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H. M. YOHN ET AL
BLOCK-HANDLING DEVICE

2,765,102

Filed Sept. 22, 1950

4 Sheets-Sheet 1

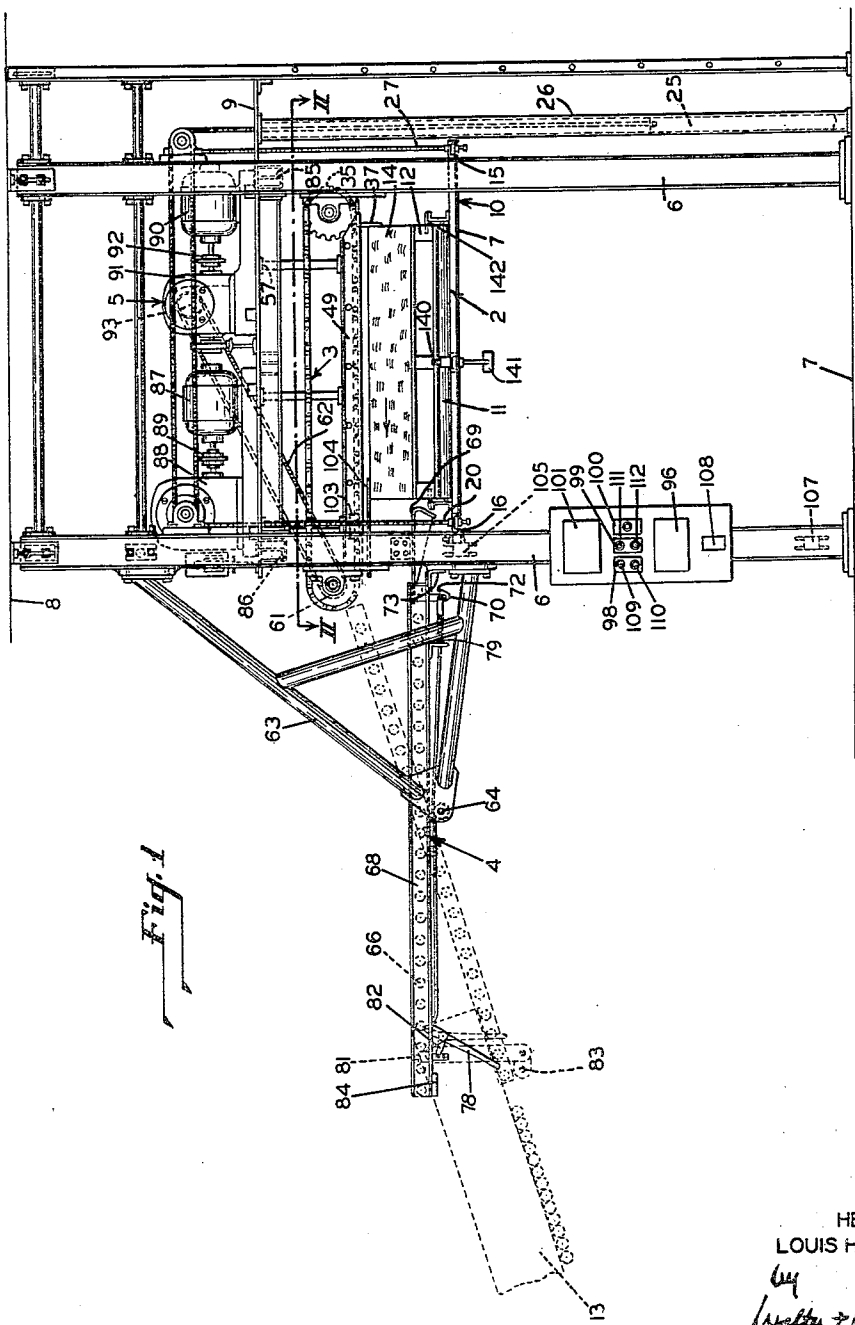


Fig. 1

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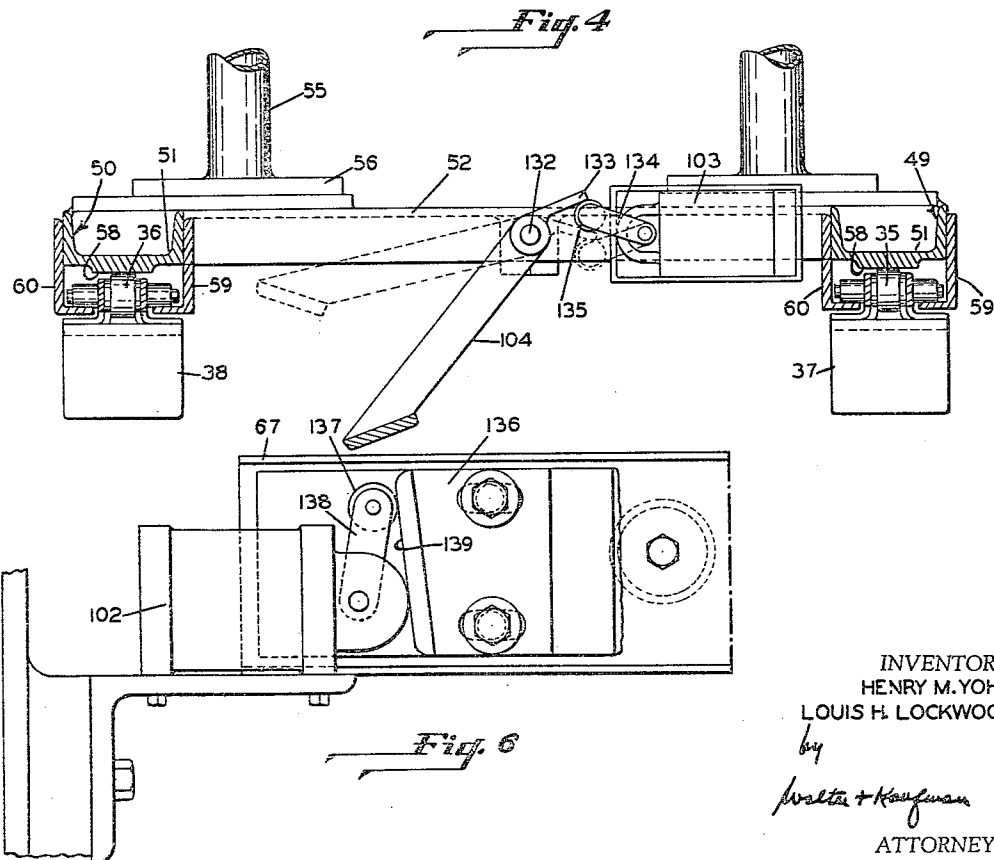
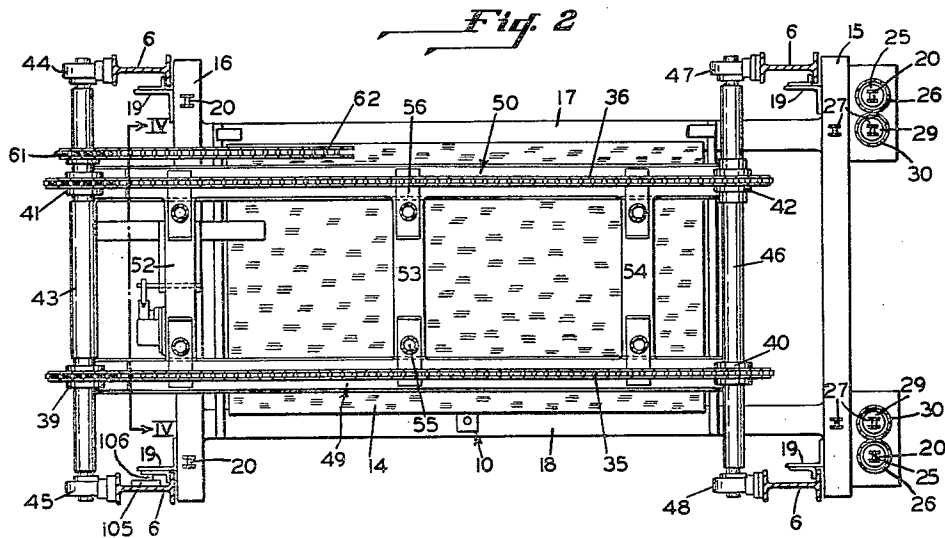
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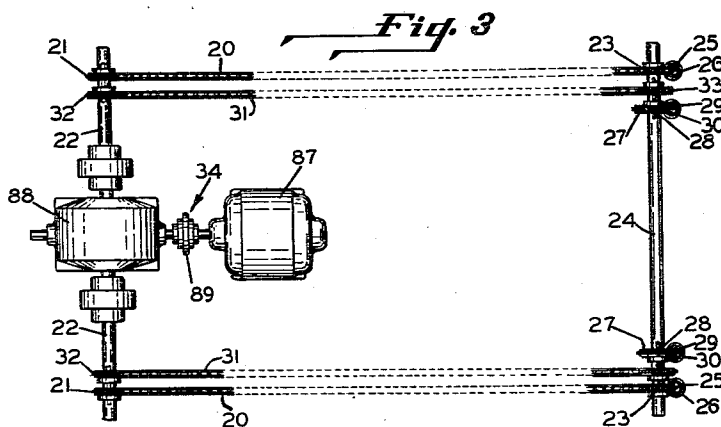
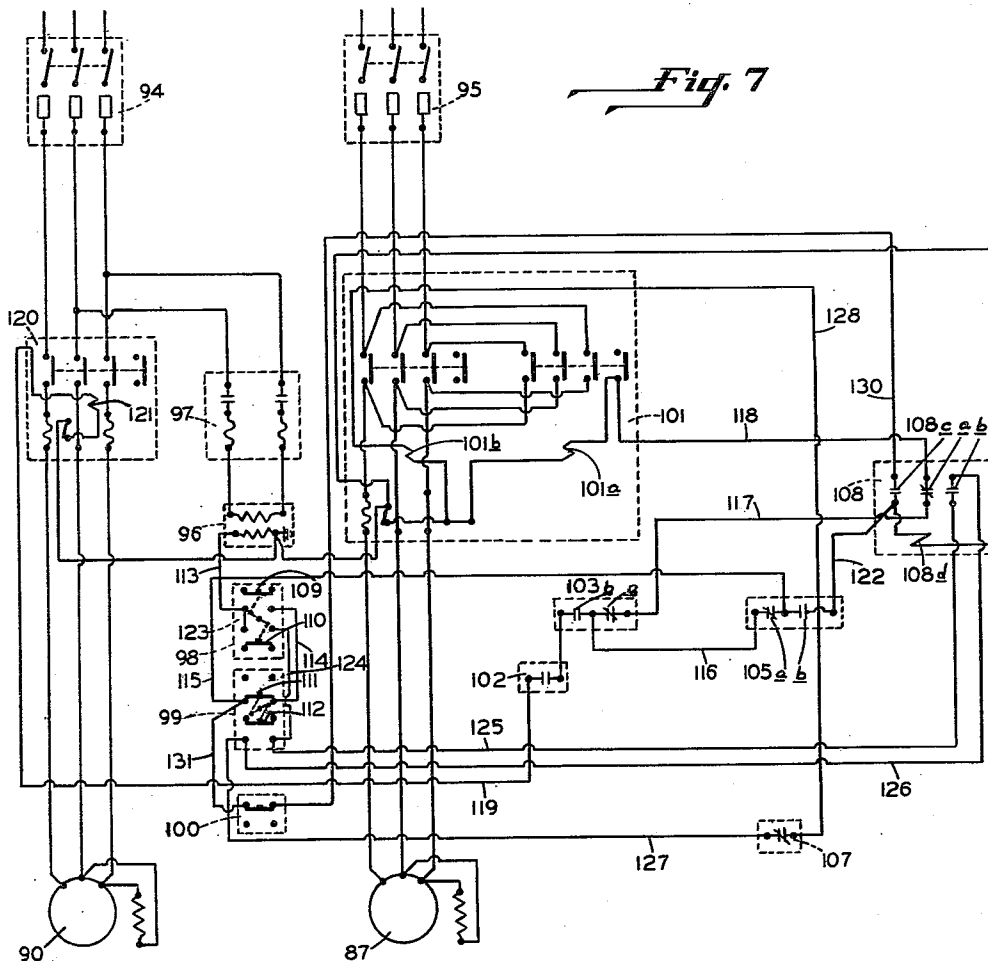
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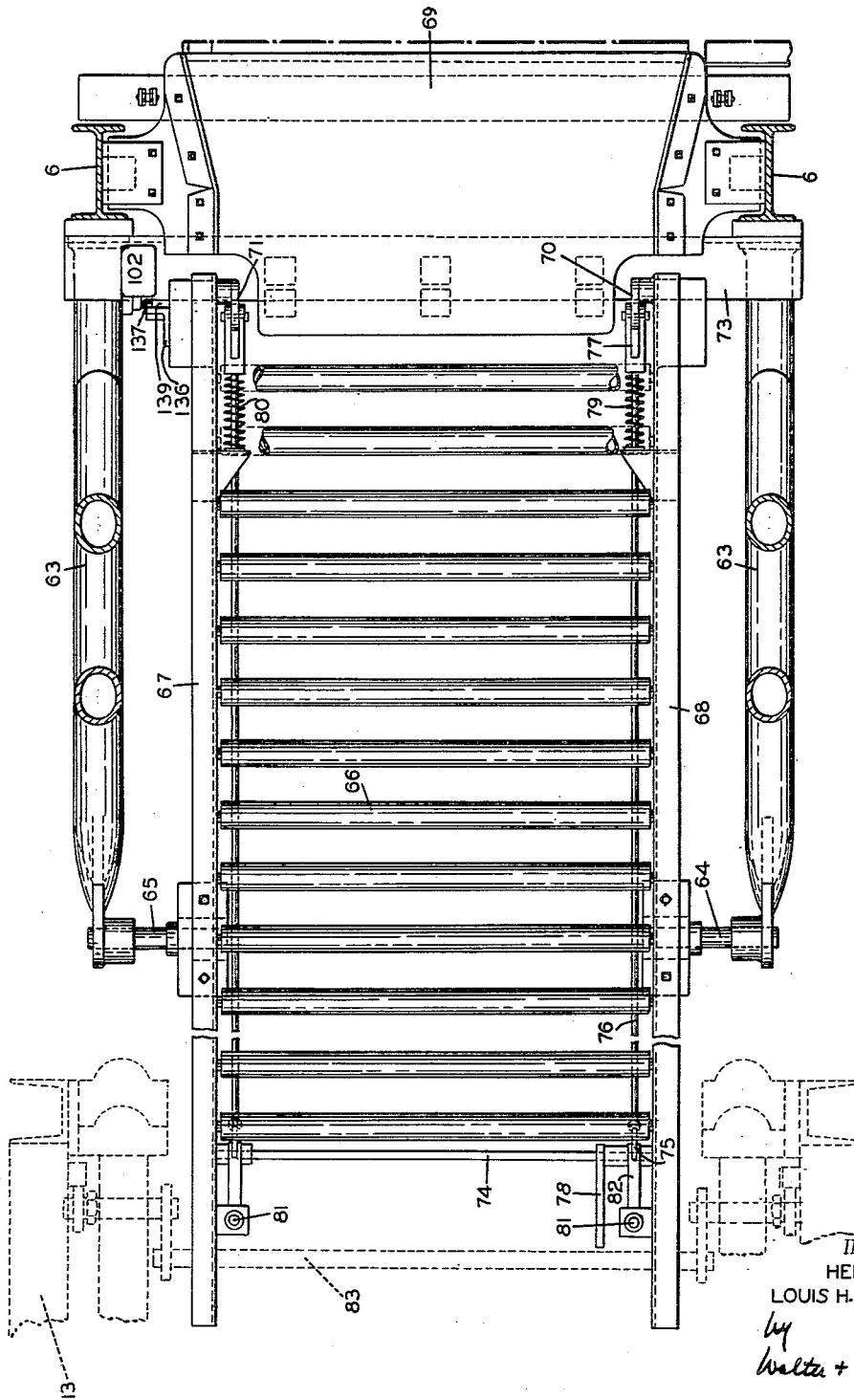


Fig. 5

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1

2,765,102

BLOCK-HANDLING DEVICE

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Application September 22, 1950, Serial No. 186,127

6 Claims. (Cl. 221-14)

This invention relates to a block-handling device and is concerned particularly with a device for receiving a stack of blocks and for delivering the same, one at a time, to a fabricating machine.

In the manufacture of cork composition sheets, such as sheets for fabrication into gaskets or the like, mats or blocks of cork composition are formed and these are severed into sheets of various thicknesses, depending upon the thickness of the gaskets to be fabricated. The blocks or mats may be as much as 50" x 28" x 9" and weigh in the neighborhood of 120-280 pounds. Such blocks are difficult to handle manually, particularly in an inclined splitting machine which is fed from the top.

An object of the present invention is to provide a block-handling device which will receive a stack of blocks on a pallet, for instance, and automatically deliver the same, one at a time, to a fabricating device associated with the block-handling equipment.

A further object of the invention is to provide a block-handling device including a tilting conveyor which may be manually controlled to discharge the blocks individually to the fabricating machine.

Other objects of the invention will become apparent from a consideration of the following description of one embodiment of the invention, reference being made to the accompanying drawings.

In the drawings,

Figure 1 is a side elevational view of the machine;

Figure 2 is a partial sectional view taken on the line II-II of Figure 1 and illustrating the lifting platform arrangement;

Figure 3 is a schematic view illustrating a chain and sprocket drive arrangement for the lifting platform;

Figure 4 is an enlarged partial sectional view taken on the line IV-IV of Figure 2 illustrating the chain unloader control arrangement;

Figure 5 is a top plan view to a scale larger than Figure 1 of the tilting conveyor arrangement of the machine;

Figure 6 is a side elevational view showing details of the tilting conveyor control arrangement; and

Figure 7 is a wiring diagram for the driving motors and control arrangements.

The general arrangement of the machine is shown in Figure 1. It includes a lifting platform generally referred to by the numeral 2, a chain unloader which has been generally indicated by the reference numeral 3, a tilting conveyor designated generally by the numeral 4, and a driving system 5. The mechanism is mounted on a framework 6, consisting of four vertical I beams which may extend from a floor 7 to a ceiling 8. A platform 9 is disposed between the upright columns 6 and carries the driving system 5.

The lifting platform

The lifting platform 2 is illustrated in Figures 1, 2, and 3 and comprises a framework 10 upon which is erected a roller conveyor section 11 (Figure 1) adapted

2

to receive a pallet 12 carrying a plurality of articles such as blocks of cork composition to be delivered by the machine to a fabricating device; for instance, a splitting machine as shown in dotted lines to the left in Figure 1 and indicated with the numeral 13. In Figure 1 a single block of cork composition 14 is illustrated as mounted on the pallet 12, it being assumed that the remaining blocks of cork composition stacked on the pallet 12 have been removed. The framework 10 includes channels 15 and 16 (Figure 2) which are connected by stretcher channels 17 and 18, the members being preferably connected by welding. The channels 15 and 16 are arranged for sliding movement with respect to the upright supporting columns 6, guides 19 being secured to the channel members 15 and 16 to engage webs on the columns 6 and properly guide the frame 10 as it moves vertically parallel to the columns 6.

The frame and the associated supporting mechanism of the lifting platform are carried by chains which are best shown in the diagram of Figure 3; only two of the chains are visible in Figure 1. There are two front chains 20 connected to the front channel 16 of the frame 10 (see Figure 2). These chains are trained over sprockets 21, as shown in Figure 3, which are keyed to driven shafts 22, extend over sprockets 23 which are free to rotate on a cross-shaft 24, and have counterweights 25 attached to their ends. The counterweights are free to move within guarding tubes 26. Two back chains 27 are provided, attached to the rear channel 15 of the frame 10 as illustrated in Figure 2. The chains 27 are trained over sprockets 28 shown in Figure 3 which are keyed to shaft 24. Counterweights 29 are secured to the chains and are received within guarding tubes 30. The shaft 24 is rotated in unison with the shafts 22 through chains 31 which connect sprockets 32 keyed to shafts 22 and sprockets 33 keyed to shaft 24, the driving mechanism for the shafts 22 being indicated generally at 34 in Figure 3.

With this arrangement, driving of the shafts 22 effects a raising and lowering of the lifting mechanism 2, all four lifting chains 20 and 27 moving in unison and thus elevating and lowering the platform while maintaining proper horizontal alignment of the platform with respect to the vertical columns 6.

The chain unloader

The chain unloader 3 is illustrated in Figures 1, 2, and 4. It comprises a pair of chains 35 and 36 upon each of which is mounted a pusher, one, 37, being shown in Figure 1 and the second, 38, being positioned in corresponding location on chain 36 as shown in Figure 4. The chains are trained about sprockets 39 and 40 (Figure 2) and 41 and 42. The sprockets 39 and 41 are keyed to a shaft 43 which extends transversely of the machine and is mounted in bearings 44 and 45 secured to the upright columns 6. The sprockets 40 and 42 are keyed to similar shaft 46 which is journaled in bearings 47 and 48 secured to the other pair of upright supporting columns 6. A guiding trackway arrangement 49 (Figure 4) is provided for the chain 35 and its pusher 37, and a similar trackway 50 is provided for the chain 36 and pusher 38. The trackway includes two inverted channel members 51 which extend between and below the shafts 43 and 46 and three cross supporting channels 52, 53, and 54 which join the inverted channel members into a rigid structure. This structure is supported by six upright members 55 which are attached by flanges 56 to the cross members and similar flanges 57, shown in Figure 1, secured to the platform 9. The members 51 are provided with a machined track surface 58 (Figure 4) against which the rollers of the chains 35 and 36 ride. The rollers are held in engagement with the track surface 58

3

by L-shaped guides 59 and 60 extending along the length of the members 51 and secured thereto.

The shaft 43 is driven through the driving system 5. Keyed to the shaft 43 is a sprocket 61 about which is trained a chain 62 which connects the chain unloader to the driving system.

Upon rotation of the shaft 43, the chains 35 and 36 are moved in unison, and the pushers 37 and 38 engage the block 14 disposed upon the pallet 12 and convey it therefrom in the direction of the arrow shown in Figure 1. The operation and control of the driving system will be more fully hereinafter described.

The tilting conveyor

The tilting conveyor 4 is shown in Figures 1 and 5 and comprises a pair of generally A-shaped supporting frame members 63 which are secured to the upright columns 6 as shown in Figure 1. The conveyor is pivoted to the frame 63 by pivot supports 64 and 65 shown in Figure 5. The conveyor is preferably of the roller type, including a plurality of rollers 66 mounted in channel-shaped supports 67 and 68 which extend from a point adjacent to the delivery end of the chain unloader 3 to a point adjacent to the splitting or other machine 13 to which the blocks 14 are to be delivered. The conveyor is adapted to move from the solid-line position in Figure 1 to the dotted-line position shown in that figure. Its normal position is shown in solid lines, at which it receives the block 14 which is delivered thereon over a guiding shoe 69 affixed to the front columns 6. When the block 14 is moved onto the tilting conveyor 4 by the pushers 37 and 38, the block will assume a position thereon which will tend to cause the conveyor 4 to be tilted toward its dotted-line position. However, such tilting movement is arrested by a pair of latches 70 and 71, each having a keeper portion 72 adapted to underlie the edge of an angle bracket 73 which extends transversely of the machine, between the upright columns 6. It will be observed by reference to Figure 1 that a slight tilting motion may be imparted to the conveyor 4 prior to engagement of the keeper 72 with the angle stop 73. This permits the operation of an electrical control switch which is actuated upon the delivery of each block from the lifting platform to the tilting conveyor by the chain unloader. The action of this switch will be more fully described.

A manual control is provided for the latches 70 and 71 and comprises a cross-shaft 74 which is shown in Figure 5. Keyed to the cross-shaft 74 is an arm 75 which is connected through a rod 76 to a yoke 77 pivoted to the latch 70. A similar arm, connecting rod, and yoke arrangement is provided for the latch 71. An operating handle 78 is keyed to the cross-shaft 74, and when this handle 78 is rotated in a counterclockwise direction as viewed in Figure 1, the latches 70 and 71 are retracted and the conveyor is free to move to its fully tilted position as shown in dotted lines in Figure 1. Springs 79 and 80 are provided for returning the latches to a position where they will normally latch under the cross angle stop 73 when the conveyor moves to its normal position upon discharge of a block positioned thereon.

A pair of stops 81 may be provided, projecting above the tops of the rollers 66 to engage the block being delivered and arrest its movement off the conveyor. These stops are retractable and are linked to the operating handle 78 by links 82 to be retracted upon counterclockwise movement of the handle. Initial movement of the handle unlatches the tilting conveyor; and the block thereon, if it has not moved into engagement with the stops 81, rolls to such position upon further tilting of the conveyor which is permitted upon release of the latches. When the conveyor has assumed the dotted-line position shown in Figure 1, the full tilted position where the conveyor is in proper alignment with the roller conveyor of a splitting machine 13, the operator moves the operating

4

handle 78 a distance sufficient to fully retract the stops 81 and the block rolls into the splitting machine 13.

In order to positively position the conveyor 4, the splitting machine 13 is provided with a bar 83 which is engaged by stop blocks 84 provided on the tilting conveyor. The bar 83 is preferably pivoted as indicated in Figure 5 to permit it to be swung out of position to thus permit the tilting conveyor 4 to assume a position below the splitter 13, should it be desired to discharge a block from the conveyor onto the floor 7.

The driving system

The driving system 5 is shown in Figure 1. It is mounted on the platform 9 which is supported by transverse frame members 85 and 86 secured to the upright columns 6. The drive 34 for the lifting platform includes a motor 87 connected to a gear reduction unit 88 by a flexible coupling 89. The gear reduction unit drives shafts 22, to which are keyed the sprockets for the chains 20 and 27.

The drive for the chain unloader includes a motor 90 which drives a gear reduction unit 91 through a flexible coupling 92. The reduction unit 91 drives a sprocket 93 about which the chain 62 is trained.

The control arrangement

The control arrangement is illustrated by a wiring diagram constituting Figure 7. The desired control is to first elevate the loading platform to a position where the chain unloader may convey the uppermost block on the pallet 12 onto the tilting conveyor 4. The tilting conveyor controls the delivery of the next lower block in the stack to the conveyor only after the block on the conveyor has been discharged to the machine 13. Thereupon, the next block is delivered from the stack to the conveyor. When the last block has been removed from the pallet, the control is effective for lowering the elevator to its loading position, ready for reception of a new stack of blocks to be delivered.

As illustrated in Figure 7, the control arrangement includes a pair of manually operated, fused safety switches 94 and 95, the switch 94 being for the circuit to motor 90 and the switch 95 being for the circuit to motor 87. In the embodiment illustrated, the motors are operated by 440 volt, 3 phase, 60 cycle current. When the switch 94 is closed, a circuit is completed for a control transformer 96 through a manually operated overload switch 97. The control transformer 96 supplies 110 volt, 60 cycle current for the control circuits.

Mounted on one of the columns 6 or in any other convenient location are three manual push button switches generally indicated by the numbers 98, 99, and 100.

A conventional magnetic motor-reversing switch 101 is provided for the motor 87. A plurality of limit switches are also provided on the machine, including a tilting conveyor limit switch 102 which is shown in detail in Figure 6 and will be more fully hereinafter described. This switch is normally open as indicated in Figure 7. Lifting platform and chain unloader control switch 103, which is electrically connected in series with switch 102, is of the single pole, double throw type. It is shown in detail in Figure 4 and will be more fully hereinafter described. This switch as shown in Figure 1 is controlled by a contact arm 104 which is engaged by the uppermost block 14 on the pallet 12. A lifting platform upper limit switch 105 is provided on one of the front columns 6 as shown in dotted lines in Figure 1 and also appears in Figure 2. This is a single pole, double throw switch having a contact actuating arm disposed in the path of travel of the lifting platform supporting frame which carries a switch actuator finger 106 as shown in Figure 2. A normally closed "down" limit switch 107 is also mounted on one of the columns 6 as shown in Figure 1, and the switch actuator finger 106 positioned on the frame of the lifting platform also actuates this limit switch. A

5

control relay 108 is mounted on the panel with the push button switches 98, 99, and 100 as generally indicated in Figure 1. The control relay is provided in the circuit for the control of the automatic return of the lifting platform to its lowermost loading position after the last block has been removed by the chain unloading conveyor.

The control circuits and operation of the driving system

In the operation of the device, assuming that the loading platform is in its lowermost position and a stack of blocks 14 on the pallet 12 have been positioned ready for elevation, the operator first closes the manual switches 94 and 95. This energizes the control transformer 96 through switch 97, and the control circuits are then provided with 110 volt current. The operator then presses a "start" button 109 of switch 98, which button, as indicated in Figure 7, is mechanically interlocked with a "stop" button 110. This is a conventional start-stop push button switch. The operator then presses an "up" button 111 of switch 99 which is mechanically interlocked with a "down" button 112. This switch is of the same construction as switch 98. This completes a circuit for motor 87 in the following manner: from transformer 96, by lead 113, through "start" button 109 (the switch 98 is shown in "stop" position in Figure 7), lead 114, "up" button 111 (the switch 99 is shown in "up" position in Figure 7), lead 115, to the loading platform "up" limit switch 105, through the normally closed contact 105a thereof, lead 116, through the normally closed contact 103a of lifting platform and chain unloader control switch 103, lead 117, normally closed contact 103a of control relay 108 and lead 118, to an "up" holding coil 101a of the magnetic motor-reversing switch 101. Switch 101 when the "up" holding coil is energized causes motor 87 to be rotated in a direction which will cause the lifting platform to be elevated.

When the lifting platform has moved to a position where the uppermost block 14 comes into engagement with the actuating arm 104 of the switch 103, the normally closed contact 103a of that switch is opened and the normally open contact 103b is closed, thus breaking the circuit for the "up" coil 101a of the magnetic motor-reversing switch 101. This stops the motor 87.

The tilting conveyor 4 will be in the position shown in solid lines of Figure 1, and in this position the normally open switch 102 which is actuated by a control member carried by the conveyor 4 will be closed. This will complete a circuit for motor 90 in the following manner: Current from the transformer 96 is flowing in the circuit previously described up to limit switch 103 which has its normally open contact 103b closed, as previously described. Closing of the normally open switch 102 by the tilting conveyor 4 will complete a circuit, and current will then flow through lead 119 to magnetic motor-starting switch 120, energizing the control coil 121 thereof, and motor 90 will be energized. Upon such energization of motor 90, the block-unloading conveyor 3 will be rotated with the pusher arms 37 and 38 engaging the uppermost block 14 and sliding it over the guiding shoe 69 onto the tilting conveyor 4. As soon as the block 14 moves beyond the control arm 104 of the switch 103, the circuit for the motor 90 will be opened by reason of the opening of the normally open contact 103b of switch 103 and the closing of the normally closed contact 103a thereof. As the block 14 rolls on the conveyor 4, the conveyor is tilted to a position where the latches 70 and 71 lie in engagement with the angle stop 73. This tilting movement actuates the limit switch 102, permitting it to return to its normally open position. Simultaneously with the actuation of switch 103, upon removal of the uppermost block 14 and falling of control arm 104, the circuit for motor 87 is again completed through the circuit previously described, and the lifting platform is elevated to bring the next block to be removed from the stack into proper position for such

6

removal, the block engaging the contact arm 104 upon attaining the desired position and again interrupting the supply current to the motor 87.

When the machine 13 is ready to receive a new block for fabrication, the operator pivots operating handle 78, releasing latches 70 and 71, whereupon the conveyor tilts to the dotted-line position shown in Figure 1 and the block rolls into the machine 13. The tilting conveyor 4 is counterbalanced so that upon delivery of the block therefrom it returns to the normal solid-line position shown in Figure 1, and this automatically closes the tilting conveyor limit switch 102; and the block in position to be received by the tilting conveyor 4 is then conveyed thereon by the chain unloader in the manner previously described.

After the removal of the last block on the pallet 12, the lifting platform will be elevated a very slight distance, sufficient to cause the control finger 106 carried by the lifting platform frame to engage the loading platform "up" limit switch 105. When this occurs the following circuit is completed for the automatic lowering of the lifting platform to its lowermost or loading position: The normally closed contact 105a of switch 105 is opened, and this opens the circuit to the magnetic motor-reversing switch 101, through its "up" holding coil 101a. This prevents any further elevation of the lifting platform. At the same time, the normally open contact 105b of the switch 105 is closed, and this energizes the holding coil 108d of control relay 108 through a lead 122 which is connected through the now closed but normally open contact 105b of switch 105 and lead 115 previously described. When the relay is energized, its normally closed contact 108a is opened and its two normally open contacts 108b and 108c are closed. The normally closed contact 108a controls the circuit to the "up" holding coil 101a of the magnetic motor-reversing switch, and when open insures that further "up" movement of the lifting conveyor will not occur. When the relay 108 is energized and contact 108b is closed, the circuit for the "down" holding coil 101b of the magnetic motor-reversing switch 101 is completed in the following manner: The circuit is completed from transformer 96 through lead 113, a lead 123, button 110 which is in its elevated position when the "start" button 109 has been pressed, as previously described, through leads 124 and 125 to contact 108b of relay 108, and from the contact 108b through a lead 126, a lead 127, and normally closed "down" limit switch 107 and lead 128, to the "down" holding coil 101b of switch 101. This completes the circuit for the motor 87 to rotate the same in a direction to lower the lifting platform. As soon as the platform starts to lower, the actuating finger 106 will move away from the control arm of switch 105, and the circuit for the "down" holding coil 101b normally would be broken. A holding circuit is, therefore, provided through the relay 108, including a contact 108c which as previously mentioned is normally open but is closed upon energization of the coil 108d of the relay. Thus when the normally open contact 105b of switch 105 returns to its normal position, the contact 108c maintains the circuit for the relay coil 108d through lead 130, reset "up" switch 100, and a lead 131. As the platform continues its downward travel, the finger 106 will actuate the "down" limit switch 107 as previously mentioned. When this occurs the circuit for motor 87 is interrupted by de-energization of "down" holding coil 101b. After the lifting platform has been reloaded, and it is desired to repeat the cycle, the reset "up" button of switch 100 is pressed, breaking the circuit for the coil 108d of relay 108 through the holding contact 108c; thus, the relay is de-energized. When the control relay 108 is de-energized, the machine automatically starts in operation and the platform is elevated.

Should it be desired for one reason or another to lower the lifting platform prior to the removal of the last block,

the "down" button 112 of switch 99 is pressed which completes the circuit for the "down" holding coil 101b of the magnetic motor-reversing switch 101, through lead 127, "down" limit switch 107 which is normally closed, and lead 128 to the "down" holding coil 101b. The downward movement of the lifting platform continues until switch 107 is opened, whereupon further movement is arrested. When it is desired to re-elevate the lifting platform, subsequent to such emergency lowering, the operator presses the "up" button of the switch 99, and the operation may then proceed in the normal manner.

When it is desired to stop the machine, the operator presses the "stop" button 110 of switch 98, thus breaking all connections from control transformer 96 to motor switches 101 and 120. (The switch 98 is illustrated in "stop" position in Figure 7.)

The switch actuators

The control arrangement for switch 103 is illustrated in Figure 4. Actuating arm 104 is pivoted at 132 and includes a contact actuating finger 133. Switch 103 has an actuating arm 134 to which is journaled a roller 135. The arm 104 is shown in its depending position, with the switch 103 in a condition where its normally closed contact 103a is in closed position. The dotted-line position of the arm 104 shown in Figure 4 indicates the position assumed by the parts when the arm 104 is engaged and elevated by a block 14 on the pallet 12 and with the switch 103 reversed.

The control mechanism for the tilting conveyor limit switch 102 is shown in Figure 6. A portion of the equipment also appears in Figures 1 and 5. The frame member 67 of the conveyor has mounted adjustably thereon an actuating cam 136 which is adapted to engage a roller 137 journaled on an actuating arm 138 of the switch 102 which is fixed to the machine frame. As the conveyor tilts about the pivots 64 and 65, as shown in Figure 5, within the limits allowed by the latches 70 and 71, as shown in Figure 1, the roller 137 will move in a clockwise direction along the cam surface 139 of the cam plate 136. Such rotational movement is effective for actuating switch 102, and the contacts of the switch will move to their normally open position. When the conveyor is returned to its horizontal position, the switch will be rotated in a counterclockwise direction and its contacts will be automatically closed. The actuators for switches 105 and 107 are conventional.

The pallet safety control

A pallet safety control may be provided on the lifting platform 2 to prevent accidental movement of the pallet and the blocks contained thereon during movement of the lifting platform. In the embodiment illustrated, there is provided a safety stop 140 which in the position shown in Figure 1 extends above the bottom of the pallet 12. The stop 140 is actuated by a pivoted arm 141 which is counterweighted so as to normally hold the stop 140 in elevated position. When the platform 2 is lowered for the discharge of an empty pallet 12 and the reception of a loaded pallet, the actuating arm 141 will engage the floor 7, retracting the stop 140 and permitting the empty pallet 12 to be rolled from the lifting platform and a loaded pallet to be positioned therein. As the lifting platform is elevated the counterweighted control arm 141 will fall, elevating the stop 140 to the position shown in Figure 1. Limiting stops 142 are provided on the opposite side of the platform 2, as shown in Figure 1, to limit the movement of the pallet 12 in the opposite direction.

We claim:

1. In block-handling apparatus, the combination of a platform for supporting a plurality of stacked blocks, means for elevating said platform, means engageable with the uppermost block on said platform for limiting

the upward elevating movement of said platform to position said uppermost block for removal from said platform, a block unloader movable transversely of said platform to engage said uppermost block on said platform to slide the same therefrom, a tilting conveyor to receive said uppermost block when slid from the platform when said conveyor is in one position and to deliver the same therefrom when said conveyor is tilted into another position, and means controlled by movement of said conveyor toward said tilted position for limiting movement of said block unloader to the interval when said conveyor is in said first-mentioned block-receiving position.

2. In block-handling apparatus, the combination of a platform movable vertically with a plurality of blocks stacked thereon; a block unloader movable horizontally across the platform and engageable with a block disposed on the platform to slide the same therefrom; an electric motor for driving said unloader; a tilting conveyor movable from a substantially horizontal block-receiving position to an inclined block-delivery position, said conveyor receiving a block delivered thereto from said platform by said unloader; and electrical control means for said unloader motor to actuate the same for delivery of a block from said platform only during the interval when said platform is elevated to dispose a block in position to be discharged and said tilting conveyor is in its substantially horizontal block-receiving position, said control means comprising a switch controlled by elevating movement of said platform to block-discharging position and a switch controlled by movement of said conveyor to said substantially horizontal block-receiving position, said switches being electrically connected in series.

3. In block-handling apparatus, the combination of a vertically movable lifting platform for supporting a stack of blocks to be discharged, an unloader movable across said platform including a pusher engageable with the uppermost block in the stack, means for elevating said lifting platform including a motor and a drive connecting said motor to said platform, means for moving said pusher including a motor and a drive connecting said motor to said pusher, means for controlling said lifting platform motor to elevate the same upon removal of the uppermost block from said stack, and means for controlling said unloader motor responsive to elevating motion of said lifting platform which brings the uppermost block in said stack to a predetermined position for unloading, said means comprising a double-acting switch for alternately electrically connecting said unloader motor and said lifting platform motor to a current source and an actuator for said switch lying in the path of movement of said uppermost block.

4. In block-handling apparatus, the combination of an elevating platform for supporting a plurality of stacked blocks; means for lifting said platform including an electric motor; a control switch for said lifting platform motor actuated upon attainment of a predetermined unloading position by the uppermost block in the stack to be unloaded; a tilting conveyor to receive each unloaded block discharged from the platform and movable from a generally horizontal block-receiving position to an inclined block-delivery position; an unloader movable relative to said platform and engageable with the uppermost block on said platform to slide the same therefrom, said unloader including an electric motor; and a control switch for said unloader motor which is actuated by movement of said tilting conveyor to its normally generally horizontal position from an inclined position, said unloader control switch being electrically connected in series with the lifting platform control switch to control the operation of said unloader motor to limit the movement of said unloader to that interval when said lifting platform is in said elevated position and a block is disposed in un-

9

loading position thereon and said tilting conveyor is in block-receiving position.

5. In block-handling apparatus, the combination of a lifting platform for supporting a plurality of stacked blocks; means for lifting said platform including an electric motor; a control switch for said lifting platform motor actuated upon attainment of a predetermined unloading position by the uppermost block in the stack to be unloaded; a tilting conveyor to receive each unloaded block discharged from the platform and movable from a generally horizontal position to an inclined position; latching means for holding the tilting conveyor from movement when in a partially tilted position; means for releasing said latching means; an unloader movable relative to said platform and engageable with the uppermost block on said platform to slide the same therefrom, said unloader including an electric motor; and a control switch for said unloader motor actuated by movement of said tilting conveyor to its normally generally horizontal position from an inclined position, said unloader control switch being electrically connected in series with the lifting platform control switch to control the operation of said unloader motor.

6. In block-handling apparatus, the combination of a platform for supporting a plurality of stacked blocks, 25

10

means for elevating said platform including a driving motor, a block unloader for removing the uppermost block on the platform, and means for actuating said block unloader including a driving motor and a double-throw switch disposed for engagement by the uppermost block on said platform for controlling said driving means to limit elevational movement of said platform by its driving motor and to initiate an unloading movement of said block unloader with said switch in one position and to initiate elevating movement of said platform by its driving motor and to limit unloading movement of said block unloader by its driving motor with said switch in an opposite position.

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