United States Patent [19]

Golantsev et al.

[11] **3,837,140**

[45] **Sept. 24, 1974**

[54] **STACKING MACHINE**

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[22] Filed: **June 29, 1973**

[21] Appl. No.: **374,951**

[52] **U.S. Cl.** ..... **53/159,** 53/61, 53/247, 214/6 DK

[51] **Int. Cl.** **B65b 35/30**

[58] **Field of Search** ..... 53/159, 164, 247, 61; 214/6 DK, 6 P

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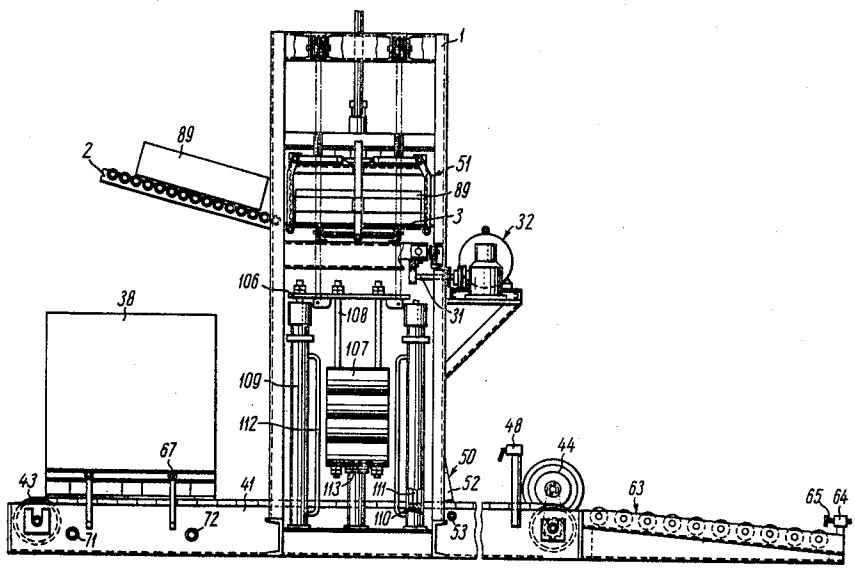
Attorney, Agent, or Firm—Eric H. Waters

[57] **ABSTRACT**

A stacking machine wherein a lever grab for loads is mounted above an accumulating table. The grab performs vertical motions under the effect of a counterweight whose mass is greater than that of the empty grab but smaller than that of the grab with the load.

6 Claims, 7 Drawing Figures



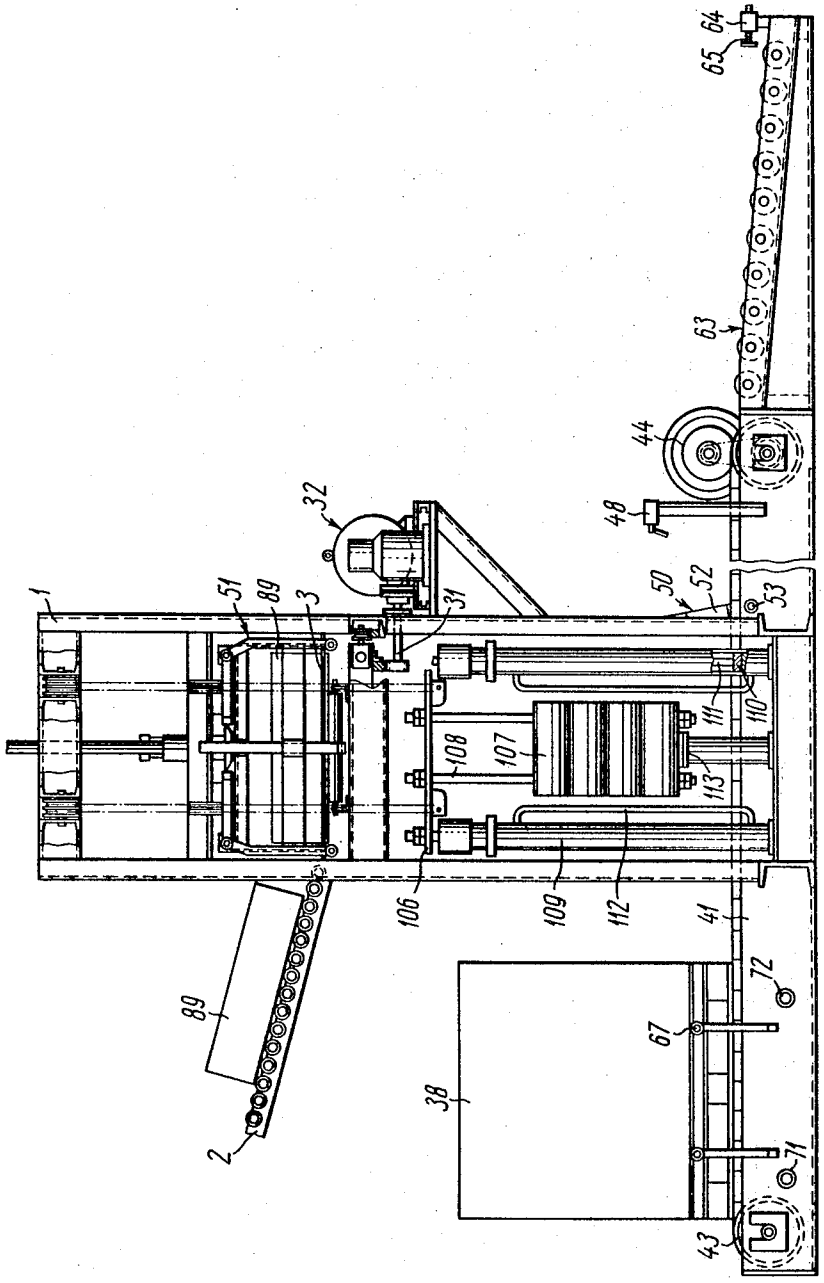

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FIG. 1

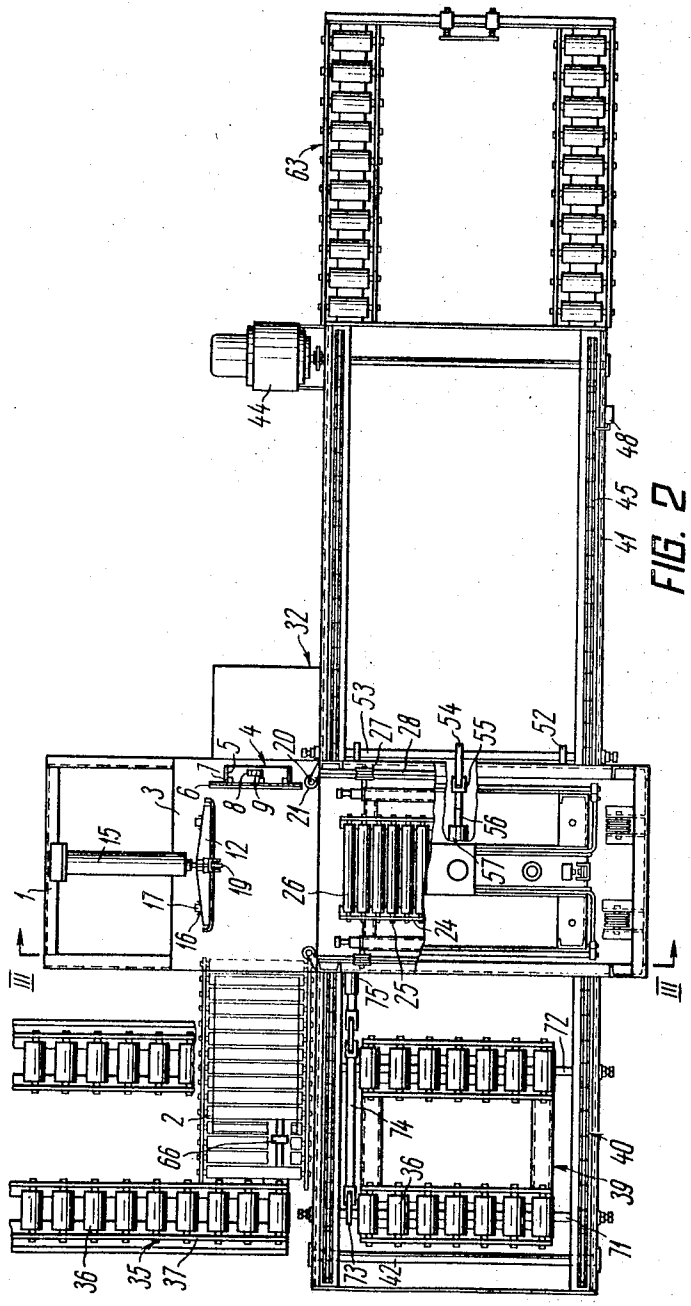
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FIG. 2

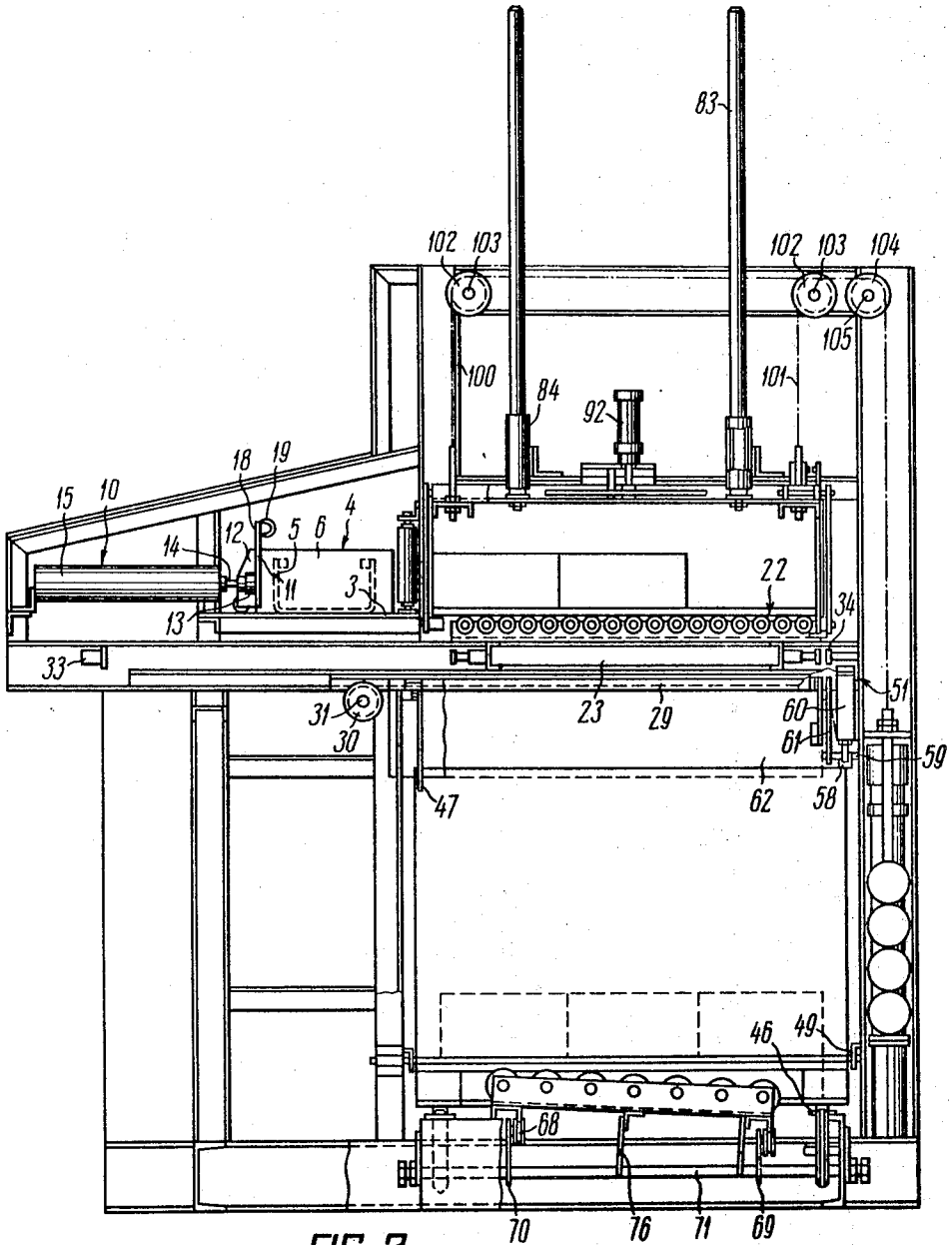
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FIG. 3

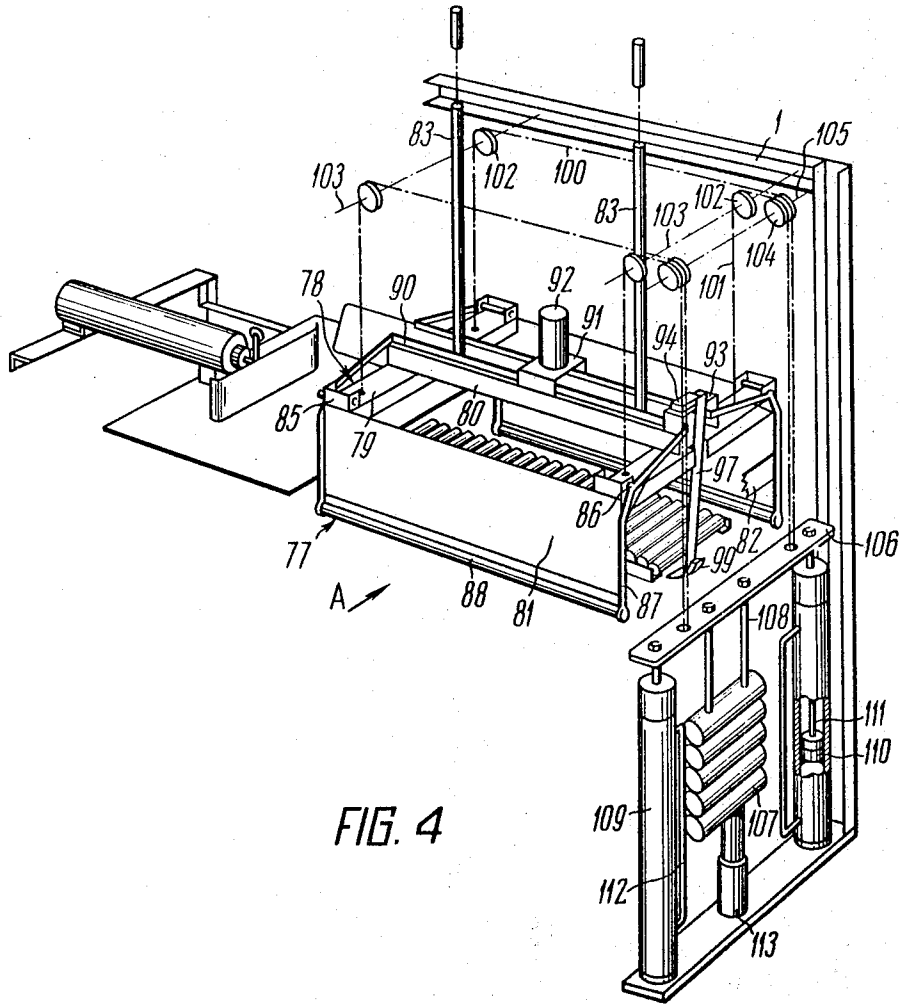
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FIG. 4

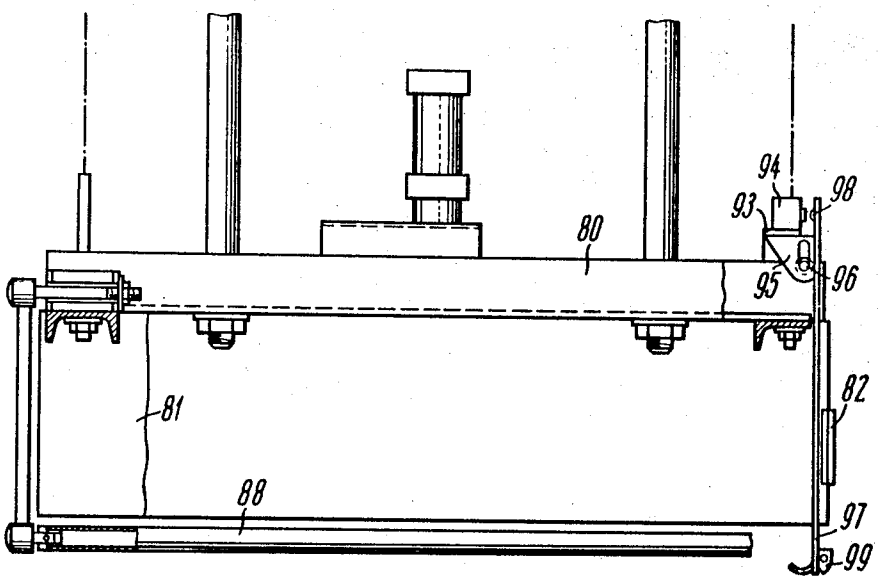

FIG. 5

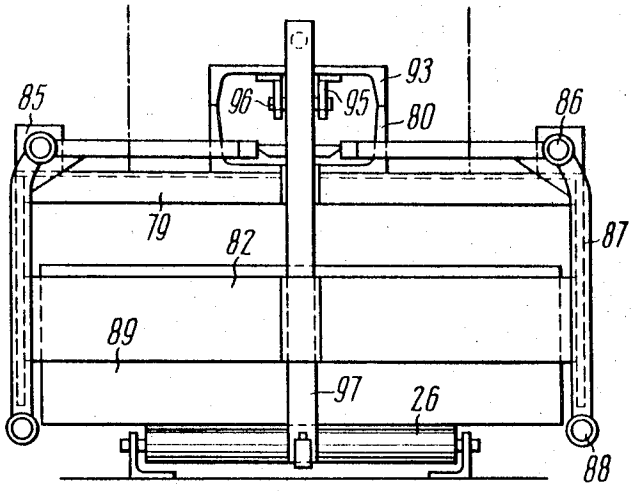

FIG. 6

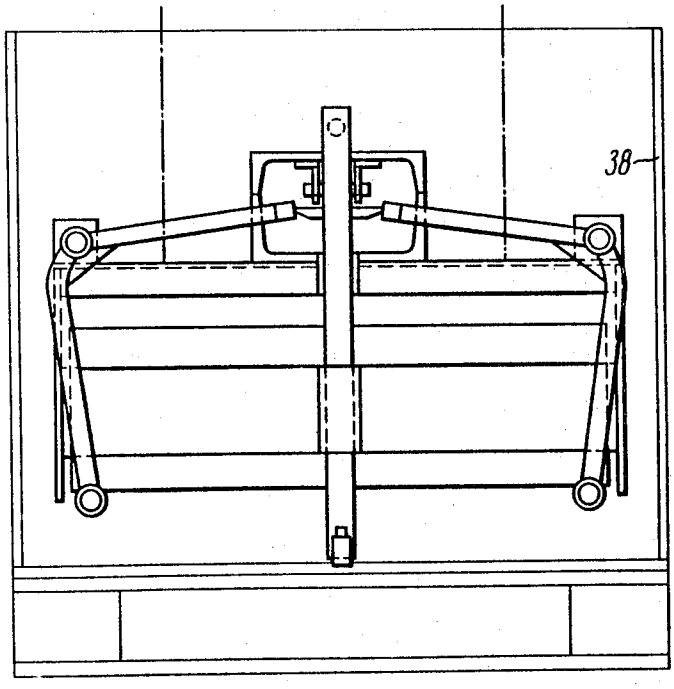

FIG. 7

STACKING MACHINE

The present invention relates to the stacking machines designed for placing separate articles on a pallet or into a container.

This invention can be used in food, chemical, petrochemical and other branches of industry for consolidating piece loads into sets for subsequent mechanized loading.

Most successfully this invention will be used for stacking the loads, e.g., rubber briquettes, which can gradually change their shape and dimensions and must, therefore, be quickly placed into closed containers.

Known in the previous art is a stacking machine for parallelepiped-shaped piece loads comprising a feeder conveyor for carrying loads to a receiving table mounted on the frame of the machine and provided with a pusher which shifts the loads onto an accumulating table which is mounted somewhat below the receiving table and is installed on the frame with a provision for horizontal movement, said accumulating table being provided with a separately driven mechanism for moving the loads from the table surface into containers delivered under it by a conveyor which serves simultaneously for carrying away the loaded containers.

As a rule, the stacking machine is used as a compenent of a production line, therefore the feeder conveyor delivers the loads into the machine from the preceding mechanisms. The feeder conveyor of the known machine is made in the form of an inclined roller conveyor the first two rollers of which are of the driving type for picking up loads from the preceding mechanism. The feeder roller conveyor is continued by a horizontal receiving table which consists of a welded frame supporting a number of rollers whose axes are perpendicular to those of the feeder conveyor rollers. The receiving table is provided with an air cylinder whose rod ends in a pusher intended to move the loads from the receiving table on the accumulating table installed after the receiving table.

The accumulating table is made of rolled sections welded into an integral structure. It comprises systems of mutually perpendicular rollers. Short rollers serve as a continuation of the receiving table. Mounted on their frame, they are capable of moving vertically, sinking below the perpendicular long rollers or, during the reverse motion, protruding above them slightly. Located in the lower part of the table is a system of levers actuated by an electric motor via a speed reducer; this system of levers reciprocates the accumulating table at the same time retaining the horizontality of the roller installation plane. The table is equipped with an ejector which functions when the table returns to the initial position.

Installed directly opposite the accumulating table is a vertical welded frame with a vertically movable gripper fork which is actuated by an electric motor via chain transmissions. While moving from the uppermost to the downmost piston, the gripper fork can stop in five intermediate positions. The gripper fork is intended to hold the pallet in the course of its loading.

The roller track for the entrance of pallets is a welded frame with free-rotating rollers set at a small angle to ensure sliding of the pallet over the track towards the gripper fork. The pallet is kept from moving beyond the gripper fork by a stop located after the gripper fork, the latter being capable of sinking below the level of the

roller track for the pallets. This stop has a drive mechanism which shifts it down on a special command thus allowing the pallet to move farther over the roller track up to the arrester, a sturdy welded support which prevents the loaded pallet from coming off the roller track. The guides provided on the sides of the track direct the pallet along a straight line and hold it on the roller track.

The stacking machine of the known design functions as follows.

A rubber briquette wrapped in polyethylene film is delivered from the preceding mechanisms of the line, picked up by the driving rollers of the feeder conveyor, rolls down by inertia over the idle rollers and, at the end of its travel, presses a limit switch which turns off the roller drive thus preventing the untimely entrance of the next rubber briquette onto the feeder conveyor. Simultaneously, an electromagnetic valve admits air into the air cylinder. As the cylinder piston moves, the pusher on its rod shifts the briquette over the rollers onto the accumulating table. The piston is stopped by a limit switch which turns off the electromagnetic valve. This operation is repeated three times until three rubber briquettes are placed on the accumulating table.

An empty pallet is placed by an electric loader on the roller track for the pallers before switching the machine over to automatic operation. The pallet presses a limit switch which sends a command to lower the gripper fork below the roller track for bringing in the pallets. Sliding over the roller track, the pallet enters the zone above the gripper fork, is arrested by the rising stop and presses the limit switch.

After the piston and pusher have delivered three rubber briquettes on the accumulating table, the first briquette moves along the pusher axis and presses the limit switch which turns on the gripper form lifting mechanism. The limit switch that has been pressed by the pallet closes the circuit and starts the electric motor; the gripper fork with the empty pallet rises to the topmost position and presses the limit switch thus stopping the lifting motor of the gripper fork and starting the drive motor of the accumulating table. The table goes down and enters the pallet from the side of its open wall, shifting the rubber briquettes. During this motion the accumulating table presses the limit switch which reverses the table drive motor. During the reverse motion of the accumulating table the ejector stops the briquettes which move over the long rollers without contacting the short rollers. As a result, the pallet is filled with three rubber briquettes in one layer. During the reverse motion the accumulating table presses a limit switch thus stopping the electric motor.

When three more briquettes of rubber have been delivered on the accumulating table, the limit switch turns on the electric motor and the gripper fork with the pallet starts descending until it comes in contact with a limit switch which turns on the drive motor of the accumulating table and the pallet is loaded with the next layer of rubber briquettes.

This operation is repeated four or five times depending on the number of briquette layers in the pallet which can be selected by turning the handle of a special changeover switch.

After placing the last layer of briquettes, lowering of the gripper fork with the loaded pallet, and returning of the accumulating table to the initial position the cor-

responding limit switches are pressed, the gripper fork goes down below the roller track and, on reaching the downmost position, presses a limit switch which stops its further movement.

The pallet loaded with rubber briquettes comes down on the roller track, presses the stop which is released at the time, and moves further down thus freeing the way for the pallet which slides over the rollers, strikes the arrester and stops. The stop is returned by springs to the initial position. The loaded pallet is lifted off the roller track by a battery-powered loader and is taken away for installing the wall and the cover.

At the same time the next empty pallet without the cover and one wall slides down along the roller track, turns on the limit switch and comes to the stop in the zone of the gripper fork. A pilot lamp lights up on the panel indicating that the pallet has been replaced by a new one.

The operating cycle of the machine is completed and followed automatically by the next cycle of filling the pallet with rubber briquettes.

This stacking machine is characterized by a number of disadvantages, one of which being the necessity of using special containers, i.e., a pallet with the front wall removed. This increases the amount of labour for assembling and disassembling the containers. Besides, when the pallets are filled with a cold-flowing material, in this case rubber, the briquettes of the lower layer may protrude beyond the outlines of the pallet through its open wall which hinders considerably the final assembly of the container for further transportation.

Another disadvantage of the machine lies in that the pallet must be lifted by a special gripper in the course of its loading. This complicates the design of the machine.

Besides, the machine comprises a large number of electric motors and air cylinders interconnected by an automatic control system which likewise complicates the design of the machine considerably and increases the power consumption.

The object of the present invention resides in eliminating the aforesaid disadvantages and providing a more efficient and reliable stacking machine.

This and other objects of the invention are achieved by providing a stacking machine for parallelepiped-shaped piece loads comprising a feeder conveyor for carrying loads to a receiving table mounted on the frame of the machine and provided with a pusher which shifts the loads onto an accumulating table which is mounted somewhat lower than the receiving table and is installed on the frame with a provision for horizontal movement, said accumulating table being provided with a separately driven mechanism for moving the loads from the table surface into containers which are delivered under it by a conveyor which serves simultaneously for carrying away the filled containers.

According to the invention, the mechanism for moving the loads from the accumulating table into containers is made in the form of a lever grab mounted on the frame of the machine with a provision for moving up and down above the accumulating table.

This enables the loads to be placed into completely prepared containers.

In one embodiment of the invention each lever of the grab consists of two racks set at an angle to each other and rigidly fastened to each other, the jointing point of the racks serving as the axis of lever rotation.

In another embodiment of the invention the grab consists of four levers arranged in pairs in two parallel vertical planes, the ends of the levers being connected by two pairs of bars which are perpendicular to these planes, one pair of the bars being intended to pick up the load from the accumulating table while the other one connects the levers with one another and, via an intermediate member, with the drive.

It is practicable that the lever grab be provided with a counter-weight whose mass is smaller than that of the grab with the load but greater than the mass of the empty grab for returning the latter to the initial position after releasing the load.

The use of the counterweight for the up-and-down motions of the loaded and empty grab reduces the consumption of power during operation of the machine.

Still another embodiment of the invention comprises a counterweight with a shock absorber ensuring uniform motions of the grab.

In a further embodiment of the invention the shock absorber consists of at least one vertically-mounted hydraulic cylinder whose piston rod is rigidly connected with the counterweight while the under-piston and above-piston spaces intercommunicate through a by-pass pipe provided with a device for changing its resistance to the flow of the working fluid.

Now the invention will be described in detail by way of example with reference to the accompanying drawings, in which:

FIG. **1** illustrates a stacking machine, front view;

FIG. **2** same, plan view;

FIG. **3** is a section taken along line III—III in FIG. **2**;

FIG. **4** is an axonometric projection of the grab with a counterweight and a shock absorber;

FIG. **5** is a view along arrow A in FIG. **4**;

FIG. **6** illustrates the position of the grab levers placing a briquette on the accumulating table;

FIG. **7** — same, at the moment of lowering the briquettes into the container.

The stacking machine is mounted on a load-bearing frame **1** (FIG. **1**) and comprises an adjoining feeder roller bed **2** serving for delivering the loads into the machine. At the outlet end of the roller bed **2** there is a receiving table **3** secured horizontally on the frame **1** and made in the form of a carefully ground steel sheet. An arrester **4** (FIG. **2**) installed on the receiving table **3** opposite the outlet end of the roller bed limits the movement of the loads delivered from the roller bed **2.**

The arrester consists of a U-shaped post **5** secured on the receiving table **3** and having slots in the base for fastening a plate **6** in various positions depending on the nature of the loads. The plate **6** is free to turn in axles **7** secured to the U-shaped post **5.** Fastened to this post **5** on a bracket **8** is a limit switch **9** whose pintle is located at a certain distance from the plate **6.**

Installed above the receiving table **3,** square to the direction of the moving loads is a pusher **10** (FIG. **3**). It is made in the form of a vertical plate **11** with bent edges, provided with stiffener ribs **12** and a boss **13** arranged in the centre of said plate **11** at the side opposite to the loads entering the receiving table **3.** The boss **13** serves for connecting the plate **11** to the rod **14** of an air cylinder **15** secured horizontally on the frame **1.** The function of the air cylinder **15** is to move the plate **11** of the pusher **10** parallel to the surface of the receiving table **3.** Misalignment of the rod **14** and wear of the

glands of the air cylinder 15 are prevented by installing rubber-rimmed rollers 17 at the lower (on the drawing) edge of the plate 11 on brackets 16, said rollers resting on the surface of the receiving table 3.

The upper part of the plate 11 of the pusher 10 is provided with a supporting roller 19 secured on a bracket 18.

Installed on both sides of the pusher 10 on vertical axles 20 are guide rollers 21 which orient the load as it is being moved by the pusher 10 from the receiving table 3. The ends of the axles 20 are secured in such a manner that they can be transferred, if necessary, in the direction perpendicular to the axis of the pusher 10 to suit the size of the load. An accumulating table 22 arranged horizontally, slightly lower than the receiving table, has a welded frame 23 of its own provided with two parallel angle bars 24 whose vertical flanges support the ends of the axles 25 of rollers 26. The rollers 26 constitute the surface of the accumulating table 22. The frame 23 of the accumulating table 22 is mounted on small wheels 27 on which said table 22 can roll over guides 28 secured to the frame 1 of the machine. Fastened rigidly to the frame 23 of the accumulating table 22, parallel to the axis of the pusher 10 are gear racks 29 meshing, each, with a gear wheel 30. The gear wheels 30 are mounted on a common shaft 31 installed on the frame 1 of the machine. Besides, the shaft 31 carries a sprocket for the chain transmission (not shown in the drawing) which connects the shaft 31 with a drive 32 consisting of an electric motor, a speed reducer, a brake and a sprocket. The load-bearing frame 1 of the machine is provided with two rubber shock absorbers 33 and 34 which weaken the impacts of the moving accumulating table 22 in case of a failure of the brake to operate.

Under the feeder roller bed 2, perpendicularly to it, is located an inclined entry roller bed 35 consisting of two roller tracks 36 installed on a common frame 37 parallel to each other and intended to deliver containers 38 for loading. The entry roller bed 35 is continued by a transfer table 39 consisting of similar roller tracks 36. Located somewhat below the lowermost point of the transfer table 39, perpendicularly to the entry roller bed 35 is a horizontal chain conveyor 40. It has a supporting frame 41 in which are installed on bearings, parallel to each other, axles 42 with sprockets 43. One of the axles 42 is connected with a separate drive 44 by a chain transmission. An endless chain 45 runs over the sprockets 43 and its upper side (on the drawing) is located on horizontal guides 46 secured to the frmae 1 of the machine. A limit switch 47 located on the frame 1 under the accumulating table 22 gives a signal when it comes in contact with the container 38.

At the end of the chain conveyor 40 on the frame 1 there is a limit switch 48. Besides, two adjustable guides 49 for the container 38 are secured on the frame 1 along the chain conveyor 40, somewhat above its upper side.

A stop 50 and hold-downs 51 serve for correct orienting of the container 38 relative to the accumulating table 22 and for fixing it in this position for the period of loading.

The stop 50 consists of two levers 52 secured rigidly on an axle 53 which is installed in the centres fastened to the frame 41 of the conveyor 40. Rigidly secured between the levers 52 on the axle 53 is a lever 54 which is connected with a link 55, connecting it with the rod 56 of an air cylinder 57. The air cylinder 57 is fastened to the frame 41 of the conveyor 40 and actuates the levers 52.

The hold-downs 51 consist of two levers 58 fastened by one end to an axle 59 which is parallel to the guides of the accumulating table 22, these quides being located on both sides of it, and to the frame 1 of the machine. The other end of each lever 58 is connected to an air cylinder 60. The levers 58 are provided in the middle with pressure arms (not shown). The levers 58 are connected with a guard enclosure 62 of a transparent material, e.g., plexiglas, by means of rods 61 which are fastened to the levers 58 at the point of their connection to the air cylinders 60.

The chain conveyor 40 is continued by an inclined discharge roller bed 63 whose construction is similar to that of the entry roller bed 35. The discharge roller bed 63 has a stop 64 at the end with a shock absorber 65.

A disconnector 66 installed between the entry roller bed 35 and the transfer table 39 consists of a lever whose lower end is fixed in half-axles while the middle part is articulated to the rod of the air cylinder (not shown). the disconnector 66 is intended to keep the container 38 located at the beginning of the entry roller bed 35 from contacting the container 38 located on the transfer table 39. Spring shock absorbers 67 weaken the impacts of the container 38 against the frame 41 of the conveyor 40, said shock absorbers being secured on the frame 41 opposite the discharge end of the entry roller bed 35.

The transfr table 39 carries the container 38 from the entry roller bed 35 onto the chain conveyor 40. The table 39 is installed on four rotating rollers 68 secured in a pair of short levers 69 and a pair of long levers 70. Each pair of the levers 69 and 70 is mounted on one axle 71 and 72 installed in the centres located on the frame 41 of the conveyor 40. Both axles 71 and 72 are connected by levers 73 and a rod 74 with an air cylinder 75 which actuates the levers 69 and 70.

The transfer table 39 is mounted with a provision for vertical movement. On changes in the position of the rod of the air cylinder 75 the levers 69 and 70 of the transfer table 39 can change their position from vertical to horizontal. Correspondingly, in the first position the table 39 serves as a continuation of the entry roller bed 35 while in the second position it moves below its level and below the level of the chain conveyor 40. To prevent the table 39 from moving across the axles 71 and 72, its frame has four forks 76 whose slots receive the axles 71 and 72; to prevent the table 39 from jumping off the rollers 68, the latter are provided with grooves whose sides fit around the flanges of the channel bars of the table frame.

According to the invention, there is a lever grab 77 (FIG. 4) mounted above the accumulating table 22. The grab 77 consists of a welded frame 78 made of two parallel cross-bars 79 interconnected in the middle by a channel bar 80. The ends of the cross-bars 79 are connected in pairs by vertical plates 81 arranged parallel to the channel bar 80. At one side the plates 81 are interconnected by a cross member 82.

Connected perpendicularly to the channel bar 80 are two vertical rods 83 whose free ends pass through guide bushings 84 secured to the frame 1 of the machine.

Uprights 85 mounted on the ends of the cross-bars 79 support the axles 86 of levers 87.

Each lever 87 of the grab 77 is made up of two rigidly connected racks arranged at an angle to each other, the jointing point of the racks serving as a fulcrum for the lever 87. The grab 77 comprises four levers 87 arranged in pairs in two parallel vertical planes. The ends of the levers 87 are interconnected by two pairs of bars which are perpendicular to said planes. One pair of these bars 88 serves for picking up a load (briquette) 89 from the accumulating table 22 while the other pair 90 connects the levers 87 to one another. The bars 9 are located between the flanges of the channel bar 80. The flanges in the middle of the channel bar 80 are provided with a bridge 91 mounting an air cylinder 92. The rod of the air cylinder 92 is articulated to the bars 90. The air cylinder 92 serves for moving the bars 90 and turning the levers 87 at the points of their fastening to the uprights 85.

A limit switch 94 is installed on a bracket 93 at the end of the channel bar 80 on the side of the cross member 82. The bracket 93 has two lugs 95 (FIG. 5) with vertical slots accommodating the axle 96 of a lever 97. The upper end (on the drawing) of the lever 97 is provided with a projection 98 which lies on the same horizontal straight line with the button of the limit switch 94. A counterweight 99 suspended from the lower end of the lever 97 holds the latter vertically at a certain distance from the button of the limit switch 94. The lever 97 with the axle 96 is capable of moving in the slots and rotating in them all the way to bear against the cross member 82.

The grab 77 is suspended by two pairs of cables 100 and 101 secured to the cross-bars 79 of the grab 77. The cables 100 are passed over two pairs of pulleys 102 which rotate on axles 103. The axles 103 are parallel to each other and secured to the frame 1 of the machine. The cables 101 pass over pulleys 104 located side by side with one of the pairs of the pulleys 102 and over this pair of the pulleys 102. Pulleys 104 are mounted on axles 105 which are secured on the frame 1 of the machine. Suspended from the free ends of the cables 100 and 101 is a weight-holding plate 106 with a set of weights 107 fastened to the plate 106 by bars 108. The weightholding plate 106 with weights 107 serves as a counterweight of the grab 77. The mass of the counterweight should be heavier than that of the empty grab 77 but lighter than the mass of the grab 77 with the load (briquette 89).

Hydraulic cylinders 109 serving as shock absorbers ensure unifrom movement of the grab 77. The hydraulic cylinders 109 are secured vertically to the frame 1 of the machine. Each hydraulic cylinder 109 has a piston 110 with a rod 111. The rods 111 are secured to the weightholding plate 106. The above-piston and under-piston spaces of each hydraulic cylinder 109 are intercommunicated by a pipe 112 through which the fluid flows during the movement of the counterweight. The speed of counterweight movement and, consequently, of the grab 77 can be adjusted by changing the viscosity of the fluid in the hydraulic cylinders 109 or by changing the hydraulic resistance of the pipe 112. To prevent the weights 197 from striking the frame 1, the latter is provided with a rubber arrester 113 which limits the movement of the weights.

The stacking machine functions as follows. For an example we consider here the operation of a stacking machine loading parallelepipe-shaped ruuber briquettes into a pallet.

The stacking machine is a part of an automatic rubber briquetting and packing line. In the initial position the empty pallet 38 is located before the accumulating table 22 and another pallet 38 is on the transfer table 39. The third pallet 38 is located on the entry roller bed 35 and bears against the lever of the disconnector 66.

The rubber briquettes 89 wrapped in polyethylene film enter the feeder roller bed 2 and slide down over its rollers to the receiving table 3, striking the plate 6 of the arrester 4. The plate 6 presses the limit switch 9 which switches on the pusher 10. The plate 11 of the pusher 10 moves the briquette 89 from the receiving table 3 on the accumulating table 22 (FIG. 6) between the guide rollers 21.

After moving each briquette 89 the pusher 10 returns to the initial position thus vacating the path for the next briquette 89.

The number of strokes of the pusher 10 required for filling the accumulating table 22 can change with the size of the briquette 89. In the given case the pusher 10 delivers three rubber briquettes 89 on the accumulating table 22. Having transferred the last briquette 89 on the accumulating table the pusher 10 does not return to the initial position.

When the third briquette 89 has been pushed on the accumulating table 22, the first briquette 89 presses the lever 97 which, together with the axle 96, turns in the slot of the lug 95 all the way to bear against the cross member 82. The projection 98 on the upper end of the lever 97 presses the button of the limit switch 94 which turns off the air cylinder 15 of the pusher 10, leaving it in the extended position, and turns on the air cylinder 92 and the drive of the accumulating table 22.

The rod of the air cylinder 92 moves upward causing the pairs of levers 87 of the grab 77 to close, and the bars 88 pick up the rubber briquettes 89 from the accumulating table 22. While the bars 88 pick up the briquettes 89, the grab 77 goes down until the cross-bar 79 comes in contact with the roller 19. Simultaneously, the shaft 31 starts rotating together with the gear wheel 30. As a result, the gear wheel 30 mexhes with the rack 29 secured to the frame 23 of the accumulating table 22 and moves the latter. The accumulating table 22 comes from under the grab 77 and moves under the receiving table 3. When the accumulating table 22 has moved completely under the receiving table 3, its drive is turned off and the grab 77 with briquettes 89 goes down under the weight of the briquettes 89 (FIG. 7). As the lever 97 of the limit switch 94 on the grab 77 comes in contact with the bottom of the pallet 38, the axle 96 of the lever 97 rises in the slot of the lugs 95 and the projection 98 of the upper end of the lever 97 comes off the button of the limit switch 94 which switches over the air cylinder 92. The rod of the air cylinder 92 goes down together with the bars 90. Rotating on the axles 86, the levers 87 move apart and the bars 88 withdraw from under the briquettes 89, leaving them in the pallet 38.

When the grab 77 has released the briquette 89 it is moved upward by the counterweights 106 and 107. The fluid in the hydraulic cylinders 109 flows from the under-piston into the abovepiston space through the pipe 112 thus ensuring uniform movement of the grab 77. At the end of their travel the weights 107 bear against the arrester 113 and their movement ceases. At the moment when the button of the limit switch 94 is

released, the drive of the accumulating table **22** is turned on and it returns into the initial position.

This is the procedure for placing one layer of briquettes **89** into the pallet **38.** The following layers are placed in the same manner until the pallet **38** becomes filled. In the given example the pallet **38** is filled with five layers of briquettes **89.**

When loading of the pallet **38** has been completed, i.e., when the grab has returned to the initial position for the fifth time, the automatic control system of the machine sends a command to the air cylinders **57** and **60** actuating the stop **50** and the hold-downs **51.** The stop **50** comes to a position below the level of the chain conveyor **40.** The hold-downs **51** rise above the upper edge of the pallet **38.** Owing to the changed positions of the stop **50** and hold-downs **51,** the automatic control sytem turns on the chain conveyor **40.**

The loaded pallet **38** moves onto the discharge roller bed **63** and rolls down over its rollers. While moving from the chain conveyor **40** to the discharge roller bed **63,** the pallet **38** operates the lever of the limit switch **48** which turns on the air cylinder **57** of the stop **50.** The levers **52** of the stop **50** occupy a vertical position. Besides, the same limit switch **48** turns on the air cylinder **75** of the transfer table **39.** It goes down the pallet **38** carried by it gets on the chain **45** of the conveyor **40.** Simultaneously, the air cylinder of the disconnector **66** is turned on and the disconnector tilts from the vertical position towards the entry roller bed **35,** shifting the pallet on it and holding the pallet located on the roller bed out of contact with the pallet **38** located on the transfer table **39.** During the movement of the lever of the disconnector **66** the chain conveyor **40** moves the pallet **38** to the stops **50.** Before coming into contact with the stops **50** the pallet **38** presses the lever of the limit switch **47** mounted on the frame **1** under the accumulating table **22.** This limit switch **47** turns off the chain conveyor **40** and turns on the air cylinders **60** of the hold-down **51** and the air cylinder of the disconnector **66.** The lever of the disconnector **66** descends below the level of the entry roller bed **35,** allowing the pallet **38** standing on it to pass over to the transfer table **39.** The pallet **38** strikes the shock absorbers **67** and remains on the transfer table **39.** The pressure arms of the levers **58** of the hold-downs **51** press the pallet **38** against the chain **45** of the conveyor **40.** The machine is ready for loading the next pallet **38.**

We claim:

1. A stacking machine for parallelepiped-shaped objects comprising a load-bearing frame; a feed roller bed adjoining said frame; a receiving table mounted on said frame in line with said feed roller bed to provide a continuation thereof, whereby objects moving along said feed roller bed will be fed onto said receiving table; an accumulating table slidably supported on said frame for horizontal movement and said accumulating table being at a lower level than said receiving table and adjacent thereto; pusher means mounted on said frame for moving the objects from said receiving table onto said accumulating table; a conveyor mounted on said frame under said accumulating table for delivering an empty container therebelow; means for transferring the objects moved onto said accumulating table into said container; said transferring means including engagement means supported on said frame above the accumulating table for engaging and supporting the objects; means associated with said engagement means for vertically lowering and raising same, whereby when objects are being supported by said engagement means and the accumulating table has been moved horizontal the objects can be lowered into the container therebelow, and said container, when full, can be moved along said conveyor and another empty container delivered thereat.

2. A stacking machine as claimed in claim **1,** wherein said engagement means comprises four arms arranged in pairs in two parallel vertical planes; the ends of said arms are interconnected by two pairs of bars; one pair of said bars for engaging and supporting the objects on the accumulating table and the other pair of said bars for connecting the arms to one another, and to the lowering means.

3. A stacking machine as claimed in claim **1** wherein the lowering means includes a counterweight whose mass is smaller than that of the engagement means loaded with said objects but greater than that of the empty engagement means for returning the latter to the initial position after the objects are released.

4. A stacking machine as claimed in claim **2** wherein the lowering means includes a counterweight whose mass is smaller than that of the engagement means loaded with said objects but greater than that of the empty engagement means for returning the latter to the initial position after the objects are released.

5. A stacking machine as claimed in claim **3** wherein the counterweight is provided with a shock absorber for uniform vertical movement of the engagement means.

6. A stacking machine as claimed in claim **5** wherein the shock absorber comprises at least one vertically mounted hydraulic cylinder whose piston rod is rigidly connected with the counterweight and said cylinder having spaces under and above the piston which intercommunicate through a bypass pipe whereby the speed of the counterweight may be adjusted by changing the resistance of the fluid flow through said bypass pipe.

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