June 2, 1964 J. E. OLSEN ETAL 3,135,355

CONVEYOR LUBRICATING APPARATUS

Filed March 26, 1962 4 Sheets-Sheet 1

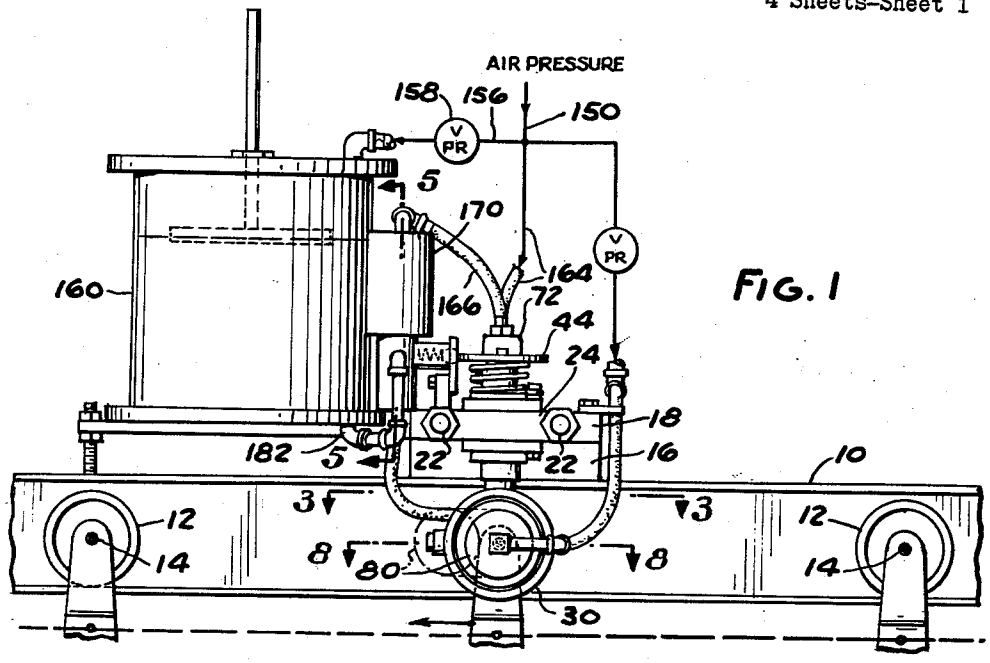

FIG. 1

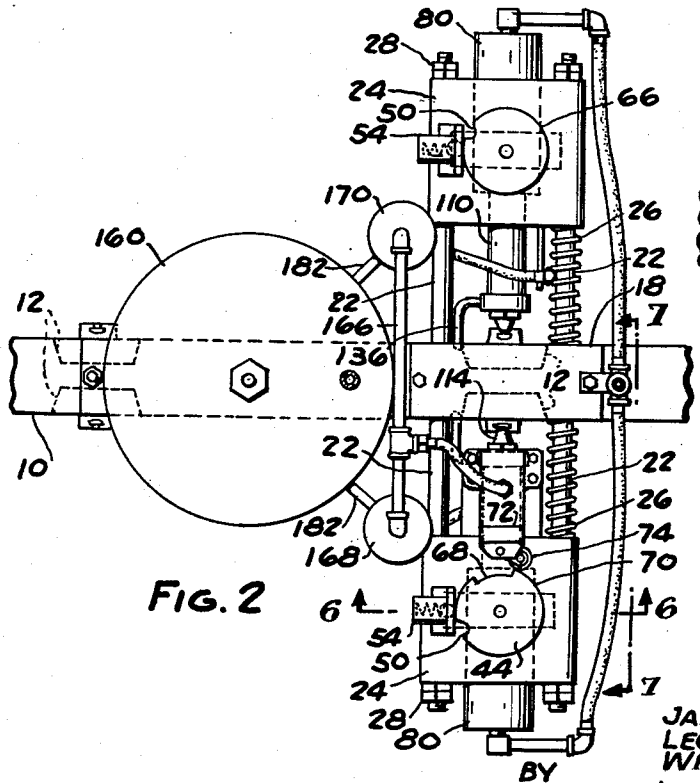

FIG. 2

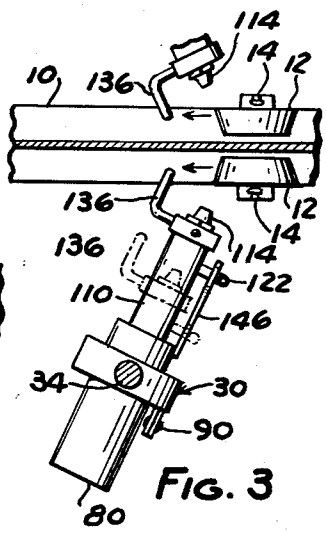

FIG. 3

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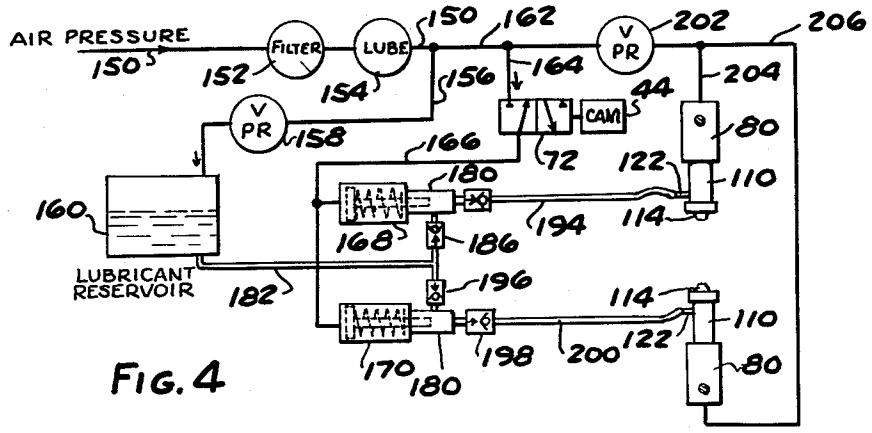

FIG. 4

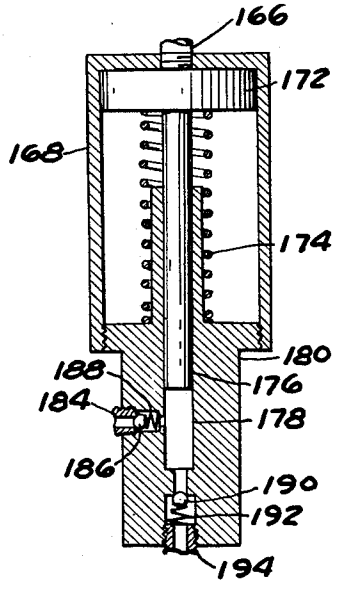

FIG. 5

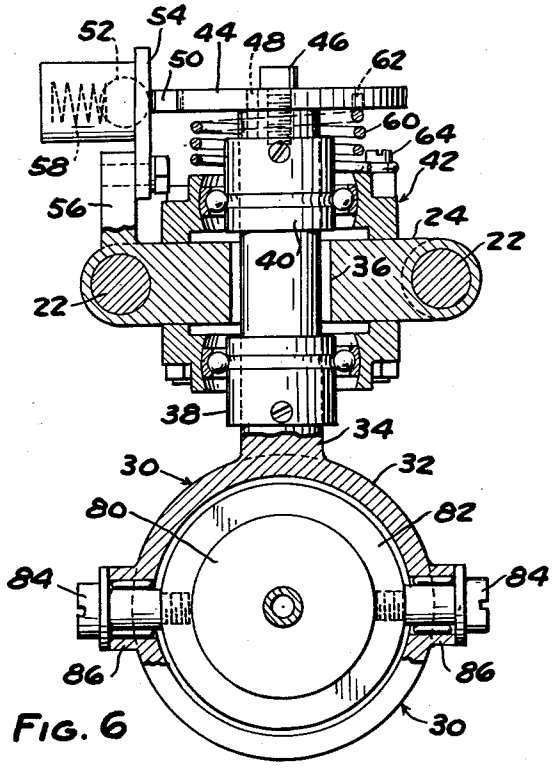

FIG. 6

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CONVEYOR LUBRICATING APPARATUS

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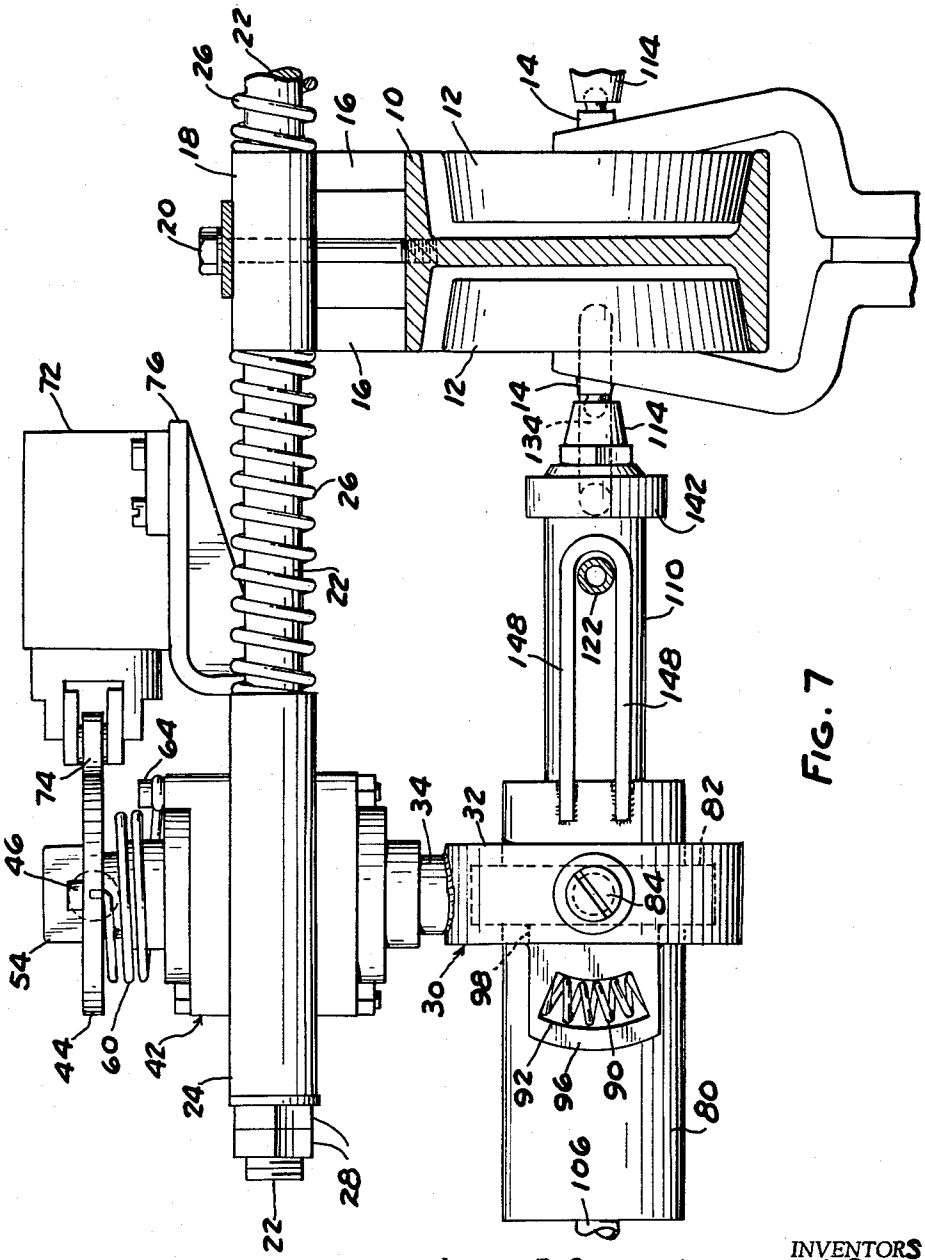

FIG. 7

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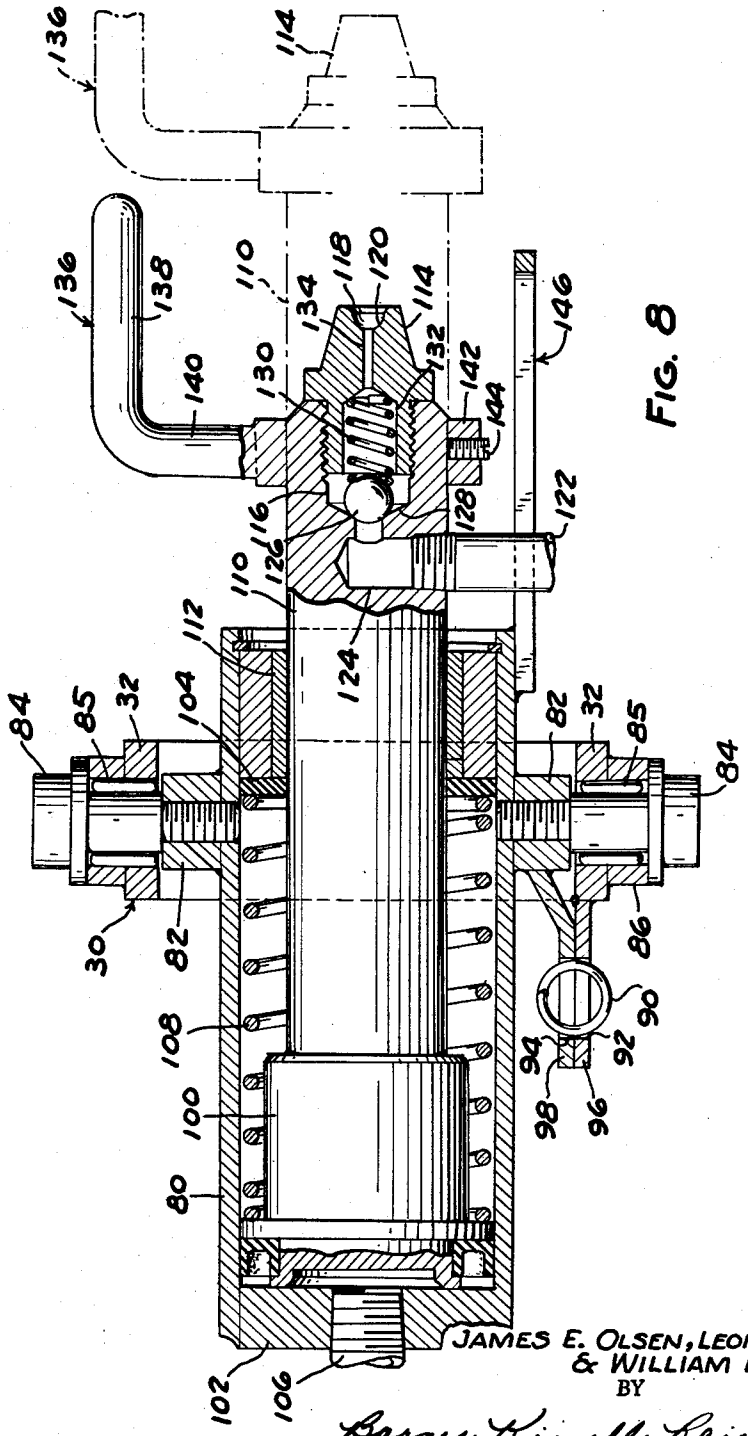

FIG. 8

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3,135,355

Patented June 2, 1964

3,135,355

CONVEYOR LUBRICATING APPARATUS

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Filed Mar. 26, 1962, Ser. No. 182,473
10 Claims. (Cl. 184—15)

This invention relates to lubricating apparatus and more particularly to lubricating apparatus for automatically lubricating conveyors or the like.

It is an object of the present invention to provide an improved automatic conveyor lubricating apparatus which is relatively lightweight, simplified in construction and highly versatile in use.

Another object is to provide an improved lubricating apparatus of the above character which requires only one lubricating nozzle and yet which is capable of lubricating a continuous succession of conveyor lubricant fittings moving at a relatively rapid rate.

A further object is to provide an improved lubricating apparatus of the above character having a lubricating head which is trunnion mounted from a support located adjacent the path of travel of the conveyor, the head being balanced so that upon interengagement of the nozzle with the conveyor lubricant fitting there is a minimum of resistance to movement of the head due to inertia and moment arms of the apparatus.

Still another object is to provide improved lubricating apparatus of the above character which requires only one piston and cylinder assembly, this assembly providing both support for a lubricating nozzle in retracted and operative positions thereof relative to the conveyor and resilient engagement of the nozzle with the lubricant fitting so that the nozzle can retract slightly as the lubricant fitting approaches and moves past the lubricating apparatus.

Other objects, features and advantages of the lubricating apparatus of the present invention will become apparent in the following description and drawings in which:

FIG. 1 is an elevational view of a lubricating device constructed in accordance with the present invention mounted on top of a conveyor rail of a conventional overhead conveyor.

FIG. 2 is a plan view of the lubricating device of FIG. 1 with the lubricating heads thereof illustrated in their lubricant injection position.

FIG. 3 is a fragmentary plan view taken partially in section on the line 3—3 of FIG. 1 illustrating the dual lubricating heads in their operative pick-up position.

FIG. 4 is a schematic illustration of the pneumatic actuating and lubricant supply systems of the lubricating device.

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 1.

FIG. 6 is a sectional view taken on the line 6—6 of FIG. 2.

FIG. 7 is a side elevational view taken partially in section on the line 7—7 of FIG. 2.

FIG. 8 is a sectional view taken on the line 8—8 of FIG. 1.

Referring to FIG. 1, a dual mount automatic conveyor lubricator of the present invention is shown mounted on

a conveyor rail 10 of a conventional overhead conveyor provided with trolley wheels 12 each having laterally projecting hydraulic type lubricant fittings 14. As is customary, conveyor wheels 12 are arranged in pairs opposite one another, one on each side of conveyor rail 10 (FIG. 2), and therefore the lubricating apparatus is arranged to straddle conveyor rail 10. One lubricating head is mounted on each side of the rail for lubricating the bearings of each pair of wheels as they travel past the lubricating station.

The supporting structure for the lubricating apparatus comprises a pair of spacer blocks 16 (FIGS. 1 and 7) mounted on the upper surface of rail 10, a center block 18 mounted on spacer blocks 16 and secured to rail 10 by a pair of bolts 20, and a pair of parallel carrier bars 22 mounted in through-bores of block 18 so as to extend transversely of the path of travel of the conveyor above the elevation of conveyor rail 10. A carrier 24 is slidably mounted near the outer ends of each pair of bars 22 (FIG. 2), carrier 24 being biased away from rail 10 by a compression coil spring 26 wound around one of the carrier bars 22 between block 18 and carrier 24. The outer ends of bars 22 are threaded to receive a pair of lock nuts 28 to provide an adjustable stop for each carrier 24.

A complete lubricating head assembly is supported by each carrier 24 and comprises (FIGS. 6 and 7) a yoke 30 consisting of a ring 32 and a shaft 34 extending radially from the outer circumference of ring 32 upward through a center bore 36 of carrier 24. A pair of bearing collars 38 and 40 are adjustably secured to shaft 34 and are peripherally grooved to provide an inner race co-operative with a conventional self-aligning, ball bearing assembly 42 to support yoke 30 for rotation about the axis of shaft 34.

A locking and camming disc 44 is secured to the upper end of shaft 34 by a cap screw 46 and key pin 48. The periphery of disc 44 has a detent recess 50 adapted to receive a spring-urged detent ball 52 (FIGS. 2 and 6). Ball 52 is mounted in a socket of a bracket 54 bolted to a lug 56 of carrier 24, and a coil compression spring 58 urges ball 52 into rolling contact with the periphery of disc 44. Disc 44 is angularly adjusted relative to yoke 32 so that the yoke is yieldably locked against rotation by detent 52 when the lubricating head is aligned in the angled pick-up position illustrated in FIG. 3.

A helical torsion spring 60 is wound around the upper end of shaft 34 and is secured at its upper end in a hole 62 in the underface of disc 44 and at the lower end to one of the bolts 64 of bearing assembly 42. Torsion spring 60 is wound so as to exert a clockwise torque on disc 44 as viewed in FIG. 2, while the corresponding torsion spring of the opposite lubricating head assembly is wound to exert a counterclockwise torque on the corresponding locking disc 66 associated therewith.

Disc 44 has an additional recess 68 (FIG. 2) in the outer periphery 70 thereof, these peripheral camming surfaces 68, 70 serving to actuate a conventional air valve 72 via a cam follower roller 74 thereof. Valve 72 is supported on a bracket 76 affixed to carrier 24 (FIG. 7).

Each lubricating head assembly requires only one air cylinder 80 (FIGS. 6 and 7) which is suspended for pivotal movement within yoke ring 32 by a ring 82 which is supported for rotation about an axis perpendicular to

the axes of both cylinder **80** and shaft **34** by a pair of bearing bolts **84** journalled by roller bearings **85** in a pair of diametrically opposite ring bosses **86** of yoke ring **32** (FIG. 8). Cylinder **80** is thus supported in the manner of a trunnion for minor pivotal movement in a plane generally transverse to the path of movement of the conveyor and for major pivotal movement about the axis of yoke shaft **34** in a plane generally parallel to the path of the conveyor movement.

Air cylinder **80** is yieldably maintained in a horizontal, centered position by a compression coil spring **90** (FIGS. 7 and 8) which is compressed between the opposite longitudinal ends of arcuate slots **92** and **94** of a pair of parallel spring brackets **96** and **98** secured respectively to yoke ring **32** and cylinder ring **82**. Slots **92** and **94** register with one another when cylinder **80** is in the horizontal, centered position thereof, spring **90** being further compressed between the opposite longitudinal ends of slots **96, 98** whenever cylinder **80** is pivoted in either direction out of the centered position.

As best shown in FIG. 8, a piston **100** is arranged within cylinder **80** for reciprocal movement between an end cover plate **102** and a forward stop ring **104**. Plate **102** is provided with a fitting **106** for admitting compressed air into cylinder **80** to thereby drive piston **100** towards stop **104**, and a coil spring **108** is provided within cylinder **80** for biasing piston **100** back to the retracted position thereof adjacent plate **102**. A piston rod **110** is joined at one end to piston **100** and extends therefrom through a bearing sleeve **112** and on out beyond the forward end of cylinder **80**.

A lubricating nozzle **114** is threadably secured in an end bore **116** of rod **110**. Nozzle **114** has a conically recessed outer end face **118** which is larger in diameter than the conventional ball check of the extended Zerk type lubricant fitting **14** and serves to cam the nozzle into registry with fitting **14** so that the ball check of the fitting seats in a mating semi-circular recess **120** of nozzle **114** even if the fitting is misaligned with respect to nozzle **114**. It is to be understood that the outer end face of nozzle **114** may be reversed in form, i.e., pointed, so as to function in the same manner to re-orient the nozzle when the lubricant fittings are of the conventional flush type and hence likewise reversed in form from extended fittings. Lubricant flows under pressure to the end of nozzle **114** via a lubricant supply line fitting **122** threadably secured in a radial bore **124** of piston rod **110**, past a ball check **126** which is biased against a conical valve seat **128** by a coil spring **130** located in a bore **132** of nozzle **114**, and through a narrow central bore **134** communicating between bore **132** and the center of the spherical end surface **120** of the nozzle.

A pick-up finger **136** (FIG. 8) is supported on the outer end of piston shaft **110** and comprises a shaft bent at a right angle so as to have a straight portion **138** extending parallel to the axis of piston shaft **110** and terminating beyond the end of nozzle **114**, and a radial portion **140** joined at the inner end thereof to a collar **142** mounted for rotative and axial adjustment on piston rod **110** and held in place by a set screw **144**. The outer end of pick-up finger **136** may thus be rotated towards or away from a vertical plane drawn through the axis of piston shaft **110** by loosening set screw **144** and rotating collar **142** relative to the piston.

Piston rod **110** is fixed against rotation relative to cylinder **80** by a U-shaped bracket **146** (FIGS. 7 and 8) the arms **148** of which are welded to cylinder **80** so as to extend parallel to piston shaft **110**. These arms **148** define an opening therebetween for receiving supply line fitting **122** with a close sliding fit, fitting **122** thus serving to key rod **110** to cylinder **80**.

Referring to the schematic diagram of FIG. 4 as well as to the assembly views of FIGS. 1 and 2, the pneumatic actuating and lubricant supply systems of the lubricating apparatus of the present invention comprise an air line **150** connected between a source of compressed air (not shown) pressurized to a minimum pressure of about 60 p.s.i., and an air filter **152** and air line lubricator **154**. Air line **150** then branches to a line **156** which supplies air under the control of a pressure regulator **158** to a lubricant reservoir tank **160** so as to pressurize the lubricant stored therein. Another branch air line **162** connects line **150** to a line **164** leading to air valve **72**. The outlet of air valve **72** is connected in parallel by a line **166** to a pair of booster cylinders **168** and **170**.

Booster cylinders **168, 170** are shown in more detail in FIG. 5 and each comprises a relatively large piston **172** biased to the illustrated retracted position by a coil spring **174**. A much smaller diameter piston rod **176** extends from piston **172** and is slidably received in a bore **178** of a lubricant metering cylinder **180** threadably joined to cylinder **168**. Lubricant under pressure from reservoir **160** is fed via a line **182** to an inlet fitting **184** secured to cylinder **180**, the lubricant being admitted to chamber **178** by a ball check **186** urged against fitting **184** by a coil spring **188**. When air is admitted to cylinder **168**, rod **176** serves as a pressure plunger and forces the lubricant from chamber **178** past an outlet ball check **190** against the pressure of spring **192**. Boosters **168** and **170** thus operate in parallel to simultaneously supply a metered quantity of lubricant under high pressure via lubricant hoses **194** and **200** to the respective nozzle **114** of the two lubricating heads.

Air supply line **150** is also connected via line **162** to an air line pressure regulator **202** which controls the pressure of the air supplied via parallel lines **204** and **206** to the respective air cylinders **80** of the two lubricating heads. Normally regulator **202** is adjusted so that the engagement pressure of the lubricating nozzles is from 10 to 20 p.s.i. In the normal inoperative position of the lubricating head, injection nozzles **114** and pick-up fingers **136** are retracted (as indicated in solid lines in FIG. 8 and in dotted lines in FIG. 3) out of the way of the passing trolley wheels **12**. When the system is turned on by admitting compressed air to line **150**, pistons **100** and their associated rods **110** are driven forward on bars **22** to an extended pick-up position (FIG. 3) in which the ends of pick-up fingers **136** are positioned in the path of travel of the approaching trolley wheels **12**, but in which the injection nozzles **114** are disposed slightly outside the path of travel of lubricant fittings **14**.

In operation, with the pneumatic and lubricant supply systems energized as described above, the pick-up fingers **136** contact the leading edge of the approaching pair of trolley wheels **12**, causing the lubricating heads to rotate about the axis of yoke shafts **34** under the control of the moving conveyor. Soon afer the lubricating heads have begun to swing with the moving conveyor wheels, the lubricating nozzles **114** travel into engagement with lubricant fittings **14**. As the lubricating heads rotate into a lubricant injection position, wherein the common axis of nozzle **114**, piston rod **110** and air cylinder **80** is at right angles to the path of travel of the conveyor, the periphery **70** of cam disc **44** depresses follower **74** of air valve **72**, thereby connecting air line **164** to air line **166** to thus pressurize the booster cylinders **168, 170**. The forward movement of booster pistons **172** causes a metered amount of lubricant, such as .07 cubic inch, to be forced through injection nozzles **114** and into the lubricant fittings **14**.

Should lubricant fittings **14** be misaligned relative to their normal path of travel, due for instance to wear of trolley wheels **12** and conveyor rail **10**, the conical camming face **118** of nozzle **114** will engage the misaligned fitting **14** and, as the nozzle is forced toward the fitting as it travels therewith, the conical face **118** will pivot the lubricating head about the axis of trunnion bearings **84** against the pressure of centering spring **90**. This pivotal movement of the head thus permits the misaligned lubricant fitting **14** to seat properly in the semi-spherical

recess **120** of nozzle **114**, thereby insuring lubrication of even misaligned fittings.

It is to be noted that once the nozzle **114** has initially engaged lubricant fitting **14** it is pushed back towards cylinder **80** as the lubricating head swings to the lubricant injection position. This slight retractile movement of piston shaft **110** against the air pressure in cylinder **80** increases the nozzle-to-fitting engagement pressure and insures a tight seal therebetween when they reach the lubricant injection position.

After the metered charge of lubricant has been injected into fittings **14** of each pair of wheels, the lubricating heads continue to rotate about the axes of their respective yoke shafts **34** with the moving trolley wheels **12** until the arc of travel of nozzles **114** and pick-up fingers **136** clears the path of travel of fittings **14**, thereby permitting disengagement of the nozzles and pick-up fingers from the lubricant fittings. The lubricating heads are then rapidly rotated in a direction opposite to conveyor travel back to their pick-up positions (FIG. 3) by torsion springs **60**, the tension of these springs having been increased during rotation of the lubricating heads by the moving conveyor. As cam disc **44** returns to its normal position with the return rotation of the lubricating heads, cam follower **74** drops into cam recess **68**, causing air valve **72** to close off air line **164** from line **166** and connecting line **166** to an exhaust port of valve **72**. This exhausts booster cylinders **168, 170**, allowing springs **174** to retract booster pistons **172**. This in turn permits booster chambers **178** to be recharged with lubricant from the pressurized lubricant reservoir **163**. When it is desired to render the lubricating heads inoperative, it is only necessary to shut off the supply of compressed air to line **150** and to open line **150** to atmosphere so that cylinders **80** are exhausted. The air cylinder springs **108** thereupon retract the pistons and associated pick-up fingers **136** to the inoperative position indicated in dotted lines in FIG. 3.

It will be understood from the above description that the conveyor lubricating apparatus of the present invention provides a simplified device for automatically lubricating conveyors. Only one lubricating nozzle **114** is required for each lubricating head and yet the lubricating head is capable of supplying lubricant to each of a series of lubricant fittings traveling past the head in relatively rapid succession. For example, the dual head apparatus described herein is capable of lubricating a conveyor having fittings **14** spaced every 12 inches when traveling at 45 feet per minute. The telescoping cylinder and piston assembly provides a yieldable engagement of lubricating nozzle **114** with each lubricant fitting **14** and in addition serves as a telescopic support for extending and retracting the lubricating head between the operative and inoperative positions thereof. The trunnion suspension of cylinder **80** permits universal movement thereof to accommodate misalignment of the conveyor fittings **14**. Due to the balanced support of the lubricating head at its center of gravity in yoke **30**, there is a minimum of inertial resistance when the nozzle face **118** cams the head out of its normal position to accommodate a misaligned lubricant fitting. This permits the use of the relatively small, low tension centering spring **90** which provides an equal resistance to the camming movement of nozzle **114** in either direction of pivotal movement of the head, which in turn contributes to increased life of the nozzle.

Due to the simplified, lightweight and balanced construction of the lubricating head it is readily adapted to mounting in a variety of positions, either upside down as illustrated or right-side up, and on horizontal, vertical or inclined conveyor rails. The adjustable mounting of pick-up finger **136** on piston shaft **110** is another feature of the simplified construction which, together with the adjustment of carrier **24** on carrier bars **22**, facilitates installation and maintenance of the lubricating apparatus.

We claim:

1. Apparatus for lubricating a conveyor moving along a predetermined path and provided with lubricant fittings comprising a support mounted adjacent the path of travel of the conveyor, a yoke mounted for rotation on said support, a pneumatic cylinder mounted in said yoke for pivotal movement about an axis perpendicular to the rotational axis of said yoke, an air operated piston mounted in said cylinder and biased by air pressure to extend one end thereof axially from the cylinder and being movable axially away from extended position upon release of pressure in the cylinder, a lubricating nozzle mounted on said one end of said piston, means engageable with the conveyor at a pick-up point in the path of travel of a lubricant fitting as it approaches the head for causing rotation of said cylinder such that the nozzle engages a lubricant fitting on the conveyor and first and second resilient means for respectively yieldably biasing said yoke and said cylinder into the pick-up position thereof, the cylinder being movable against the pressure of said resilient means and the nozzle being retractable against the air pressure acting on said piston so as to yieldably seat on the lubricant fitting, the engagement of said nozzle and fitting rotating said head under control of the conveyor to a lubricant injection position wherein said nozzle is generally perpendicular to the path of travel of the conveyor fitting, said head being further so rotatable until the fitting moves out of engagement with the head, thereby permitting said resilient means acting on said yoke and cylinder and the air pressure acting on said piston to reverse the movement of said nozzle so that it is returned thereby to the pick-up position, said lubricating nozzle being biased axially toward the pick-up position as long as pressure is maintained in the cylinder and being retracted with the piston to an inactive position upon cut-off of the pressure.

2. Apparatus for lubricating a conveyor moving along a predetermined path and provided with lubricant fittings comprising a fluid pressure cylinder having a piston mounted therein, support means mounted adjacent the path of travel of the conveyor and having said cylinder trunnion-mounted thereon for pivotal movement of the cylinder in a first plane generally transverse to the path of movement of the conveyor and for rotational movement in a second plane generally parallel to such path of movement, a lubricating nozzle mounted on one end of said piston, fluid pressure means for moving and yieldably biasing said piston axially towards the conveyor, means engageable with the conveyor as it approaches said support for causing engagement of said nozzle with a lubricant fitting when it reaches a predetermined point in its path of travel, resilient means for rotating said cylinder in said second plane in a direction opposite to the movement of the conveyor and towards the predetermined point, said cylinder being rotated in said second plane against the pressure of said resilient means upon interengagement of said nozzle and fitting to a lubricant injection position wherein the nozzle is disposed perpendicularly to the path of travel of the fitting, said resilient means returning said cylinder to the pick-up position thereof upon disengagement of the nozzle from the fitting.

3. The combination set forth in claim 2 wherein said cylinder is suspended by said support means at substantially the combined center of gravity of the cylinder and piston in the normal operative positions thereof.

4. The combination set forth in claim 2 wherein said cylinder has a bracket secured thereto spaced from the center of gravity thereof, said bracket having a slot therein extending longitudinally generally in the direction of movement of the bracket as it moves with the cylinder, a compression coil spring received in said bracket slot with the opposite ends of the spring abutting the opposite longitudinal ends of the slot, and means fixed with respect to said support means for confining the opposite ends of

said spring against movement away from one another whereby the pivotal movement of the cylinder compresses said spring in either direction of such movement.

5. Apparatus for lubricating a conveyor moving along a predetermined path and provided with lubricant fittings comprising a support mounted adjacent the path of travel of the conveyor, a yoke mounted for rotation on said support, a cylinder mounted in said yoke for pivotal movement about an axis perpendicular to the rotational axis of said yoke, an air operated piston mounted in said cylinder and biased by air pressure to extend one end thereof from the cylinder, a lubricating nozzle mounted on said one end of said piston, means engageable with the conveyor at a pick-up point in the path of travel of a lubricant fitting as it approaches the head for causing rotation of said cylinder such that the nozzle engages a lubricant fitting on the conveyor and first and second resilient means for respectively yieldably biasing said yoke and said cylinder into the pick-up position thereof, the cylinder being movable against the pressure of said resilient means and the nozzle being retractable against the air pressure acting on said piston so as to yieldably seat on the lubricant fitting, the engagement of said nozzle and fitting rotating said head under control of the conveyor to a lubricant injection position wherein said nozzle is generally perpendicular to the path of travel of the conveyor fitting, said head being further so rotatable until the fitting moves out of engagement with the head, thereby permitting said resilient means acting on said yoke and cylinder and the air pressure acting on said piston to reverse the movement of said nozzle so that it is returned thereby to the pick-up position, said means engageable with the conveyor at the pick-up point comprising a collar mounted for rotative adjustment on said piston near the extended end thereof and a pick-up finger secured to said collar and extending towards the path of travel of the conveyor, the end of said finger remote from said piston being spaced radially from the axis of the piston so that rotation of said collar moves the remote end of the pick-up finger towards and away from the pick-up point in the path of travel of the conveyor fitting.

6. The combination set forth in claim 5 wherein said piston has lubricant supply line means secured thereto communicating with said nozzle and extending outwardly therefrom, said means comprising relatively rigid material in the portion thereof extending from the piston, and a guide member affixed to said cylinder and having an opening therein extending parallel to the axis of the piston receiving said portion of said lubricant line means to thereby prevent rotation of said piston relative to the cylinder.

7. The combination set forth in claim 5 wherein said collar is mounted on the piston for movement along the axis thereof to move the pick-up finger towards and away from the path of travel of the conveyor.

8. Apparatus for lubricating a conveyor or the like moving along a predetermined path and provided with lubricant fittings comprising a support, a lubricating head journalled on said support, a lubricating nozzle projecting radially from said head for swinging movement about the journal axis of said head in an arcuate path intersecting the path of travel of the lubricant fitting, means biasing the head to a pick-up position wherein said nozzle is disposed at an acute angle relative to the path of travel of the fittings and in a direction generally opposite to the direction of travel of the fittings past the head, means for interengaging said nozzle with a fitting as it approaches said nozzle when in said pick-up position to rotate said head and nozzle in said arcuate path under the control of the conveyor, said biasing means being adapted to swing said head and nozzle in a reverse direction in said arcuate path back to said pick-up position upon disengagement of the nozzle from the fitting, said head including a compressible fluid pressure cylinder the axis of which is generally perpendicular to said journal axis, said cylinder having an axially reciprocable piston therein, said nozzle being carried by said piston for axial movement therewith, said piston being arranged to project said nozzle axially into the path of travel of the fittings and to hold said nozzle in projected position by pressure in the cylinder, said piston when in said nozzle projecting position being operable to yieldably bias the nozzle towards the conveyor to thereby permit the nozzle to move radially with respect to said journal axis as required by its movement while interengaged with the fitting.

9. Apparatus for lubricating a conveyor moving along a preedtermined path and provided with lubricant fittings comprising a support mounted adjacent the path of travel of the conveyor, a yoke mounted for rotation on said support, a cylinder mounted in said yoke for pivotal movement about an axis perpendicular to the rotational axis of said yoke, an air operated piston mounted in said cylinder and biased by air pressure to extend one end thereof from the cylinder, a lubricating nozzle mounted on said one end of said piston, means engageable with the conveyor at a pick-up point in the path of travel of a lubricant fitting as it approaches the head for causing rotation of said cylinder such that the nozzle engages a lubricant fitting on the conveyor and first and second resilient means for respectively yieldably biasing said yoke and said cylinder into the pick-up position thereof, the cylinder being movable against the pressure of said resilient means and the nozzle being retractable against the air pressure acting on said piston so as to yieldably seat on the lubricant fitting, the engagement of said nozzle and fitting rotating said head under control of the conveyor to a lubricant injection position wherein said nozzle is generally perpendicular to the path of travel of the conveyor fitting, said head being further so rotatable until the fitting moves out of engagement with the head, thereby permitting said resilient means acting on said yoke and cylinder and the air pressure acting on said piston to reverse the movement of said nozzle so that it is returned thereby to the pick-up position, said yoke and cylinder being arranged relative to the path of travel of the conveyor such that the axis of rotation of said cylinder is disposed generally parallel to said path of travel in the injection position of the cylinder and the axis of rotation of said yoke is disposed substantially perpendicular to a plane drawn through said cylinder axis and said path of travel, said second resilient means associated with said cylinder comprising a compression coil spring, said cylinder having a bracket connected thereto with a slot therein receiving said coil spring between the opposite ends of said slot, a second bracket fixed against rotation relative to said cylinder and also having a slot receiving said spring therein between the opposite ends thereof so that rotational movement of said cylinder about said axis thereof compresses said spring in either direction of such movement.

10. Apparatus for lubricating a conveyor moving along a predetermined path and provided with lubricant fittings comprising a support mounted adjacent the path of travel of the conveyor, a yoke mounted for rotation on said support, a cylinder mounted in said yoke for pivotal movement about an axis perpendicular to the rotational axis of said yoke, an air operated piston mounted in said cylinder and biased by air pressure to extend one end thereof from the cylinder, a lubricating nozzle mounted on said one end of said piston, means engageable with the conveyor at a pick-up point in the path of travel of a lubricant fitting as it approaches the head for causing rotation of said cylinder such that the nozzle engages a lubricant fitting on the conveyor and first and second resilient means for respectively yieldably biasing said yoke and said cylinder into the pick-up position thereof, the cylinder being movable against the pressure of said resilient means and the nozzle being retractable against the air pressure acting on said piston so as to yieldably seat

on the lubricant fitting, the engagement of said nozzle and fitting rotating said head under control of the conveyor to a lubricant injection position wherein said nozzle is generally perpendicular to the path of travel of the conveyor fitting, said head being further so rotatable until the fitting moves out of engagement with the head, thereby permitting said resilient means acting on said yoke and cylinder and the air pressure acting on said piston to reverse the movement of said nozzle so that it is returned thereby to the pick-up position, said first resilient means associated with said yoke comprising a torsion spring mounted generally concentric with the rotational

axis of said yoke and connected at one end to said yoke and at the other end to said support for biasing said yoke in a direction opposite to the travel of the conveyor.

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