Aug. 26, 1958 T. H. KRUEGER 2,849,067

FEED CONTROL FOR STRIP DISPENSER

Filed April 1, 1955 5 Sheets-Sheet 1

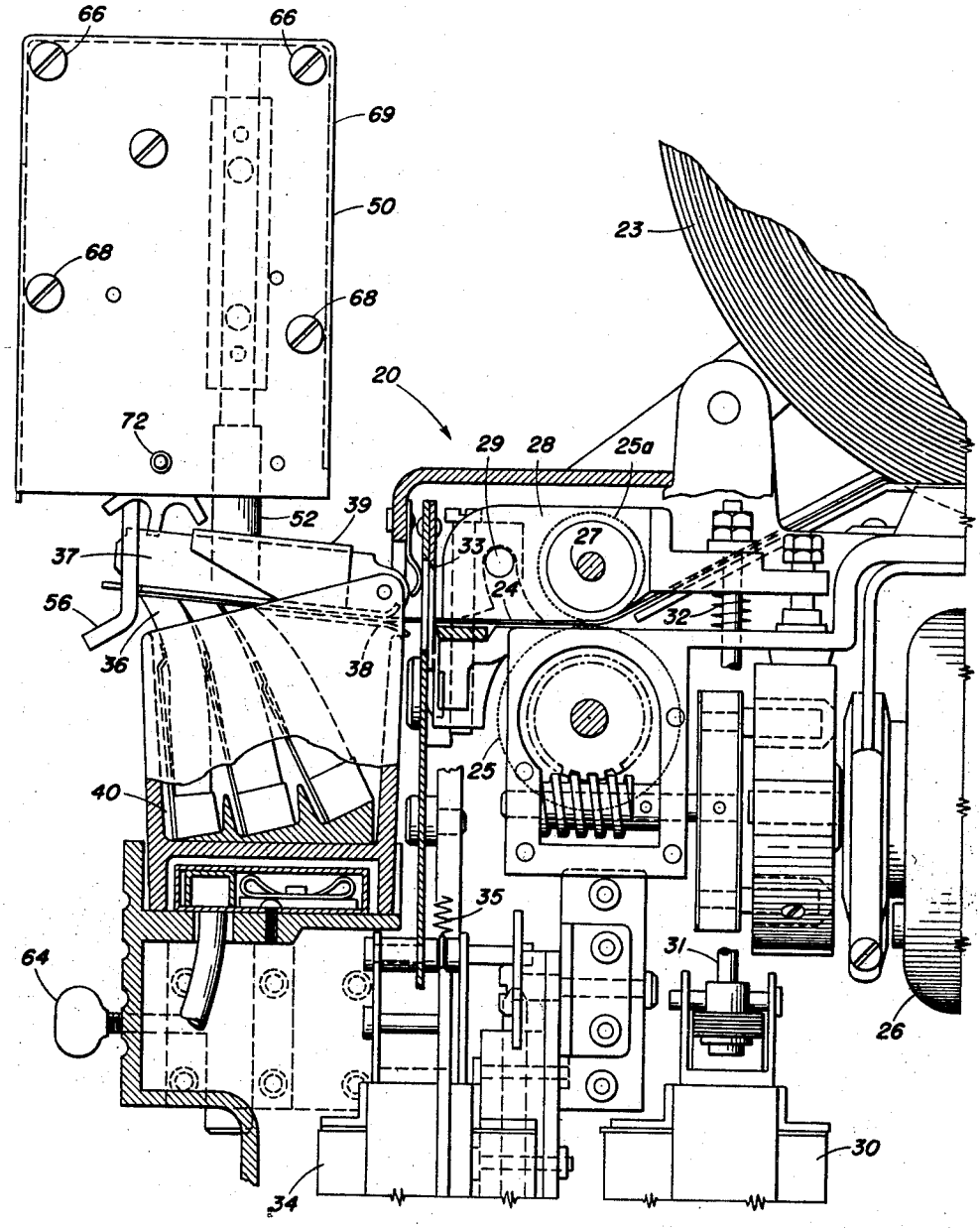


Fig. 1.

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FEED CONTROL FOR STRIP DISPENSER

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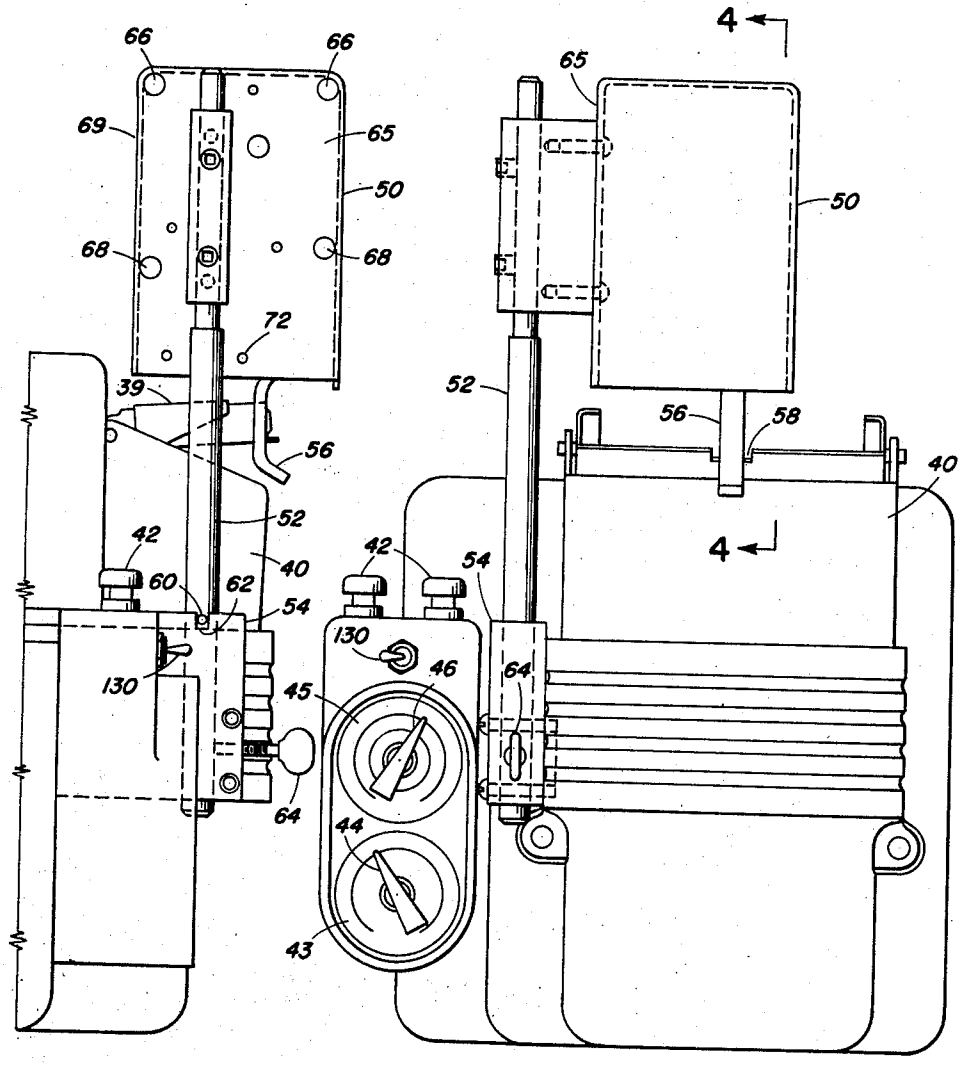


Fig. 3.

Fig. 2.

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Fig. 4.

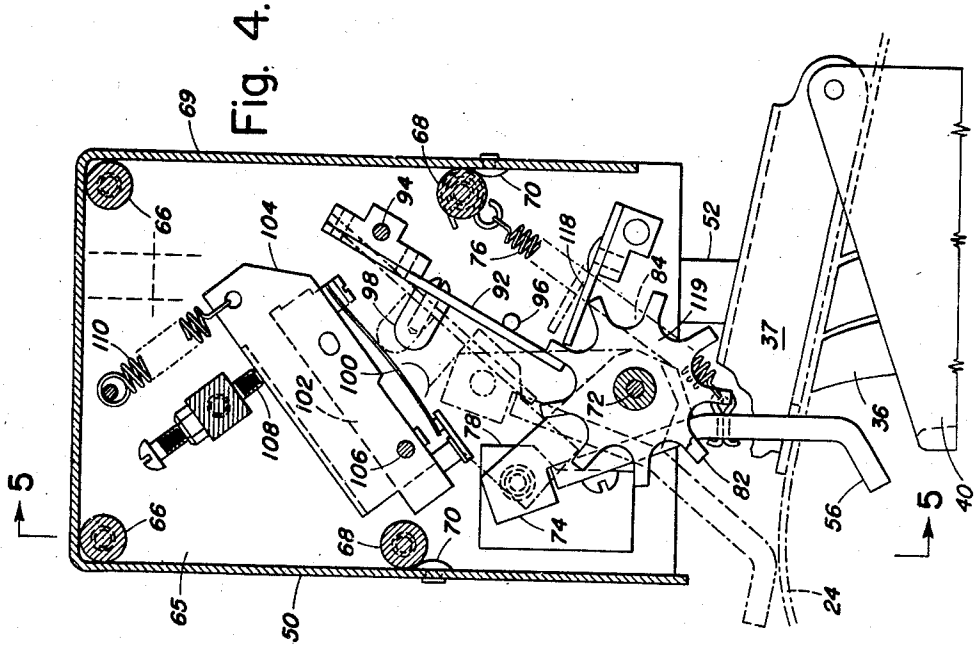
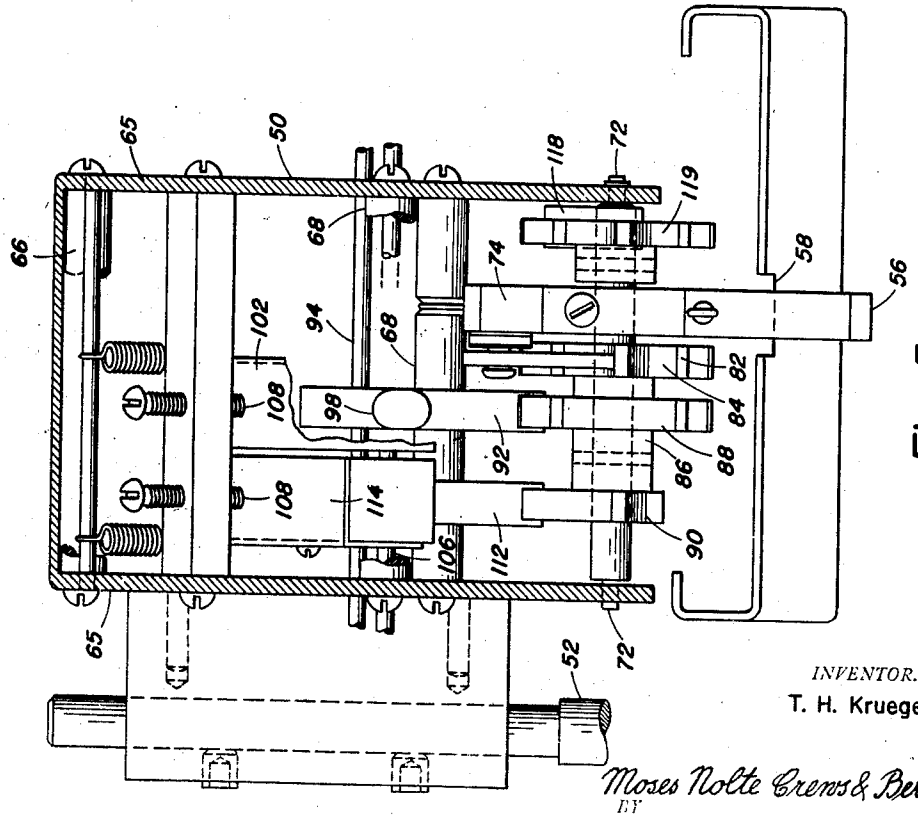


Fig. 5.



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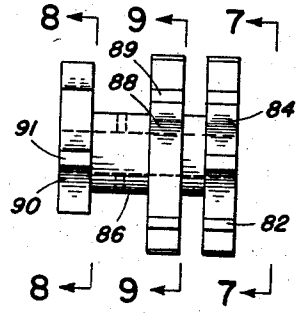


Fig. 6.

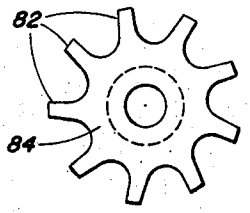


Fig. 7.

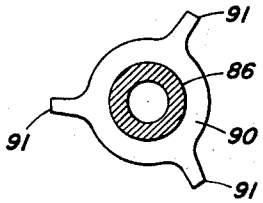


Fig. 8.

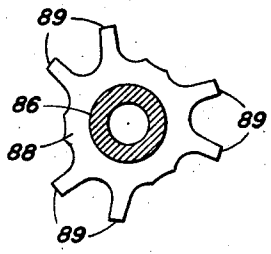


Fig. 9.

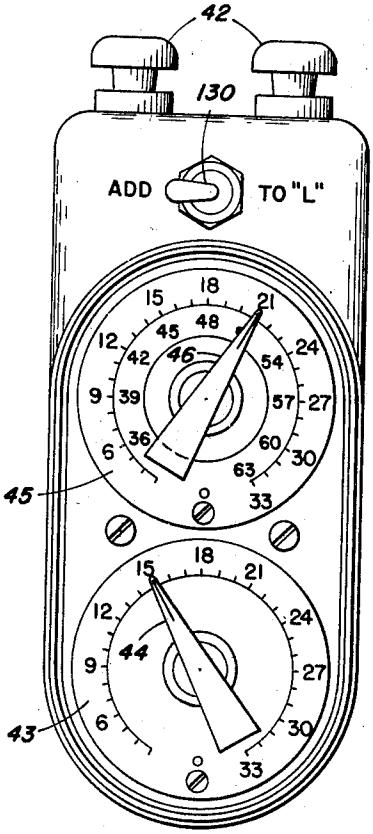


Fig. 10.

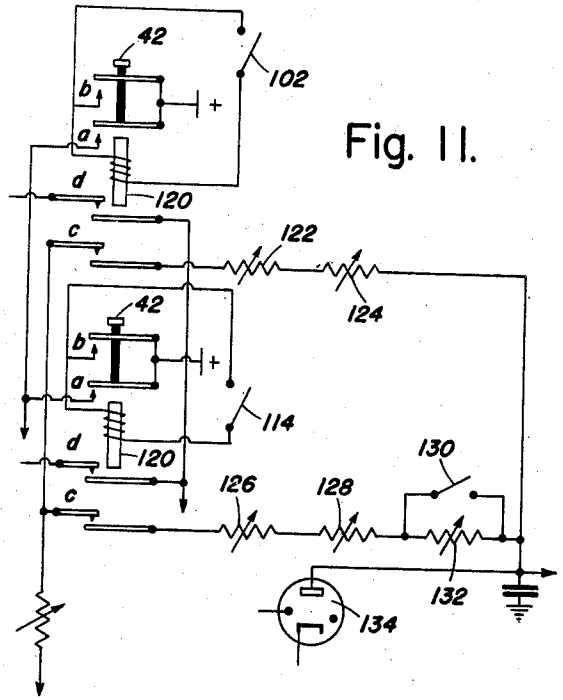


Fig. 11.

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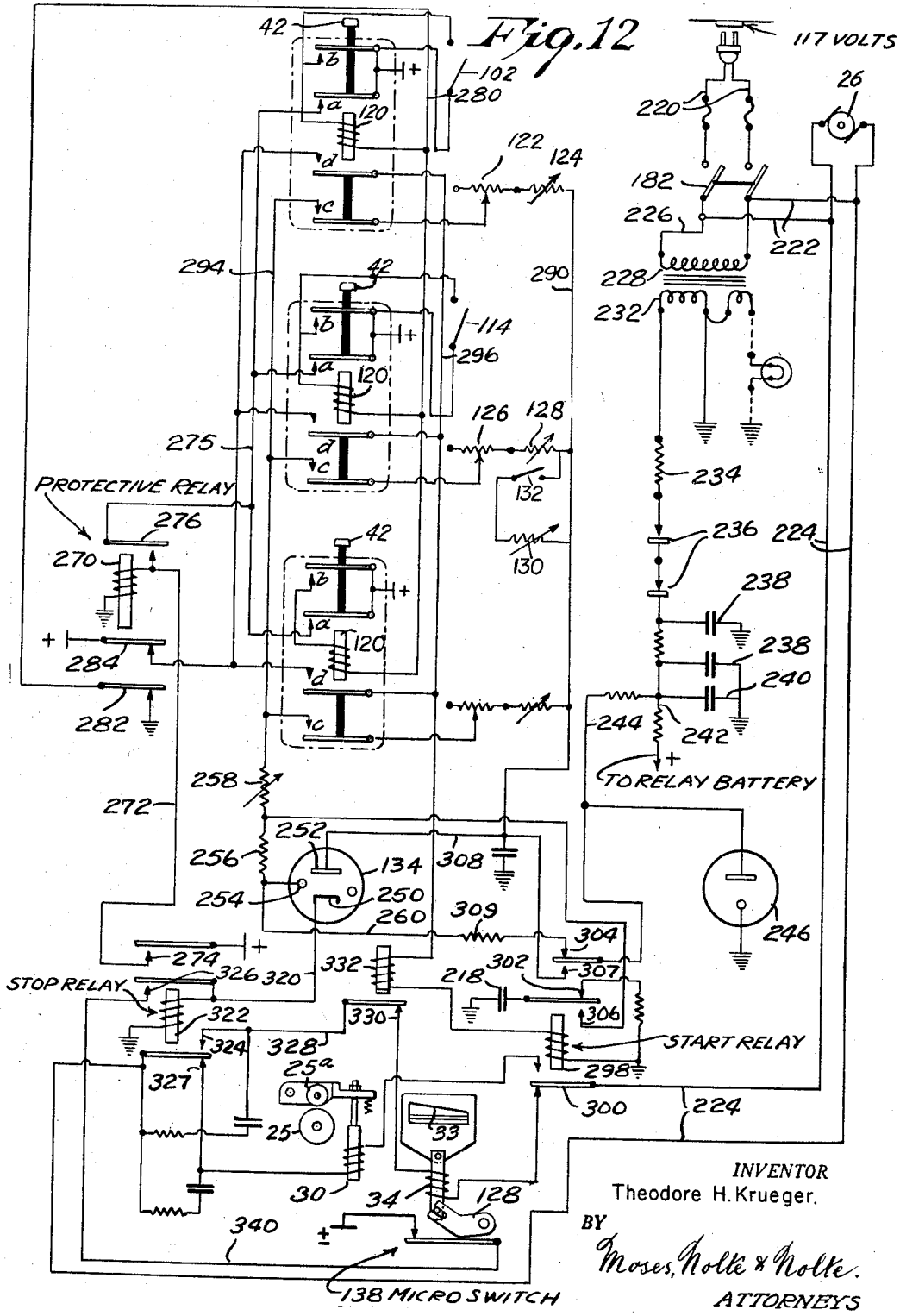
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FEED CONTROL FOR STRIP DISPENSER

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Fig. 12



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United States Patent Office 2,849,067
Patented Aug. 26, 1958

2,849,067

FEED CONTROL FOR STRIP DISPENSER

Theodore H. Krueger, Stratford, Conn., assignor to Better Packages Incorporated, a corporation of New York

Application April 1, 1955, Serial No. 498,697

7 Claims. (Cl. 164—49)

This invention relates to feed controlling devices for strip serving machines, particularly for machines for dispensing adhesive packaging tape such as is used for sealing cartons, packages, etc. In my United States Patent No. 2,405,790, dated August 13, 1946, I have disclosed a strip serving machine in which a piece of gummed tape of predetermined length is fed from the machine, moistened and cut off and left suspended between the moistening brushes and pressure plate of the machine until the operator is ready to apply it. When the strip is taken out of the machine, a device is tripped, which starts the machine and causes it to feed a second piece of tape of the same length as the first. This remains suspended in the machine until it is withdrawn, which again causes the machine to cycle. This type of machine is very useful where numerous identical packages are being sealed which require the same length piece of tape. No time is wasted as the machine is started automatically as soon as the operator removes the already severed piece for application to the box. At the same time there is no danger of a piece of tape being delivered before the previous piece has been used as might occur if a continuously cycling machine were employed.

Another advantage of this type of machine is that the tape after being fed and moistened and suspended has a slight period of time for the gum to become conditioned while the operator is applying the previously severed strip, so that the gum on each strip is in a more tacky condition and may be more easily and firmly applied than if used directly as served by the machine. This conditioning period coincides with the period during which the operator is applying the previous strip of tape so that there is no loss of time. The machine of said patent can be adjusted so that it will deliver a chosen length within the limits of the machine, but this adjustment operation is a relatively slow manual operation performed when the machine is stopped. The machine is intended to be set for a given length and such length delivered for many cycles.

In sealing most cartons it is desirable to use more than one piece of tape, the different pieces being of different lengths to fit the different joints being sealed. For example, the most customary arrangement, and in fact that required for standard cartons by rules of the Interstate Commerce Commission requires the two cross seams at the top ends of the box to be sealed by two pieces of tape of equal length, a third and longer piece of tape being applied lengthwise of the box to seal the joint between the two box flaps. The type of machine shown in Patent No. 2,405,790 is not well adapted for serving tape for this kind of a sealing operation, because it can feed rapidly only one length of tape for a particular setting. In accordance with the present invention control devices are provided by which tape pieces of different lengths are successively fed in proper rotation, the removal of each piece causing the machine to cycle to serve a piece of the proper length for the next operation. For example, the machine can be arranged to feed two short pieces of

tape for the transverse corners of the box, and then feed a long piece for the longitudinal joint of the box, the sequence being automatically repeated.

The control means of the present invention may be utilized with any kind of a feed mechanism either mechanically or electrically operated, which can be so arranged as to feed successive pieces of tape of different lengths. For example, the control device may be used with a machine capable of delivering various lengths of tape by closing of different switches, as disclosed in patent to Beckman and Dodds, No. 2,408,363. The control device can very satisfactorily be applied to an improved form of the machine shown in said patent known commercially as "Tape-O-Matic No. 2," manufactured by Better Packages, Inc., of Shelton, Connecticut. The construction and operation of such machine is fully disclosed in an application for patent, filed March 30, 1955 by T. LeBaron and E. B. Dodds, Serial No. 497,884, for Electrically Controlled Strip Serving Machine, and the invention has been illustrated as applied to such machine.

In the accompanying drawings which show one preferred embodiment of the invention:

Figure 1 is a view partly in side elevation and partly in vertical section of a Tape-O-Matic No. 2 machine with one form of the improved control unit applied thereto;

Figure 2 is a front view of the machine shown in Fig. 1;

Figure 3 is a side elevation of a part of the machine shown in Fig. 1;

Figure 4 is a vertical sectional view of the control unit taken on line 4—4 of Fig. 2;

Figure 5 is a vertical section taken on line 5—5 of Fig. 4;

Figure 6 is an elevation of the control ratchet sleeve removed from the machine;

Figure 7 is a side elevation taken on line 7—7 of Fig. 6;

Figure 8 is a vertical section taken on line 8—8 of Fig. 6;

Figure 9 is a vertical section taken on line 9—9 of Fig. 6;

Figure 10 is a front elevation of the 2-key control unit;

Figure 11 is a schematic wiring diagram of the control circuits associated with the control unit; and

Fig. 12 is a complete wiring diagram of a machine of the type described in said patent application, Serial No. 497,884, as modified to embody the present invention.

Referring to the drawings in detail, the Tape-O-Matic No. 2 machine as described in the LeBaron and Dodds patent application, Serial No. 497,884, comprises a tape dispensing unit **20** adapted to be mounted on a bench or table. At the top of the unit is a receptacle in which is placed a roll of gummed tape **23**. The tape strip **24** coming from the roll **23** passes downwardly and forwardly between guide plates and between feed rolls **25** and **25***a*. One, or both of these rolls, is driven from electric motor **26**. The roll **25***a* is journaled on a shaft **27** in a yoke **28** which is pivoted on a pintle **29**. The yoke is arranged to be swung downwardly so as to grip the tape between rolls and cause it to be fed, by means of a solenoid **30** connected to the yoke **28** by a pull-rod **31**. When the solenoid is de-energized the yoke is held in a raised position with the roll **25***a* out of gripping engagement with the tape on roll **25** by a spring **32**. The tape strip after being fed forward by the rolls is cut by a cutting blade **33** adapted to be drawn down by means of a cutter solenoid **34** and urged upwardly when the solenoid is de-energized by a spring **35**.

After passing the cutter the tape strip **24** passes over a moistening brush (or plurality of brushes) **36** against which it is held by a weighted pressure plate **37**. Preferably the tape on the way to the brush passes over the surface of a guide plate **38** the ends of which are bent upwardly to form clips **39** by which it is supported

below the pressure plate. The moistening brushes **36** are mounted in a water tank **40**.

Electrical or electronic means are provided for controlling the length of tape to be delivered at each cycle of the machine, such control means being actuated in the Tape-O-Matic No. 2 machine by means of keys or push buttons, each key being arranged to cause delivery of a specific or adjusted length of tape. One form of mechanism for this purpose is disclosed in the Beckman and Dodds Patent No. 2,408,363; while the more improved form embodied in the particular machine illustrated is fully disclosed in patent application Serial No. 497,884. One special form of control unit which may be used with Tape-O-Matic No. 2 machine and disclosed in the said patent application No. 497,884 is what is known as a "two key unit" and is characterized by the fact that two key switches **42** (Figs. 2, 10 and 11) are provided, each of which is associated with a variable resistor controlled by a dial **43**, **45**, and pointer or turn button **44**, **46**. One dial may be set for one length of tape, say a foot long, which may be used for sealing the shorter joints on the box, while the other dial may be set for say two feet for sealing the longitudinal seam. The operator presses one key or the other to get the tape length which he needs.

The control unit of the present invention is particularly applicable to a two length control of the character above described. It provides cycling means by which pieces of tape of proper length are delivered in correct sequence. In the particular example of the invention illustrated the machine is set up to deliver two short pieces, one long piece, two short pieces, one long piece, and so forth. Other arrangements of the control unit may, however, be employed so as to give a different sequence of strip lengths.

Control unit

The switch mechanism for causing the delivery of short and long pieces of tape in proper sequence is mounted in a box **50** which is open at the bottom and which is adjustably mounted on a standard **52** supported in a socket **54** attached to the side of the main casing of the machine. Depending from the box is a trigger **56** which extends across the path of the tape issuing from between the moistening brushes and pressure plate. The front of the pressure plate may be notched at **58** to receive this trigger. The standard is rotatably mounted in the socket **54** and is normally held against rotation by a pin **60** fitting in a notch **62** at the top of the socket. It may be locked in the socket by a thumb screw **64**. If it is desired to move the box **50** out of the way as when threading the machine or cleaning the brushes, it is simply necessary to loosen the screw **64**, lift up the standard enough to clear the pin from the notch **62** and swing the box to one side. The sides **65** of the box **50** are held together by spacing bolts **66** near the top corners and bolts **68** part way down the sides. The front, back and top of the box are made in the form of a U-shaped cover **69** which is dropped down between the box sides and supported on the bolts **66**. Rivet heads **70** project from the insides of the front and back walls and snap under the bolts **68** thereby removably retaining the U-shaped cover in place.

Pivoted so as to turn freely in holes in the side walls **65** is a pindle **72** upon which is mounted for free rotation a lever **74** to which is fastened the trigger **56**. The trigger **56** and lever are swung to the dotted line position shown in Fig. 4 by the advance of the strip of tape and remain in that position supported by the tape as long as the strip of tape is held between the brush and pressure plate. When the severed strip of tape is removed, the lever and trigger are returned to the position shown in full lines by a coil spring **76** connected at one end to the trigger and at the other to one of the bolts **68**. Pivoted on the upper end of the lever **74** is a pawl member **78**, the lower corner of which engages successively the teeth **82** of a ratchet wheel **84**. The pawl swings past a tooth when the trigger is pushed to the dotted line position, and engages the tooth and moves the ratchet wheel one notch when the strip of tape is withdrawn permitting the trigger to return to full line position. The ratchet wheel **84** is mounted on a sleeve **86** which also carries toothed wheels **88** and **90**. These wheels have different numbers and arrangements of teeth, depending upon the sequence of the long and short strips to be delivered. The teeth on the wheel **88** engage a clapper **92** which is pivoted on the pintle **94** and normally rests by gravity against a stop rod **96**. On the clapper is a lug **98** which is adapted to engage the spring blade **100** of a micro-switch **102** which is attached to a plate **104**, pivoted on a pintle **106**. The position of the micro-switch may be adjusted about the pintle by means of an adjusting screw **108** against which the plate **104** is held by a coil spring **110**. The position of the switch is adjusted so that it will be closed at the proper time by engagement of the lug **98**. Another clapper **112** engages the teeth on the wheel **90** and operates a second micro-switch **114**. To prevent possibility of the ratchet wheels being accidentally turned in the wrong direction a pivoted pawl **118** may be used for engagement with a ratchet wheel **119**, fixed on the pintle **72** to which the sleeve **86** is fixed.

In the particular construction shown two short lengths of tape are to be served followed by a long length. To accomplish this result, the first micro-switch **102** is connected in circuit with the short length delivery switch in the two length control unit of the kind used in Tape-O-Matic No. 2 machine and described in application, Serial No. 497,884; while the second micro-switch **114** is connected to the long length control switch of the tape dispensing unit. The wheel **88** has every third tooth omitted so that it presents two teeth **89** followed by a space, then two more teeth followed by a space and so on. In the example shown the wheel **88** has six teeth while the driving ratchet wheel **84** has nine teeth. The wheel **90** has teeth **91** separated by two blank spaces. In the example shown it has a total of three teeth, and is so fixed to the sleeve **86** that the teeth **91** on it are located opposite the spaces between the pairs of teeth **89** on wheel **88**. With this arrangement it will be seen that as the sleeve is rotated step by step by the trigger operated ratchet, the clapper **92** will be operated twice in succession, thereby delivering successively two short lengths of tape. One of the teeth **91** on the wheel **90** will now be in position to actuate clapper **112** so that the next time the driving ratchet is operated the microswitch **114** will be closed, thereby delivering a long length of tape. This sequence of two short lengths and one long length of tape will continue indefinitely, each length of tape being delivered as soon as the previously delivered length is removed for application to the box.

The wiring diagrams, Figs. 11 and 12, show one way in which the micro-switches **102** and **114** may be connected to the two key units of the dispenser. As shown in the diagram the two key units each contains four contacts *a*, *b*, *c*, and *d*, and a contact operating relay **120**. The micro-switch **102** is connected to the circuit of the short length switch relay shown in the wiring diagram, while the micro-switch **114** is connected to the circuit of the long length switch relay. The closing of the switch **102** will therefore close contacts *c* and *d* of the short length circuit, while switch **114** will close the corresponding contacts of the long length circuit. These circuits and the feed and measuring instrumentalities controlled thereby are like those used on the Tape-O-Matic No. 2 machine and fully described in the LeBaron and Dodds application, Serial No. 497,884. Briefly the connections shown in the wiring diagram include in the short length circuit, a variable resistor **122** operated by the pointer **44** and a compensating resistor **124** having a screw driver adjustment. In the long length circuit is a variable resistor **126** operated by the pointer **46** and a compen-

sating resistor **128**. Also in the long length circuit is a manual switch **130** by which an additional resistance **132** may be introduced by which a definite increment may be added to the length of tape delivered when the long length circuit is closed. For example the resistance **132** may represent an added length of thirty inches, so that when the manual switch **130** is opened this resistance is cut in and each piece delivered by the long length circuit will be thirty inches longer than it would with the resistance cut out. The connections from the two-length unit are connected to the main timing circuits including a timing thyratron **134**, all as described in said patent application, Serial No. 497,884.

Measurement of the tape depends upon the length of time that the feed rolls are held pressed together by the feed solenoid **30**, the motor **26** by which the feed rolls are driven being of constant speed type. When one of the switches **102** or **114** is closed the circuit through a feed solenoid **30** is closed, thereby initiating the feed of the tape, and at the same time electrical devices are prepared in such a way that after the passage of the necessary interval to permit the desired length of tape to be fed, the circuit through the solenoid **30** is broken, whereupon the feed will immediately cease, and thereafter the cutter solenoid is actuated to cut off the piece of tape. The measuring system illustrated utilizes a tube **134**, in the form of a three element miniature gas triode or thyratron preferably of the cold cathode type. Connected to this is a capacitor **218**. Each key and switch has associated with it a resistance (**122**, **126**) corresponding with the appropriate time interval to feed the desired short or long length of tape, and when the switch is closed the circuit is closed through this resistance and the capacitor **218**. The amount of resistance determines the length of time it will take the capacitor to build up a sufficient voltage. This voltage ionizes the gas and breaks down the resistance between the anode and cathode of the thyratron, so as to cause the latter to fire.

In the typical schematic wiring diagram shown in Fig. 12, the leads **220** may be plugged into any ordinary A.-C. power circuit, such as the usual 117 volt lighting circuit. These leads are connected to the main switch **182** from which wires **222** lead to the driving motor **26**, while branch wires **224** lead to the feed solenoid **30** and cutter solenoid **34**. Other wires **226** lead from the main switch to the primary winding **228** of a transformer which has a secondary winding **232**, which is a high voltage winding, and provides rectified current for the control circuits through a suitable arrangement of resistors **234** and rectifiers **236**. Filter condensers **238** and **240** are also provided as needed, and the rectified current is divided at the output of the last filter condenser **240** into two portions, one following the conductor **242** to relay battery for the control relays, the other part of the current passing through conductor **244** to the measuring circuits through the voltage regulating tube **246**.

The thyratron is shown as having the usual cathode **250**, anode **252** and control electrode **254**. A protective resistor **256** in series with the control electrode limits the current flow through this element to a safe value. A calibrating resistor **258** is also provided in connection with the tube by which slight changes or adjustments in the overall timing values may be made to compensate for variables such as aging of various circuit elements and extremes of ambient temperature. By means of a conductor **260** a low value current is applied to the control element **254**, as soon as the main switch of the apparatus is closed. The current flow from the control element to the cathode amounting only to a few micro amperes, does not affect the main gap of the tube. There is also no voltage applied to the anode at this time. This circuit path between the control electrode and the cathode, which is closed whenever the machine is turned on but standing idle, causes a cloud of ions in the tube to be available whenever the machine is called on to measure tape. It greatly reduces the inherent instability of the thyratron and causes the machine to deliver the same length of tape on the first operation after an extended idling period, as on succeeding operations.

In order to prevent interference by the premature operation of a key during a feeding cycle, and thereby prevent the feeding of a second piece of tape until the feed of a first piece of tape has been completed, a protective circuit and relay are provided to which all of the *a* contacts of the key relays are connected. If the condition of the circuit is such that the machine is ready for initiation of a feeding cycle, this is determined upon the closing of the *a* contact, whereupon the cycle continues. If the machine is not ready for operation, the closure of that contact will not permit the cycle to proceed.

Movement of the key necessary to close the *a* contact need be very slight. A slight further movement of the key will close the *b* contact of the key. If the protective circuit is clear this closes the circuit of the relay battery supply through the winding of the relay **120**, which closes the *c* contact and finally the *d* contact.

Protective circuit

The protective circuit includes relay **270** which is energized through a wire **272** and contact **274** with power from the rectified voltage wire **242**. The contact **274** is normally open when no tape feeding operation is taking place, but after the initiation of a feeding operation, it will be closed, as will be described below, and will remain closed until a particular feeding cycle is completed, whereupon it will open again. The protective relay is also provided with a locking circuit including a conductor **275** which is connected to all of the *a* contacts and also to a contact **276**. The contact **276** is normally open but if the relay has been energized due to the fact that the contact **274** has been closed, then, when an *a* contact is closed, the circuit will be established from the *a* contact through the conductor **275** and the contact **276**, which will keep the relay **270** energized so long as the *a* contact is closed, even though the contact **274** may, in the meantime, have opened.

The normal condition of the protective circuit when the apparatus is ready to receive the impulse necessary to deliver a piece of tape is shown in Fig. 12. Closing of an *a* contact will in this condition of the protective circuit be without effect as contacts **274** and **276** are open. The corresponding *b* contact will next be closed by further pressure on the key. This will close the circuit through the coil of relay **120** which receives power from the rectified voltage conductor **242** by way of the wire **280**, and normally closed contact **282** of the protective relay to ground. The protective relay also has a contact **284** which is connected to the rectified voltage source **242**. This contact **284** is normally closed when the protective relay is not energized as shown. The closing of the circuit through the relay **120** closes the contacts *c* and *d* as previously described. If at the time of the first pressing of the key, however, the protective relay **270** happens to be energized, then the contacts **282** and **284** are open, the circuit through the relay **120** is not closed and power is not supplied due to the open contact **284**. Assuming, however, the start of a normal operation when the protective relay is de-energized, the contact *c* is next closed, and this prepares a path from the regulated voltage source **244**, and conductor **290** through the resistance appropriate to the key being actuated and through conductor **294** leading to the thyratron.

Feeding and measuring cycle

Closing of the *d* contact, through a conductor **296**, closes a circuit through the winding of a relay **298** which may be termed the "start" relay. The start relay operates a contact member **300** which in its up position closes a circuit from the A.-C. supply lead **224** through the winding of the feed solenoid **30**, thereby initiating

the feed. The start relay also opens the contacts **302** and **304** and closes the contacts **306** and **307**. The closing of the contact **307** supplies regulated voltage from conductor **244** to the conductor **290**, above described, and also initiates the application of voltage of the anode **252** of the thyratron through the conductor **308**. The opening of the contact **304** cuts out the high resistance **309** which is limiting current flow to the control electrode **254**. The opening of contact **302** opens the short circuit which has completely discharged the capacitor **218**. Closing of contact **306** connects the capacitor **218** with the thyratron. The capacitor voltage now starts to build up and after the interval of time determined by the value of the resistance (**122** or **126**) the main gap of the thyratron will break down and current will flow through the conductor **320** connected to the cathode **250**. The conductor **320** is connected to the winding of a second relay **322** which may be termed the "stop" relay. This relay is arranged to close contacts **324**, **274** in the protective circuit, and **326**; and to open contact **327**. Closing the contact **274** energizes the protective relay **270** and opens contacts **282** and **284**. Opening of contact **282** breaks the circuit through any relay **120** which has been energized thereby releasing such relay, and the opening of the contact **284** also breaks the circuit through the *d* contact of the previously closed switch and thus through the relays **298** and **332**. Breaking of the circuit through relay **298** releases the contact member **300** which returns to its lower position and prepares the circuit, so far as this contact is concerned, from the cutter solenoid **34**. Opening of the contact **327** breaks the circuit through the feed solenoid **30** and thereby stops the feed. At the same time closing of the contact **324** prepares the circuit through conductor **328** leading to the cutter solenoid **34**. This circuit, however, is at this time broken by the contact **330** of a delayed action relay **332**. The latter is in series with the start relay **298**. Upon breaking of the circuit through the relays **298** and **332** as described, and after slight delay caused by the slow release of the delayed action relay **332**, the contact **330** will close, thereby completing the circuit through the cutter solenoid **34** and causing the latter to actuate the cutter to sever the tape. The delayed action relay **332** prevents any possibility of the cutting operation occurring until the tape has had a chance to come to a complete rest.

The momentary discharge from the thyratron energizes the stop relay **322** and causes the latter to close the contact **326** and thereby establish a holding circuit through the conductor **340** and the normally closed micro-switch **138** so that the stop relay and cutter relay remain energized until the cutting of the tape is completed whereupon the micro-switch is opened by the cam **128** actuated by the armature of the cutter solenoid **34** at some point in its travel as described above. Until this occurs the contact **274** is held closed so that the protective relay **270** is energized and the protective circuit is effective as above described. The opening of the micro-switch by the cam **128** marks the end of the cycle, de-energizing the stop and protective relays and placing the circuits in condition for the next operation.

It will be seen that the protective relay **270** becomes energized the instant that the stop relay **322** is actuated by the firing of the thyratron. Relay **270** will remain energized in any case until the opening of the micro-switch by the cam at the completion of the cutting stroke. It will remain energized after the opening of the micro-switch due to the closure of the locking contact **276** if any key is being pressed while the contact **274** is closed.

In order to insure that each key or switch will deliver the length of tape designated for it, calibrating means are desirable as the elements of each timing circuit may differ somewhat from the intended characteristics.

It will be obvious that other arrangements of the toothed wheels may be used. A single wheel with no teeth removed would obviously deliver the same length (as predetermined by the dial setting) at each operation. If more than two lengths were required additional wheels with different numbers of teeth could be used provided the additional micro-switches operated thereby are connected to switches in the machine set for delivering the different lengths of tape required.

If it is desired to deliver but a single length of tape repeatedly, a simple switch such as the mercury switch shown in Patent No. 2,405,790 may be used, instead of the toothed wheel construction. This may be connected to operate one of the dial adjusted circuits of the 2-key switch shown; or might be used with a unit having but a single adjusting dial and key switch, as also disclosed in application for patent, Serial No. 497,884.

While certain preferred embodiments of the invention have been illustrated and described in detail, it is to be understood that changes may be made therein and the invention embodied in other structures. It is not, therefore, the intention to limit the patent to the specific construction illustrated, but to cover the invention broadly in whatever form its principles may be utilized.

I claim:

1. In a tape serving machine having tape feeding means, tape cutting means, a feed circuit energizing of which actuates said tape feeding means to feed tape, a timing circuit operable to stop the feed of tape and to actuate the tape cutting means after a given interval of time, a series of electrical devices adapted to be selectively included in said timing circuit to vary the time interval at which said timing circuit will function, a plurality of switches operation of which starts the tape feeding means, and completes the timing circuit to start a timed interval, each of said switches inserting a different electrical device into said timing circuit to vary the time interval before said circuit operates to stop the feed of tape and actuate the cutter, a control device for actuating said switches in predetermined sequence so as to cause the delivery of strips of tape of different lengths in such sequence and means to actuate said control device by removal of the previously fed strip of tape.

2. A tape serving machine as claimed in claim 1 in which the control device includes a plurality of wheels having different numbers of teeth, and switch operating devices actuated in sequence by engagement with the teefh on the respective wheels.

3. A tape serving machine as claimed in claim 2 in which means are provided for rotating said toothed wheels step by step, said means including an element having a trigger constructed and arranged to be tripped upon removal of a previously fed length of tape from the machine.

4. A tape serving machine as claimed in claim 3 in which the machine is provided with means to hold the rear end of a previously fed strip in the machine until manually removed and in which the trigger is mounted in the path of the tape strip as it issues from the machine so as to contact the strip and be moved by such contact out of active position by said issuing strip and to be held in inactive position by contact with the rear end of the strip remaining in the machine prior to manual removal of the strip.

5. In apparatus for feeding measured strips of tape including an intermittently operable feed device to feed the tape, means to actuate said device to feed the tape, tape cutting means, a plurality of timing circuits, any one of which is selectively energizable coordinately with said actuating means, instrumentalities actuated by whichever of said timing circuits is energized to stop the feed of tape after a timed interval and actuate said tape cutting means; dial and pointer means for adjusting the condition of each of said timing circuits so as to vary the time of actuation thereof and thereby vary the length of the strip fed, and control means for controlling the actuation of the tape feeding device and timing circuits, said control means including a switch associated with

each timing circuit, trigger means for actuating said switches mounted in the path of the tape strip as it issues from the machine and to be held in inactive position by contact with a part of the strip remaining in the machine prior to manual removal of the strip, and instrumentalities for connecting said trigger with said switches in a predetermined sequence so as to cause the issuance of strips of tape of different lengths in said sequence.

6. In a tape dispenser, in combination, means to feed out a measured length of tape, tape cutting means positioned forwardly of the feed means, means spaced forwardly of the cutting means cooperating with a fed and severed length of tape and responsive to the removal of a severed length of tape to feed out and sever a new length of tape, and control means for the feed means constructed and arranged to cause tape strips of different lengths to be delivered in a regular predetermined sequence.

7. In a tape dispenser, in combination, means to feed out a measured length of tape, tape cutting means positioned forwardly of the feed means, means spaced forwardly of the cutting means cooperating with a fed and severed length of tape and responsive to the removal of a severed length of tape to feed out and sever a new length of tape, comprising a contact member adapted to engage a previously fed strip before its removal from

the machine, a lever on which said contact member is mounted, a pawl carried by said lever, a ratchet wheel engaged by said pawl and adapted to be moved thereby when the strip upon which the contact member is resting is removed from the machine whereby removal of said strip will cause said pawl to advance the ratchet wheel a step, a plurality of toothed wheels mounted for movement by said ratchet wheel each time the latter is advanced, said toothed wheels having different numbers of teeth, an electrical switch associated with each of said toothed wheels, means associated with said switches for closing the same each time a tooth on the respective toothed wheel engages the same, and means operated by each of said switches for causing the delivery of a different specific length of tape, whereby different tape lengths will be delivered in sequence depending upon the number and position of the teeth on said toothed wheels.

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