April 29, 1969 C. F. PRINCE ET AL 3,440,801

BAG TRAY FEED ELEVATOR MECHANISM FOR BAG-LOADING MACHINES

Filed Sept. 27, 1967 Sheet 1 of 3

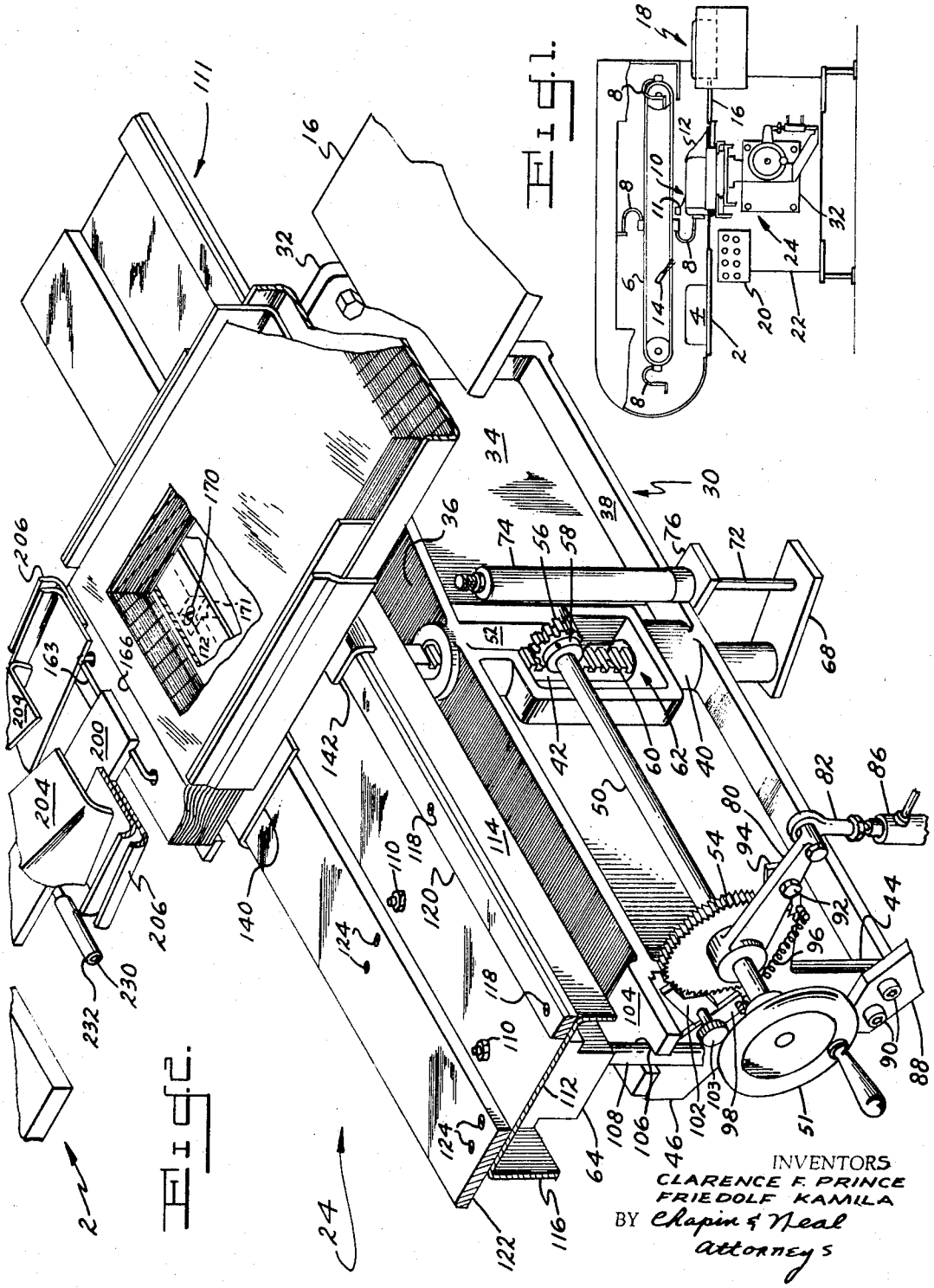


Fig. 1.



Fig. 2.

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FIG. 3.

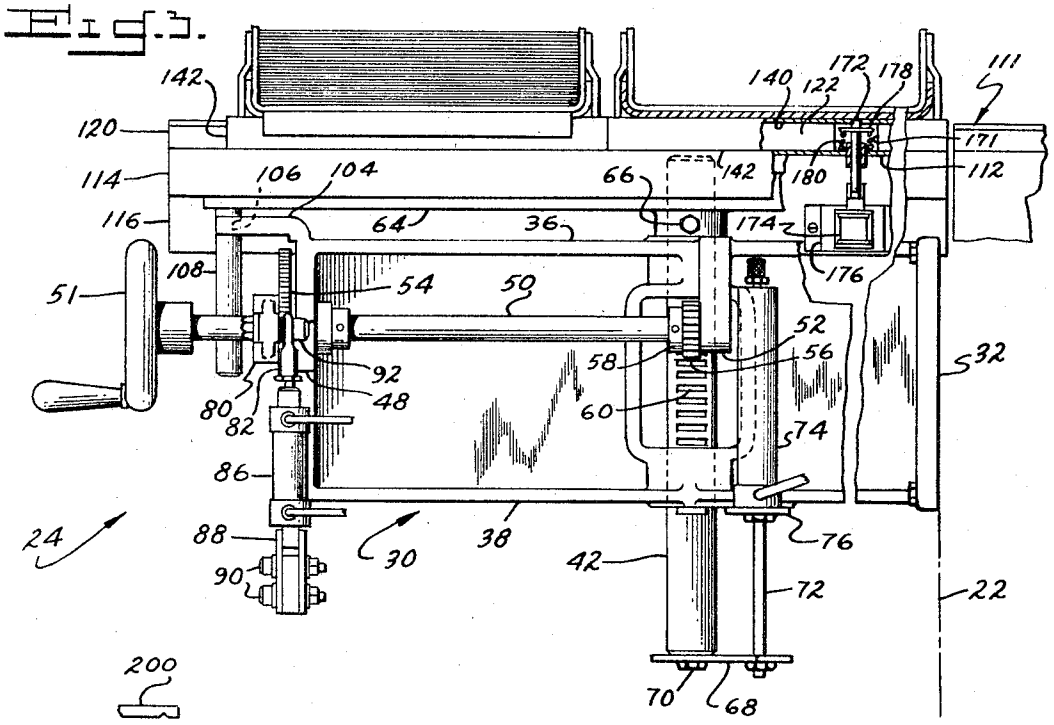
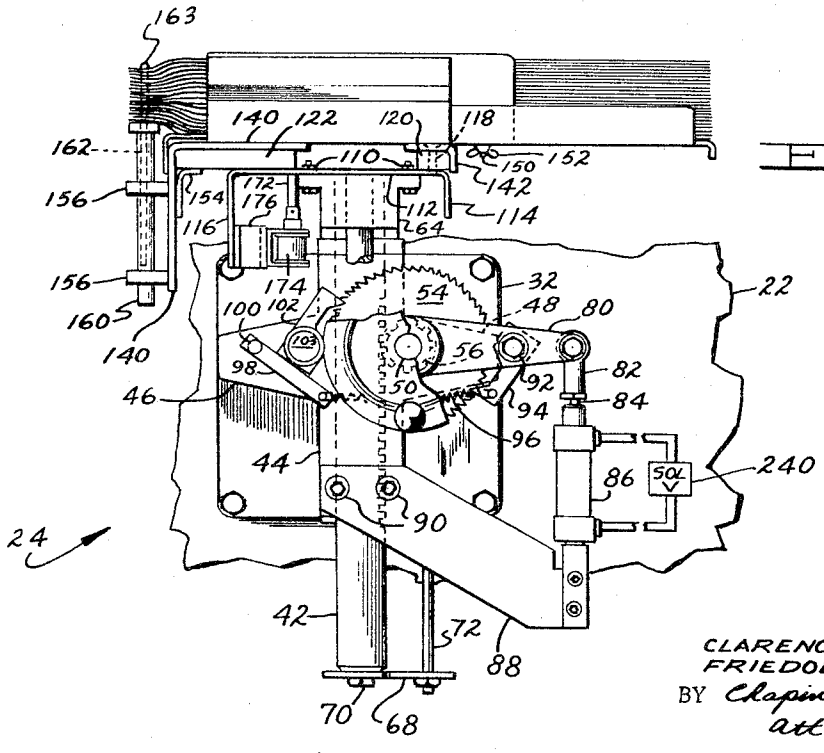



FIG. 4.




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Filed Sept. 27, 1967 Sheet 3 of 3

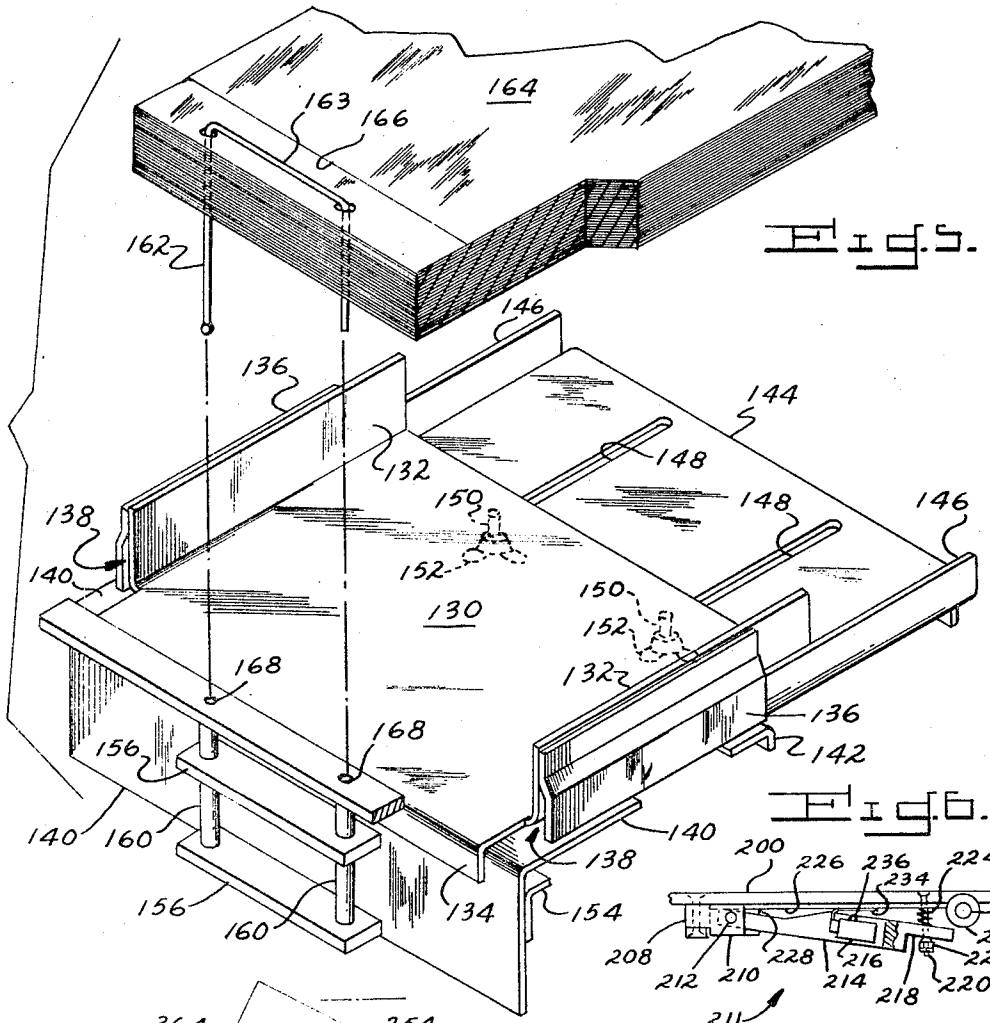



Fig. 5.




Fig. 6.







Fig. 7.

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United States Patent Office 3,440,801
Patented Apr. 29, 1969



3,440,801

# BAG TRAY FEED ELEVATOR MECHANISM FOR BAG-LOADING MACHINES

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Filed Sept. 27, 1967, Ser. No. 671,023
Int. Cl. B65b 5/02, 3/02, 43/26
U.S. Cl. 53—189 5 Claims

## ABSTRACT OF THE DISCLOSURE

In bag-loading machines for continuously loading preformed open-ended bags, elevator apparatus having a bag lifting platform arranged transversely of the product loading path of travel and slidably mounting two bag filled trays, one releasably held registered for bag-loading operation, the other held in reserve for quickly moving into registered position and pushing an emptied tray on to storage rails, and an indexing means provided for incrementally raising the platform being responsive to the sensing of a tray held bag supply by pivoted bag spreader elements.

### *Background*

This invention relates to bag-loading machines for preformed open-ended bags of highly flexible thin sheet material or film, and more particularly to the elevator mechanism of such machines for accurately presenting a supply of empty bags in the form of stacked batches for continuous product-loading operations.

As will be recognized by those familiar with machines of the above type the bags to be filled by such machinery are conventionally held in stacked bundles on a wicket. The wicket is positioned on elevating apparatus for raising the stack as article feeding mechanism successively inserts products into the bags and strips the loaded bags from the wicketed supply. The positioning of the wicket and elevator mechanism designed to raise the top bags of a stack to the proper loading level for continued operation are of various types. Insofar as is known, prior elevator mechanism for holding wicketed bags and for properly inserting a fresh supply while the machine is stopped is a relatively time consuming operation in order to properly arrange the stack and make the necessary adjustments to position it for continuation of the loading operation.

It is an object of the present invention to provide a tray device and elevator mounting apparatus which will not only accommodate a wicket of bags which way be readily set up and registered properly in the path of travel of the loading operations, but also to provide for holding a preloaded tray of wicketed bags in reserve for the easily accomplished rapid change over to a new supply whenever the bags of each wicket are depleted. Accordingly, a minimum amount of interruption of machine loading operations is necessary.

Another object of this invention is to provide a positive indexing mechanism for lighting the elevator as the supply of bags is gradually depleted and to actuate this mechanism by utilizing the action of a known type of spreader mechanism which is primarily designed to hold open the mouth of the bag while the product is fed into the bag. In this connection lower spreader members when pivoted against the stack of bags are used as a detector to sense the level of the bag supply and if below an acceptable product loading level to cause the bags to be elevated by actuating a limit switch mechanism.



In the present invention an elevator platform is disposed transversely of the path of travel of the product in the machine loading channel. The platform is designed to carry two trays on each of which a wicket or stack of bags is prepositioned. One tray is releasably locked to register the bags in the loading path. The other is held in reserve. When empty the platform is lowered and the registered tray is released and pushed onto storage rails as the reserve tray is moved into registered position. The platform is then raised and the tray is quickly and automatically set into operative relation by the spreader detector action so as to resume loading.

The operation of the mechanism and additional specific objects and advantages of the invention will be appreciated from the following description of the embodiment thereof as shown by the accompanying drawings, in which,

FIG. 1 is a front elevation in diagrammatic form of a bread bagging machine in which the present invention may be incorporated;

FIG. 2 is a perspective view of the elevator frame and lifting apparatus and showing other portions of the machine to indicate a tray of bags positioned in operative position on the platform for loading operations;

FIG. 3 is a side elevation of the elevator mechanism shown by FIG. 2, the platform being in its lower position;

FIG. 4 is a front end view of the apparatus shown by FIG. 3;

FIG. 5 is a perspective view of a tray unit;

FIG. 6 is a detail view showing a switch actuator assembly for automatically operating the lifting mechanism; and

FIG. 7 is a schematic drawing showing mechanism for actuating the bag spreader elements and indicating the use thereof for sensing the level of the empty bags and operating the switch mechanism of FIG. 6.

In FIG. 1 a bag loading machine is diagrammatically illustrated as an example of the type of machine in which the apparatus of the present invention may be incorporated. The machine shown is adapted for bagging products such as bread loaves. Indicated at **2** is an infeed station on which a loaf of bread **4** may be deposited by suitable conveyor mechanism (not shown). A continuously moving endless conveyor at **6** has spaced pusher paddle assemblies **8** which are adapted to push the loaves **4** from the infeed station along a loading channel or path of travel to a loading station at **10**. At station **10** a bag **12** is shown as receiving a loaf **4** through the open mouth of the bag. The mouth of the bag is first blown open as by means of an air jet indicated at **14**. Spreader elements of a known type (not shown in FIG. 1) may then be inserted into the mouth and hold it open for loading the bag. From the position of loaf **4** at station **10** the loaf is advanced against the closed bag end and thus strips the bag from the top of a wicketed stack of bags. The loaded bag is then carried across a platform at **16** in the loading path of travel and to a discharge station generally indicated at **18**. The pusher at this point is withdrawn from contact with the loaf and carried back to the inlet end of the path. At station **18** the loaded bag may be picked up by conveyor apparatus (not shown) and advanced through known mechanism for closing and tying off the mouth of the bag. This type of bag loading machine is known in the art and it will also be recognized that there are also other bag-loading machines of the type wherein a reciprocable pusher inserts the products into the bags and advances the loaded bags to a suitable discharge station for typing operation.

In FIG. 1 is also shown a control panel at **20** with push buttons mounted at the front of a housing **22** which encloses the framework and driving mechanism for var-

ious parts of the machine. Also supported by the framework of housing **22** is the elevator platform and mechanism of the present invention. The elevator mechanism and tray carriage is indicated generally by numeral **24**. Briefly the apparatus is designed to provide for releasably holding one "active" tray of bags on the lifting platform in a position of registration with the loading path for products to be fed into the bags, and a second "standby" tray preloaded with bags and in a position to be quickly moved into the registered position once the supply of the first tray is depleted. The platform holding the two trays extends transversely of the loading path of travel and may be considered as being divided into two sections. One section is vertically offset directly below said path of travel and the other section is laterally thereof. The latter section extends outwardly at the front of the machine as in FIG. 1. On said front section the reserve or "standby" tray is mounted. When the "active" tray is empty, machine operation stops automatically. The operator then lowers the platform, releases the empty used tray, and immediately moves the reserve tray into registered position which pushes the empty tray onto storage rails at the back of the machine. Once the reserve tray is "registered" the operator quickly raises the platform and tray into operative "loading" position. The bagging operations may then be continued. A further preloaded tray can then be mounted in standby position on the front platform section for the next changeover. Empty trays pushed onto the storage rails can accumulate and be removed as desired for preloading with bags and later use.

The platform and tray carriage **24** is shown in detail in FIGS. 2, 3, and 4. A bag table or platform support (FIG. 2) is conveniently in the form of a casting generally designated at **30** and comprising a mounting plate **32** affixed at the front of housing **22** (see FIGS. 1, 3, 4) from which extends a vertically disposed and forwardly directed frame **34** having an upper flanged portion **36** and lower flanged portion **38**. Centrally of frame **34** is provided a vertical enlarged portion **40** forming a bore for support of an elevator lift shaft **42** as will be more particularly described. At the outer end of the frame **34** is a flanged end face **44** on which is supported ratchet mechanism for actuating the elevator lift shaft. The flanged face **44** (see FIG. 4) is provided with frame extensions **46** and **48** at each side thereof.

Referring now to FIGS. 2 and 3 a ratchet shaft **50** is supported at its outer end in the extension **48**. A handle operated turning wheel **51** is fixed on the end of the shaft. At its other end adjacent the portion **40** the shaft is mounted in a supporting bracket member at **52**. Outwardly of extension **48** shaft **50** carries a ratchet wheel **54** and at its other end adjacent bracket **52** a pinion gear **56** pinned by collar **58** to shaft **50**. Gear **56** is in mesh with teeth **60** of a rack formed on elevator lift shaft **42**, the casing **40** of shaft **42** being formed with side opening **62**. As shown by FIGS. 2 and 3, the upper end of the lift shaft **42** extends upwardly of the frame flange **36** and is secured to a bag table slide block **64** as by a set screw bolt at **65** in a depending boss of the block. Below the lower frame flange **38**, shaft **42** is provided at its lower end with a mounting strap **68** fixed thereto by screw bolt **70**. Strap **68** extends to one side of frame **30** and fixed to the strip is the outer end of a plunger **72** of a vertically positioned air cylinder **74**. Cylinder **74** is mounted on a plate **76** projecting from and fixed to the underside of flange **38**. Cylinder **74** is a dampener to cushion the drop of the elevator table as will be later described.

Fixed at the outer end of shaft **50** adjacent ratchet wheel **54** is a ratchet actuator arm **80**. Pivotally mounted at the end of arm **80** is the head **82** of a plunger **84** of an air cylinder **86**. Cylinder **86** is mounted (FIG. 4) on the end of a mounting plate **88** which is fixed by screw bolts **90** to and angled downwardly from the lower end of flange **44**.

Pivotally carried on arm **80** on mounting pin **92** is a lift pawl **94**, the nose of the pawl (FIG. 4) being held against the teeth of the ratchet wheel **54** by a spring **96**. One end of spring **96** is pinned to the end of pawl **94**, the other end being pinned to the end of a pawl detent plate **98**. Plate **98** is pivoted as at **100** on frame extension **46**. The upper edge of detent plate **98** bears against the lower edge of a stop pawl **102** pivoted on frame extension **46** for urging the nose of the stop pawl to engage the teeth of the ratchet wheel **54**. Fixed to pawl **102** is the stem of a hand release knob **103**.

As will be apparent, particularly from FIG. 4, retraction of plunger **84** by action of the piston of cylinder **86** will rotate ratchet **54** (clockwise as in FIG. 4) by one notch and thereby drive pinion gear **56** to raise lift shaft **42** and the bag table support structure for the elevator platform which will now be described.

The table slide support **64** mounted on lift shaft **42** extends outwardly from a position over mounting plate **32** to hang beyond the end of the upper flange **36** of the frame **30**. As seen in FIGS. 2 and 3 an upwardly offset extension **104** is provided at its outer edge with an open ended slot **106** to receive a depending guide post **108** fixed in the underside of support **64**.

Support **64** (FIGS. 2 and 4) is flanged at the top and fitted with longitudinally spaced fastener bolt assemblies as at **110** for securing to the upper surface thereof a slide plate **112**. Slide plate **112** overhangs the top of slide support **64** and is provided with depending skirts at **114** and **116**. To the overhang having the shorter skirt **114** is secured, as by screw bolts **118**, an elongated slide block **120**. To the overhang having skirt **116** is secured an elongated strip member **122** fixed as by screw bolts at **124**. The outer edge portion of the strip **122** overhangs the slide plate **112**. The slide block **120** and strip **122** extend from one end of the support **64** to the other and provide tracking means for slidably receiving tray units each adapted to contain a stacked supply of empty bags preferably held by a wicket as will be described.

The assembly of the bag tray unit is best shown by FIG. 5. A bottom panel is provided as at **130** with opposed side panels **132** and a depending front lip **134**. Against the upper portions of the outer faces of side panels **132** are fixed, as by spot welding, a pair of tray side support members **136**. Support members **136** are outwardly offset from panel **132** along the lower portions and form a channel between these portions as indicated by the arrows **138**. The lower edges of supports **136** extend below the underside of bottom panel **130**. The forward portions of these edges are welded to the upper surface of a right angled front support **140**. The front lip **134** of the bottom panel **130** is also fixed as by welding along the upper edge of the front face of the depending portion of angled support **140**. The rearward underedge portions of the tray support plates **136** are welded at a right angled rear support **142**. It will thus be seen that the spaced relation of the front and rear angled supports **140**, **142** from the bottom panel **130** and the attachment of the front lip **134** affords clearance for a sliding fit of a tray extension plate **144** between said angled supports **140**, **142** and bottom **130**. The tray extension also has upstanding side guides **146** at each edge which slidably fit in channels **138** between support members **136** and tray side panels **132**.

The extension is also provided with elongated slots **148** in which are received short studs **150** fixed as by welding to the underside of the tray bottom **130** and provided at their outer edges by wing nuts **152**. Accordingly, the extension can be secured in any adjusted position and thus be set for supporting various lengths of bags on the tray.

Referring to the angled front support **140** it will be noted that along the rear face thereof and fixed thereto as by welding is an angled guide member **154** providing a lip in spaced relation to the underside of the horizontal portion of the support **140**. As will be seen from FIG. 4

guide **154** holds the edge of strip **122** between it and support **140** for sliding movement.

Also fixed to the depending front skirt of the support **140** at the front side thereof is a bag wicket channel assembly. Referring to FIGS. 4 and 5, this assembly comprises a pair of vertically spaced holding bars **156** fixed to the front face of the vertical portion of support **140**. Bars **156** carry a pair of laterally spaced holders **160** in which the legs **162** of a wicket may be inserted. The legs of the wicket are connected by a crosspiece **163**. As will be readily recognized in the art the legs of the wicket pass through spaced perforations in the lower edge extensions or lips at the open ends of the bags. The opposite edges at **166** of the upper wall portions are offset therefrom. As each bag is loaded it is stripped from the wicket. The sockets for receiving the legs of the wicket are at **168** (FIG. 5).

As best seen in FIGS 2 and 4, a tray unit loaded with a wicket of empty bags is placed on the tracks of the bag table slide at the outer end thereof so that the outer edge of the strip member is received as a gib between the horizontal lip of the front guide **154** and front angled support **140**. The angled rear support **142** is positioned over the edge of slide block **120**. When so placed the tray may be slidably moved to a position underneath the loading path or channel of the machine as indicated in FIG. 2.

Exact registration of a tray on the platform with respect to the loading path may be made by registering an opening **170** in the horizontal portion of the angled front support **140** with a releasable holding means (see also FIG. 3). Opening **170** is adapted to be engaged by the tip end of a plunger **172** of a solenoid **174**. Solenoid **174** (see FIG. 4) is mounted on a bracket **176** affixed as by welding to the inner face of the skirt **116** of the slide plate **112**. The plunger **172** extends upwardly through an opening in the slide plate **112** and adjacent its upper end is fitted with a disk **178**. A spring **180** between the disk **178** and surface of plate **112** urges the disk and plunger upwardly. The edge of strip **122** is notched at **171** to accommodate the spring and disk. The tip of plunger **172** will thus spring into opening **170** whenever the tray is moved into position. By energizing solenoid **174** the tip may be retracted to permit removal of a tray from this registered position.

The position of the tray and stack of bags on the elevator platform as registered for bag-loading operations will be appreciated from FIG. 2. The loading path of a bread loaf as previously described in connection with FIG. 1, is from infeed platform at **2** through bag spreader mechanism and into the open mouth of the top bag which is then stripped or torn from the wicket and advanced onto platform **16**.

Indicated in FIG. 2 between infeed platform **2** and the tray are portions of the spreader elements, here shown as upper and lower funnel-like members, for holding the mouth of the bag open while a loaf is being pushed into the bag. Also a bag sensor plate is shown at **200** over which the loaf is advanced from platform **2**. Plate **200** is anchored in a fixed position, its downstream end resting on cross bar **163** of the wicket. On each side of the plate **200** are indicated a pair of upper spreader elements **204** and a pair of lower spreader elements **206**. When the upper edge of the mouth of the top bag is blown open as by air jet **14** (FIG. 1), the spreaders are adapted to extend into the mouth and are spread apart to hold it open as the loaf is inserted by the pusher **8**. This particular spreader action is known in the art and various mechanisms may be employed to accomplish such hold open action. In the embodiment shown the lower funnel-like spreaders are used in connection with the sensor plate **200** to maintain the top of the stack of bags at the feeding level of the product.

Referring now to FIG. 6 a limit switch mechanism is shown at the underside of plate **200**. This mechanism is mounted on a pivot block **208** fastened to the underside of plate **200**. A pivot pin is at **212** in a yoked portion **210** of the block. On pin **212** is pivoted the ends of a pair of forked arms of a switch mounting member **211**, one such arm being shown at **214**. A switch at **216** is mounted between the arms and at the outer end of member **211** is an extension **218** receiving in an aperture thereof the stem of a depending screw bolt **220** fixed in plate **200**. A nut **222** on the end of bolt **220** holds the switch arm in an adjustable lower position, a spring **224** surrounding bolt **220** urging the arm against the nut. The spring is seated at its other end against the underside of a switch actuating lever at **226** also apertured for passage of bolt **220**.

Actuating lever **226** lies against the underside of plate **200** and is also pivoted on pin **212** having a pivot block **228** rotatable on the pin between the arms **214** of member **211**. Lever **226** extends beyond the end of the mounting member **211** and at its outer end is provided with a cross bar **230** fixed thereto as by welding on a flatted portion thereof. Bar **230** extends laterally of each side of plate **200** and on each extension is fitted a tube **232** (see also FIG. 2). Against the underside of lever **226** (FIG. 6) is a spring leaf trigger at **234** opposed to the button **236** of the switch. In the construction shown the switch mounting arm **211** and actuating lever **226** are yieldably held apart by spring **224** on bolt **220**. It will be seen that when the bar **230** is moved downwardly by striking the tubed extensions, lever **226** will pivot on pin **212** against spring **224** and thus cause trigger **234** to actuate the switch. The switch is connected in circuit with a solenoid valve **240** for operation of cylinder **86** (FIG. 4) of the elevator ratchet mechanism. Actuating the switch causes cylinder **86** to operate arm **80** and drive the wheel **54** to raise the table and tray of bags.

The switch lever is operated by the lower funnel members to raise the level of a stack of empty bags in a tray whenever a sufficient number of bags have been loaded and stripped to cause the top bag level to be lowered below the feeding level along which the products are traveling. As will be noted from FIGS. 2 and 7 the cross bar **163** of the wicket is held in a notch at the underside of the plate **200**. Whenever the tray is raised, the wicket is thus held stationary while the stacked bags are pushed upwardly by the tray to maintain the compactness of the remaining bags on the wicket for further loading operations.

The wicket holds the lip extensions only of the lower bag walls, as will be appreciated, and thus the body of the bags is offset upwardly thereof at the level of the surface of the plate **200** (FIG. 7). It will be further realized that the spreaders will be advanced in collapsed position for the ends to project into the mouth of a bag opened by the air jet. The spreaders are then opened up to hold the bag mouth for entry of the product. Thus, as the lower spreaders are pivoted to swing downwardly and lie in contact with the upper surface of the stack, the limit of pivotal movement is determined by the stack level. If this level is at or near the level of plate **200** the spreaders will not contact the switch lever tube extensions **232**. If, however, the stack has been depleted to the extent that the topmost bag is sufficient lower than plate **200**, the spreaders will strike the lever, actuate the switch, and cause the tray to be raised by the ratchet mechanism described. The mechanism for actuating the spreaders **204** and **206** and thus operating the switch lever is schematically shown by FIG. 7.

In FIG. 7 the sensor plate **200** is indicated as fixed on frame mounted brackets at **250**. A single pair of funnel-like spreader elements **204** and **206** is shown carried on the post of a mounting bracket **252** and pivoted at **254** and **256** respectively. A shaft at **258** is rotatably mounted in the bracket and fixed on the shaft is a pivot arm **260**. At the top of arm **260** is pivoted a link **262** which is pivoted at its other end to the lower end of an actuating

lever 264 fixed on the pivot of the upper spreader 204. A lower link 266 is also pivoted on pivot arm 260 and passes through a stud-like piece 268 projecting upwardly from the lower spreader 206 above pivot 256.

Pivot arm 260 is normally urged in the direction of the bracket post by spring action as schematically indicated by spring 270 fastened at its ends on the arm and post. It is held in the position shown as will be later described.

Bracket 252 is mounted on a spreader carriage, a side plate portion thereof being indicated at 272. A shaft 258 and a rod 274 passing through the bracket is supported in plate 272 and a similar plate at the other side of sensor plate 200. As indicated side plate 272 of the carriage has a pair of rollers at 276 which are received in a recessed groove indicated at 278 of a frame mounted guide support. The spreader carriage is reciprocably movable to shuttle back and forth for each bag loading operation. Fixed to the underside of the carriage is a bracket to which is pivoted a link 280 carried on one arm 282 of a bell crank fulcrummed on a fixed shaft 283. The other arm of the crank is at 284, a face cam follower roll 286 being at the other end for movement of the crank to advance and retract the spreader elements.

As previously stated the spreaders are advanced in collapsed position (as shown) into the open mouth of the bag. The spreaders are then opened up for entry of the product. The opening operation is spring operated. In FIG. 7 on the outboard side of side plate 272 and fixed to pivot shaft 258 is an actuating lever 288 angularly related to pivot arm 260 and carrying a roller at its outer end in contact with the upper edge of an arm 290 of a funnel spreader bell crank lever. The other arm of the lever is at 292, the fulcrum being at 294. Arm 292 is also cam actuated having follower 296 at its outer end. The arm 292 is moved as to the right when the collapsed spreaders are inserted into the bag. Thus, arm 290 is lowered and lever 288 is released for the pivot arm 260 to spring as to the right to open up the spreaders. The position of the lower spreader on the stack of bags is indicated in phantom lines. It will readily be seen that in the event the stack is at a lower level the spreader 206 will strike the switch actuator 232 to raise the level.

In operation when the elevator platform is raised to the level where the stack of empty bags is depleted the machine is stopped. This may be accomplished by suitable switch mechanism as, for example, the bag detecting finger or feeler switch unit at 11 located above the loading station 10 in FIG. 1. In the event no bag remains on the tray to be blown open by the air jet 14, the detector switch 11 operates to stop the machine. Referring to FIG. 2 the platform is then lowered by turning knob 103, fixed to stop pawl 102, to release ratchet wheel 54. The weight of the table slide support 64 and parts carried on it will lower the platform on lift shaft 42 very rapidly. In order to cushion the fall, plunger 72 of cylinder 74 is attached to the strap 68 fixed on the lower end of shaft 42 and acts as a dampener. In the lower position, see FIG. 3, the empty tray may now be released by energizing solenoid 174 as by one of the push buttons of panel 20 (FIG. 1). The plunger 172 thus is out of engagement with opening 170.

As soon as the empty tray is thus released the reserve tray with full supply of wicketed bags can be manually moved to push the empty tray onto the storage rails shown at 111 (FIG. 3). The tip of the locking plunger 172 may remain depressed by holding the control button. When the next tray is approximately registered the solenoid may be deenergized and the operator may move the tray back and forth over the plunger until opening 170 of the reserve tray comes into registration with the plunger. The snap of the plunger in the opening will indicate to the operator by feel when the tray is properly registered. As soon as so registered, the operator can then manually turn the lifting wheel 51 of shaft 50 and raise the platform until the new tray engages the notch at the underside of sensor plate 200 or nearly so. At this point the spreader mechanism as schematically shown in FIG. 7, may be operated as by another of the control panel push buttons and without feeding product through the spreaders. In this way lower funnel elements 206 will seek to detect the top level of the stack of bags. Until the proper level is reached the actuator switch will thus be actuated to operate the ratchet and lift the platform. When at the correct level the bagging operations can be resumed and when convenient the operator may place another reserve preloaded tray with a full wicket of bags on the front section of the platform.

What is claimed is:

1. In elevating apparatus for bag-loading machines having means for maintaining the top of a stack of preformed open-ended empty bags at a loading level to successively receive products pushed along the plane of a loading path into the open mouths of the bags and against the closed ends thereof for advance to a discharge station and thereby stripping the bags from said stack;

a platform movable between upper and lower levels, said platform extending transversely of said loading path in offset relationship therebelow and having a first portion directly underneath said loading path of travel and a second portion laterally thereof,

a tray having means for positioning a stack of empty bags thereon,

said tray and platform having interengageable members for guided movement of the tray from said second portion to said first portion of the platform and releasable locking means for holding said tray in a position of registration and alignment with said loading path on said first platform portion.

2. The structure of claim 1 in which said interengageable members of the tray and platform comprise

tracking strips extending longitudinally of said platform and angled supports on which said tray is carried slidably interfitting with said platform strips,

said locking means for said tray comprises an apertured portion in the base of one of said angled tray supports and a solenoid operated plunger mounted on said platform is engageable in said apertured portion, and

storage rails is aligned endwise relation to said platform at its lower level are provided for receiving trays moved off said platform from said registered platform position.

3. The structure of claim 1 in which

said tray is provided with a bottom and side walls, and

a bracket is mounted forwardly of and below the front edge of said bottom wall and provided with vertically disposed spaced wicket-holder members having sockets for receiving the legs of a U-shaped wicket on which said stack of bags may be carried.

4. The structure of claim 1 in which are provided,

elevating means for incrementally raising said platform towards its upper level,

means for detecting the upper level of the stack of bags on a tray during each bag loading operation, and

means for sensing a condition wherein said upper level of bags is below said loading level,

said sensing means including a switch with an actuating lever engageable by said detecting means, said switch operating said elevating means.

5. The structure of claim 4 in which

said elevating means is a ratchet operated lifting mechanism powered by solenoid operation,

the means for positioning a stack of bags on the tray includes a wicket and holder elements therefor positioned at the front of the tray,

said sensing means also includes a fixed plate defining the level of travel of said products and the end thereof is engaged by the wicket of a tray elevated in reg-

istered position, the said switch being positioned under said plate and said actuating lever thereof is provided with arms extending laterally of the plate, and

said detecting means is provided by lower bag spreader elements carried at each side of said fixed plate and having means to move into the open mouth of a bag and pivot to rest on the top of said stack of bags.



**References Cited**

UNITED STATES PATENTS

2,108,613 2/1938 Rider.

EDWARD A. SROKA, *Primary Examiner.*

U.S. Cl. X.R.

271—62