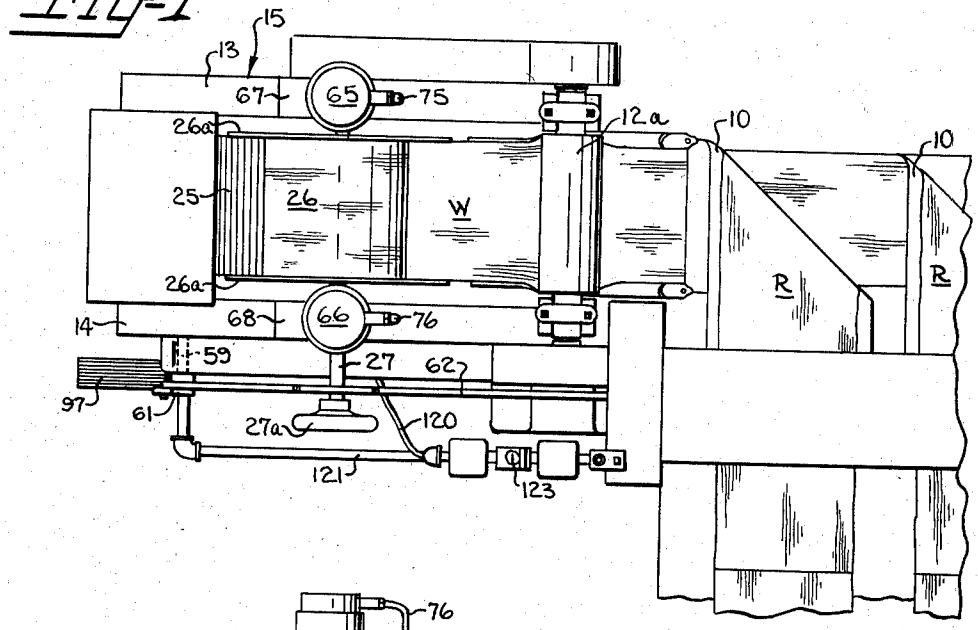
June 16, 1959 J. R. LONG ET AL 2,890,841

LAP ROLL PRESSURE MEANS FOR LAPPING MACHINES

Filed Sept. 28, 1956 3 Sheets-Sheet 1

Fig-1



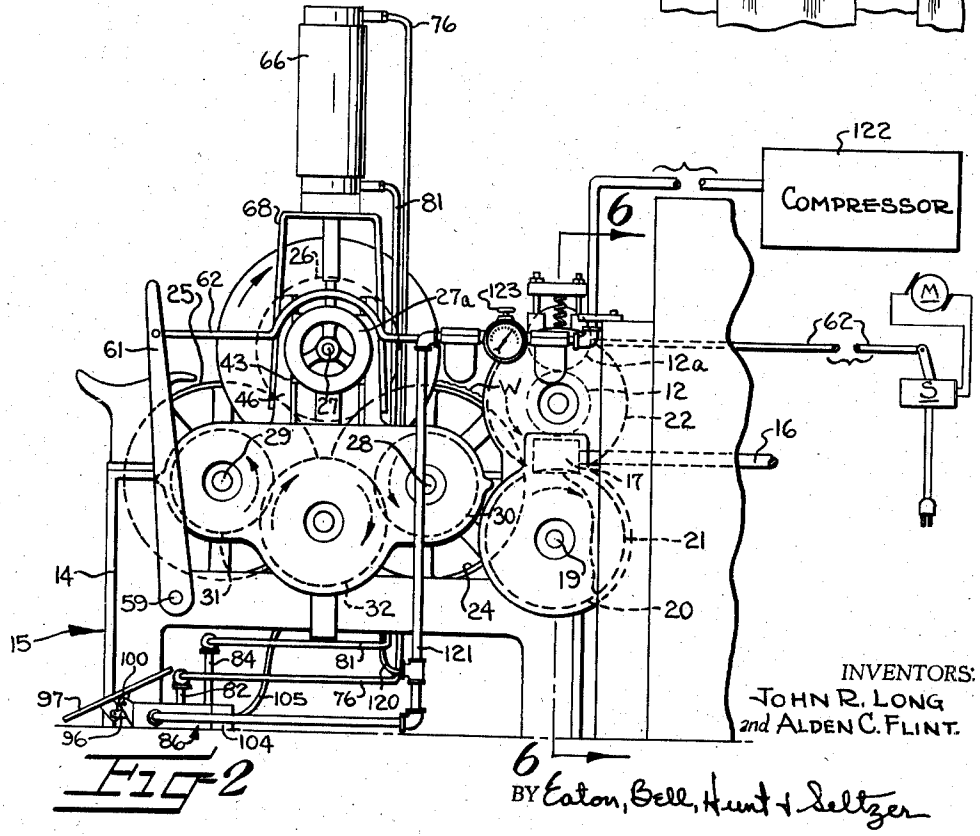


Fig-2

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LAP ROLL PRESSURE MEANS FOR LAPPING MACHINES

Filed Sept. 28, 1956 3 Sheets-Sheet 2

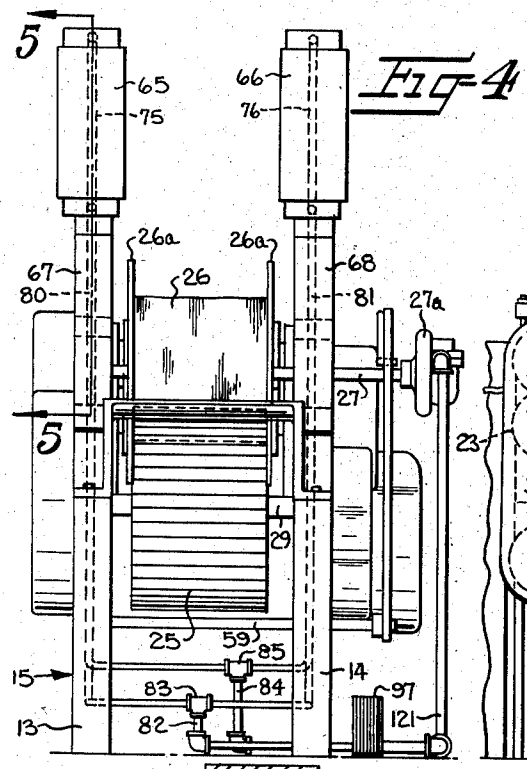


Fig-4

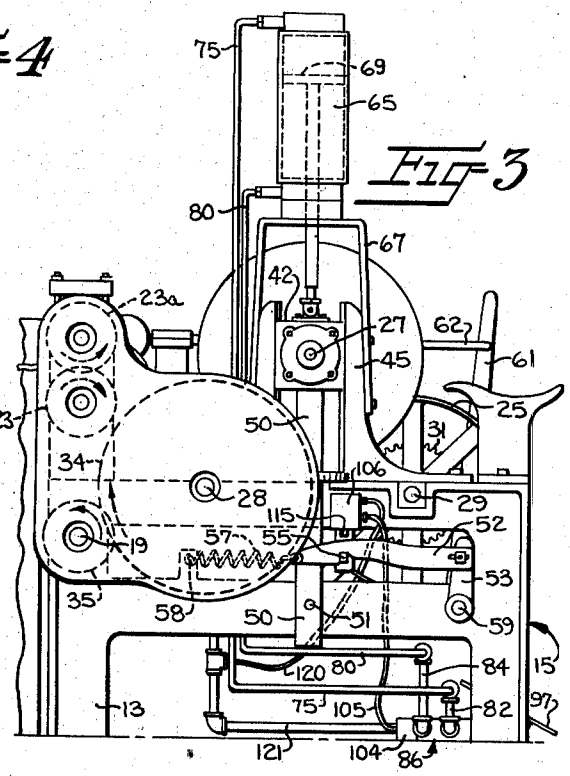


Fig-3

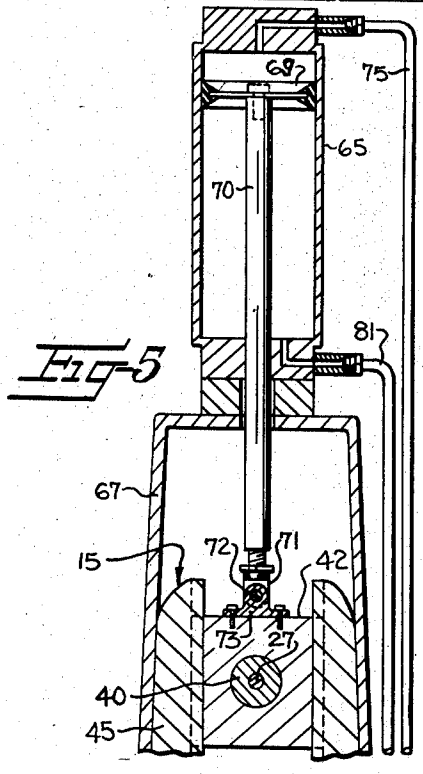


Fig-5

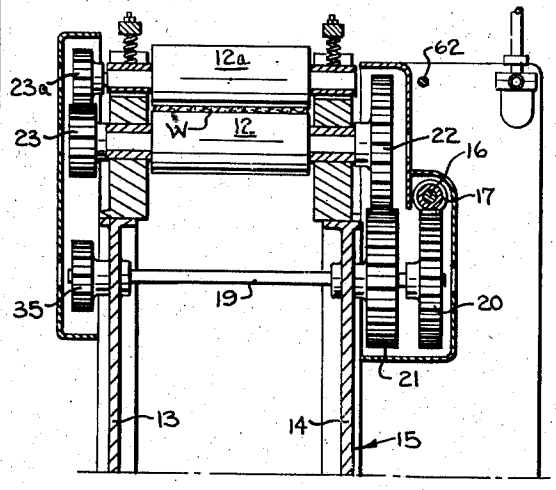


Fig-6

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June 16, 1959 J. R. LONG ET AL 2,890,841

LAP ROLL PRESSURE MEANS FOR LAPPING MACHINES

Filed Sept. 28, 1956 3 Sheets-Sheet 3

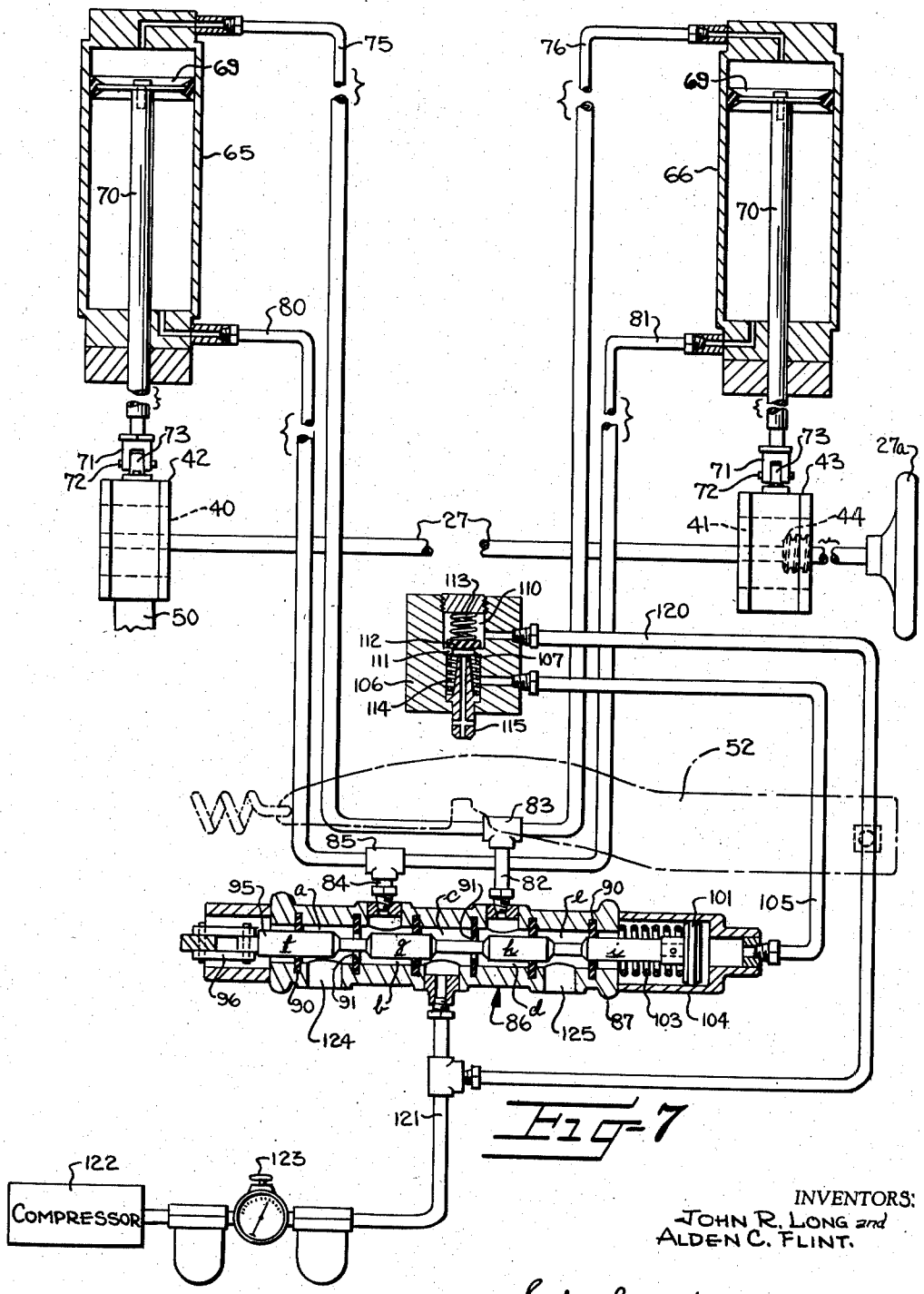


Fig-7

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2,890,841

LAP ROLL PRESSURE MEANS FOR LAPPING MACHINES

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Application September 28, 1956, Serial No. 612,728

6 Claims. (Cl. 242—55.1)

This invention relates to improved means for applying pressure to opposite ends of the usual lap pin or lap roll associated with sliver lap and ribbon lap machines and is particularly concerned with improvements in apparatus of the character described in the copending application of John R. Long, Serial Number 327,796, filed December 24, 1952, for Head Block for Lapping Machines, and now abandoned.

The apparatus disclosed in said copending application is particularly devised for use with picker machines and comprises a pair of double-acting cylinders whose piston rods have head blocks attached thereto which are movable into and out of engagement with opposite ends of a lap pin on which a lap roll is wound. Picker machines are provided with means to automatically release a knock-off or operating lever upon a predetermined amount of compressed textile fibers being wound on the lap pin. The apparatus disclosed in said copending application also includes a four-way valve which is actuated upon the operating lever moving to inoperative position for causing fluid pressure to flow to the lower ends of the cylinders to raise the head blocks out of engagement with the lap pin. Conversely, as the operating lever is moved to operative position, fluid pressure flows to the upper ends of the double-acting cylinders, which cylinders are disposed above opposite ends of the lap pin, and thus, downward pressure is applied to the piston rod and the head blocks to cause the same to engage opposite ends of and apply pressure to the lap pin.

It is an object of this invention to provide an apparatus similar to that disclosed in said copending application, but which is particularly devised for use with lapping machines of the type known as ribbon lap or sliver lap machines, wherein the lap roll is formed between a pair of flanges or disks through which the lap pin extends, with opposite ends of the lap pin being journaled in bearings guided for vertical movement in the frame of the machine, the piston rods of double-acting cylinders being connected, at their lower ends, to the corresponding bearing blocks.

It is another object of this invention to provide apparatus of the character described wherein a pilot valve unit is provided which is normally spaced from a conventional knock-off lever or latch of a lapping machine of the character described and wherein, upon a lap roll of predetermined diameter being wound on the lap pin, the knock-off latch moves into engagement with and operates the pilot valve unit which, in turn, operates a second or main relay valve mechanism for reversing the flow of fluid from a fluid pressure system to the double-acting cylinders to thereby raise the bearing blocks with the lap pin to release the lap roll from pressure engagement with the take-up rolls on which it normally rests during operation of the machine.

On the other hand, the relay valve unit is so constructed that, upon manual movement of its core, as effected by a foot pedal or other means, the pressure admitted to the relay valve unit by the pilot valve unit is over-ridden so pressure is again admitted to the upper ends of the double-acting cylinders so that, when the knock-off latch is returned to operative position to release the pilot valve unit, manual pressure may be removed from the core of the second or relay valve unit and fluid pressure will then continue to be applied to the upper ends of the double-acting cylinders until the knock-off latch again moves to inoperative position.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a ribbon lap machine with the improved lap pin pressure means mounted thereon;

Figure 2 is a fragmentary side elevation looking at the upper side of Figure 1;

Figure 3 is a view looking at the opposite side of the portion of the machine shown in Figure 2;

Figure 4 is a discharge end view looking at the left-hand side of Figures 1 and 2 and at the right-hand side of Figure 3;

Figure 5 is an enlarged fragmentary vertical sectional view taken substantially along line 5—5 in Figure 4;

Figure 6 is a transverse vertical sectional view taken along line 6—6 in Figure 2;

Figure 7 is a schematic view of the fluid pressure circuit for controlling the improved pressure applying means.

The conventional means for driving the lap roll and for mounting the lap pins are practically or substantially the same on both ribbon lap and sliver lap machines and, accordingly, the machine shown in the accompanying drawings will be referred to as a ribbon lap machine and the term "ribbon lap machine" is also meant to include a sliver lap machine.

As is well known in the art, the function of a ribbon lap machine is to prepare the laps for a comber so they will be subjected to a minimum waste in the combing operation. To this end, laps or lap rolls are usually formed by a sliver lap machine and are placed upon stack rolls which deliver slivers to top and bottom drafting rolls which draft and parallel the fibers. Portions of the webs from two sets of such drafting rolls are illustrated in Figure 1, which webs are commonly known as ribbons R and are carried over and beneath curved plates **10** which are arranged in the usual manner so they partially overlap each other and thereby form the various ribbons R into a common fibrous web indicated at W.

From the curved plates **10**, the ribbons R and the web W formed therefrom pass between calender rolls **12**, **12***a* which are suitably journaled in opposite side frame members **13**, **14** of a frame broadly designated at **15**. The calender rolls **12**, **12***a* are driven by a conventional gearing connected with a main shaft **16**. This gearing includes a worm **17** fixed on the main drive shaft **16** which meshes with a worm gear **20** (Figure 6) fixed on a shaft **19** journaled in the frame members **13** and **14**.

As shown in Figure 6, a gear **21**, of the same diameter as gear **20**, is also fixed on the shaft **19** and meshes with a gear **22** fixed in coaxial relation to the lower calender roll **12** to drive the same. The other end of the lower calender roll **12** has a gear **23** fixed in coaxial relation thereto which meshes with a gear **23***a* for driving the upper calender roll **12***a*. The calender rolls **12**, **12***a* feed the web W onto a pair of relatively large lap supporting rolls **24**, **25** to form a lap roll or lap **26** which is wound about a lap pin or shaft **27**. The supporting rolls **24**, **25** are fixed on respective transverse shafts **28**, **29** having respective gears **30**, **31** mounted on corresponding ends thereof

(Figure 2) and the latter gears engage an idler gear **32** so the gear **30** fixed on the shaft **28** drives the front supporting roll **25**. The end of the shaft **28** opposite from that on which the gear **30** is mounted has a relatively large gear **34** fixed thereon (Figure 3) which meshes with a relatively small gear or pinion **35** fixed on the shaft **19**, adjacent the side frame member **13**.

As best shown in Figure 7, the lap pin or shaft **27** is journaled in bearings **40, 41** carried by bearing blocks or guide blocks **42, 43**, respectively. The guide blocks **42, 43** are guided for vertical movement in upstanding portions or standards **45, 46** carried by or formed integral with the side frame members **13, 14**. In order to maintain the lap pin or shaft **27** in the bearing blocks during the winding of the lap roll **26** thereon, one end portion of the lap pin is provided with an enlarged threaded portion **44** thereon which is threaded into the corresponding bearing **41**, and the extreme end of the shaft **27** adjacent the threaded portion **44** is provided with a hand wheel **27***a* to facilitate installation of and removal of the lap pin **27** from the bearing blocks **42, 43**. The shaft or lap pin **27** also extends through disks or flanges **26***a* between which the lap roll **26** is wound.

In order to stop the machine when the lap roll **26** has reached predetermined size, the ribbon lap machine is provided with a rod or bar **50** whose upper end is attached to the bearing block **42** (Figure 3) and whose lower portion has an outwardly projecting pin or abutment **51** thereon which, in the course of upward movement of the bearing block **42**, as effected by the gradually increasing diameter of the lap roll **26**, engages the free end of a latch or knock-off arm **52** pivotally connected to a crank **53**. The latch **52** normally engages a lug **55** fixed on a substantially L-shaped bracket carried by the side frame member **13** of the frame **15**.

The latch **52** is normally maintained in lowered position; in engagement with the lug **55**, by means of a tension spring **57**, one end of which is connected to the free end of the latch **52** and the other end of which is connected to the side frame member **13**, as at **58**. The tension spring **57** also tends to urge the latch **52** to the left in Figure 3. It is thus seen that while the parts occupy the position shown in Figure 3, the latch **52** is normally restrained from movement from right to left. However, when the abutment **51** on the bar **50** is moved upwardly by the lap roll **26** to where it engages and raises the latch **52**, the latch **52** is elevated out of engagement with the lug **55** and the spring **57** will then pull the latch **52** from right to left in Figure 3. The crank **53**, to which the latch **52** is pivotally connected in Figure 3, is fixed to a rocker shaft **59** journaled in the side frame members **13, 14** of the frame **15** and has, on its other end, an operating lever or hand lever **61** to which one end of a link **62** is connected. The link **62** extends freely through the machine and engages a switch S which, upon movement of the link **62** from left to right in Figure 2, stops the usual driving means for the ribbon lap machine.

The parts heretofore described are conventional and usual parts of a ribbon lap machine, with the exception that the bar **50** having the abutment **51** thereon is substituted for the rack usually employed on such machines for progressively raising the corresponding bearing block **42** as the web W is wound thereon to form the lap roll **26**.

In order to apply predetermined, uniform pressure downward against the bearing blocks **42, 43** at all times during operation of the machine, and to raise the bearing blocks 42, 43 upon actuation of the stop motion of the machine in the manner heretofore described, an improved pressure-applying apparatus is provided which comprises a pair of double-acting cylinders **65, 66** which may be either air cylinders or hydraulic cylinders and are shown as being air cylinders in the present instance. The upper and lower ends of each of the cylinders **65, 66** are closed and the lower ends thereof are supported on respective inverted substantially U-shaped brackets **67, 68** which are fixed to the upstanding portions **45, 46** of the respective side frame members **13, 14** in which the bearing blocks **42, 43** are guided for vertical movement.

Each of the cylinders **65, 66** has a piston **69** mounted for vertical sliding movement therein, to the lower end of which the upper end of a piston rod or ram **70** is suitably secured. The piston rods **70** extend downwardly, slidably penetrate the bottoms of the respective cylinders and loosely penetrate the upper horizontal portions of the brackets or standards **67, 68**. The piston rods **70** are pivotally connected to the corresponding bearing blocks **42, 43** as by clevises **71** each of which is penetrated by a pivot pin **72** carried by a pivot block **73**, there being one of the pivot blocks **73** fixed to the upper surface of each of the bearing blocks **42, 43**.

As best shown in Figures 1, 2, 3, 5 and 7, corresponding ends of pipes or conduits **75, 76** are communicatively connected to the closed upper ends of the respective cylinders **65, 66** and corresponding ends of pipes or conduits **80, 81** are communicatively connected to the closed lower ends of the respective cylinders **65, 66**. The ends of the conduits **75, 76** remote from the cylinders **65, 66** are connected to a common pipe of conduit **82** by means of a pipe **T 83**. The ends of the conduits **80, 81** remote from the respective cylinders **65, 66** are connected to a common pipe or conduit **84** by means of a pipe **T 85**.

The conduits **82, 84** are connected to a relay valve unit broadly designated at **86**, such as is manufactured by Westinghouse Air Brake Company, Wilmerding, Pennsylvania and which is described by said company as a type "D" Pilotair valve. The relay valve unit **86** comprises a main substantially tubular body or housing **87** which is divided into a plurality of co-axial compartments or chambers *a* to *e*, inclusive, by means of a plurality of resilient partitions, each of which is indicated at **90**. Each of the partitions **90** is provided with a hole **91** therethrough. The holes **91** are adapted to receive corresponding longitudinally spaced enlarged portions *f* to *i*, inclusive, of a valve core or plunger **95**.

The plunger **95** extends out of opposite ends of the tubular housing **86** and one end thereof is connected, by means of links **96**, to a foot pedal or treadle **97** (Figure 2) which is pivotally connected to the corresponding end of the housing **86**, as at **100**. The other end of the plunger or core **95** is connected to a relay piston **101** mounted in a relatively small cylinder **104** and which piston is normally urged away from the housing **86** by a compression spring **103**.

The piston is mounted for axial sliding movement in the relay cylinder **104** fixed to the corresponding end of the housing **86** and to whose end remote from the housing **86** a conduit or pipe **105** is communicatively connected. The other end of the conduit **105** is connected to a pilot valve unit **106** for communication with a chamber **107** in the housing of the valve unit **106**. The housing of valve unit **106** is also provided with a chamber **110** which is defined by a restriction **111** in a medial portion of the housing of valve unit **106** and which valve seat is normally engaged by a check valve **112**. The check valve **112** is normally urged to closed position against its seat **111** by a compression spring **113** positioned in the chamber **110**. A compression spring **114** in the chamber **107** normally urges a tubular valve plunger **115** away from the check valve **112** and a reduced outer portion of the valve plunger **115** is positioned in alinement with and above the latch **52**. The pilot valve unit **106** is suitably secured to the frame **15** of the ribbon lap machine. A pipe or conduit **120** is connected to the housing of pilot valve unit **106** for communication with chamber **110** and leads to a medial portion of a conduit or pipe **121**, one end of which is connected to the housing **87** of the relay valve unit **86** for communication with the chamber *c*, and the other end of which is connected to a suitable source of

fluid pressure which is shown schematically as a compressor **122** in Figure 6.

A pressure-regulating valve **123** is interposed in conduit **121** between the compressor and conduit **120** for predetermining the pressure admitted to cylinders **65**, **66** and the pilot valve unit **106**. It will be noted that the conduits **82**, **84** communicate with the respective chambers *d* and *b* in the housing **87** of the relay valve unit **86**. The housing **87** is also provided with a pair of exhaust ports **124**, **125** which communicate with the respective chambers *a* and *e*.

Method of operation

In starting the machine, the lap pin **27** is positioned in the bearings **40**, **41** and through the disks **26***a* and the free end of the web W is wrapped around the lap pin **27** by the operator in the usual manner. Assuming that the pistons **69**, piston rods **70** and bearing blocks **42**, **43** are in raised position, the foot pedal **97** (Figure 2) is depressed and the operating lever **61** moved to operative position so the parts occupy the positions shown throughout the drawings, with particular reference to Figure 7. However, since the lap roll **26** is just being started, the bearing blocks **42**, **43** and the lap pin **27** will occupy a substantially lower position than that illustrated in the drawings relative to the frame **15**.

Now, as the lap roll **26** builds up to the desired diameter, the abutment **51** on the bar **50** (Figure 3) moves upwardly, engages and raises the latch **52** out of engagement with the lug **55** to stop the machine in the manner heretofore described. In so doing, the latch **52** engages the lower end of the plunger **115** (Figure 7) and moves the same into engagement with the check valve **112** to move the same off the seat **111**, whereupon compressed air or fluid under pressure flows from the compressor **122** through the conduits **121**, **120**, through the pilot valve unit **106** and the conduit **105** to the cylinder **104** of the relay valve assembly.

In so doing, fluid pressure causes the piston **101** to move from right to left in Figure 7, thus moving the plunger **95** therewith so the enlarged portions *g* and *h* thereof move out of engagement with the resilient partitions between chambers *b*, *c* and *d*, *e*, respectively, and into engagement with the partitions between the chambers *a*, *b* and *c*, *d*, respectively. Thus, fluid pressure flows from pipe **121** through chambers *c*, *b* and, thus, through the conduits **84**, **80** and **81** to the lower ends of the cylinders **65**, **66** to raise the corresponding bearing blocks **42**, **43** and to thereby raise the lap roll **26** out of engagement with the supporting rolls **24**, **25**.

At the same time, compressed air or fluid pressure is exhausted from the upper ends of the cylinder **65**, **66** through the respective conduits **75**, **76** and conduit **82** and through the chambers *d*, *e* in the body **87** of the relay valve unit **86** to be exhausted through the port **125**. It is thus seen that, each time the machine is stopped, the lap roll **26** is automatically raised entirely out of engagement with the supporting rollers **24**, **25** so the lap pin **27** may easily be removed from engagement therewith. It is apparent that the machine may be stopped as desired simply by manually raising the latch **52** to release the same from engagement with the lug **55**.

Now, when the machine is started, the operating lever or handle **61** is moved, manually, to operative position, in the course of which the latch **52** (Figure 3) drops as the notch therein engages the lug **55** so the springs **113**, **114** (Figure 7) return the plunger **115** and the check valve **112** in the pilot valve unit to the positions shown in Figure 7. It is apparent that this prevents compressed air from flowing through the pilot valve unit **106** and permits air to be exhausted from the cylinder **104** on the right-hand end of the relay valve unit **86**, since the air may flow from the cylinder **104** through conduit **105**, through the chamber **107** in the housing of pilot valve unit **106**, and is exhausted through the tubular plunger **115**.

Of course, it is generally desirable that pressure be applied to the lap pin **27** prior to the machine being started and, to this end, the surface area of the piston **101** is so small as to permit the valve core **95** to be moved manually by applying pressure to the treadle **97** even though the latch **52** may still be in engagement with the plunger **115** of the pilot valve unit **106**. Thus, although fluid pressure is still present in the cylinder **104** under the latter conditions, the core **95** of the relay valve unit **86** may be moved to the position shown in Figure 7 and held in this position until the hand lever **61** is moved to operative position to release the valve plunger **115** of the pilot valve unit **106**.

In either event, when the valve core **95** of the relay valve unit **86** occupies the position shown in Figure 7, it is apparent that compressed air then flows from the compressor **122** through conduit **121**, through chambers *c* and *d* in the body or housing **87** of the relay valve unit **86** and, thence, through the conduits **82**, **75** and **76** to admit pressure to the upper ends of the cylinders **65**, **66** and to thereby apply pressure to the lap pin **27**. In the meantime, air flows from the lower ends of the cylinders **65**, **66** through the respective conduits **80**, **81**, through conduit **84** and through the chambers *b* and *a* in the housing **87** of the relay valve unit **86** to be exhausted through the port **124**, thus completing a cycle in the operation of the improved lap pin pressure-applying apparatus.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. In a ribbon lap machine having a frame, a pair of vertically movable axially spaced bearing blocks mounted in said frame, a lap pin adapted to be removably mounted in said bearing blocks, supporting rolls beneath the lap pin for supporting a lap roll as it is being wound on the lap pin, a starting and stopping mechanism including a latch, a lug normally restraining the latch in operative position, and means carried by at least one of said blocks for engaging said latch to release the same from the lug; means for maintaining uniform pressure on the lap roll throughout its width and diameter and throughout the length of the lap forming the roll comprising a pair of double-acting cylinders spaced above the corresponding bearing blocks and being fixedly supported relative to said frame, a piston in each cylinder, a piston rod fixed to each piston and extending downwardly and being attached to the corresponding bearing block, first and second conduit means connected to the respective upper and lower ends of the cylinders and leading from a source of fluid pressure, a relay valve unit interposed in said conduit means, a pilot valve unit disposed adjacent the latch and having a plunger engageable by said latch when the latch is released from said lug, a movable core in said relay valve unit, manually operable means for moving said core from inoperative to operative position for transmitting fluid pressure from said source to the first conduit means connected to the upper ends of said cylinders for applying downward pressure to the bearing blocks and the lap pin, means responsive to engagement of said plunger of the pilot valve by said latch upon stoppage of the machine for moving said core of the relay valve unit to inoperative position for releasing fluid pressure from the first conduit means and admitting fluid pressure to the second conduit means, means for maintaining constant uniform pressure in the upper ends of both cylinders whenever said core occupies operative position, and said relay valve unit and pilot valve unit being so arranged that said core of the relay valve unit is manually movable

to operative position while the plunger of the pilot valve unit is engaged by the latch.

2. In a ribbon lap machine having a frame, a pair of vertically movable axially spaced bearing blocks mounted in said frame, a lap pin adapted to be removably mounted in said bearing blocks, supporting rolls beneath the lap pin for supporting a lap roll as it is being wound on the lap pin, a starting and stopping mechanism including a latch, a lug normally restraining the latch in operative position, and means carried by one of said blocks for engaging said latch to release the same from the lug; means for maintaining uniform pressure throughout the length and width of the lap as it is formed into a roll comprising a pair of double-acting cylinders spaced above the corresponding bearing blocks and being fixedly supported relative to said frame, a piston in each cylinder, a piston rod fixed to each piston and extending downwardly and being attached to the corresponding bearing block, first and second conduit means connected to the respective upper and lower ends of the cylinders and leading from a source of fluid pressure, a relay valve unit interposed in said conduit means, a pilot valve unit disposed adjacent the latch and having a plunger engageable by said latch when the latch is released from said lug, a pressure regulator valve in said conduit means at a point between the source and the relay valve unit, a movable core in said relay valve unit, manually operable means for moving said core from inoperative to operative position for transmitting fluid pressure from said source to the first conduit means connected to the upper ends of said cylinders for applying downward pressure to the bearing blocks and the lap pin, a relay piston on one end of the core, a relay cylinder in which the relay piston is mounted, means responsive to engagement of the plunger of said pilot valve by said latch upon stoppage of the machine for admitting fluid pressure into the relay cylinder to move said core of the relay valve unit to inoperative position for releasing fluid pressure from the first conduit means and admitting fluid pressure to the second conduit means to thereby raise the lap roll away from the supporting rolls, the surface area of said relay piston being such that said core of the relay valve unit is manually movable to operative position while the plunger of the pilot valve unit is engaged by the latch.

3. A structure according to claim 2 wherein said pilot valve unit is provided with means to exhaust pressure from the relay cylinder when said plunger is released by said latch.

4. A structure according to claim 3 wherein said core is normally resiliently urged to said operative position whereby the core automatically tends to occupy operative position whenever the latch is restrained by the lug.

5. In a ribbon lap machine having a frame, a pair of first and second vertically movable axially spaced bearing blocks mounted in said frame, a lap pin adapted to be removably mounted in said bearing blocks, supporting rolls beneath the lap pin for supporting a lap roll as it is being wound on the lap pin, and a starting and stopping mechanism; means for maintaining constant equal pressure on both bearing blocks and, thus, on opposite ends of the lap pin comprising first and second double-acting cylinders spaced above the respective first and second bearing blocks and being fixedly supported relative to said frame, a piston in each cylinder, a piston rod fixed to each piston and extending downwardly and being attached to the corresponding bearing block, first conduit means connecting the upper ends of the cylinders, second conduit means connecting the lower ends of the cylinders, a relay valve unit connected to said first and second conduit means, third conduit means connecting said relay valve unit to a source of fluid pressure, a movable core in said relay valve unit, manually operable means for moving said core from inoperative to operative position for transmitting fluid pressure from said source to the first conduit means connected to the upper ends of said cylinders for applying downward pressure to the bearing blocks and the lap pin, a regulator valve in said third conduit means for maintaining constant uniform pressure in said relay valve unit, and means responsive to stoppage of the machine for moving said core of the relay valve unit to inoperative position for releasing fluid pressure from the first conduit means and admitting fluid pressure to the second conduit means to thereby raise the lap roll away from the supporting rolls, said regulator valve insuring that the pressure on both blocks is equal at all times that said core occupies operative position regardless of the presence of hard places in the lap being wound.

6. In a ribbon lap machine having a frame, a pair of vertically movable axially spaced bearing blocks mounted in said frame, a lap pin adapted to be removably mounted in said bearing blocks, supporting rolls beneath the lap pin for supporting a lap roll as it is being wound on the lap pin, a starting and stopping mechanism including a latch, a lug normally restraining the latch in operative position, and means carried by at least one of said blocks for engaging said latch to release the same from the lug; means for maintaining constant equal pressure on both bearing blocks and, thus, on opposite ends of the lap pin comprising a double-acting cylinder spaced above each of the bearing blocks and being fixedly supported relative to said frame, a piston in each cylinder, a piston rod fixed to each piston and extending downwardly and being attached to the corresponding bearing block, first and second conduit means connected to the respective upper and lower ends of the cylinders and thereby establishing communication between the upper ends of the cylinders and establishing communication between the lower ends of the cylinders, a relay valve unit for alternatively directing fluid pressure to said first and second conduit means, a pilot valve unit disposed adjacent the latch and having a plunger engageable by said latch when the latch is released from said lug, a movable core in said relay valve unit, a third conduit means connecting said relay valve unit to a source of fluid pressure, regulator means for maintaining a constant uniform pressure in said third conduit mean, manually operable means for moving said core from inoperative to operative position for transmitting fluid pressure from said source to the first conduit means for applying uniform downward pressure to the bearing blocks and the lap pin, means responsive to engagement of said plunger of the pilot valve by said latch upon stoppage of the machine for moving said core of the relay valve unit to inoperative position for releasing fluid pressure from the first conduit means and admitting fluid pressure to the second conduit means, and said relay valve unit and pilot valve unit being so arranged that said core of the relay valve unit is manually movable to operative position while the plunger of the pilot valve unit is engaged by the latch.

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