, will afford a more complete description of the details of construction and operation of these various parts.

Base 11 has secured preferably to the side thereof a hydraulic cylinder and piston generally indicated at 22. A piston rod 23 extends from within the cylinder through a gland 24, and has secured to its outer end a rack 25 as by a coupling generally indicated at 26. Coupling 26 also provides a mount 27 for a traverse control cam generally indicated at 28, the specific nature and operation of which will be gone into in greater detail hereinbelow.

A heavy bracket 29 (Figure 1) is suitably bolted to base 12 and comprises a mount which pivotally supports a tool assembly generally indicated at 30. For specific details of the structure by which the pivotal relation between tool assembly 30 and bracket 29 is effected, reference is made to my Patent No. 2,105,130 issued January 11, 1938. Rack 25 is connected by suitable gearing (not shown) to tool assembly 30 so that upon reciprocation of the rack, tool assembly 30 is pivoted about its axis to traverse the crown of a hat 31 mounted on block 13 in a path generally extending between the tip and brim of the hat.

A tool head generally indicated at 32 (Figure 1) is similar in nature to the tool head disclosed in my Patent No. 2,137,250 referred to above, and accordingly includes a bearing portion 33 whereby the tool head is freely swivelable in relation to the lower portion of tool assembly 30. Thus the tool head traverses the crown of hat 31 and is also freely swivelable in relation thereto. Tool head 32 includes a greasing and luring pad 34, about which, as is better shown in Figure 3, a strip 35 of cloth is held. Preferably cloth 35 is fed from a suitable roll (not shown) over the face of a relatively soft pressure pad 36 and over a guide roll 37 to mechanism (not shown) which is housed in a small casing 38. In so far as the mechanism for feeding cloth 35 over the pad 34 is concerned, such mechanism is substantially similar to that shown in my Patent No. 2,137,250. Thus, upon traversal of pad 34 over the crown of hat 31, cloth 35 is periodically fed over the pad as described in my aforesaid patent.

During the traversal of pad 34 (Figure 1) rapid rectilinear reciprocation is imparted to the pad by mechanism housed within tool assembly 30 and driven by a motor 39 mounted thereon. The specific nature of the pad driving mechanism is disclosed in my Patent No. 2,137,250.

As has been noted hereinbefore, it is desirable during the greasing of the hat that the pad be moving transversely to its direction of approach toward the hat at the moment it touches the rotating hat to avoid spotting or streaking the hat. Furthermore, it is desirable that the pressure with which the pad bears against the hat be maintained at a substantially uniform rate as the pad traverses the hat. The above-described mechanism is well adapted to this end by reason of the reciprocatory movement of the pad, and by reason of the tension and tension relief springs (not shown) which force pad 34 against the hat with an adjustable uniform pressure. These springs are controlled by knobs 40 and 41, and the structure and operation of the springs and the knobs is specifically described in my above-noted Patent No. 2,137,250. Also where oval hats are being greased I prefer to use an oval head assembly, e. g., such as is shown and described in my United States Patent No. 2,105,130, to neutralize the eccentric effect of the various diameters of a rotating oval hat.

My above-noted patents also specifically describe the hydraulic mechanism and control therefor briefly alluded to hereinabove, and accordingly this mechanism will be but briefly touched on herein.

As before noted, column 11 houses an oil pump, and this pump is suitably connected to a sump in base 12 and to control valves (not shown) which are housed within a cover 42. One of these valves is a reversing valve which has a stem, the upper portion of which is shown at 43, stem 43 being connected as described in my above-noted patents to a starting lever 44. While the reversing valve is capable of automatic actuation, I also provide a manually operable reversing lever 45 suitably connected to a bell crank 46 and capable of engaging a latch 47 to accomplish manual operation of the reversing valve to effect reversal of fluid flow to cylinder 22. Automatic actuation of reversal valve is accomplished by a bell crank generally indicated at 48, one arm 48*a* of which is connected to a rod 49, the upper end of which may engage latch 47 for the purpose described. Another arm 48*b* of bell crank 48 is engageable by traverse control cam 28 and it is this engagement which effects automatic operation of the reversing valve. Thus, when lever 44 is pivoted to the right, as shown in Figure 1, valve stem 43 is depressed so that the reversing valve permits flow of fluid to cylinder 22 in a manner to force piston rod 23 and accordingly rack 25 to the right. This effects traversal of tool assembly 30 and accordingly pad 34 about the hat crown from brim to tip thereof.

Inasmuch as the contour of the crown of hat 31 is not perfectly circular, provision is made for moving tool assembly 30 and accordingly pad 34 radially with respect to the hat. To this end the tool assembly is pivotally mounted on a heavy stud 50 and accordingly the assembly and pad may swing toward and away from the hat under the bias of the springs, referred to above, controlled by knobs 40 and 41. My aforesaid patents describe this structure in detail. The swinging movement of the tool assembly and pad, however, should preferably be guided and therefore I provide a cam 51 of suitable contour which coacts with a roller (not shown) fixed to the lower portion of tool assembly 30. As this roller rolls over the upper surface of cam 51, the position of pad 34 with respect to the crown of hat 31 is controlled so that the pad engages the hat only in the places and at the periods desired. In my aforesaid patents the cams analogous to cam 51 are so contoured that the tool does not

engage the hat until it has been traversed substantially to the tip thereof, thereafter being in engagement with the hat as it traverses the hat from the tip to the brim, and thence back to the tip. In greasing and luring certain types of hats, however, it is preferable that the pad first engage the brim portion of the hat so that in the event spotting or streaking occurs when the luring pad first engages the hat, such discoloration of the hat will occur only at that portion subsequently covered by the band. Accordingly, cam **51** is contoured with this in mind, and as it is undesirable in many instances for the pad to traverse the hat through 180°, the traverse control cam **28** is so formed as to limit traverse of the tool assembly **30** and pad **34** to 90° starting from the brim or band portion of the hat. This is readily accomplished by an adjustment of cam **28** afforded by a threaded portion **28***a* thereof which is adjustable through cam mount **27**.

However, where initial greasing of the hat at the tip thereof is unobjectionable, cam **28** may be set up to control traversal of the luring pad in substantially the manner described in my aforesaid patents. In such a case, pad **34** moves at a substantially rapid rate of speed from a retracted position opposite the band portion of the hat toward the tip thereof, then engages the hat and traverses it from tip to brim and back again at operative speed and thence is disengaged from the hat and returned it to its original retracted position at a relatively rapid rate, the variation in feed rate of the luring pad being effected automatically by the contour of the upper face of cam **28** acting through bell crank **48** to actuate a metering valve housed under cover **42**, a portion of this valve being shown at **52**.

In conventional greasing operations, the grease or oil is manually applied to the hat by a heated pad which has previously been coated with oil or rubbed over a cake of grease. Under these conditions it is clear that under even the most favorable conditions the amount of grease or oil on the pad is variable, and the temperature at which the grease is applied to the hat cannot be uniform, as the pad must periodically be replenished with grease or oil and heat. These conditions of non-uniform grease application and temperature of application not only limit production, but also preclude the use of relatively unskilled labor and result in substantial hat spoilage. To the preclusion of these difficulties the structure to be now described is directed.

As shown in Figure 1, tool head **31** has secured thereto a pair of brackets **53** and **54** which respectively carry an oil or grease pipe **55** and an air pipe **56**. As shown in Figure 3, oil pipe **55** communicates with an atomizer head or fitting **57** which carries an atomizer **58** and a needle valve **59**. Oil pipe **55** is connected to an upper oil pipe **60** by a fitting **67**, the upper oil pipe being connected to a second atomizer generally indicated at **61**, substantially similar to that just described. Air pipe **56** parallels oil pipe **55** to fitting **57**, at which point a jet **62** is taken off, atomizer **58** being disposed in this jet. As shown in Figure 2, jet **62** extends toward the crown of hat **31** at the left-hand side of pad **34**, the end of the jet being slightly spaced from the hat crown (see Figure 3) adjacent the point at which the crown is engaged by pad **34**. An upper air pipe **63** is connected to lower air pipe **56** by a fitting **64** and extends upwardly of pad **34** preferably substantially centrally thereof, and terminates in an upper jet **65**, the end of which is spaced from hat **31** similarly to the spacing of jet **62** therefrom. If desired, upper air pipe **63** may be provided with a shut-off valve **66**.

As shown in Figure 1, air pipe **56** is connected by a flexible tubing **68** to a pipe **69** which, in turn, is connected in any suitable manner to a source of compressed air (not shown). Between flexible tubing **68** and the source of compressed air, I provide a heater (not shown) of any suitable type, which heats the compressed air flowing through the air pipes described. Oil pipe **55** is connected by a flexible tube **70** to a pipe **71** connected to a shut-off valve **72** secured to the column of the machine. A pipe **73** leading from a suitable source of oil or grease is connected to the input side of valve **72** and thus grease is supplied to atomizers **57** and **61**.

During the greasing operation air heated to a suitable temperature is blown against the hat by jets **62** and **65** (Figure 3) and by reason of the atomizers in these jets finely dispersed drops of grease or oil are blown in a cloud against the hat adjacent the pad. It will now be seen that upper jet **35** blows the atomized grease against the band portion of the hat, and jet **62** blows atomized grease against the hat immediately in front of pad **34** as the pad traverses the hat during the greasing thereof. The amount of atomized grease is easily and accurately controlled by adjustment of the needle valves in atomizers **57** and **61**, and it will be apparent that atomizing pressure and air temperature may also easily be controlled. Thus greasing may be effected by unskilled labor under predetermined conditions of temperature, atomization and pad pressure, and grease application, thus assuring uniform high production greasing and minimum spoilage. By reason of the rapid rectilinear reciprocation of pad **34**, the luring compound is rubbed into the hat rather than spread thereon as by conventional methods, and the hat surface is thus further improved.

It is desirable that feed of grease start shortly before the pad is applied to the hat, and stop at the reversal of traverse of the pad. To this end valve **72** referred to above is provided. Valve **72** may be a conventional type of automatic valve having a spring impelled plunger (not shown) connected to a stem **74** extending from the bottom of the valve. A collar **75** on the upper end of reversal valve stem **43** suitably engages one end of a lever **76** pivoted at **77** to column **11** of the machine. Lever **76** has a free end **78** which is positioned under valve stem **74** of valve **72** so that operation of lever **76** affects the operative condition of valve **72**. Thus, when starting lever **44** is swung to the right, as viewed in Figure 1, to start the machine, counterclockwise motion of lever **76** results, causing upward movement of valve stem **74** to effect communication between grease pipes **73** and **71**. This permits the flow of grease or oil under pressure to atomizers **57** and **61**. When the operation cycle is over, reversing valve stem **43** is released by latch **47** upon engagement thereof by rod **49** to effect clockwise movement of lever **76**. This permits stem **74** to drop, closing valve **72** to break the connection between oil pipes **73** and **71**. Thus, when the machine is not operating, grease cannot be atomized. If desired, similar valving may be provided for the air lines, so that the air will be shut off automatically after the pad has completed one half of its traversing cycle.

For greasing unblocked hats or hats of considerable depth and which do not have flat brims

such as provided on men's hats, I have provided a modified form of apparatus as shown in Figures 5 and 6. In this form I utilize a pneumatic hat support generally indicated at 79 which includes generally a stationary hood 80 provided with a slot 81 and within which a hat block 82 rotates. This type of hat support is shown and described in detail in my copending application, Serial No. 226,442, filed August 24, 1938.

As shown in Figure 5, pad 34 is arranged to traverse hat support 79 along a path which follows slot 81. Preferably pad 34 first engages the hat during the greasing operation at the tip thereof and operates toward the brim. The grease or oil is applied to the hat by a pair of jets 83 and 84 connected by a pipe 85, both jets being connected to a fitting 86 which is in turn connected to an oil or grease pipe 87. Fitting 86 includes a needle valve 88 which is operable to control the amount of oil passing through the fitting into a channel 89 formed therein, channel 89 being in communication with jets 83 and 84.

Channel 89 is also connected as by a pipe 90 to a T 91 connected to an air pipe 92. As is better shown in Figure 6, a lower air jet 93 is connected to a T 91, and an upper pipe 94 also connected to a T 91 terminates in an upper air jet 95. Air jets 93 and 95 are supported in any suitable manner adjacent the left-hand side of pad 34 as viewed in Figure 5 as, for example, by a strut 96 or the like, see also Figure 6. A somewhat similar strut 97 (Figure 5) is utilized to support jets 83 and 84.

Oil pipe 87 and air pipe 92 are respectively connected to sources of oil and air under pressure, substantially as described with respect to oil and air pipes 55 and 56 (Figure 1).

In operation, heated air under suitable pressure flows through pipe 92, through jets 93 and 95, and into fitting 86 by way of pipe 90 and fitting channel 89. As the heated air flows through the fitting, it picks up the grease or oil which flows past needle valve 88 and forces it in finely dispersed form through jets 83 and 84 against the hat body in advance of the pad 34 with respect to its direction of traverse over the hat. As the grease is applied to the hat, it is rubbed into the surface thereof by pad 34, as before described.

The apparatus shown in Figures 1, 2, 3, 5 and 6 is as useful for luring the hat as it is for greasing the hat. Thus, after the hat has been greased as described, clean, dry cloth may be fed over the pad, the reciprocation of the pad stopped, the feed of grease or oil shut off and the pad, stationary with respect to its reciprocal action, traversed over the rotating hat. As the hot air is still being blown against the hat at uniform temperature, and as the pad bears against the hat at a constant pressure while traversing it, the hat is rapidly and efficiently lured under circumstances impossible to approximate in the manual methods referred to.

Under certain circumstances it may be undesirable to atomize grease or oil and blow it against the surface of the hat. Under such circumstances, I provide the apparatus shown in Figure 4, wherein pad 34 carries a cloth strip 98 which is impregnated with grease or other suitable compound. Impregnated cloth 98 is fed over pad 34 during operation of the pad as noted above with respect to cloth 35. In this modification, the hat is heated by a pair of air jets 99 and 100 connected in any suitable manner to a source of heated air. Jet 100 is stationary and is located adjacent the brim of the hat so as to direct hot air toward the band portion only thereof. Jet 99 on the other hand traverses the crown of hat 31 with pad 34 and thus heats the hat as the impregnated cloth 98 is rubbed thereagainst. Preferably jet 99 is arranged at the rear of pad 34 substantially centrally thereof and curves over the top of the pad so that the outlet end of the jet directs the heated air against the hat crown in advance of the engagement thereof by pad 34.

It will now appear that I have provided a method of and apparatus for greasing and luring a hat which attains the various objects referred to in a thoroughly efficient and practical manner.

As many possible embodiments may be made of the mechanical features of the above invention and as the art herein described might be varied in various parts, all without departing from the scope of the invention, it is to be understood that all matter hereinbefore set forth, or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a machine of the character described, in combination, a rotatable hat support, a tool support, a greasing tool operatively mounted on said tool support, means for effecting relative movement between said supports whereby a hat mounted on said hat support is greased between the tip and brim thereof, and means disassociated from said tool for heating said hat.

2. In a machine of the character described, in combination, a rotatable hat support, a tool support, a greasing tool operatively mounted on said tool support, means for effecting relative movement between said supports whereby a hat mounted on said hat support is greased between the tip and brim thereof, and means for directing a heating medium against said hat during operation of said greasing tool.

3. In a machine of the character described, in combination, a rotatable hat support, a tool support, a greasing tool operatively mounted on said tool support, means for effecting relative movement between said supports whereby a hat mounted on said hat support is greased between the tip and brim thereof, and means movable with one of said supports for heating said hat as it is operated on by said tool.

4. In a machine of the character described, in combination, a rotatable hat support, a tool support, a greasing tool operatively mounted on said tool support, means for effecting relative movement between said supports whereby a hat mounted on said hat support is greased between the tip and brim thereof, and means including a stationary member for directing a heating medium against said hat during operation of said tool thereon.

5. In a machine of the character described, in combination, a rotatable hat support, a tool support, a greasing tool operatively mounted on said tool support, means for effecting relative movement between said supports whereby a hat mounted on said hat support is greased between the tip and brim thereof, and means including a plurality of jets adapted to direct streams of heated fluid against said hat during operation of said tool thereon.

6. In a greasing machine, in combination, a pad, a roll of impregnated greasing material as-

sociated with said pad, means for feeding said material over said pad, and heating means adapted to cooperate with said pad in greasing a hat.

7. In a greasing machine, in combination, a pad, a roll of impregnated greasing material associated with said pad, means for feeding said material over said pad, and heating means disassociated from said pad and adapted to cooperate therewith in greasing a hat.

8. In a machine for greasing a hat, in combination, a pad, a roll of impregnated greasing material associated with said pad, means for feeding said material over said pad, and means for directing a heating medium against the hat to cooperate with said pad in greasing the hat.

9. In a machine for luring a hat, in combination, a pad, a roll of impregnated greasing material associated with said pad, means for feeding said material over said pad, and a plurality of jets adapted to direct streams of a heating fluid against a hat during operation thereon by said pad.

10. In a luring machine, in combination, a pad, a roll of luring material associated with said pad, means for feeding said material over said pad, and a plurality of jets symmetrically arranged with respect to said pad and adapted to direct streams of a heated fluid against the surface of a hat being operated on by said pad.

11. In a machine for greasing a hat, the combination of pipe means for blowing a stream of a heated fluid under pressure against the surface of the hat, means for applying a greasing compound on said hat surface, and means for rubbing said greasing compound into said hat surface.

12. In a machine for greasing a hat, the combination of means for directing a heating medium against the surface of the hat, means for applying a stream of atomized greasing compound on said hat surface, and means for rubbing said greasing compound into said hat surface.

13. In a machine for greasing a hat, the combination of a rotatable hat support adapted to support a hat, a greasing tool operatively associated with said support, means for effecting relative movement between said tool and said support, means located at one side of said tool and adapted to direct a heating medium against the surface of said hat, means located on the other side of said tool for applying a greasing compound on said hat, and means for operating said tool to rub said greasing compound into said hat during the relative movement between the hat support and tool.

14. The herein described art which includes the steps of directing a heating medium against a hat to heat the hat substantially above room temperature, spraying a greasing compound on said hat, and thereafter rubbing said greasing compound into said hat between the tip and brim portions thereof, the application of the greasing compound preceding the rubbing.

15. In a machine of the character described, in combination, a rotatable hat support, a tool support, a tool operatively mounted on said tool support and adapted to engage a hat mounted on said hat support, means for effecting relative movement between said supports whereby said hat is treated by said tool between the tip and the brim of the hat, means disassociated from said tool for applying grease to the hat only while said tool engages said hat, and means for heating said hat during the application of grease thereto.

16. In a machine of the character described, in combination, a rotatable hat support, a tool support, a tool operatively mounted on said tool support and adapted to engage a hat mounted on said hat support, means for effecting relative movement between said supports whereby said hat is treated by said tool between the tip and the brim of the hat, and means for spraying hot atomized grease on said hat during the engagement of said tool therewith.

17. In a machine of the character described, in combination, a rotatable hat support, a tool support, a tool operatively mounted on said tool support and adapted to engage a hat mounted on said hat support, means for effecting relative movement between said supports whereby said hat is treated by said tool between the tip and the brim of the hat, a grease atomizer secured to said tool support adjacent said tool, means for forcing finely divided grease through said atomizer, and means for heating said hat during the greasing thereof.

18. In a machine of the character described, in combination, a rotatable hat support, a tool support, a tool operatively mounted on said tool support and adapted to engage a hat mounted on said hat support, means for effecting relative movement between said supports whereby said hat is treated by said tool between the tip and the brim of the hat, a grease atomizer for spraying grease on said hat, and means for supplying grease to said atomizer only during the operative engagement between said tool and said hat.

19. In a machine of the character described, in combination, a pad, a supply of material impregnated with grease associated with said pad, means for feeding said material over said pad, and a heating jet associated with said pad and adapted to direct a stream of hot air against the surface of a hat as it is operated on by said pad.

20. In a machine of the character described, in combination, a grease impregnated pad adapted to operate on a hat, a heating jet associated with said pad, and means for forcing heated air through said jet against said hat as it is operated on by said pad.

21. The herein described art which includes the steps of heating the hat to be treated, spraying the heated hat with grease, and at the same time rubbing the grease into the hat and continuing the rubbing of the grease into the hat at a uniform speed and pressure between the brim and crown portions of the hat.

22. The herein described art which includes the steps of heating the hat to be greased, engaging the hat with a tool and at the same time spraying a greasing compound on the hat, rubbing the hat with the tool at a uniform speed and pressure between the brim and crown portions thereof, and removing the tool from the hat while at the same time stopping the spray of grease thereon.

23. The herein described art which includes the steps of directing a blast of hot air against the hat to be heated, engaging the hat with a greasing pad and at the same time spraying grease on the hat, and treating the hat with the greasing pad between the brim and crown portions of the hat.

PAUL SCHULTZE.