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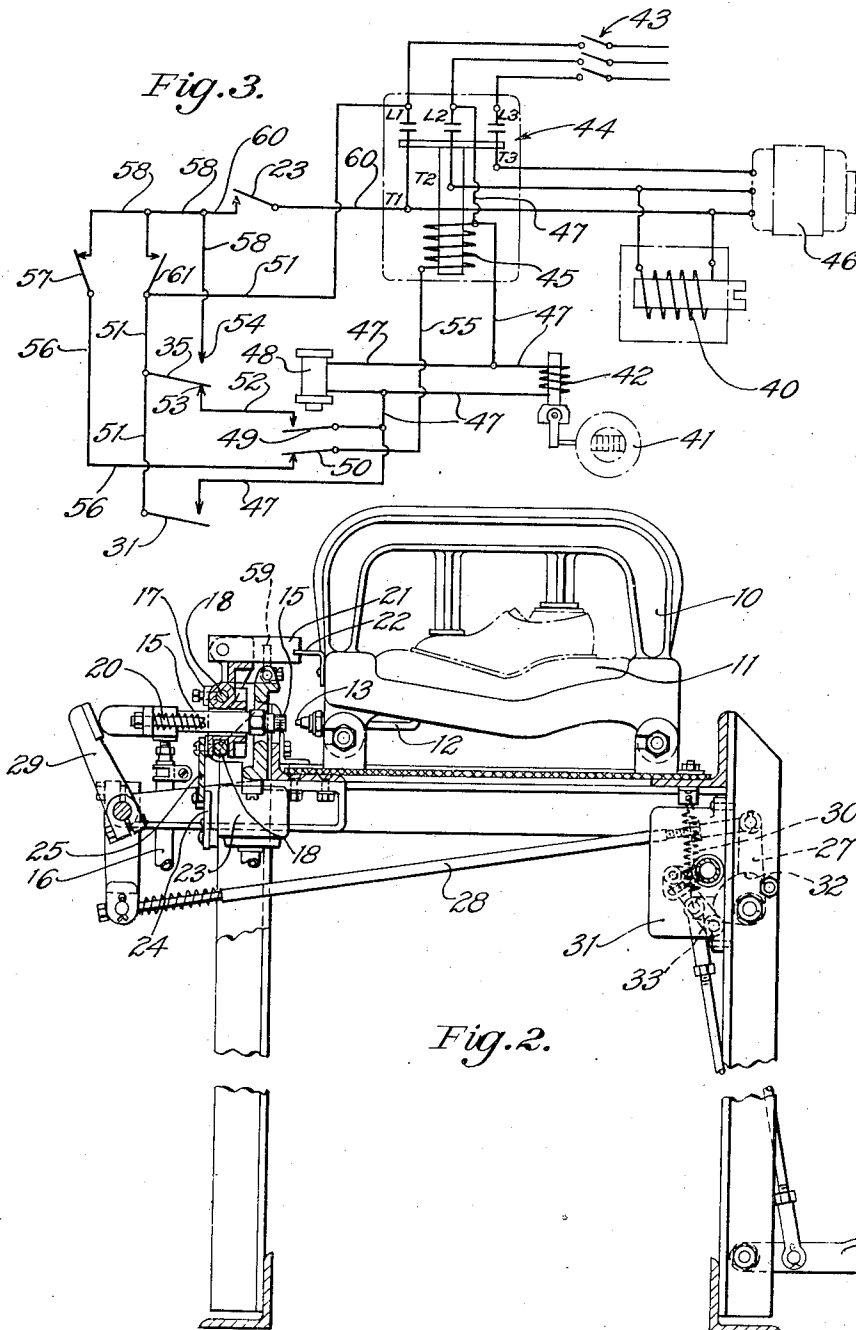
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2,256,222

COUNTER FOR SHOE PRESS MACHINES

Filed July 12, 1939

4 Sheets--Sheet 2



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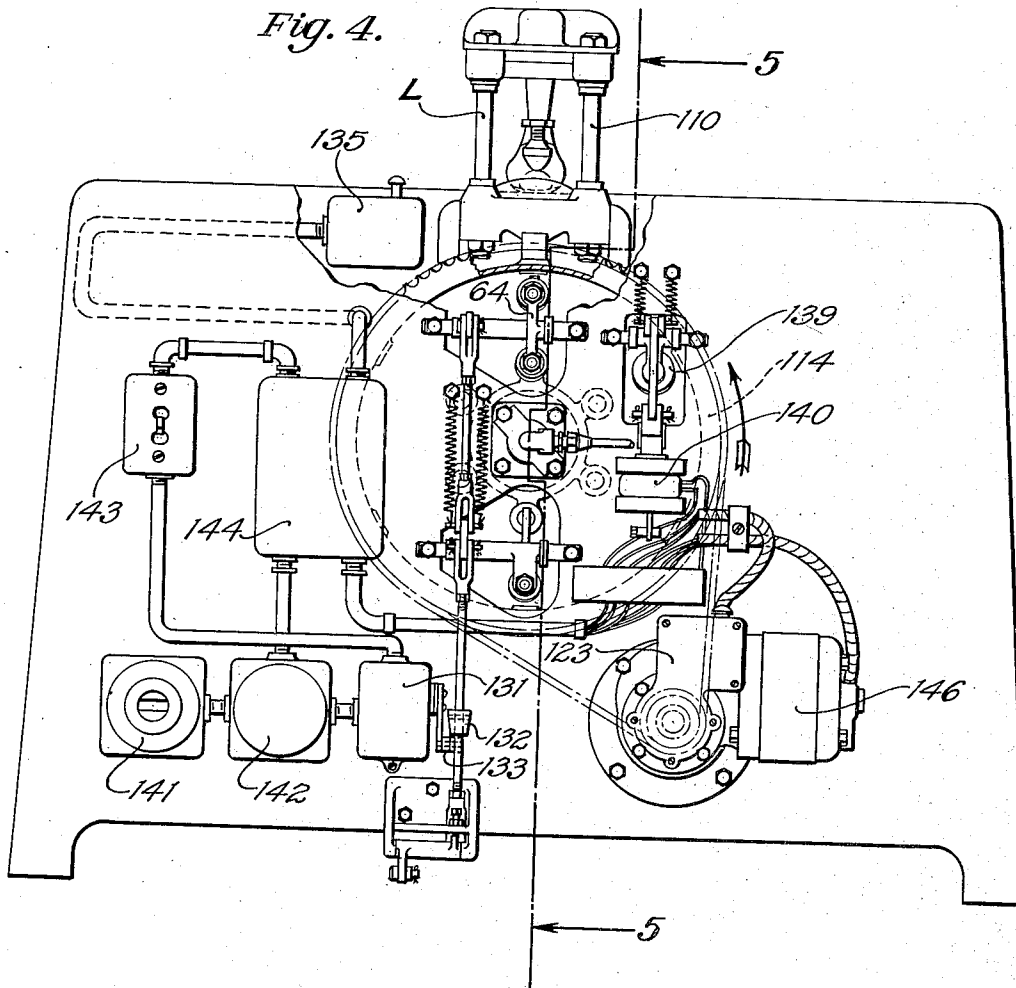
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COUNTER FOR SHOE PRESS MACHINES

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4 Sheets-Sheet 3



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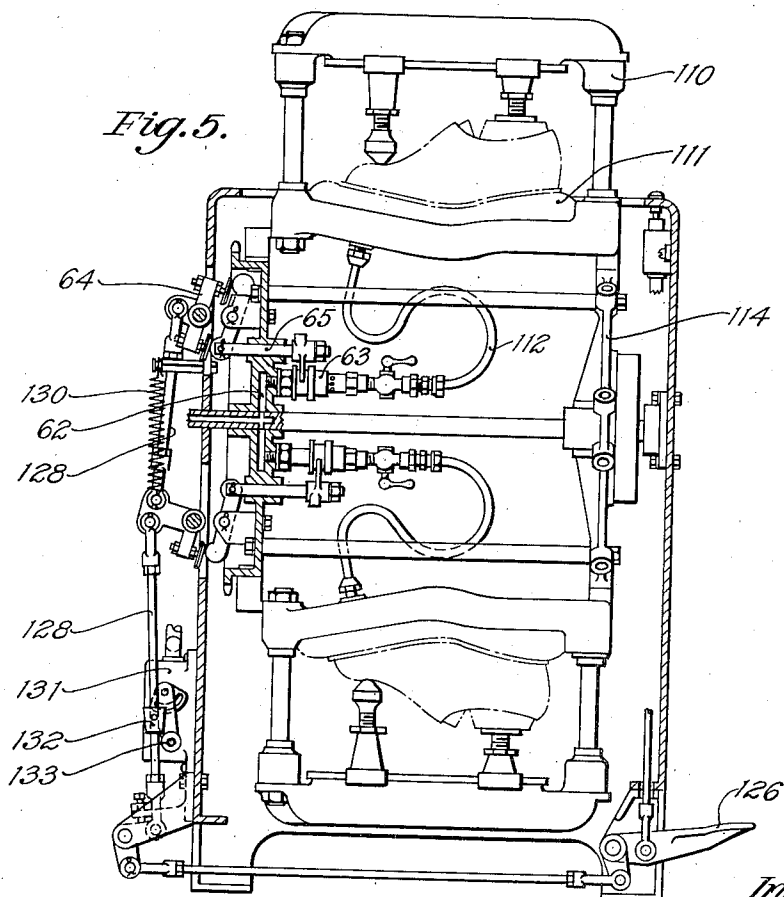
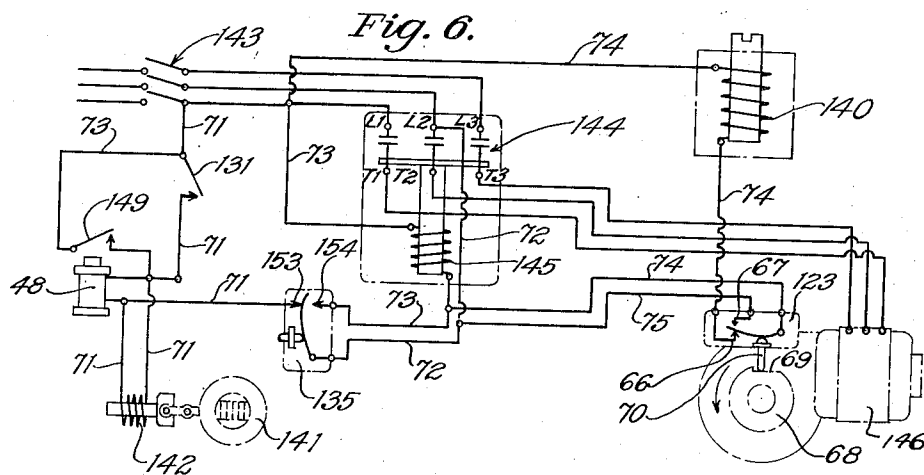
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COUNTER FOR SHOE PRESS MACHINES

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UNITED STATES PATENT OFFICE

2,256,222

COUNTER FOR SHOE PRESS MACHINES

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Application July 12, 1939, Serial No. 284,080

5 Claims. (Cl. 235—92)

This invention relates to shoe press machines of the kind adapted to apply pressure to shoe bottoms or parts in operations such as cement sole affixing, sole conforming or leveling, channel laying, insole or outsole molding, or the like, and more particularly relates to a counting mechanism adapted to indicate accurately the number of shoes or work pieces handled on a given machine.

Since rentals of these machines are frequently based on the number of pairs of shoes or work pieces handled over a definite period of time, usually one month, it is desirable to know this figure accurately. The machines generally comprise a carrier in the form of an elongate conveyor or else a rotatable drum or turret, carrying a plurality of presses successively past a loading or pressure applying station. At this station some means is provided for increasing the shoe clamping pressure in the adjacent shoe press, usually by inflating the press pad up against the shoe or else by mechanically pressing the shoe down against the pad. Merely counting the number of presses which pass this station may give an unfair tally of the pairage count because all of the presses on the machine may not be in use during a given run, in which case skipped presses would inaccurately add to the indicated total. Also, counting the operations of the pressure increasing means might lead to an inaccurate tally because in some instances this means may be operated more than once on the same shoe while a press is positioned at the station. Thus, with an inflatable press adapted to have its pressure increased through coupling with an air chuck, some operators might effect this coupling several times, so as to feed the air in spurts as it approaches required pad pressure, or in some cases it might be necessary to release, readjust, and again press a shoe before its press leaves the loading station.

However, if when a press reaches the pressing station, the pressuring increasing means is operated at all, this is a reasonable indication that a shoe or work piece has been treated by that press on that particular revolution of the carrier, and a sufficiently accurate pairage total can be obtained if care is taken to count only one operation of the pressure increasing means during any one dwell of such press at the pressing station.

A general object of this invention is to provide a shoe press machine with a counting register arranged to function in the manner just described, wherein no count is registered unless the pres-

sure increasing means is operated while a given press is at the pressing station, and wherein the counter registers only one such pressure increasing operation while such press remains there, any additional operations being ignored until the carrier is moved to bring a different press adjacent the station.

More particularly, objects of the invention are to provide a shoe press machine comprising a carrier having a plurality of inflatable presses mounted thereon for successive movement past an inflating station positioned along the carrier traverse and having an inflating or air supply member such as a chuck or valve movable into and out of coupled inflating relation with an adjacent press, wherein a counter is arranged to register the initial coupling movement of said chuck with respect to a press which has arrived at said station and is then kept ineffective against further registration, despite possible repeated movements of said chuck, until after the carrier has been actuated to remove said press from the inflating station and bring up a different press.

Further objects of the invention are to provide a counter arrangement which is capable of giving a fairer and more accurate tally than was available with previous registering attachments applicable to shoe press machines of the kind here contemplated, which is applicable to existing equipment with readiness and requires few added parts, and which is largely tamper-proof in operation.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a fragmentary front elevation of the central portion of a shoe press conveyor having counting mechanism embodying features of the invention;

Fig. 2 is a transverse vertical sectional view taken substantially along line 2—2 of Fig. 1;

Fig. 3 is a diagram showing a wiring circuit for the counter-equipped conveyor of Figs. 1 and 2;

Fig. 4 is a rear elevation of another form of shoe press machine having counting mechanism embodying features of the invention, parts being broken away better to show the underlying construction;

Fig. 5 is a transverse vertical sectional view taken substantially along line 5-5 of Fig. 4; and

Fig. 6 is a diagram showing a wiring circuit for the counter-equipped machine of Figs. 4 and 5.

Referring more particularly to the drawings and first to the form of machine shown in Figs. 1 to 3, there is illustrated a conveyor generally embodying the principles of the machine shown in U. S. patent to Weiss, No. 1,945,762, issued February 6, 1934. Such a conveyor has a plurality of shoe presses 10, each having an inflatable pad 11 (Fig. 2) to which air is supplied and from which it is discharged through a valve equipped conduit 12. The valve of this conduit 12 is normally kept seated under spring bias, but can be displaced when its plunger 13 is depressed upon contact with the inflating air chuck or deflating plunger hereinafter described. Each press has suitable shoe holding abutments for holding the work down against the pad when it is inflated. The presses 10 are mounted on a conveyor belt 14 which is mounted over suitable drums (not shown) at either end of the conveyor, one of which is motor driven so as to move the presses 30 from left to right as viewed in Fig. 1.

Each press is successively brought to a loading and inflating station designated L. As the press arrives at this station, it is in deflated condition because of the action of deflating mechanism hereinafter more fully described, which is located at a station in advance of the loading station. Means for increasing the pressure against a shoe in the press is provided at the loading and inflating station, and in the presently described form comprises an air chuck 15 connected with a suitable source of compressed air through a flexible conduit 16. This chuck has a normally closed valve in its head which is adapted to be unseated upon contact with the press valve plunger 13. These mutually unseating chuck and press valves may be of well known conventional types. The chuck 15 is mounted for reciprocation toward and from an adjacent shoe press in a sliding carriage 17 which is slidably mounted on guide rods 18 fixed along the conveyor frame. The carriage 17 is normally urged toward the left, as viewed in Fig. 1, by springs 19 mounted along the guide rods, and the chuck is normally held in retracted position away from a press by means of springs 20 (Fig. 2) acting between the chuck and the carriage 17. As each press comes to a stop at the loading station, the air chuck is adapted to be alined with its valve conduit 12 by means of an alining lever 21 pivotally mounted on the chuck carriage 17 and normally disposed in the path of a pick-up lug 22 carried on each press. The press is stopped at the loading station by means of a drift stop switch 23 having a swinging switch arm 24 disposed in the path of a cam 25 carried by the air chuck carriage 17. As a press approaches the loading station its pick-up lug 22 picks up the alining lever 21 on the chuck carriage, carrying the carriage with it for a short distance, the parts being so related that at such time the air chuck 15 is in alinement with the press valve conduit 12. Such movement of carriage 17 causes cam 25 to throw open the drift stop switch 23 by swinging the arm 24 to the right as viewed in Fig. 1.

This cuts off the motor and allows the press to drift to a stop, which it does within an inch or so after the motor is stopped.

With the press thus stopped at the loading station in proper alinement with the air chuck, inflation is accomplished through depression of an inflating treadle 26 which operates through a bell crank 27 and link 28 to swing a chuck driving lever 29 in a clock-wise direction, as viewed in Fig. 2. This lever 29 has a bearing face engageable against the end of the chuck 15 and acts to move it into inflating contact with the press conduit 12 against the bias of chuck retracting springs 20. A spring 30 tensioned between the machine frame and the inflating treadle 26 serves normally to keep the treadle in its upmost position where the chuck driving lever 29 is disposed outwardly away from engagement with the chuck. Depression of inflating treadle 26 in order to supply air to the press pad also serves to close a normally open magnetic counter switch 31. This is done by means of a cam 32 carried with the bell crank 27 with its cam face in engagement with a roller on the end of a switch arm 33, the cam being arranged to swing this arm in a counter-clockwise direction, as viewed in Fig. 2, so as to close the magnetic counter switch.

After inflation has been effected, the inflating treadle 26 is released, thus allowing the air chuck to retract to its normal position out of contact with the press valve conduit, and the motor may then be started to carry the inflated press away from the loading station and bring up a succeeding press. The motor is normally started by means of a motor start treadle 34 conveniently positioned beside the inflating treadle 26. A double contact motor starting switch 35 which will be described in more detail hereinafter is adapted to be thrown between "off" and "on" positions upon depression of motor start treadle 34. The means for doing this comprises a cam 36 similar to cam 32 which rides against a roller on the end of a switch arm 37, the cam being so arranged that upon depression of treadle 34, the switch 35 is moved to bring its motor starting contact into circuit so as to start the motor, while at other times when the treadle 34 is normally elevated under the bias of a spring 38, the other contact of switch 35 is placed in circuit. The arrangement is such that upon depression of treadle 34 the conveyor will move until a succeeding press operates the drift stop switch 23 and again brings the conveyor to rest.

The means for deflating each press before it reaches the loading station may conveniently comprise the apparatus described in the patent to John F. Smith, No. 2,078,588, issued April 27, 1937. This patent also clearly shows the above described form of inflating mechanism involving the treadle actuated air chuck and sliding carriage parts. This deflating mechanism comprises a deflating bar (not shown) mounted on a retractable plunger 39 which is normally spring biased so as to bring the bar into contact with one or more press valve plungers 13. The deflating bar plunger 39 is adapted to be retracted against such spring bias by a solenoid 40 connected directly across the motor line so that while the motor is running the deflating bar is held out of contact with the adjacent moving presses, and when the motor is stopped and the deflating solenoid deenergized, such bar moves into deflating position under its spring bias.

In order properly to count the number of shoes

or work pieces operated on by a press machine having this type of starting, stopping and inflating mechanism, a magnetic counter 41 is provided which is adapted to register each time its associated magnet 42 is energized. The operation of this counter and its relation with the starting, stopping and inflating mechanism can best be understood upon reference to the diagram in Fig. 3. Here line current is drawn through a normally closed line switch 43, the line being three-phase in the form illustrated, comprising line leads L-1, L-2 and L-3 on the live side of a main magnetic switch generally designated 44. Contact may be established through this switch with terminals T-1, T-2 and T-3 respectively when the magnet 45 of such switch is energized. The conveyor motor 46 is wired across these terminals T-1, T-2 and T-3 so that it starts each time the magnetic switch 44 is closed, and stops each time it is opened. The deflating solenoid 40 is connected across two of the motor leads, as illustrated, to operate in unison with the motor.

Assuming the conveyor to be in dwell position with a deflated press at the loading station, the operator will load a shoe in such press and inflate it by depressing inflating treadle 26. This closes the normally open inflating treadle switch 31, and when this is done, current passes from L-2 on the live side of the magnetic switch through a lead 47 around the coil of counter magnet 42, and also around the coil 48 of a double armature relay controlling switches 49 and 50. After passing through the counter magnet 42 and the relay coil 48, current continues along lead 47 to one contact of inflating pedal switch 31 and through such switch, which is now closed, to a lead 51, and thence back to the line L-1 on the live side of the main switch, thus completing a circuit through the counter magnet 42 and causing such counter to register once and also energizing relay 48 so as to throw its switches 49 and 50. When switch 49 is thus closed, a relay energizing sustaining circuit is established from L-2 through lead 47 and across switch 49 to a lead 52 leading to one contact or terminal 53 of the double contact motor starting switch 35. The other contact of this switch 35 is designated 54. In the normal position of motor starting switch 35 as shown in Fig. 3 wherein the treadle 34 is in its elevated position, contact is established from lead 52 across switch 35 to lead 51, and thence back to line L-1, thus keeping relay coil 48 energized even if the inflating treadle switch 31 should thereafter be opened. This circuit from L-2 through lead 47 across relay switch 49 and back to the line at L-1 through the motor starting switch 35 also keeps the counter magnet 42 energized so that such counter cannot be registered again so long as this circuit is sustained. The sustained circuit through the counter magnet 42 and relay coil 48 is broken upon movement of the motor starting switch 35 from contact 53 to contact 54, it being remembered that in the meantime the treadle inflating switch has been allowed to open. This movement of the motor starting switch 35 disrupts the counter and relay circuit between leads 52 and 51 and de-energizes the relay coil 48, causing switch 49 to open and switch 50 to close, these parts of the circuit thus being restored for a subsequent repeated operation. Closure of the motor starting switch 35 with contact 54 also serves to energize the coil 45 of the main magnetic switch 44, and thus starts

the motor. In doing this, current passes from L-2 and lead 47 to the main switch coil 45 and thence through a lead 55 across switch 50, which is closed whenever coil 48 is de-energized, to a lead 56 across a normally closed auxiliary stopping switch 57 to a lead 58 to the switch terminal 54 and across motor starting switch 35, which is now closed during the starting operation of the motor, and thence to lead 51 back to the line at L-1. This energizes the main switch coil 45 so as to connect line terminals L-1, L-2 and L-3 respectively with motor terminals T-1, T-2, and T-3, thus starting the motor 46 and operating the deflating solenoid 40. Once the motor has been started by closure of switch 35 against contact 54, the main switch coil 45 is kept energized until it is broken by operation of the drift stop switch 23. This switch 23 is open during the conveyor dwell because the cam 25 has thrown open the switch arm 24, but shortly after the motor starts this limit stop switch is again closed in accordance with its normal bias through return of the air chuck carriage and its cam 25 to its initial position where such cam does not engage the switch arm 24. The means for doing this comprises a cam 59 (Figs. 1 and 2) fixed along the conveyor frame, which acts to lift the alining lever 21 out of the path of the pick-up lug 22 so that the now moving press is free to pass beyond the air chuck carriage, and the latter is free to return to its initial position under the bias of springs 19, thus allowing the drift stop switch 23 to close. Returning to the diagram in Fig. 3, when motor starting switch 35 is first closed with contact 54, the energizing circuit for main magnetic switch coil 45 is completed through the lead 51 as above described, but after the carrier moves a slight distance so that the cam 59 becomes effective, the drift stop switch 23 is closed as above described and a circuit through the switch coil 45 is established from L-2 through lead 47, through the coil 45, thence to lead 55, across switch 50, through 56, switch 57, and lead 58, to a lead 60, and thence through the now closed drift stop switch 23 to terminal T-1, and thence across the now closed magnetic switch to the line at L-1. Once this circuit has been established, the main magnetic switch will remain energized even though starting switch 35 is released so as to return to contact 53, and when the starting switch has been thus returned, the main switch coil 45 will be de-energized upon the next opening of the drift stop 23 upon arrival of a new press at the loading station. In addition to the normal starting switch 35 and drift stop switch 23, there is an auxiliary starting switch 61 and an auxiliary stopping switch 57 by means of which the conveyor can be stopped at any time and again started. These switches are useful if for any reason it is desired to stop the conveyor at an intermediate point before the drift stop switch becomes effective. They are so arranged that if the inflating treadle switch 31 has been operated so as to cause the counter to register, any subsequent starting of the motor must be done in such a way as to prepare the counter for a repeated operation. Thus, assuming that it is desired to start the motor through auxiliary starting switch 61 and that the inflating treadle switch 31 has not been closed so as to energize relay coil 48, then current can pass from L-2 through lead 47 through the main switch coil 45 to lead 55 and across switch 50 to lead 56, and thence across switch 57 to lead 58

through the auxiliary starting switch 61 and back to the line at L-1 through lead 51. But if the inflating treadle switch 31 had been operated so as to cause the counter to register, this would open switch 50 and switch 61 would not then be effective to cause the motor to start. Instead, it is necessary to operate the motor starting treadle switch 35 so as to de-energize the relay coil 48 and prepare the counter circuit for a repeated operation.

In operation of the machine the operator loads a shoe in the press at the loading and inflating station. He then steps on inflating treadle 26 bringing the air chuck 15 into contact with the press valve and at the same time closing inflating treadle switch 31. Closure of this switch energizes the counter magnet 42 and also energizes the relay coil 48, setting up a sustaining circuit for the counter and relay coil across switch 49 until such time as starting switch 35 is moved away from contact 53 against contact 54. So long as the operator does not move this switch 35 he can operate his inflating treadle repeatedly so as to feed the air to the conveyor in spurts, or readjust and reinflate the press at the loading station, and while in doing this he will open and close the switch 31 several times, the counter will register only once because of the sustaining circuit across the switch 49. When the operator is satisfied that the press at the loading station is properly inflated, he steps on the motor starting treadle 34, thus shifting motor starting switch 35 away from contact 53 and preparing the counter and relay circuit for repeated operation, and at the same time closing the motor starting circuit and contact 54. This energizes the main magnetic switch 44 which remains energized until opening of the drift stop switch 23, at which time the apparatus is in its initial condition, ready for a repeated operation.

Referring now to the form of shoe press machine shown in Figs. 4 to 6, there is provided a shoe press carrier in the form of a rotor 114 about the periphery of which are mounted a number of presses 110. The features of this type of machine are more particularly shown in the co-pending application of John F. Smith, Serial No. 237,447, filed October 28, 1938. Each of the presses 110 has an inflatable pad 111 to and from which air is introduced and discharged through a conduit 112, there being one such conduit for each press. Each conduit communicates with a central air distributor 62 on the rotor to which a supply of air is led under suitable pressure. There is an inflating and deflating sleeve valve 63 in each conduit between the press pad and distributor which is adapted to deflate its pad when moved to the left, as viewed in Fig. 5, and to inflate it when moved to the right, as viewed in that figure. Inflation of the pad of a press located at a loading and inflating station "L" at the top of the rotor can be effected by depression of an inflating treadle 126, depression of which, through suitable linkage, effects downward movement of the links 128. This downward movement swings a double bell crank member 64 in counter-clockwise direction, as viewed in Fig. 5, causing such member to engage a valve shifting mechanism 65, and move the latter to the right, that is to inflating position. A spring 130 normally holds the treadle 126 in its uppermost position. Downward movement of the inflating treadle also serves to close an inflating treadle switch 131 by means of a

cam 132 carried on treadle linkage 128 in position to wipe downwardly against a roller on the end of a switch arm 133. The arrangement is such that when cam 132 moves downwardly, the switch arm 133 is swung so as to close the normally open switch.

Once a press at the loading station has been inflated, it is moved beyond such station and a succeeding press is brought up for loading. This movement is effected by a motor 146 which is started by a motor start switch 135, and is stopped by a stop switch 123, the operation of which is dependent upon the extent of carrier movement.

A counter 141 is provided, which is adapted to register once each time its actuating magnet 142 is energized. This magnet is controlled through operation of the inflating mechanism and is associated with the motor starting and stopping switches so that it will not register unless a press at the loading station is inflated, and will register only once even though the inflating mechanism may be operated several times while a press is at such station. The means for doing this can best be understood from the diagram in Fig. 6. Here, current from a three-phase line is drawn through a normally closed line switch 143 along line leads L-1, L-2, and L-3 on the live side of a main magnetic switch generally designated 144. This switch has a magnetic coil 145 which, when energized, throws a switch armature so as to establish contact from leads L-1, L-2, and L-3 respectively to terminals T-1, T-2, and T-3 across which the motor leads are connected. The motor accordingly is operated each time the magnetic switch 144 is closed through energization of its coil, and is stopped each time such coil is de-energized. In the dwell position of the press rotor, the motor stopping switch 123 is arranged to de-energize such main switch coil. This position of the stop switch is shown in Fig. 6. Such stop switch is of a double contact type having terminals 66 and 67, and the switch is movable back and forth between these terminals by means of a cam 68 carried with the motor drive sprocket. This sprocket is connected with the rotor in such a ratio that the presses on the rotor are moved one station upon one complete revolution of cam 68. This cam has a depression 69 into which a motor stop switch controlling plunger 70 is adapted to drop once during each cam revolution, thus permitting the switch to break contact with terminal 67 and establish contact with terminal 66, which stops the motor, as will more clearly appear hereinafter.

Assuming that the rotor is in dwell position and that the motor is stopped with its stop switch 123 in the condition shown in Fig. 6, the operator will load a shoe or other work in the press at the loading station and inflate its press pad to apply pressure to the work. The press will arrive at such station in deflated condition through the action of a solenoid controlled deflating mechanism 139 (Fig. 4) actuated by a solenoid 140 which is also controlled by the motor stop switch 123 and is arranged so as to shift the valve moving mechanism 65 of an adjacent press in timed relation with the motor operation. The deflating mechanism is located at a station in advance of the loading station.

Returning now to the press at the loading station "L" in which work has been positioned ready for inflation, the operator steps on inflating treadle 126, thus shifting the valve 63 of such

press to inflating position. At the same time this closes the inflating treadle switch 131, setting up a circuit from L—1 through a lead 71 across switch 131, around the coil 142 of the magnetic counter 141, and also around the coil 48 of a relay controlling a switch 149. After passing through the counter and relay coils, current continues along lead 71 to one contact or terminal 153 of a double contact motor starting switch 135, the other terminal of which is designated 154. After the current passes through switch 135, it continues to a lead 72, and thence back to the live side of the line at L—2. This serves to cause the magnetic counter to register once, and once this counter registering circuit has been established it is sustained by the relay switch 149 until subsequent operation of motor starting switch 135, even though inflating treadle switch 131 may be opened in the meantime. Thus, when initial closure of switch 131 serves to energize relay coil 48 and close switch 149, current may thereafter pass from L—1 through lead 71 around a lead 73 across the switch 149 and back to the lead 71, thus bridging the switch 131 and making it immaterial whether such switch is thereafter open or closed so far as sustenance of the counter magnet coil and relay coil circuit is concerned. Thus, the operator may work the inflating mechanism while a given press is at the loading station as many times as needed, while only causing the counter to register once.

The counter and relay circuit is broken and restored for repeated operation upon operation of the motor start switch 135 so as to move such switch from contact 153 to contact 154. When contact with 154 is established, current may pass from L—1 through lead 73, around the main switch coil 145, and thence to contact 154 and across switch 135 to lead 72, and thence back to the line at L—2, thus energizing the main switch and starting the motor. At the same time the deflating solenoid 140 is energized by current passing from L—1 along a lead 74, around the solenoid coil 140 to the contact 66 of motor stop switch 123, across such switch along lead 74, and thence to lead 73, to contact 154, across the now closed switch 135, to lead 72, and thence back to the line at L—2. Shortly after the motor starts, this circuit through the deflating solenoid 140 is broken through movement of the switch actuating plunger 70 out of the cam drop 69 up along the cam rise, where it breaks contact at 66 and establishes contact at 67 in the motor stop switch 123. After contact has thus been established at 67 by means of the cam 68, the motor start switch 135 may be returned to its normal position in contact with terminal 153, and the main switch will remain energized despite the opening of the switch 135. This is done by means of a circuit passing from L—1 through lead 73 around the main switch coil 145, thence to lead 74, across switch 123 to contact 67, thence through a lead 75 back to lead 72, and thence to the line at L—2. This sustaining circuit for the main magnetic switch will remain closed during the running of the motor as long as the plunger 70 rides along the cam rise, but will be disrupted upon the completion of one revolution of the cam when such plunger again seats in the depression 69. At this time the entire circuit is restored to its initial condition, ready for a repeated operation of the inflating treadle switch 131, and thereafter of the motor starting switch 135.

In both illustrative forms of the invention, it

will be seen that a fair count of the work done on a machine is obtained by the magnetic counter which does not register unless the press at the loading station is actually used and inflated and which registers only once, despite repeated operations of the inflating mechanism, while a press remains at such station, since the counter magnet remains energized up until the time the motor starting switch is operated to move the press away from such station and bring up a new press.

It will be understood that the pressing equipment can be of various kinds suited to various types of work, and that the association of the counting mechanism with the pressure applying controls is capable of being effected with various fluid pressure applying arrangements, those herein described in detail being merely illustrative of preferred forms.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:

1. A shoe press machine comprising a carrier movable past a loading station, a plurality of presses on said carrier, a driving motor for moving said carrier successively to present said presses at said station, a motor driving circuit including an operator controlled motor starting switch and a carrier controlled motor stopping switch, operator controlled means for increasing the pressure in a press at said loading station, a circuit including an electric counter and a pilot switch closable upon operation of said pressure increasing means to energize said counter and cause it to register once, a sustaining circuit arranged to be energized upon closure of said pilot switch and connected with said counter to keep the latter energized after said pilot switch is opened, said motor starting switch being included in said sustaining circuit and arranged to deenergize the latter when moved to motor starting position, and means controlled by said sustaining circuit preventing completion of said motor driving circuit whenever said sustaining circuit is energized, whereby said motor cannot be started while said pressure increasing means is in position to close said pilot switch.

2. A shoe press machine comprising a carrier movable past an inflating station, a plurality of inflatable presses on said carrier, driving means for intermittently moving said carrier successively to present said presses at said station, a treadle operated air chuck movable from retracted position into coupled inflating relation with a press at said station, a pedal control for starting said driving means, a counter, counter actuating means operable on movement of said treadle actuated chuck to cause said counter to register once, holding means actuated by said treadle for preventing further actuation of said counter by operation of said chuck until after said pedal control is operated, said pedal control

being effective to restore said counter holding means to its inoperative condition and means governed by said counter holding means for rendering said pedal control ineffective to start said driving means unless said chuck is in retracted position.

3. A shoe press machine comprising a carrier movable past an inflating station, a plurality of inflatable presses on said carrier, a motor for driving said carrier to present said presses successively at said station, an air supply member movable into coupled inflating relation with a press at said station, a motor control circuit including a two-way operator controlled motor switch and a normally closed relay controlled switch, a pilot circuit including the coil of said relay and a pilot switch closable to energize said relay when said supply member is moved to inflating position, said relay when energized acting to hold said normally closed relay controlled switch open to prevent energization of said motor control circuit, a sustaining circuit for said relay coil including one terminal of said two-way motor switch, said last named switch being arranged to disrupt said sustaining circuit when it is moved from said terminal to motor starting position, and a circuit including an electric counter arranged to be energized concurrently with said relay coil.

4. A shoe press machine comprising a carrier movable past a loading station, a plurality of presses mounted on said carrier, an electric motor for driving said carrier successively to present said presses opposite said loading station, pressure applying means operable to increase the pressure in a press at said loading station, a motor driving circuit including a stopping switch for said motor, an electric counter, counter energiz-

ing means actuated by said pressure applying means, a sustaining circuit arranged to be energized by said pressure applying means and to keep said counter energized so that it will register only once during the period in which said sustaining circuit remains energized, said sustaining circuit including a starting switch for said motor which is arranged to cut out said counter sustaining means when moved to motor starting position, means including said stopping switch for sustaining energization of said motor, and means operable after a definite carrier movement to operate said stopping switch to stop the motor.

5. A shoe press machine comprising a carrier movable past a loading station, a plurality of presses mounted on said carrier, an electric motor for driving said carrier successively to present said presses opposite said loading station, pressure applying means operable to increase the pressure in a press at said loading station, a magnetic counter, counter operating means actuated by said pressure applying means, a counter sustaining circuit holding said counter energized and arranged to be energized upon operation of said pressure applying means, a motor driving circuit including a motor starting switch and a stopping switch for said motor closable upon carrier movement, said motor driving circuit and said counter sustaining circuit each having a terminal selectively engageable by said motor start switch, said motor start switch being arranged to deenergize said counter sustaining circuit and to energize said motor driving circuit when moved from the sustaining circuit terminal to the driving circuit terminal, and means operable after a definite carrier movement to open said motor stopping switch.

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