Oct. 20, 1970 E. W. SWEZEY 3,534,524

PACKAGING MACHINE

Filed June 21, 1968 3 Sheets-Sheet 1

Fig. 1.

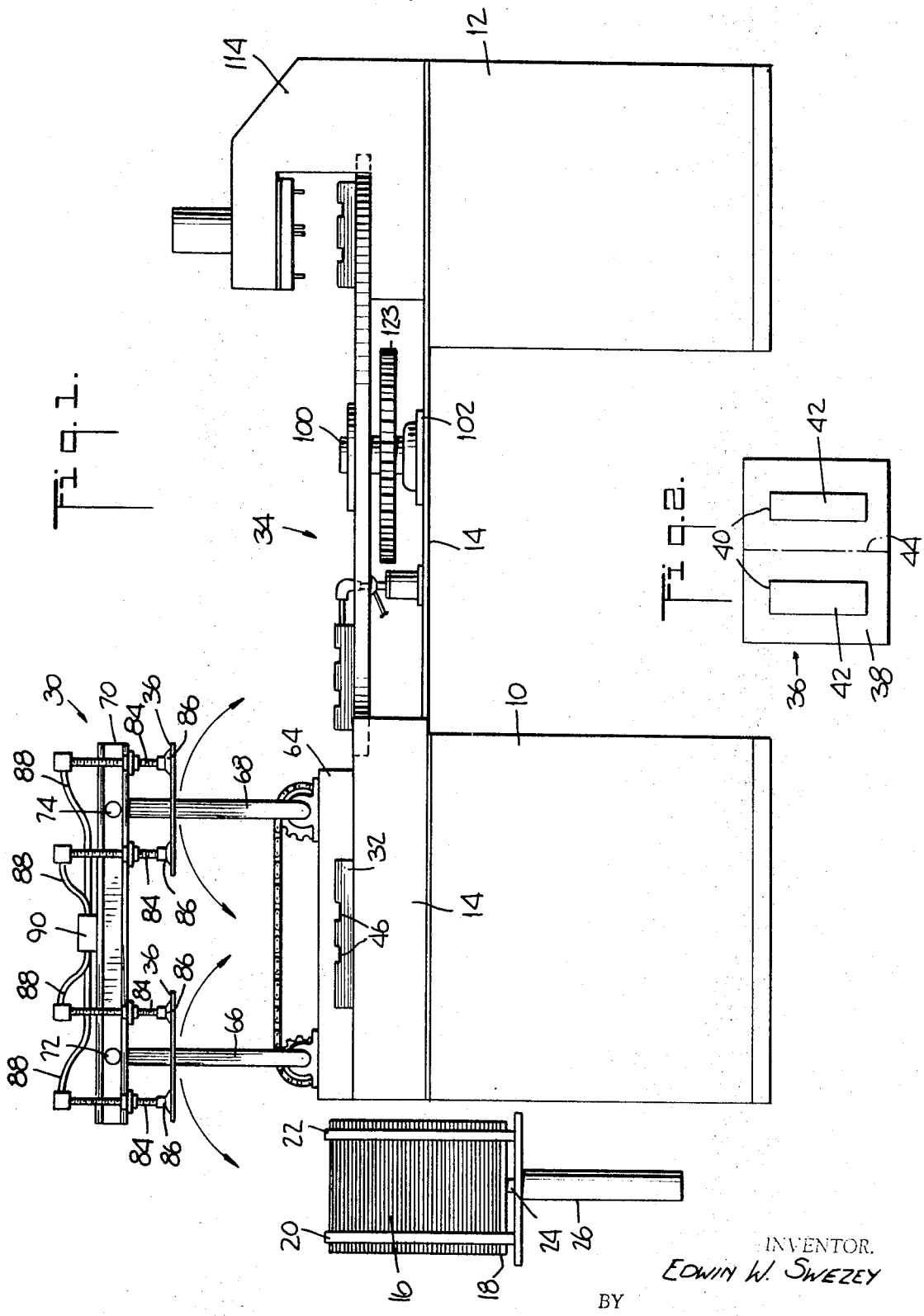


Fig. 2.

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PACKAGING MACHINE

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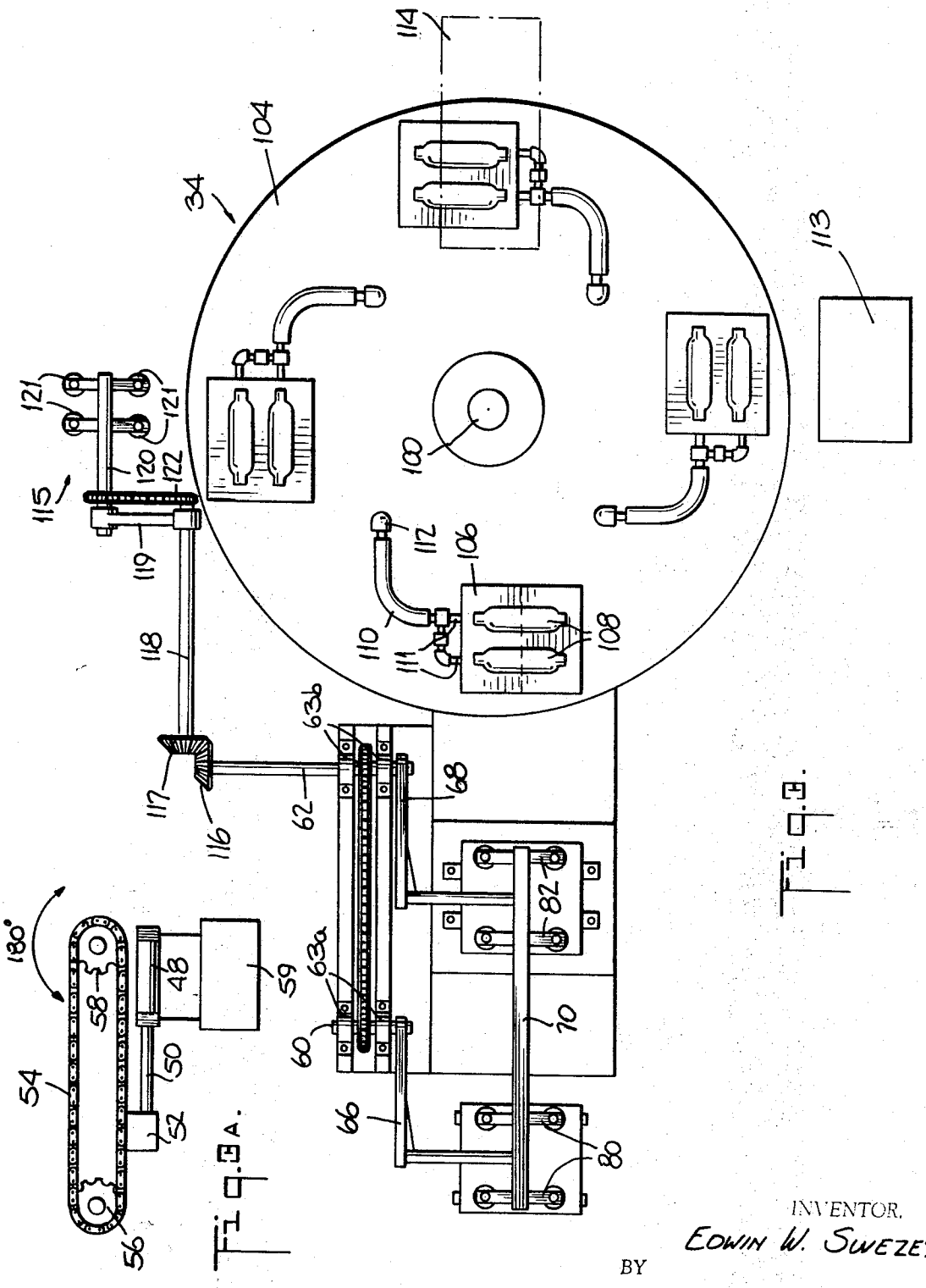


FIG. 3A.

FIG. 3.

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PACKAGING MACHINE

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Fig. 4.

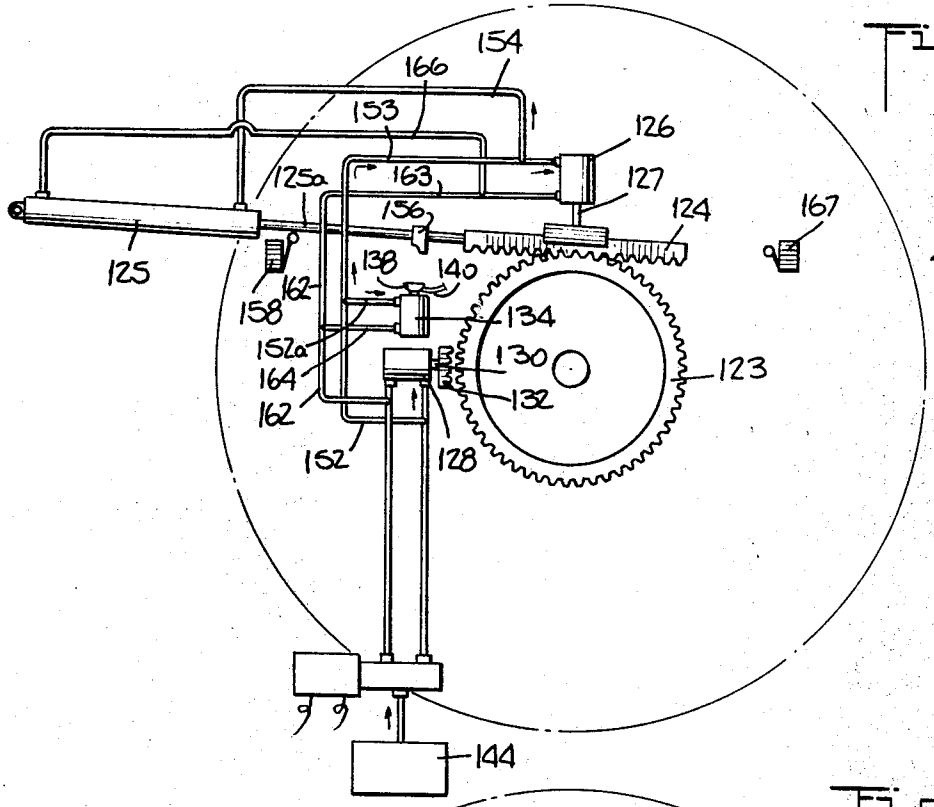
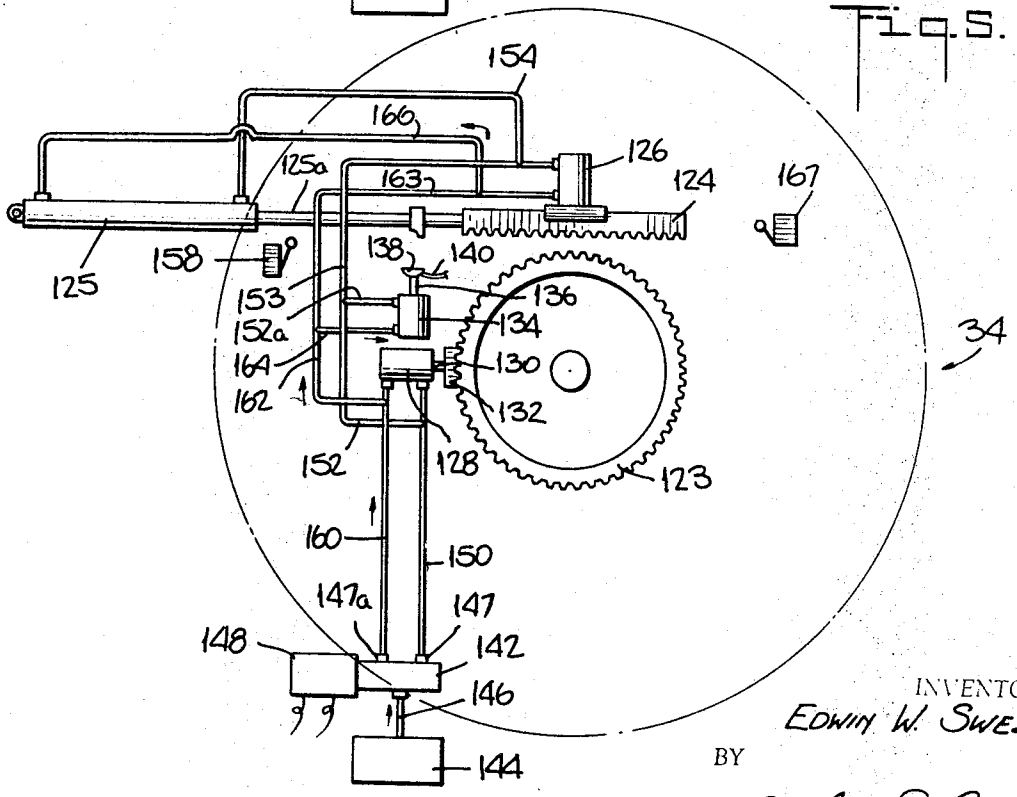


Fig. 5.



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United States Patent Office 3,534,524 Patented Oct. 20, 1970

3,534,524

PACKAGING MACHINE

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Filed June 21, 1968, Ser. No. 738,972
Int. Cl. B65b 41/06, 47/10
U.S. Cl. 53—141 8 Claims

ABSTRACT OF THE DISCLOSURE

A packaging machine having a transport mechanism for picking up individual package cards from a stack of cards and transporting the cards to a heating plate. Simultaneously the transport mechanism picks up another individual card from the heating plate and transports it to a forming die on an indexing mechanism. The indexing mechanism has four stations, the first of which causes synthetic plastic material on the package cards to be deformed into the shape of the cavities in the forming die. In the second station an item is placed in the package and the card folded. In the third station the card is sealed and in the fourth station the package card is removed from the indexing mechanism. Advantageously, the indexing mechanism has a plurality of hydraulic valves which are actuated sequentially to operate the indexing mechanism.

The present invention relates to packaging machines, and more particularly, to a novel packaging machine for packaging items in packages having window pockets of transparent synthetic plastic material for attractively displaying an item therein.

It is the object of the present invention to provide a novel packaging machine having a transport mechanism which picks up a package card from a supply thereof and transports the package card to a heating plate and simultaneously picks up another card from the heating plate and transports the card to a forming die on an indexing mechanism.

It is another object of this invention to provide such a packaging machine that has a hydraulically operated indexing mechanism with hydraulic cylinders that are operated sequentially.

It is another object of this invention to provide such a packaging machine that allows for a relatively short indexing and dwell time.

It is another object of this invention to provide such a packaging machine that is relatively inexpensive to manufacture and simple in operation.

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

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

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

FIG. 1 is a side elevation view of the packaging machine of this invention.

FIG. 2 is a plan view of an individual package card for use with the packaging machine in FIG. 1.

FIG. 3 is a top view of the packaging machine of FIG. 1.

FIG. 3*a* is a partial side elevation view of the transport mechanism of the packaging machine of FIG. 1.

FIG. 4 is a partial partly diagrammatic plan view of the indexing mechanism of the packaging machine of

FIG. 1 illustrating the position of the parts after the start of the indexing cycle.

FIG. 5 is a view similar to FIG. 4 illustrating the position of the parts of the indexing mechanism just before the indexing cycle has been completed.

It has been found that the foregoing and related objects can be readily attained in a packaging machine that has a support with a transport mechanism mounted thereon having a pair of operating arms rotatably mounted on the support and drive means connected to the arms for rotating the arms in one direction and then back in the opposite direction. Advantageously a carriage is mounted on the arms and rotatable means connect the arms with the carriage for positioning the carriage in a plane generally parallel to the support during the rotation of the arms by the drive means. A pair of vacuum pickup members are mounted on the carriage, one of the vacuum pickup members is mounted adjacent one end of the carriage for engaging a first package card from a stack of cards positioned next to the packaging machine. This vacuum pickup member transports the first package card to a heater on the support when the drive means rotates the arms in one direction. The other of the vacuum pickup members is mounted adjacent the opposite end of the carriage simultaneously engaging a second package card positioned on the heater and transporting the second package card to a forming die on an indexing mechanism mounted on the support when the drive means rotates the arms in the aforementioned direction. Vacuum forming means are connected to the pair of vacuum pickup members to enable the vacuum pickup members to engage and transport the cards. The vacuum means has a control for releasing the vacuum in order that the cards may be deposited on the heater and the forming die.

The packaging machine also includes an indexing mechanism with a shaft rotatably mounted on the support and a disc mounted on the shaft. A plurality of forming dies are supported by the disc for receiving the cards from the transport mechanism. The dies are adapted to deform heated synthetic plastic windows on the cards to the shape of the die for reception of the item to be packaged therein. Hydraulic means are provided for rotating the disc and shaft a predetermined increment. The hydraulic means includes a first hydraulic piston and cylinder wherein the first piston is connected to gear means for rotating the shaft. A second hydraulic piston and cylinder is provided wherein the second piston is connected to the gear means for moving the gear means into and out of engagement with the shaft. A third hydraulic cylinder and piston is provided wherein the third piston has a vacuum means connected thereto, the vacum means being movable by the third piston for engagement with a vacuum tube connection to the forming die on the disc. A fourth hydraulic cylinder and piston is provided wherein the fourth piston is connected to a locking means for locking the shaft in a fixed position at the end of the indexing cycle. Hydraulic lines are provided for actuating the hydraulic cylinders and pistons and include a first set of hydraulic lines connected to one side of the hydraulic cylinders and a second set of hydraulic lines connected to the other side of the hydraulic cylinders. The first and second set of hydraulic lines are advantageously connected to the hydraulic cylinders in series to operate the pistons in the desired sequence. The hydraulic line may be connected in any series desired to the hydraulic cylinders in order to operate them in a particular sequence. The length and size of the hydraulic lines between the cylinders may be varied in order to change the timing of the sequential operation of the cylinders.

The hydraulic means desirably has a two-way valve that communicates on one side with the first set of hydraulic lines in one position and communicates with the

second set of hydraulic lines in a second position. The two-way valve is actuated by a solenoid, the solenoid being actuated by a pair of switches operated by the first piston. The switches may be part of a timing mechanism that controls the dwell time, the operation of a sealing press and the operation of the transport mechanism.

The drive means for the transport mechanism has a pair of shafts rotatably mounted on the support, the shafts being attached to the pair of operating arms. A pair of sprockets are mounted on the shafts and are connected by a continuous chain. A hydraulic piston and cylinder is provided wherein the piston is connected to the chain to move the chain in one direction and then back in the opposite direction. One of the shafts has an extension connected to a take-off arm rotatably mounted on the support. The take-off arm has a vacuum pickup means thereon for removing the processed package card from the indexing mechanism.

Referring now to the drawings, there is illustrated a packaging machine having a pair of supports **10** and **12** disposed on opposite sides on a horizontally extending base member **14**. As illustrated in FIG. 1 on the left hand side of the packaging machine there is disposed a stack of cards **16** providing a supply of cards to be processed by the packaging machine.

The stack of cards **16** is supported by a plate **18** and is guided by pairs of guide posts **20** and **22** disposed on opposite sides of the plate **18** to hold the stack of cards **16** therebetween. The plate **18** is supported by a shaft **24** which is mounted in a hydraulic cylinder **26** adapted to move the shaft **24**, plate **18** and the stack of cards **16** upwardly as individual cards are removed from the stack. The level of the stack of cards **16** is controlled by an electrical and hydraulic device (not shown) which maintains the upper level of the stack of cards **16** adjacent the upper portions of the guide posts **20** and **22**. This device has a micro-limit switch (not shown) which actuates a feed valve supplying fluid to the cylinder **26** in order to move the shaft **24** and lift the stack of cards **16** as individual cards are removed therefrom.

A card transport mechanism, generally designated by the numeral **30**, is disposed on the base **14** above the support **10**. The purpose of the card transport mechanism **30** is to take an individual card from the stack of cards **16** and position the card on a heating plate **32**, suitably mounted o nthe base **14**. After the card has been heated by the heating plate **32** the card transport mechanism **30** then moves the heated card to an indexing mechanism, generally designated by the numeral **34** to be described in detail hereinafter.

Each individual card **36**, as illustrated in FIG. 2, is made of rectangular sheet material **38** having a pair of rectangular apertures **40** formed therein. Each card **36** is made of a conventional manner with transparent synthetic plastic sheet material **42** supported by the sheet material **38** to cover the apertures **40** in the same plane as the sheet material thereby forming a pair of windows in each individual card **36**. The synthetic plastic material **42** is deformable when heated to form a pocket so that the individual card **36** may be folded about a fold line **44** formed on each card **36** to enclose an item to be packaged in the pocket with the packaged item readily visible on either side of the package through the transparent plastic sheet material **42**.

The heating plate **32** has suitably positioned heating elements **46** spaced to conform to the position of the rectangular apertures **40** in each individual card **36** so that the synthetic plastic material **42** may be heated when placed upon the heating plate **32**.

The card transport mechanism **30** is driven by means of a hydraulic cylinder **48** which has a piston and shaft **50** mounted therein which is fixedly connected by a fastener **52** to a drive chain **54** mounted between a pair of sprockets **56** and **58**. One end of the hydraulic cylinder **48** is supplied with hydraulic fluid from a conventional pump mechanism **59** causing the shaft **50** to first move to the left, as viewed in FIG. 3*a*, thereby moving the chain **54** and rotating the sprockets **56** and **58** in a clockwise direction. The sprockets **56** and **58** are rotated in a counter-clockwise direction, as viewed in FIG. 3*a*, when hydraulic fluid is supplied to the other end of the hydraulic cylinder **48** so that the shaft **50** is moved to the right.

The sprockets **56** and **58** are mounted on shafts **60** and **62** respectively which are supported by pairs of bearing members **63***a* and **63***b* mounted on a support **64** attached to the base **14**. Outwardly extending portions of the shafts **60** and **62** are fixedly connected to end portions of a pair of operating arms **66** and **68**. The opposite ends of the operating arms **66** and **68** support a carriage **70** by means of shafts **72** and **74** respectively, which are pivotally connected to the carriage **70**. This construction allows for movement of the carriage **70** through an arc while remaining generally parallel to the plane of the base **14**.

In order to transport individual cards **26** from the stack of cards **16** to the heating plate **32** and then to the index mechanism **34**, the carriage **70** is provided with a pair of vacuum pickup devices mounted adjacent opposite ends thereof. For this purpose two pairs of perpendicularly mounted bars **80** and **82** are attached adjacent each end of the carriage **70**. The outwardly extending extremities of each of the bars **80** and **82** suport hollow vacuum fingers **84** each of which have, at lower end thereof, vacuum cups **86** attached thereto. Each of the vacuum cups **86** has a suitable aperture communicating with the hollow vacuum fingers **84**. The opposite ends of the vacuum fingers **84** are connected to vacuum lines **88** which extend to a central conduit **90** which is connected with a conventional vacuum pump forming a vacuum in the lines so that individual cards **36** may be engaged by the vacuum cups **86**.

As illustrated in the drawings there are four suitably spaced vacuum fingers **84** and vacuum cups **86** on both ends of the carriage **70** so that all four corners of each individual card **36** will be engaged by the vacuum cups **86** in order to effectively transport the individual cards **36** for processing by the packaging machine.

The operation of the card transport mechanism **30** provides for picking up an individual card **36** from the stack of cards **16** by the four vacuum cups **86** on one end of the carriage **70** and simultaneously picking up another individual card **36** disposed on the heating plate **32** by the four vacuum cups **86** provided on the opposite end of the carriage **70**. This movement occurs when conventional control means causes the pump mechanism **59** to supply hydraulic fluid to one end of the hydraulic cylinder **48** to move the shaft **50** to the right as viewed in FIG. 3*a* thereby causing the sprockets **56** and **58** and the shafts **60** and **62** to rotate in a counter-clockwise direction so that the operating arms **66** and **68** also rotate in a clockwise direction causing the four vacuum cups on the left hand side of the carriage **70**, as viewed in FIG. 1, to be positioned on top of the stack of cards **16** whereby an individual card **36** is engaged. Simultaneously the four vacuum cups **86** mounted on the right hand side of the carriage **70** engage another individual card **36** disposed on the heating plate **32**.

The next part of the cycle is initiated when conventional control means causes the pump mechanism **59** to supply hydraulic fluid to the other end of the cylinder **48** thereby causing the piston **50** to move to the left and the sprockets **56** and **58** and the shafts **60** and **62** to be rotated in a clockwise direction as viewed in FIG. 3*a*. The consequence of this rotation is that the operating arms **66** and **68** are rotated in a clockwise direction as viewed in FIG. 1 causing a pair of cards picked up by the carriage **70** to be removed respectively from the stack of cards **16** to the heating plate **32** and from the heating plate **32** to the indexing mechanism **34**.

The indexing mechanism **34** has a vertical shaft **100** rotatably supported in a bearing housing **102** mounted

on the base **14**. Adjacent the upper end of the vertical shaft **100** there is mounted in a horizontal plane a relatively large disc **104** which is fixed to the shaft **100** for rotation therewith. Four forming dies **106** are mounted near the outer periphery of the disc **104** on the upper surface thereof and are spaced at 90 degree intervals. Each forming die **106** has a pair of generally rectangular shaped cavities **108** adapted to conform to the shape of the apertures **40** of the individual card **36**.

When the transport mechanism **30** places a card **36** on a forming die **106** postiioned by the indexing mechanism **34** adjacent the card mechanism **30**, the heated synthetic plastic material **42** is drawn into the cavities **108** and deformed to conform to the shape thereof by means of a vacuum created through a line **110** having a pair of leads **111** on one end extending into each of the cavities **108** and a connection **112** on the other end thereof leading downwardly through the disc **104**.

After an individual card **36** has been placed on a die **106** and the plastic material **42** deformed to the shape of the cavities **108**, the disc **104** is rotated 90 degrees by means described hereinafter, in a counter-clockwise direction, as viewed in FIG. 3, so that the card **36** is moved adjacent to a loading station **113**. At this point in the cycle an individual or automatic means loads an item to be packed into the outer cavity **108** adjacent the periphery of the disc **104** and folds the card **36** along the fold line **44** so that the item is enclosed by the card **36** within the pocket formed by the deformed synthetic material **42**.

The disc **104** is again indexed 90 degrees in a counterclockwise direction so that the folded card **36** is presented at a station underneath a dielectric sealing press **114**. At this point in the cycle the sealing press seals the contiguous surfaces of the sheet material **38** in a conventional manner closing the card **36** into an airtight package. The disc **104** is then again indexed through 90 degrees positioning the sealed card **36** opposite a take off mechanism, generally designated by the numeral **115**, which removes the sealed card **36** from the forming die.

The take off mechanism **115** is driven by shaft **62** and is operated simultaneously with the card transport mechanism **30**. The shaft **62** has an extension with a bevel gear **116** mounted thereon meshing with a complementary bevel gear **117** attached to one end of a shaft **118**. The shaft **118** is suitably mounted for rotation on the base **14** and has an arm **119** secured to its opposite end for rotation therewith. The arm **119** has a carriage shaft **120** extending perpendicularly therefrom with four vacuum pickup members **121** mounted thereon. The vacuum pickup members **121** are constructed in the same manner as the vacuum fingers **84** and vacuum cups **86** previously described and are similarly connected to a vacuum forming means. The vacuum pickup members **121** are appropriately spaced to pick up a processed card **36** from a die **106** positioned adjacent thereto by the indexing mechanism **34** and to release the card **36** at a position spaced from the packaging machine. A chain **122** is mounted on sprockets on the shafts **118** and **120** in order to keep the pickup members **121** in the same plane as the die **106**.

The above described cycle is a continuing one wherein as one card **36** is having its plastic material **42** drawn into the cavities of a die **106** positioned adjacent the card transport mechanism **30**, another card is being loaded with an item to be packaged at the next adjacent station. Simultaneously, another card **36** is being sealed at the station under the press **114** while another card **36** is being removed from a die **106** by the takeoff mechanism **115**. The disc **104** is rotated at 90 degree increments by means of gear **123** mounted on the shaft **100** below the disc **104**. For this purpose an indexing rack **124** is engageable with the gear **123** and is driven by a hydraulic cylinder **125** which is connected to the rack **124** by means of a piston and shaft **125***a*. The hydraulic cylinder **125** and the rack **124** are adapted to rotate the gear **123** through 90 degrees when the shaft **125***a* is pulled to the left by the hydraulic cylinder **125** as viewed in FIG. 4. A second hydraulic cylinder **126** has a piston and shaft **127** connected to the rack **124** for disengaging the rack **124** from the gear **123** after the gear **123** has been indexed 90 degrees. Subsequently, the hydraulic cylinder **125** is again supplied with hydraulic fluid to move the rack **124** to the right, as viewed in FIG. 5, so that it is repositioned to rotate the gear **123** during the following cycle. When the next cycle is started the second hydraulic cylinder **126** causes the shaft **127** to move the rack **124** into reengagement with the gear **123**.

A third hydraulic cylinder **134** is provided with a piston and shaft **136** having a vacuum cup **138** on the free end thereof which is movable into engagement with the vacuum conduits **110** connected to the forming dies **106** when the dies **106** are indexed to the station adjacent the card transport mechanism **30**. A vacuum line **140** is connected to the vacuum cup **138** and to a conventional vacuum pump in order to produce a vacuum in the cavities **108** of the forming die **106** which is positioned adjacent the card transport mechanism **30**.

A fourth hydraulic cylinder **128** is provided which is adapted to move a piston and shaft **130** with a toothed locking pawl **132** on the free end thereof into and out of engagement with the gear **123**. Before the gear **123** is indexed, the hydraulic cylinder **128** moves the toothed locking pawl **132** out of engagement with the gear **123**. When the indexing cycle has been completed, the hydraulic cylinder **128** moves the shaft **130** causing the toothed pawl **132** to reengage the gear **123** to lock the indexing mechanism **34** in a fixed position.

Advantageously, this invention provides for actuating the four hydraulic cylinders **125**, **126**, **134** and **128** in sequence by the use of only one hydraulic valve **142** in the following manner. A continuous hydraulic fluid pump **144** supplies hydraulic fluid through a line **146** to the valve **142** which is actuated by a solenoid **148**. The valve **142** is a two-way valve having one inlet connected to the line **146** and two outlets **147** and **147***a*. The valve **142** is operated by the solenoid **148** to either allow fluid to flow through outlet **147** or through outlet **147***a*. The valve **142** may also be positioned by the solenoid **148** to prevent fluid from flowing into either of the outlets **147** and **147***a*.

At the start of the indexing cycle, the valve **142** allows fluid to pass through outlet **147** and into line **150** which supplies fluid first to one side of the hydraulic cylinder **128** whereby the toothed pawl **132** is disengaged from the gear **123** and the indexing mechanism **34** unlocked.

Sequentially, hydraulic fluid then flows from the line **150** into lines **152** and **152***a* and to one side of the hydraulic cylinder **134** causing the piston **136** to retract the vacuum cup **138** from engagement with the conduit **110**. Fluid from the line **152** then continues to flow to a line **153** where the fluid then enters one side of hydraulic cylinder **126** causing the shaft **127** to move the rack **124** into engagement with the gear **123**. Hydraulic fluid from the line **152** continues to flow into a line **154** and to one side of the hydraulic cylinder **125** causing the shaft **125***a* to pull the rack **124** to the left thereby indexing the disc **104** through 90 degrees in a counterclockwise direction as viewed in FIG. 4. After the rack **124** has rotated the gear **123** through 90 degrees, a stop **156** on the shaft **125***a* actuates an electrical switch **158** which causes the solenoid **148** to actuate the two-way valve **142** to close the outlet **147** of the valve **142** thereby terminating this portion of the indexing cycle.

Immediately after the above-described portion of the indexing cycle, the solenoid **148** when actuates the valve **142** to allow fluid to be supplied by the hydraulic pump **144** through the outlet **147***a* into a hydraulic line **160** whereby fluid enters the other side of the hydraulic cylinder **128** causing the shaft **130** to move the toothed pawl **132** into engagement with the gear **123** thereby locking the indexing mechanism **34**. Sequentially, fluid then flows

from the hydraulic line **160** into a hydraulic line **162** and into a line **164** where the fluid enters the other side of hydraulic cylinder **134** causing the shaft **136** to move the vacuum cup **138** into engagement with the conduit **110** for creating a vacuum in the cavities **108** of the forming die **106** positioned at the station adjacent the card transport mechanism **30**.

Fluid continues to flow sequentially from line **162** into line **163** where it enters the other side of hydraulic cylinder **126** and moves the shaft **127** and the rack **124** from engagement with the gear **123**. Fluid then continues to flow from the hydraulic line **163** into a hydraulic line **166** where it enters the other side of the hydraulic cylinder **125** causing the shaft **125***a* and the rack **124** to move to the right, as viewed in FIG. 5, returning the rack **124** into its starting position for the next indexing cycle. As the rack **124** reaches its starting position, it contacts the switch **167** which starts a timer which after a time interval actuates the solenoid valve **148** to close the valve **142**, thereby beginning the next cycle.

Advantageously the operation of the hydraulic cylinders **125**, **126**, **134**, and **128** are operated in sequence by the hydraulic fluid flowing through the hydraulic lines without the necessity of a plurality of hydraulic valves. By providing a single hydraulic valve **142** fluid is allowed to flow into the hydraulic cylinders in sequence to operate the indexing mechanism **34** in the desired manner with a minimum of controlled valves and operating parts.

The solenoid **148** and the switches **158** and **167** are conventional electrical and mechanical devices adapted to operate the indexing mechanism **34**. Similarly, the vacuum means for forming a vacuum at cups **86**, **121** and **138** is conventional equipment well known in the art as are controls for releasing the vacuum at such cups.

It will be understood that the foregoing description with the details of exemplary structure is not to be construed in any way to limit the invention, but that modifications may be made thereto without departing from the scope of the invention as set forth in the following claims.

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

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

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

1. A transport mechanism for a packaging machine comprising a support; a pair of operating arms rotatably mounted on said support; drive means connected to said arms for rotating said arms in one direction and then back arms; rotatable means connecting said arms with said in the opposite direction; a carriage supported on said carriage for positioning said carriage in a plane generally parallel to said support during the rotation of said arms by said drive means; a pair of vacuum pickup members mounted on said carriage, one of said vacuum pickup members being mounted adjacent one end of said carriage for engaging a first package card positioned next to said packaging machine and transporting said first package card to a position on said support when said drive means rotates said arms in one direction, the other of said vacuum pickup members being mounted adjacent the opposite end of said carriage for simultaneously engaging a second package card positioned on said support and transporting said second package card to another position on said packaging machine when said drive means rotates said arms in said one direction; vacuum forming means connected to said pair of vacuum pickup members enabling said vacuum pickup member to engage and transport the package cards.

2. The transport mechanism for packaging machines of claim **1** having an indexing mechanism with a forming die thereon and a heater mounted on said support, and wherein said one of said vacuum pickup members transports said first package card to said heater and wherein said other of said vacuum pickup members simultaneously picks up said second package card from said heater and transports said package card to said forming die mounted on said indexing mechanism of said packaging machine.

3. The transport mechanism of claim **2** wherein said drive means comprises a pair of shafts rotatably mounted on said support, said shafts being attached to said pair of operating arms, a pair of sprockets mounted on said pair of shafts, said sprockets being connected by a continuous chain, and a hydraulic piston and cylinder means, said piston being connected to said chain to move said chain in one direction and then back in the opposite direction.

4. The transport mechanism of claim **3** wherein one of said shafts has an extension connected to a take-off arm rotatably mounted on said support; said take-off arm having a vacuum pickup means thereon for removing a processed package card from said indexing mechanism.

5. The transport mechanism of claim **4** wherein said carriage has a plurality of vacuum pickup members mounted adjacent each end of said carriage, each of said pickup members comprising a hollow tube with a vacuum cup mounted on one end thereof, the other end of said hollow tube being connected to said vacuum forming means.

6. A packaging machine comprising a support; a transport mechanism mounted on said support, said transport mechanism having a pair of operating arms rotatably mounted on said support, drive means connected to said arms for rotating said arms in one direction and then back in the opposite direction, a carriage supported on said arms, rotatable means connecting said arms with said carriage for positioning said carriage in a plane generally parallel to said support during the rotation of said arms by said drive means, a pair of vacuum pickup members mounted on said carriage, one of said vacuum pickup members being mounted adjacent one end of said carriage for engaging a first package card from a stack of cards positioned next to said packaging machine and transporting said first package card to a heater on said support when said drive means rotates said arms in one direction, the other of said vacuum pickup members being mounted adjacent the opposite end of said carriage for simultaneously engaging a second package card positioned on said heater on said support and transporting said second package card to a forming die on an indexing mechanism mounted on said support when said drive means rotates said arms in said one direction; vacuum forming means connected to said pair of vacuum pickup members enabling said vacuum pickup member to engage and transport the package cards; said indexing mechanism having a shaft rotatably mounted on said support, a disc mounted on said shaft, a plurality of forming dies mounted on said disc for receiving said cards from said transport mechanism, and hydraulic means for rotating said disc and shaft a predetermined increment, said hydraulic means including a first hydraulic piston and cylinder, said first piston being connected to gear means for rotating said shaft, a second hydraulic cylinder and piston, said second piston being connected to said gear means for moving said gear means into and out of engagement with said shaft, a third hydraulic cylinder and piston, said third piston having vacuum means connected thereto, said vacuum means being movable by said third piston for engagement with a vacuum tube connection to a forming die on said disc, a fourth hydraulic cylinder and piston, said fourth piston being connected to locking means for locking said shaft, said hydraulic means having lines for actuating said indexing mechanism including a first set of hydraulic lines connected to one side of said hydraulic cylinders, said

first and second sets of hydraulic lines being connected to said hydraulic cylinders in series to operate said pistons in the desired sequence.

7. The packaging machine of claim **6** wherein said hydraulic means has a two-way valve, said valve communicating with said first set of hydraulic lines in one position and communicating with said second set of hydraulic lines in a second position.

8. The packaging machine of claim **7** wherein said two-way valve is actuated by a solenoid and wherein said solenoid is actuated by a pair of switches operated by said first piston.

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TRAVIS S. McGEHEE, Primary Examiner

E. F. DESMOND, Assistant Examiner

U.S. Cl. X.R.

53—184, 389

PO-1050
(5/69)

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,534,524 Dated October 20, 1970

Inventor(s) EDWIN W. SWEZEY

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 1, lines 5 and 6, are corrected to read:

--in the opposite direction; a carriage supported on said arms; rotatable means connecting said arms with said--

Signed and sealed this 2nd day of November 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patents