Aug. 9, 1960 G. N. HANSON ET AL 2,948,098

BALE SEALING MACHINE

Filed Nov. 1, 1956 4 Sheets-Sheet 1

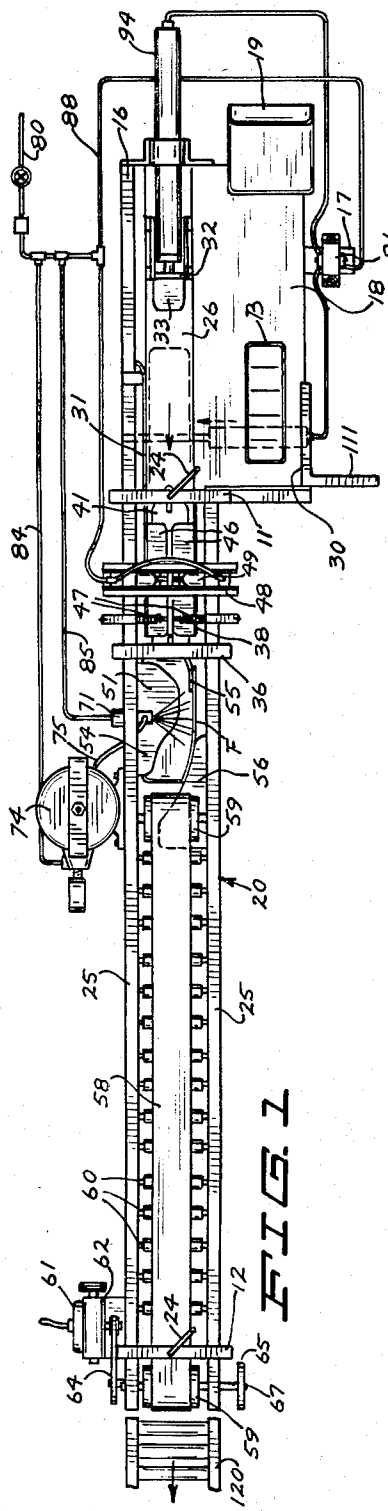


FIG. 1

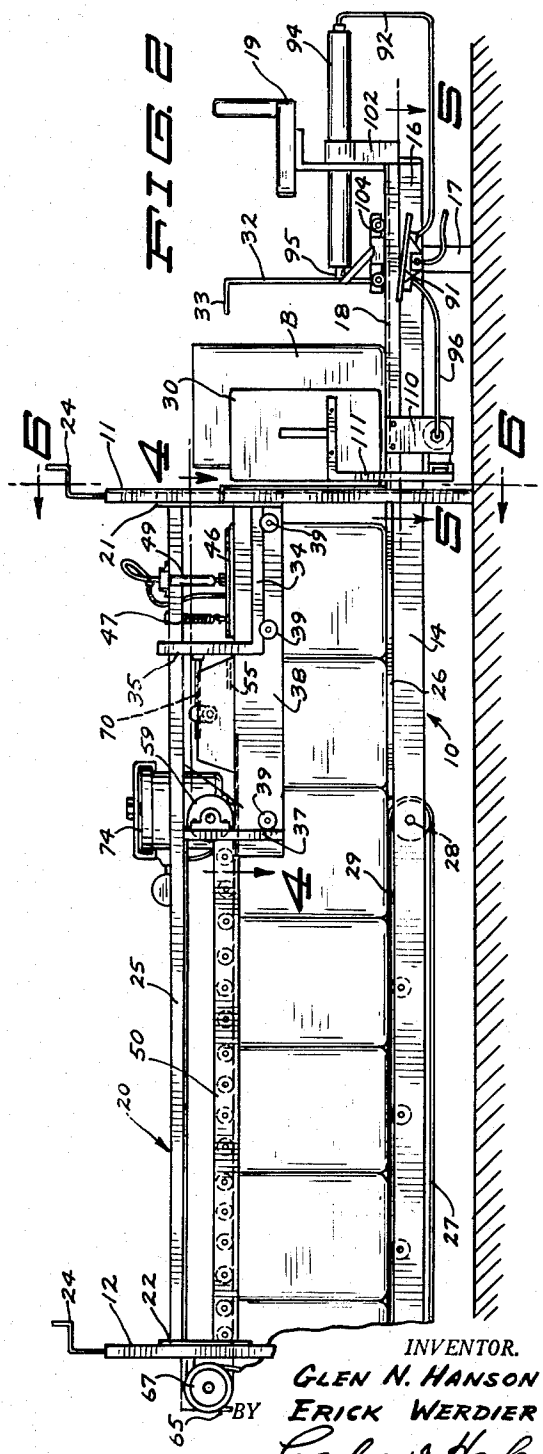


FIG. 2

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Filed Nov. 1, 1956 4 Sheets-Sheet 2

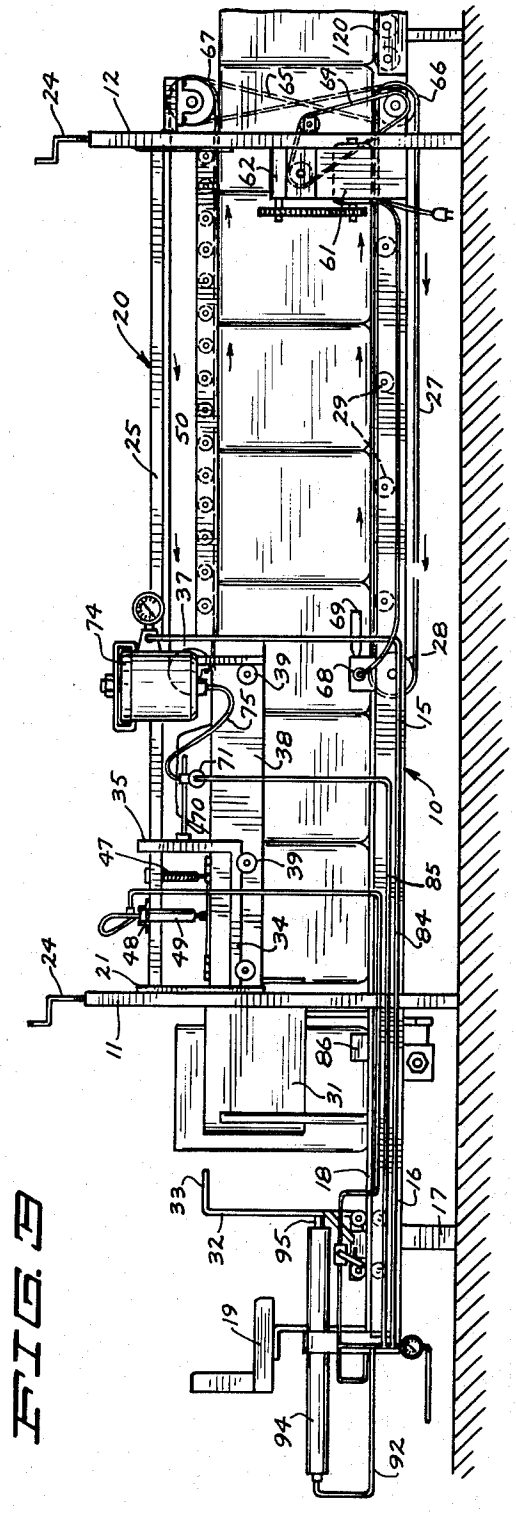


FIG. 3

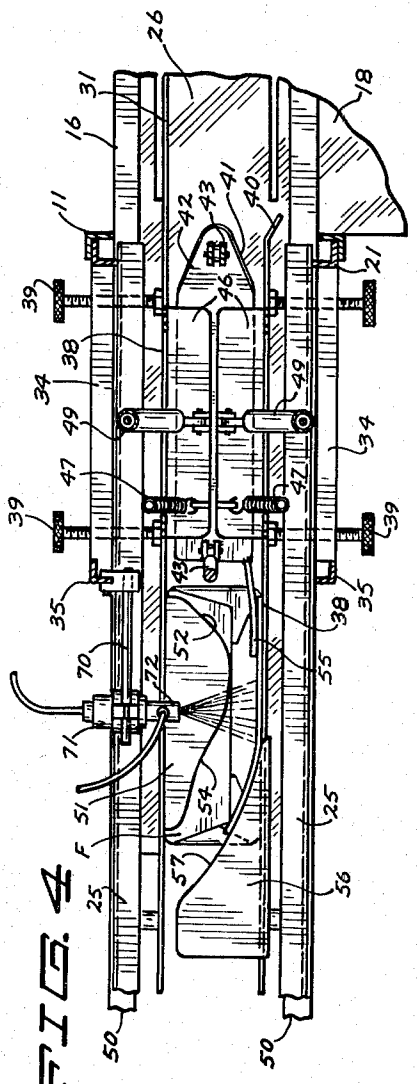


FIG. 4

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BALE SEALING MACHINE

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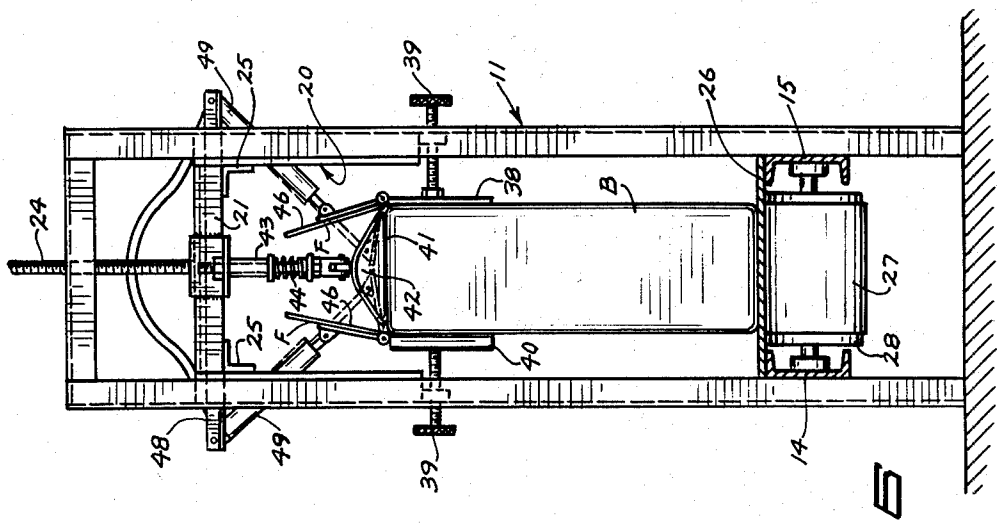


FIG. 6

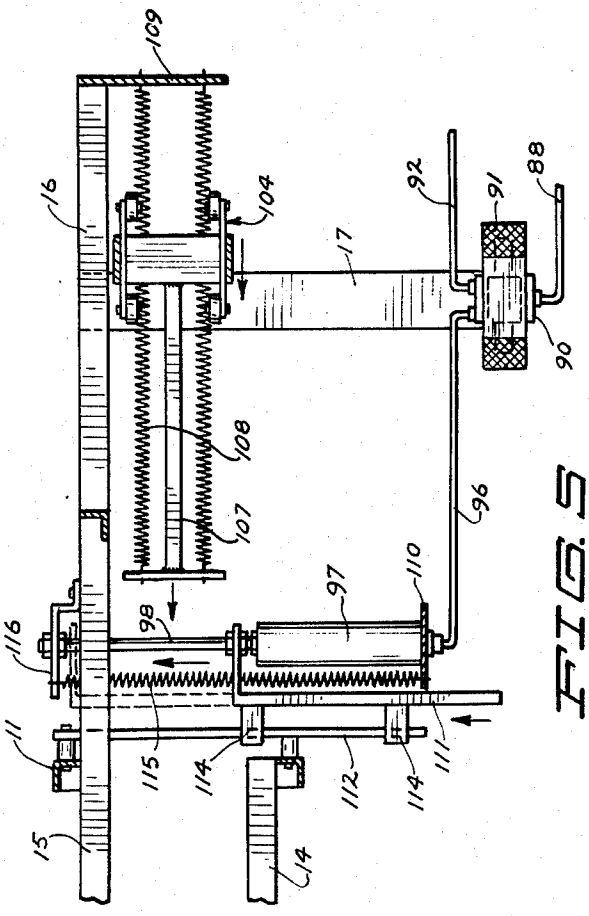


FIG. 5

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BALE SEALING MACHINE

Filed Nov. 1, 1956 4 Sheets-Sheet 4

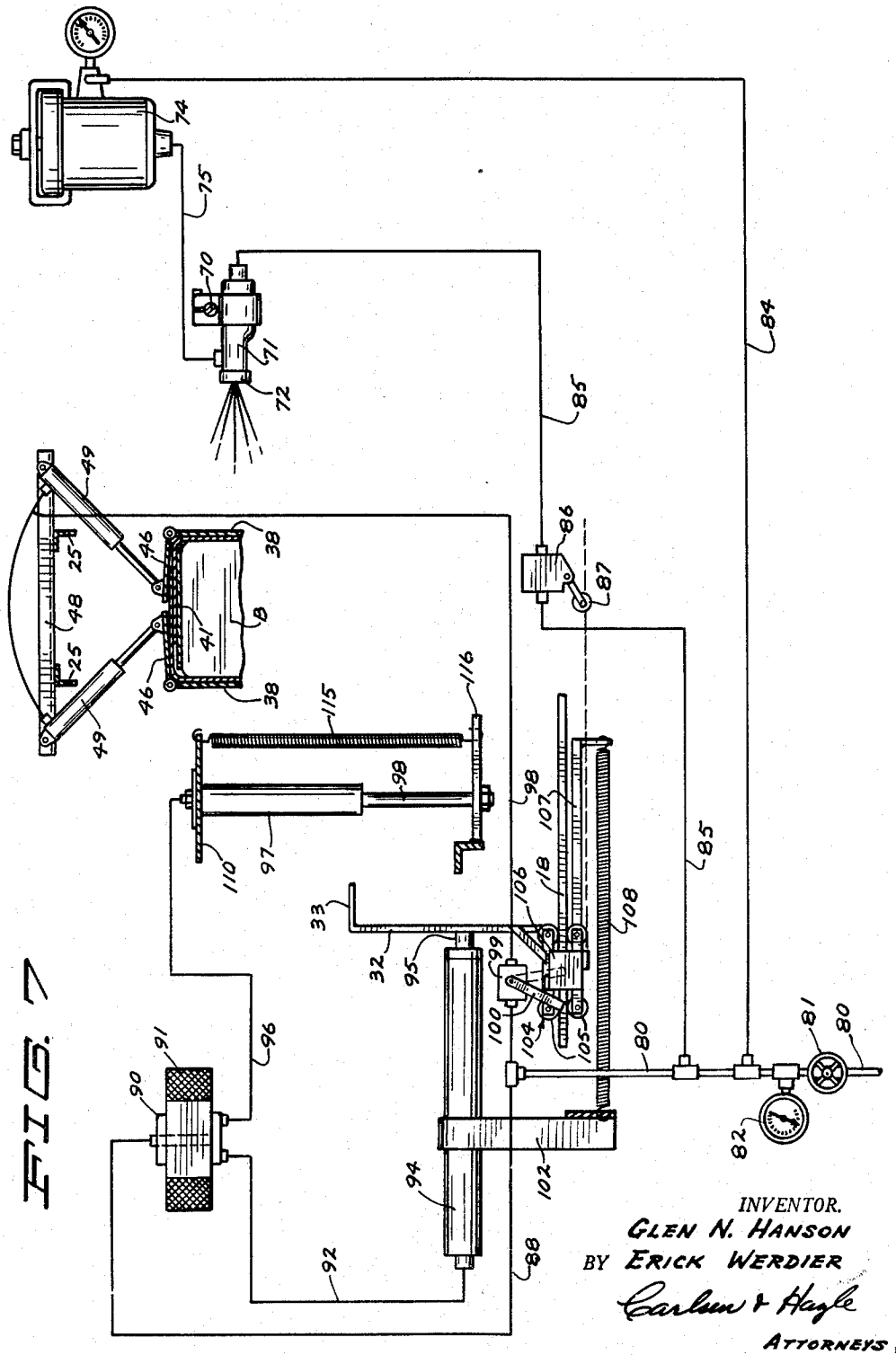


FIG. 7

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United States Patent Office 2,948,098 Patented Aug. 9, 1960

2,948,098

BALE SEALING MACHINE

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Filed Nov. 1, 1956, Ser. No. 619,876

9 Claims. (Cl. 53—378)

This invention relates generally to packaging machinery and more particularly concerns machines for scoring and sealing bag type containers, frequently referred to as "bales."

The practice of packaging or baling small bags of bulk food products, such as flour, sugar, coffee or the like, in a larger bag is becoming increasingly more common due to the relatively higher cost of cardboard cartons. In this type of packaging several units of the product concerned packaged in their ultimate sales container are packed in a large bag, generally made of stiff heavy paper, and shipped in this manner to their destination. Obviously, these bags are relatively large and cumbersome. The instant invention concerns the sealing of these bags or bales after they have been loaded with the selected contents.

The primary object of the invention is to provide a machine for automatically folding and sealing the open mouth of a large bag container after it has been filled to a preselected level and for automatically advancing the bag through the machine before, during, and after the folding and sealing operations.

Another and more specific object of the invention is to provide a fluid pressure actuated machine operable by a single operator from a single seated position who, after filling a bag container to a preselected level, may then, by operation of a single control from said position, direct said pressure to various components of the machine to effect successively the steps of folding the bag portions above said level into flaps adapted to overlap each other, the application of an adhesive to the uppermost flap, the closing of said flap against the other flaps, and then apply downward pressure to the flaps to effect a tight sealing of the top of the bag.

With these objects in view the invention broadly comprises a machine having an elongated frame providing a bag passageway into which a number of filled bags may be progressively passed in side by side upwardly opening condition, a ram on the frame for pushing the bags through the passageway, a first station along the passageway, a dividing shoe on the frame above said first station for separating the mouth of the bag into a pair of opposing flaps as the bag is moved thereunder, a pair of scoring plates swingably mounted on the frame one at each side of the dividing shoe and adapted when activated to bend the bag flaps down over the shoe to score the bag walls, a second station in the passageway adjacent the first passageway, means for raising one flap as the bag is moved into the second station, a glue spray gun mounted on the frame over said second station and so directed as to spray glue on the raised bag flap when activated, a third station in the passageway, a pressure plate mounted on the frame above the third station and adapted to fold over and exert downward pressure on the bag flaps as the bag is moved into said station, conveyor means for carrying the bag from the third station and simultaneously applying downward sealing pressure

to the bag as it is carried thereby, a fluid pressure source connected to the ram, a manual control for operating the ram from said pressure, and various control devices for said scoring plates and spray gun operative under actuation of said ram.

The above mentioned and still additional objects of the invention will be brought to light during the course of the following specification, reference being made to the accompanying drawings, in which—

Fig. 1 is a plan view of the invention.

Fig. 2 is a side elevation of the machine taken from the left side relative to the operator's position and showing the machine with a row of bales going therethrough with an open bale in position on the loading platform ready to be injected into the machine.

Fig. 3 is a side elevation showing the machine in the same condition as in Fig. 2 but taken from the opposite or right side of the machine relative to the operator's position.

Fig. 4 is a horizontal section through the central portion of the machine looking downwardly along line 4—4 in Fig. 2.

Fig. 5 is a horizontal section through the rear portion of the machine below the loading platform taken along line 5—5 in Fig. 2 and looking downwardly.

Fig. 6 is a transverse vertical section taken along line 6—6 of Fig. 2 looking forwardly through the machine.

Fig. 7 is a schematic view of the various pressure lines to the pressure actuated apparatus of the machine.

Referring now more particularly to the drawings reference characters will be used to denote like parts and structural features of the invention in the different views. The machine has a base frame denoted generally at **10** which comprises a pair of longitudinally spaced inverted U-shaped upright sections **11** and **12** which are integrally connected near their bottom ends by transversely spaced elongated base side bars **14** and **15** (Fig. 6). Side bar **15** which is the near bar in Fig. 3 extends rearwardly substantially beyond the frame section **12**, as at **16**. A floor engaging cross beam **17** extends laterally from the bar portion **16** and the members **16** and **17** jointly support a loading platform **18**. An operator's seat **19** is mounted at the rear end of the platform in forwardly facing position and laterally offset from the fore and aft framework defined by the members **11**, **12**, **14** and **15**.

An auxiliary or upper frame is denoted generally at **20** and this frame is vertically adjustable between various fixed positions along the sections **11** and **12** of the base frame **10**. The frame **20** comprises a pair of inverted U-shaped end sections **21** and **22** which respectively fit within the sections **11** and **12** of the base frame and which are vertically adjustable therein by reason of their being journaled on the lower ends of crank screws **24** which are threaded through the horizontal top bars of sections **11** and **12**. The sections **21** and **22** are rigidly interconnected by longitudinally extending bars **25**. Accordingly the elevation of frame **20** can be vertically adjusted by operation of cranks **24**.

A floor or slide plate **26** on a plane with the top surface of the platform **18** extends alongside of the platform and forwardly into the frame **10** along the side bars **14** and **15**, as best shown in Figs. 2 and 6. This plate **26** extends part way along the frame **10** to approximately the rear end of a belt conveyor **27** which extends around end rollers **28** mounted on the frame and intermediate idle rollers **29**. The slide plate **26** is on a plane with the top portion of belt **27** extending over the rollers. The frames **10** and **20**, along with the plate **26** make up a frame structure which defines an elongated passageway extending forwardly from the platform **18**.

The floor plate **26** and conveyor belt **27** accordingly

jointly form an elongated path through the machine over which the bales B travel during the sealing operation. A transversely operative ram or pusher plate **30** is mounted over the platform **18** for movement across the platform in front of the seat **19**. The mounting and operation of this device will subsequently be described. Suffice for the present to say that when operated this plate **30** will move a bag or bale B laterally from a position in front of the seat **19** to a position against a platform side wall **31** and in front of a forwardly operative pushing ram **32** the operation of which will also be subsequently described. The upper end of ram **32** angles forwardly as at **33**.

The ram **32** is adapted to move a row of bales B progressively through the machine for subjection to the various steps in the sealing operation. The bag sealing equipment is mounted primarily on the auxiliary frame **20** and is accordingly vertically adjustable therewith respective to the main frame **10**.

The auxiliary frame **20** has various frame members integrally associated with the side bars **25** and end section **21**. Fore and aft extending bars **34** (Fig. 2) have their rear ends welded to the section **21** and their forward ends connected to upright members **35** which are secured to bars **25** and united with each other by a cross bar **36**. Bracket members **37**, also integrally secured to the bars **25**, depend therefrom at either side of the frame **20** approximately over the rear conveyor roller **28**.

A pair of guide walls **38** are attached one to each side of the frame **20** to extend longitudinally thereof in transversely spaced vertical planes. These walls are mounted at the ends of various adjustment screws **39** which are threaded for longitudinal adjustment through bosses attached to auxiliary frame members **34** and **37**. Accordingly the guide walls **38** are laterally adjustable to vary the spacing therebetween by manual operation of the control screws **39**. The platform side wall **31** may be integrally associated with the right hand guide wall **38** to be laterally adjusted therewith. The left hand guide wall **38** may be flared outwardly at its rear end as at **40** (Fig. 4) to assure movement of a bale B into the space between the two guide walls as it is pushed forwardly by ram **32**. The adjustable walls **38** accordingly form a guideway for the bales B and are adapted to engage the bales therebetween to hold them in an upright position as they are pushed along the bottom plate **26**. The adjustability of the plates allows their use with bales of different widths.

The equipment for folding and sealing the top of the bales B will now be described and for a clear understanding of the principal elements thereof attention is directed primarily to Figs. 4 and 6. A divider shoe **41** having an upturned rear end portion **42** is mounted to extend substantially along the horizontal plane of the upper edge of walls **38**. This shoe is supported in suspended position from the frame **20** by means of fore and aft telescopic links **43** resiliently held in extended condition by means of compressed coil springs **44**. These two links have their lower ends pivoted to the shoe on transverse axes with the upper ends connected to transverse members **21** and **36** on the auxiliary frame. The divider shoe **41** is accordingly mounted to yield upwardly under pressure. A pair of elongated scoring or folding plates **46** are hinged one to each of the guide walls **38** along the upper edges thereof for folding movement between upright positions (Fig. 6) and lowered positions over the divider shoe **41** (Fig. 4). These plates are each less in width than half the minimum spacing between the guide walls **38** so that both may be lowered against the divider shoe without interfering with each other. Coil springs **47** connect the flaps **46** to higher adjacent portions of frame **20** to constantly bias the flaps toward the raised position of Fig. 6.

A cross bar **48** is mounted across the frame **20** intermediate the section **21** and bar **36**. A pair of fluids extensible jacks **49** are pivoted one at each end of bar **48** with the piston rods thereof respectively pivotally connected to the adjacent scoring plates **46**. Accordingly when fluid pressure is admitted to extend the jacks they will force the flaps **46** downwardly about their hinge axes against the top of divider shoe **41** against tension of the springs **47**.

Forward of the divider shoe and scoring plate mechanism just described a flap hold down member **51** is provided to extend inwardly from the right hand guide wall **38** at substantially the elevation of shoe **41**. The distal edge of this plate curls slightly upward along its rear portion **52** (Fig. 4) and tapers toward wall **38** as at **54** along the forward portion. A forwardly extending lift finger **55** is integrally attached to the front portion of shoe **41** to extend near the upper edge of the left hand guide wall **38** opposite the edge **52** of member **51**. In a still further advanced position and opposite the cut-away portion **54** of the member **51** a sealing plate **56** is mounted on the left hand guide wall **38**. This plate is also disposed on a generally horizontal plane at the elevation of shoe **41** with the trailing inner edge **57** thereof curled slightly upward to form a guide lip. The front portion of plate **56** extends beneath a continuous belt **58** (Fig. 1) mounted to extend around end rollers **59** journaled on frame **20** and a series of intermediate rollers **60** journaled in longitudinally extending side bars **50** mounted on the frame **20**. Rollers **60** are mounted to rotate on axes lying on a common horizontal plane and the undersurfaces of these rollers are on a plane with the undersurfaces of end rollers **59**. Accordingly belt **58** as it passes under the rollers **60** is in vertically spaced parallelism to the belt **27** as it travels over rollers **29** and substantially on a plane with shoe **41**.

Belts **27** and **58** are driven by a suitable electric motor **61** (Fig. 3) mounted on frame **10** and connected through transmission **62** and suitable drive belts **64** and **65** to equal pulleys **66** and **67** respectively mounted coaxially on the front rollers **28** and **59**. The two conveyor belts are accordingly driven at the same speed but in relatively opposite directions, the drive belt **65** being twisted between the pulleys. Belt **27** travels forwardly on the top side while belt **58** travels forwardly on the underside.

Motor **61** is energized through operation of a switch **68** mounted on a side bar **15** at the rear end of the bottom conveyor belt **27**. This switch is open and closed by a spring biased finger **69** which projects inwardly over the belt. When a bale B is pushed forwardly onto the conveyor belt **27** it will swing the finger **69** outwardly to close the switch **68** and energize the motor **61** to operate the conveyor belts. When the bales have cleared finger **69** allowing it to swing inwardly over the belt again the switch will open the circuit and the conveyor belts will stop.

Reverting now again to the folding and sealing mechanism supported by the frame **20**, and with particular attention to Figs. 3 and 4, it will be noted that a support arm **70** extends forwardly from the upright **35**. This arm carries a glue spray gun **71** which has its nozzle **72** directed inwardly over the plate **51**. The gun is so positioned as to direct a spray of glue or other liquid adhesive over and across the top of a bale positioned under the plate **51** and against the near side of the bale flap being held erect by finger **55**. A glue supply pot **74** is mounted on the side bar **25** of frame **20** and is connected to the gun **71** by supply tube **75**.

The various movable elements of the machine are operated by fluid pressure, preferably air pressure, from a single source. Turning to Fig. 7 this air pressure system is shown diagrammatically. The number **80** represents the main pressure line which leads from a compressor or other suitable fluid pressure source. The main line is provided with a shut-off valve **81** and a pressure indicating gauge **82**. Beyond the valve **81**, a line **84** connects the glue pot **74** to line **80** to maintain pressure in the pot and a line **85** connects the spray gun **71** to the

line 80. A time valve 86 in the line 85 which is normally closed to prohibit flow through the line has a pivoted control arm 87 adapted to momentarily open the valve when swung forwardly.

Beyond the connections with lines 84 and 85, the main line 80 branches off into two lines. One line 88 leads to a three way valve 90 mounted on cross beam 17 which extends under the platform 18 the valve being operated by a centrally pivoted foot pedal 91. A line 92 leads from the valve 90 to a frame mounted jack 94 which carries a forwardly extendable piston element 95 attached to the ram 32. A line 96 leads from the valve 90 to a jack 97 mounted to actuate the transverse ram 30.

The other branch off from the main pressure line 80 is denoted at 98 and extends to the jacks 49 which operate the scoring plates 46. A valve 99 having a swingable actuating arm 100 for opening and closing the valve is disposed along line 98. This valve is normally open so that the jacks 49 are extended as shown in Fig. 7. When the arm 100 is swung forwardly to the position shown in broken lines the pressure is released from line 98. Valves 86 and 99 have not been shown in Figs. 1 and 3 due to the difficulty of incorporating them in those views.

Jack 94 is mounted in longitudinal alignment with the frame 20 and is supported by means of an upright bracket 102 attached to the platform 18. The ram member 32 operated by jack 94 is mounted on a carriage designated generally at 104. This carriage includes sets of rollers 105 which engage against opposite sides of the platform and which are interconnected by a side plate 106. The carriage unit also has a forwardly extending bar 107 which has its distal end connected as by tension springs 108 to a plate 109 mounted at the rear of the platform. It will accordingly be understood that when pressure is supplied to extend the jack 94, the member 32 will be caused to move forwardly over the platform with the carriage 104 rolling therealong. When pressure to line 92 is released the tension of springs 108, which have been stretched by the forward movement, of the ram will cause the ram to return to its rear position.

The valve 99 is mounted on the frame in such a position as to have its control arm 100 extending downwardly into the path of carriage 104 so as to be normally held by the carriage in valve opening position (Fig. 7). When the carriage moves to its forward position the arm 100 which is spring biased will swing forwardly to the position shown in broken lines releasing the pressure in line 98 allowing jacks 49 to retract and the scoring plates 46 to swing to their erect condition under tension of springs 47.

Valve 86 is mounted on the base frame in alignment with the carriage 104 and forward thereof. Accordingly, when the carriage commences its forward movement it will swing the arm 87 forward to momentarily open line 85 allowing pressure to flow to gun 71 to eject a fine spray of glue through the nozzle 72 thereof. When the carriage 104 returns the spring held arm 87 returns to its original position.

Attention is now directed to the mechanism for operating the lateral pusher plate or ram 30. As heretofore mentioned, the jack 97 having an extendable piston rod is mounted in fixed transversely extending position under the loading platform. The jack has its base integrally secured to a plate 110 (Fig. 5) depending from the left side of platform 18. A U-shaped bracket 111 extends around the edge of the platform and connects the pusher plate 30 to the extendable piston element 98. A transverse guide rail 112 mounted on the base frame slidably supports the bracket 111 by extending under integral projections 114 on the bracket 111. Bracket 111 is connected to element 98 near the longitudinal center thereof the element being shown in retracted position in Fig. 5. When pressure is admitted to the jack 97 bracket 111, which moves with the element 98 to the position shown in broken lines, will carry the pusher 30 to the right across the platform. A tension spring 115 connects the mounting plate 110 to an element 116 mounted at the end of the member 98 to cause retraction of member 98 and, of course, pusher 30 attached thereto when pressure is released from the jack 97.

The operation of the machine will now be explained. The operator thereof sits on seat 19 with a supply of bale bags B and material to be placed therein, such as smaller filled bags, at hand. With the bale container B resting on the platform in the position shown in Figs. 1 and 2 it is filled to the desired capacity by the operator. The operator then depresses the pedal 19 forwardly admitting fluid pressure to the jack 97 to extend the rod 98 therefrom. The plate 30 is attached to the member 98 and moves laterally to the right therewith pushing the filled bale B in its upright condition to a position against the wall 31, shown in broken lines in Fig. 1. When the pedal is then returned to its neutral position the valve 90 releases pressure from line 96 and the pusher element 30 returns to its original position under action of the spring 115.

The newly filled bale B is now in alignment with the sealing passage through the machine formed by frames 10 and 20 at the rear opening thereof and in front of the ram 32. The operator then depresses pedal 91 rearwardly about its center mounted axis which opens valve 90 to allow pressure from line 88 to flow into line 92 and jack 94 forcing the piston element 95 and ram 32 forwardly. The ram 32 with its forward movement engages the side of bale B and moves it into the first station of the sealing passage as shown in Fig. 6. It will be observed that the forwardly angled extension 33 on ram 32 is horizontally disposed at the elevation of the divider shoe 41 which in turn is set at the filled level of the bale B. Also the extension 33 is somewhat narrower than the bale itself. Accordingly as the ram moves against the bale the extension 33 folds the near side wall of the open mouth of the bale inwardly over the top of the contents therein. Then as the bale is pushed under the shoe 41 the opposing narrow wall of the bale open mouth is folded inwardly over the contents as it engages the upturned end 42 of the shoe. With the two narrow walls of the bale mouth folded in the broader side walls are left in upwardly projecting condition as the bale is forced under the shoe 41.

At the start of the forward movement of ram 32 the carriage 104 on which it rides releases the control arm 100 of valve 99. When so released the valve 99 opens line 98 allowing the fluid pressure to exhaust therefrom and from the jacks 49. Thus as control arm 100 is released with the initial forward movement of ram 32, the springs 47 will pull the scoring plates 46 to their erect position shown in Fig. 6. When the bale B moves under shoe 41 and between the side plates 38 the bale flaps F will accordingly move edgewise into the spaces between shoe 41 and plates 46 at either side of the shoe.

The operator then releases pedal 91 for return to its neutral position and with this the pressure is relieved from line 92 and jack 94 allowing the return springs 108 to take over and return the ram 32 to its rear position. As the ram moves rearwardly the carriage 104 will retract the control arm 100 which operates valve 99 to open the line 98 to the fluid under pressure in line 88. This extends jack 49 to lower scoring plates 46 which fold the bale flaps F over the top of shoe 41. The bales B are generally formed of a relatively heavy or stiff paper so that the folding operation cleanly scores the flaps F at the base thereof where they are folded over the side edges of the divider shoe.

The bale remains in the first station until the next actuation of the machine. When the machine is again actuated by the operator so as to force the next succeeding bale into said first station the bale under shoe 41 will be moved forwardly by such succeeding bale into what will be referred to as the second station which is centered on the

glue gun 71. As the bale moves forwardly the bale flap at the side opposing gun 71 will be raised by the finger 55 which projects forwardly from shoe 41. The opposing flap will slide under plate 51 and be held thereby in folded condition.

The bale will stay in this condition until the next forward actuation of ram 32. Upon initial movement of the ram and before the bales already in the passageway are pushed forward, the carriage 104 will engage the member 87 to momentarily open line 85 to provide pressure to gun 71. The gun will accordingly issue a brief spray of glue upon the side of the upright opposing flap, prior to movement of the bale from the second station. Then as the row of bales begins to move under pressure from ram 32, the flap to which the adhesive has been applied will, as it moves under plate 56, be folded down over the opposing flap to seal the bale. Plate 51 is tapered at 54 to prohibit its interference with the folding of the flap.

As the bale moves into the third station under the plate 56 and the rear end of belt 58 it will swing the switch lever 69 outwardly to start the conveyors 27 and 58 to carry the bale forwardly to the end of the machine. As the bales move over conveyor 27 the belt 58 applies constant downward pressure to the flaps to effect a permanent sealing of the bale. A conveyor 120 may be placed at the end of the machine to carry off the sealed containers.

It will thus be observed that this machine makes possible the rapid folding and sealing of the open mouths of large bales by a single operator. The operator is so positioned that he might also control the bag filling operation. We have accordingly provided a machine which economically and effectively carries out the aforementioned objectives.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described our invention what we claim to be new and desire to protect by Letters Patent is:

1. A machine for sealing bales of the type described which comprises in combination, a frame structure providing an elongated passageway, means on one end of the frame structure for moving a plurality of bales in a row through said passageway, and means mounted on the frame structure over said passageway for folding and sealing the open mouths of the bales as they are moved therethrough, said means comprising in succession along the structure a divider shoe transversely centered over the passageway with a pair of scoring plates one at each side of the shoe and spaced therefrom and hinged to the frame structure for folding and unfolding movement over the shoe to form each of the bale mouths into a pair of opposing flaps adapted to be folded one over the other, a glue dispenser mounted on the frame structure for applying glue to the underside of the one of said flaps, and a sealing device for folding the flaps and applying downward pressure thereto as the bales move along the passageway.

2. In a machine for folding and sealing the open mouths of bale containers which comprises a frame structure forming an elongated passageway, ram means mounted on the frame structure for moving a plurality of bale containers successively into and through said passageway, folding means on the frame structure for folding each bale mouth into flaps, means on the frame structure for raising one flap on the bale as it is moved from the folding means, an adhesive dispensing spray gun mounted on the frame structure to face said one flap, control means coordinating the operation of the spray gun with operation of the ram means, and mechanism on the frame structure for automatically folding and applying downward pressure to the flap as the bale is moved beyond the spray gun.

3. In a bale sealing machine of the type described, a frame structure forming an elongated passageway with a loading platform at the rear end thereof, means on the frame structure for moving a row of bale type containers forwardly from the loading platform through the passageway to the other end of the frame structure, and means mounted on the frame structure over the passageway for folding and sealing the upwardly opening mouths of the bales as they are moved from said platform through the passageway, said last mentioned means comprising a spring tensioned divider shoe adjacent the platform for separating a bale mouth into opposing flaps as the bale is moved thereunder, a pair of plates hinged to the frame structure one at each side of the shoe for opening and closing movement thereover, a horizontal plate rigidly mounted at one side of the frame structure forwardly of the shoe at the elevation thereof, an adhesive spray device mounted over said horizontal plate and adapted when operated to issue a spray transversely across the passageway, and a flap folding device located longitudinally forward of the spray device and including a continuous belt at the elevation of said shoe for maintaining downward pressure on the flaps as the bale is moved to the forward end of the passageway.

4. In a bale sealing machine, a frame having means for supporting an open mouthed bale of the type described in upright condition, a folding station on the frame, transport means on the frame for moving the bale in such condition onto said folding station, and mouth folding means on the frame adjacent said station for folding the mouth into overlapping flaps, said means comprising a horizontally disposed spring tensioned shoe, a pair of scoring plates one at each side of the shoe but spaced therefrom and hinged to the frame on parallel axes for folding movement between erect positions and closed positions against the shoe, spring means connecting the plates to the frame to urge them toward their erect positions, fluid extensible jacks connecting the plates to the frame for folding the plates to their closed positions against tension of the spring means, a fluid supply line to the jacks, a valve in the line for opening and closing the line to fluid pressure, a control on the valve biased toward a valve opening position, and said transport means associated with said control to close the valve when the transport means is operated to move the bale into the folding station.

5. In a machine for folding the mouth of an upwardly opening bale of the character described, a frame structure, a loading platform on the frame structure, a mouth folding station on the frame structure disposed beside the loading platform, a ram mounted on the loading platform for movement toward and away from the folding station, a fluid extensible jack on the frame structure for moving the ram, a stationary horizontal divider shoe on the frame structure at said folding station for dividing the mouth of the bale into opposing flaps as a bale is moved into said station, a pair of scoring plates hinged to the frame structure one at each side of the divider shoe for swinging movement between erect positions and lowered positions over said shoe to fold the flaps inwardly, spring means connecting the plates to the frame structure to yieldably retain the plates in erect position, fluid extensible jacks connecting each plate to the frame structure for swinging the plates to their lowered positions, a fluid pressure supply line to said jacks and having a valve therein, and a spring biased control on the valve, said control being located in the path of movement of said ram to be operated to release the pressure to said jacks as the ram is moved toward the folding station.

6. In a machine for closing and sealing the open mouths of bales of the character described, an elongated frame structure providing in succession and on a common level a loading platform and first and second bale treating stations, a source of fluid pressure, a ram device mounted on the platform for pushing a row of bales from the platform through said stations, a fluid extensible ram jack mounted on the platform and having connection with

the ram device and with the pressure source, a manually operative primary control device for selectively admitting pressure to said ram jack to extend the jack and move the device in a bale pushing direction, a fluid pressure actuated folding device for folding the open mouths of said bales into flaps mounted on the frame structure over said first station, a fluid pressure actuated glue spray gun mounted on the frame structure over the second station, and pressure lines connecting said folding device and spray gun to the pressure source, each of said lines having flow control means therein, and said control means being located in the path of pushing movement of the ram device to be operated thereby to synchronize the pressure flow to the folding device and spray gun with movement of the ram device by operation of the primary control device.

7. In a machine for sealing upwardly opening containers, a frame structure providing an elongated passageway having a bottom comprising a floor section and a conveyor section arranged end to end, means on the frame structure for moving a row of the containers over said floor section toward and onto the conveyor section, means mounted on the frame structure along the passageway and over said floor section for folding the open portion of each container into opposing flaps, then applying adhesive to the flaps and closing the flaps against one another to seal the container, and means for applying sealing pressure to the flaps after such closing, said last mentioned means comprising a series of transverse parallel rollers mounted on the frame structure over the conveyor, a continuous belt extending around the rollers, power means connected to the rollers for driving the belt, the underside of said rollers lying on a common horizontal plane spaced above the conveyor a distance substantially equal to the height of the sealed containers, and said power means having a control finger biased to extend into said passageway over said conveyor adjacent the junction of the floor section and conveyor to be swung outwardly to activate the power means when engaged by a container moving onto the conveyor.

8. A machine for folding and sealing the open mouths of bale containers which comprises a frame structure forming an extended horizontal passageway, ram means mounted on the frame structure for moving a plurality of bale containers having upwardly opening mouths sidewise successively into and through said passageway, flap forming means on the frame structure for forming each bale container mouth into transversely opposing flaps, means on the frame structure for folding one flap down to a horizontal position with the other opposing flap in upright

vertical position, an adhesive dispensing spray gun mounted on the frame structure to face said other flap, control means coordinating the operation of the spray gun with operation of the ram means, and mechanism on the frame structure for automatically folding said other flap downwardly over and against said horizontal flap and applying downward pressure thereto as the bale container is moved beyond the spray gun.

9. In a machine for sealing the open mouth of an open mouthed bag container of the character described, a frame structure having an elongated floor and an elongated upper frame portion disposed above the floor and parallel thereto, said upper portion forming an elongated side walled guideway, means on the frame for moving an open mouthed bag container in upright position along the floor with the upper portion of the container moving through the guideway, and flap forming and sealing means mounted along the upper frame portion to perform various operations on the container, said means comprising successively relative to the direction of container movement, a flap forming means for dividing the bale mouth into a pair of transversely opposed flaps, then a flap hold down device at one side of the frame for holding one of said flaps down over the bag while the opposing flap is in erect condition, an adhesive dispenser adjacent said hold down device for discharging adhesive against the facing surface of the erect flaps, then a folding means for folding said erect flap downwardly over and holding it against the one flap, then a means for applying downward pressure to said last folded flap, said last mentioned means comprising a series of parallel rollers mounted on the frame structure with their axes transverse with respect to the guideway and the underside of said rollers lying on a common horizontal plane spaced above the floor a distance substantially equal to the height of the sealed container for applying downward pressure to the last folded flap as the container is moved thereunder, and said erect flap folding means extending partially under said downward pressure means whereby said last folded flap will be in uninterrupted contact with said folding means and pressure means as it moves from one to the other.

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