

Feb. 18, 1969

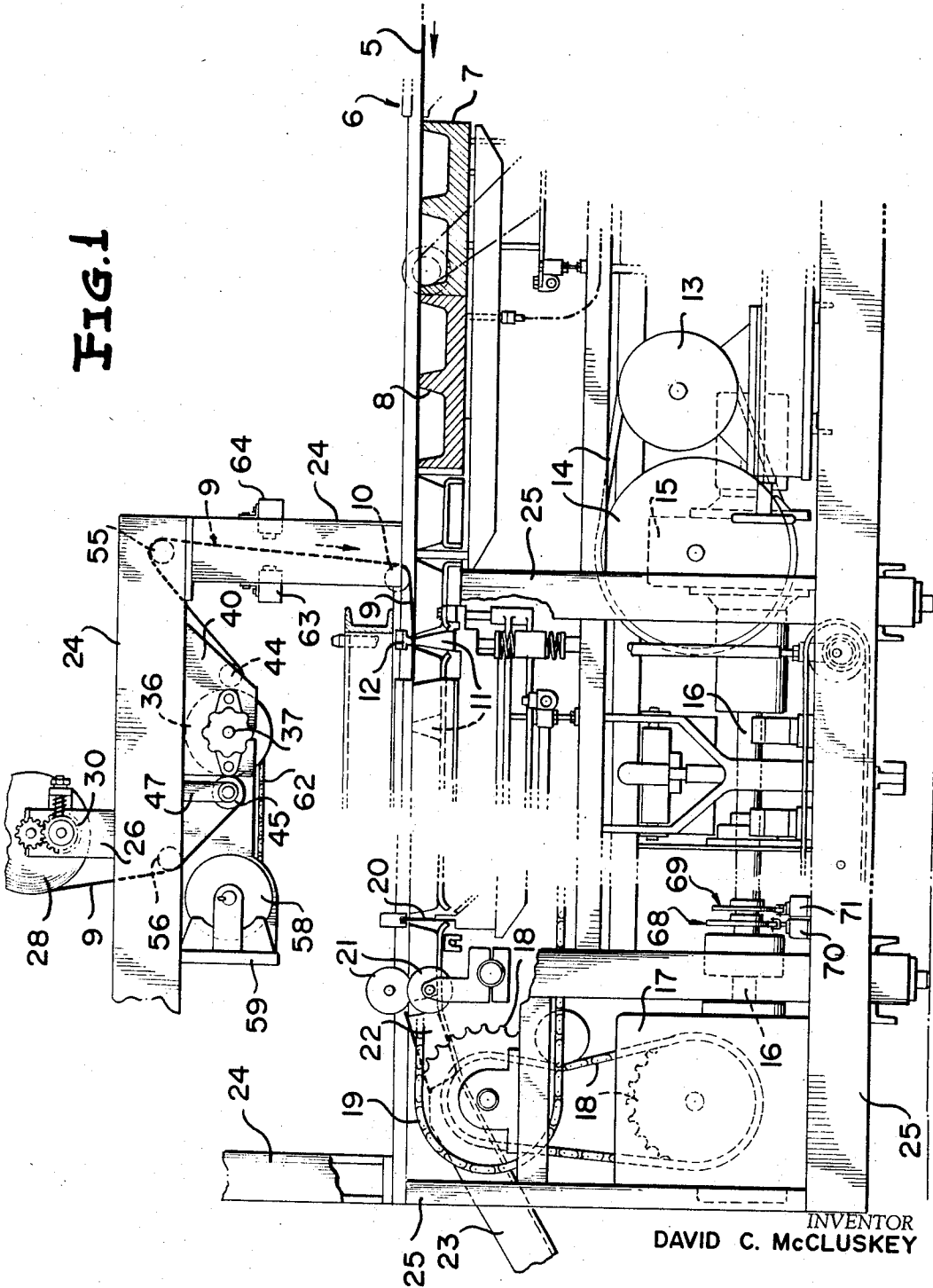
D. C. McCLUSKEY
WEB REGISTERING METHOD AND APPARATUS FOR PACKAGE-FORMING
MACHINES AND THE LIKE

3,427,778

Filed Aug. 10, 1965

Sheet 1 of 5

FIG. 1



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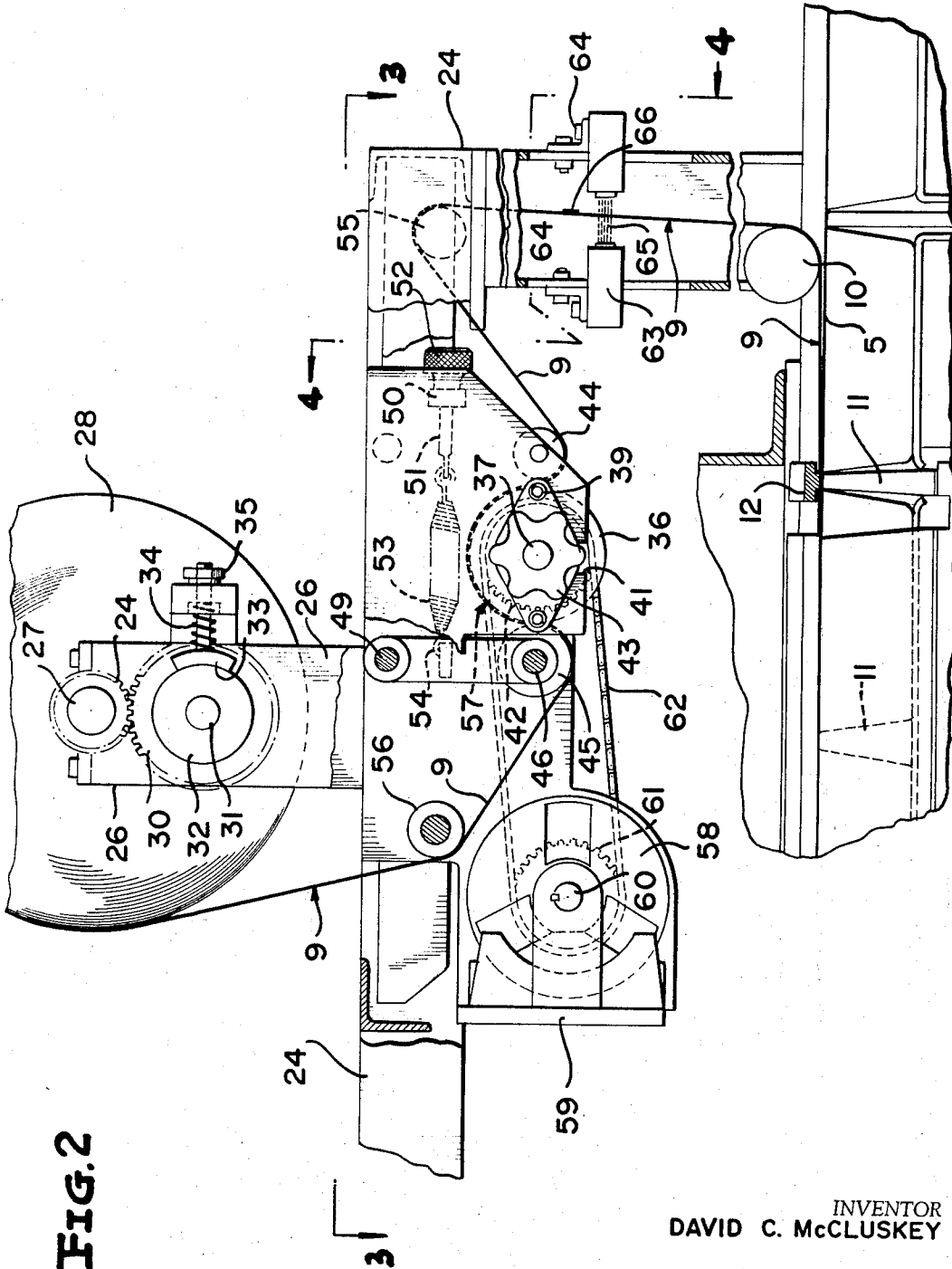
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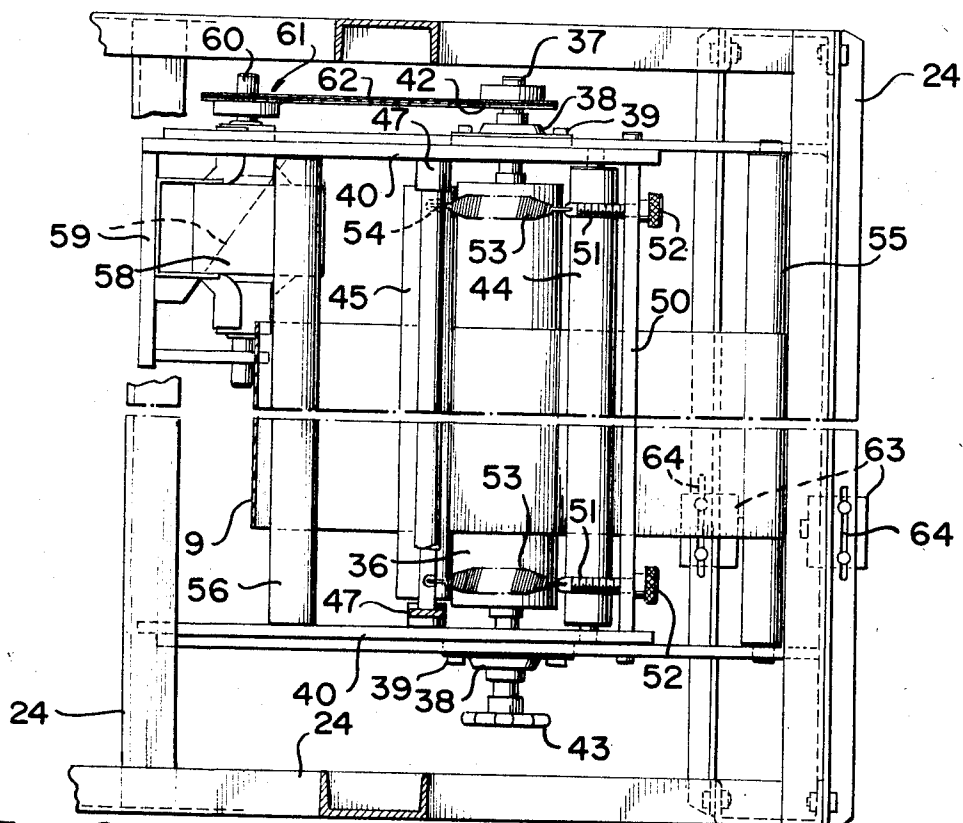


FIG. 3

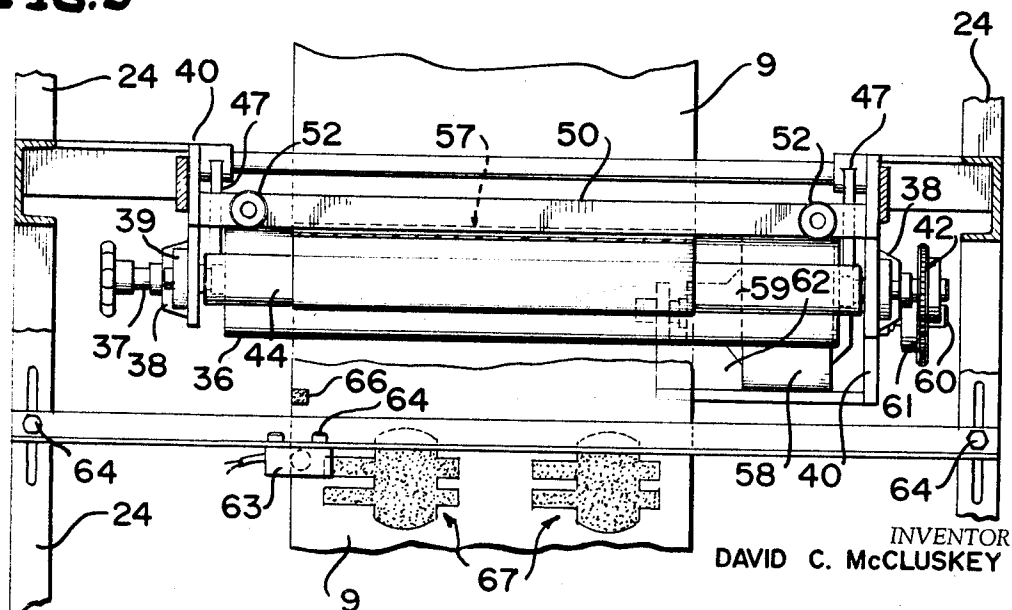


FIG. 4

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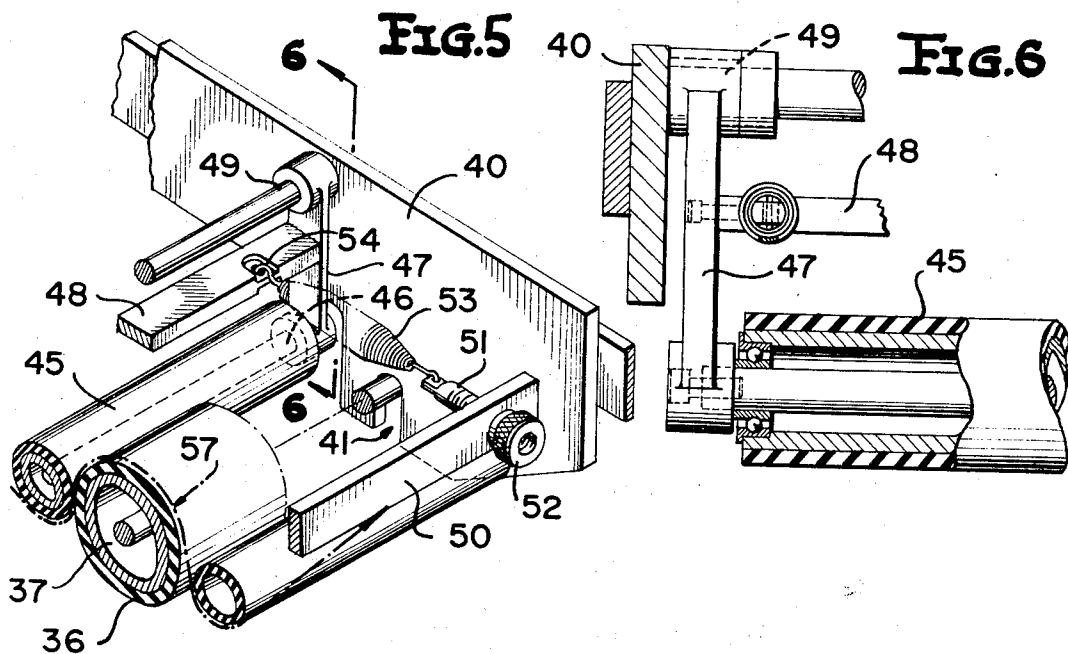
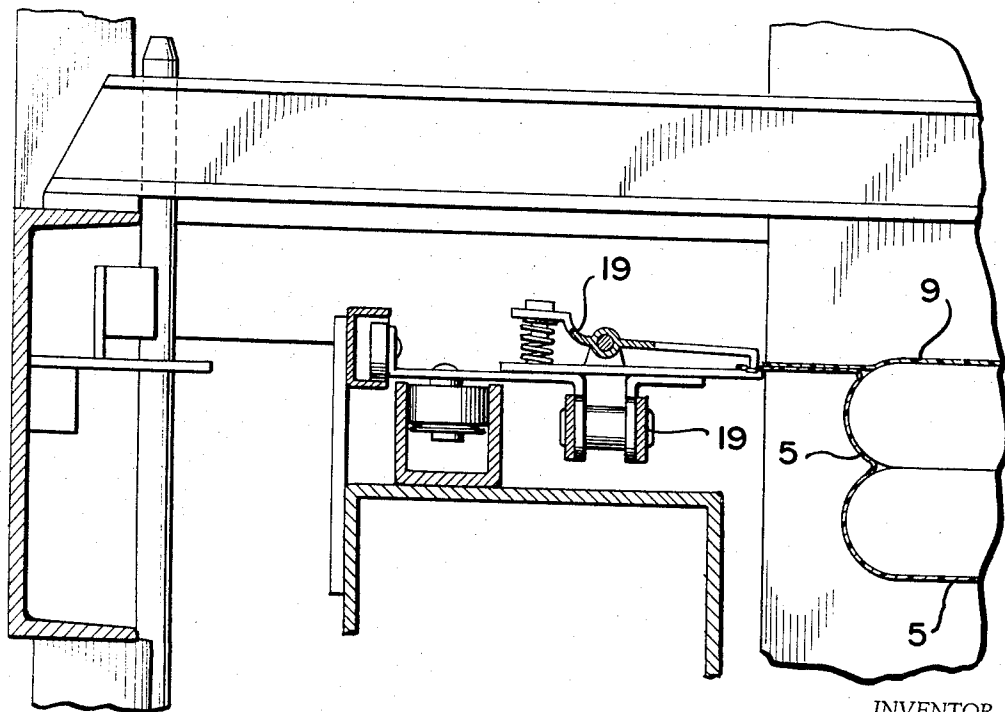


FIG. 7

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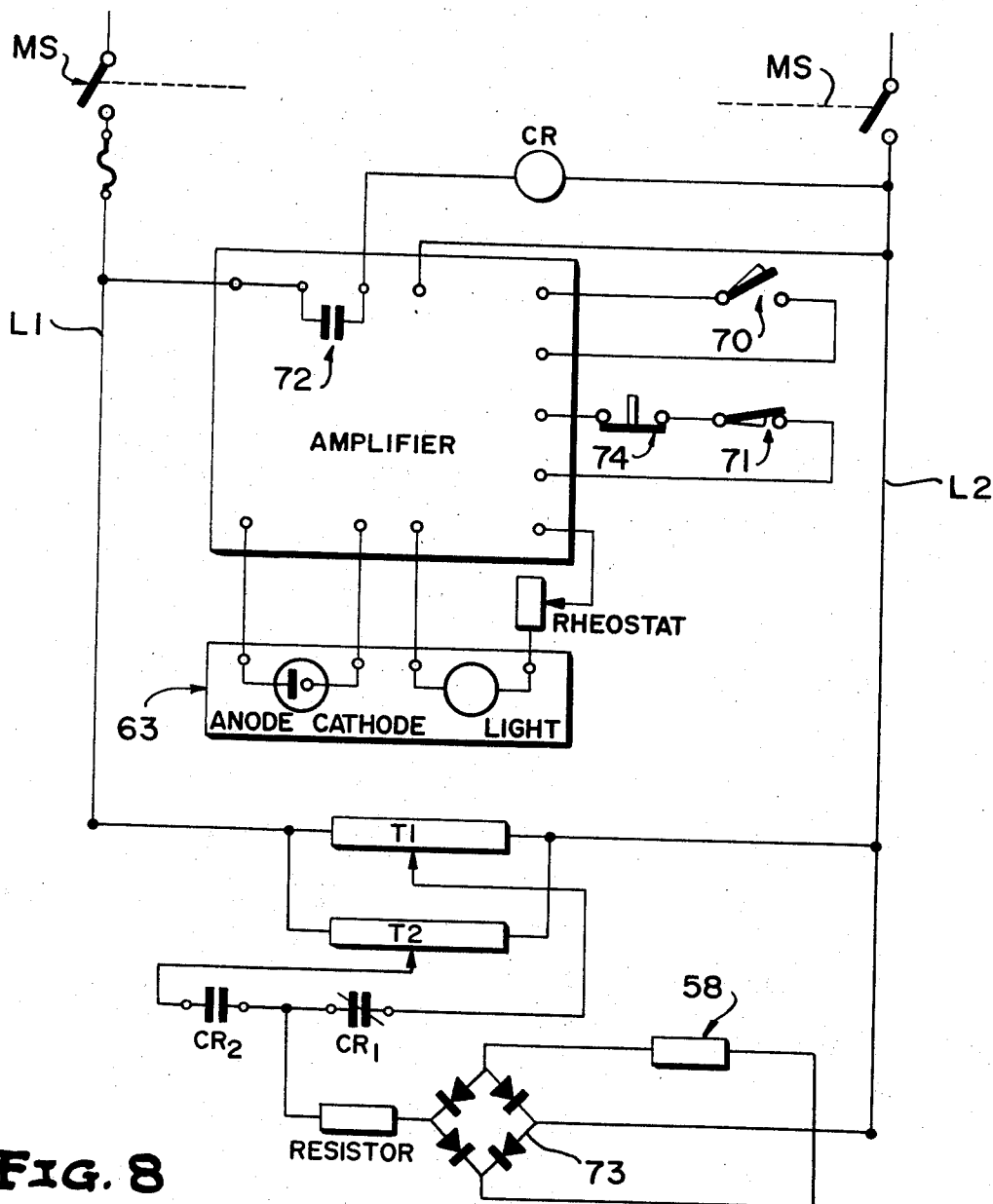


FIG. 8

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3,427,778 WEB REGISTERING METHOD AND APPARATUS FOR PACKAGE-FORMING MACHINES AND THE LIKE

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U.S. Cl. 53—3

30 Claims

Int. Cl. B65b 57/00, 5/02

ABSTRACT OF THE DISCLOSURE

Package forming machines wherein an indicia bearing cover web is applied to a pocketed web as the pocket web is moved intermittently or step-by-step are disclosed herein. Registration of the indicia on the cover web is provided by monitoring the cover web with a photoelectric or electric eye scanner and by continually actuating switch provisions from the continuously driven input to the step-by-step driving arrangement. The cover web is "printed short" and first and second tension levels are applied thereto via a magnetic brake controlled in response to the electric eye scanner and the switch provisions.

The invention relates generally to package forming machines of the type wherein a heat sealable plastic web is provided with pockets, fill is deposited in the pockets and a heat sealable plastic cover web is placed over the filled pockets and heat sealed in place, the webs being moved along step-by-step in the process and multiple packages thus being formed being divided into individual packages.

In machines of this type it is the usual practice to employ a cover web which has indicia thereon identifying the packaged fill, and the present invention has for its purpose the provision of a novel method of and apparatus for assuring accurate registry of the cover web borne indicia with the individual pocket areas of the pocketed web.

Machines of the type referred to are known, and it has been determined in the operation of such machines that various factors such as the nature of the plastic webs or films, conditions of temperature and humidity and possible web slippage make it impossible to maintain perfect registration of printing or indicia units with the package pockets with which registration is intended, and thus errors in registration occur and become cumulative as machine operation progresses.

Web registering methods and apparatuses are known and much thought and expense has gone into their development, some such methods relying on control by variations in web feed speed, some on controlled web slippage and others relying on web tensioning and controlled stretching. It is a purpose of the present invention to provide registration method and apparatus of the last mentioned type but which is markedly improved by simplification and greater accuracy over known methods and means.

Some of the known methods and apparatuses have been unacceptable because of the employment therein of very complicated and impractical structural assemblies. Others have been unreliable in action due to inability accurately to control web slippage or feed speed changes, in others objections have been founded on the necessity for particular restricted web area heating and reliance upon variable stretching or shrinking of such particular areas, and in still others on the necessity for reliance upon dancing roll means and tension relaxing features. All such stated and related problems have been eliminated in the present invention.

The present invention features the employment of a web which is printed short, that is to say, the repeated units of applied indicia including the spaced control marks for cooperation with electric eye scanning means are, in the normal relaxed condition, in length and spacing less than will be required for proper registration with the package pockets they must match or work stations at which they are to be presented, and so controlled stretching must be resorted to in bringing about and retaining desired registration. Therefore, an object of the invention is to provide a novel method of and means for alternately and in unbroken sequence applying to the indicia bearing web, under control of scanner beam and control mark positioning, a first predetermined definite tension stretch less than that necessary to achieve desired registration and then a second predetermined definite tension stretch greater than that necessary to achieve the desired registration, thereby to maintain the web indicia in tolerance range registration with the pockets or work stations without any relaxation of web stretch below the first predetermined definite tension stretch.

Another object of the invention is to provide a novel method and means of the character stated in which the alternated predetermined low and higher stretchings are accomplished by magnetic braking action on tensioning roll means engaged by the indicia bearing web, the braking action being electrically controlled by scanner and web control mark positioning.

A further object of the invention is to provide novel method and means wherein the braking action involves employment of a single magnetic brake, a first electrical energy supply source means for conditioning the brake to apply the first predetermined definite braking action, and a second electrical energy supply source for conditioning the brake to apply the second predetermined definite braking action.

A still further object of the invention is to provide a novel method and means wherein the braking action control is such that the value of the second predetermined definite braking action is a multiple of the value of the first predetermined definite braking action.

Another object of the invention is to provide a novel method and apparatus of the character stated wherein the pocketed web is advanced step-by-step to and past the position at which the cover or indicia bearing web is registered thereover, the cover web being heat sealed to the pocketed web and moved along thereby.

A further object of the invention is to provide a novel method and means of the character stated wherein the indicia bearing web is drawn off a supply roll and between two tensioning rolls engaging full width across the web, the magnetic brake means being drive coupled with one of the tensioning rolls.

Yet another object of the invention is to provide web tensioning means of the character stated wherein the other tensioning roll also has a manually variable tensioning pressure applied thereon and the supply roll has a manually variable braking action applied thereon.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawings:

FIGURE 1 is a fragmentary side elevation and part vertical longitudinal sectional view illustrating package making machine structure embodying the invention.

FIGURE 2 is an enlarged fragmentary side elevation illustrating the web registering means as applied to use in FIGURE 1, parts being shown broken away and in section.

FIGURE 3 is a horizontal sectional view taken on the line 3—3 on FIGURE 2, parts being broken away.

FIGURE 4 is a vertical cross sectional view taken on the line 4—4 on FIGURE 2.

FIGURE 5 is a fragmentary perspective view illustrating one end portion of the web tensioning roll means.

FIGURE 6 is a fragmentary vertical cross sectional view taken on the line 6—6 on FIGURE 5 but showing the end portion of the tensioning roll means other than the one shown in FIGURE 5.

FIGURE 7 is a fragmentary vertical cross section illustrating one means for conveying web means being registered in accordance with the invention.

FIGURE 8 is a view schematically illustrating parts of the invention operatively connected by control circuitry.

A preferred example of use of the invention is illustrated in FIGURE 1 wherein a practical embodiment in a packing machine is shown. In this example of embodiment, the web 5 which is to be pocketed is to be considered as entering the machine from a supply roll (not shown), first passing through pre-heating means 6, to be vacuum or differential pressure formed into clustered pockets in vertically reciprocable mold means 7 and held against deformation in holding mold means 8. It is also to be understood that food products or other fill may be hand placed in the molded pockets, or automatically fed thereinto in any approved manner.

Obviously, the filling of the formed pockets takes place before the cover web 9 is placed thereover as indicated at 10 in FIGURE 1, and after the cover web is so placed, the same is heat sealed in position by vertically reciprocable heat sealers 11 operating against backup means 12, as indicated fragmentarily at the center portion of FIGURE 1.

In this preferred example of embodiment of the invention, the webs 5 and 9 are moved along step-by-step, the cover web 9 being drawn along with the pocketed web by reason of being heat sealed thereto, as aforesaid.

Drive motor means 13 is provided and imparts rotation as at 14 to power transmission means generally indicated at 15 and through which the driver or cam shaft 16 is driven, this shaft, among other things, serving to drive an indexing mechanism generally designated 17 and through which and the sprocket and chain transmission connections 18 intermittent motion is imparted to the web conveying chain and clamp means 19 best shown in FIGURES 1 and 7.

When the packages have been formed in clusters, say for example of four pockets to the cluster said packages are cut apart by cross cutting at 20 and central longitudinal cutting at 21 to provide individual packages as indicated at 22. The thus freed individual packages may be delivered from the machine over discharge chute means 23.

It is to be understood that when the packages or pockets are to be vacuumized and/or gassed, mechanisms for such purposes will be placed in the machine in positions intervening the fragmentarily shown heat sealing devices 11, 12 and the cross cutting means 20.

A frame super structure 24 is built upon the machine framing 25 and carries roll stand means 26, as best illustrated in FIGURES 1 and 2. The roll stand means supports a roll shaft 27 carrying the roll 28 of cover web 9, and said shaft has a spur gear 29 fixed thereto in position to mesh with a large gear 30 rotatable about a stub shaft and having a braking disk 32 fixed for movement therewith. A friction brake shoe 33 is engaged with the braking disk and is forced thereagainst by compression spring means 34, the compression of which is manually adjustable at 35.

A rubber sheathed main tensioning roll 36 is fixedly mounted on a support shaft 37, the ends of which have rotary bearing in bearing members 38 which are remov-

ably supported at 39 on side plates 40 carried by the framing 24. See FIGURES 2 through 6.

The side plates 40 have downwardly opening slots 41 best shown in FIGURES 2 and 5 and which permit dropping out of the roll 36 after the supporting bar members 38 have been detached. One end of the roll shaft 37 has a sprocket 42 affixed thereon for a purpose to be described later, and the other end of said shaft has a turning knob 43 secured thereon so that the roll can be manually inched when desired.

An idler roll 44 is supported in parallel relation to the roll 36 in the plate 40 forwardly of the roll 36, or to the right as viewed in FIGURE 2, and a rubber sheathed presser or tension applying roll 45 opposes said main tensioning roll 36 to the rear thereof, or toward the left as viewed in said FIGURE 2. The roll 45 has its end trunnioned at 46 in the free lower ends of a suspension frame 47, said frame including an intermediate connecting bar 48 and having free swinging support at 49 on the plates 40, as clearly illustrated in FIGURES 2 and 5.

A cross bar 50 is fixedly supported between the plates 40 and extends across parallel the rolls and has apertures therethrough in which to freely receive threaded anchor rods 51 having knurled manually operable adjuster nuts thereon. The rods 51 are connected to the forward ends of tension springs 53, as shown in FIGURES 2 and 3, and the other ends of said springs are connected at 54 to the intermediate bar 48 of the swingable frame 47. It will be apparent that the springs 53 constantly urge the tensioning roll 45 against the main tensioning roll 36, and the degree of tensioning pressure may be readily adjusted by turning of the knurled nuts 52. An idler roll 55 is mounted on the frame 24 forwardly of the tension rolls as best shown in FIGURES 2 and 3, and a second idler roll 56 is mounted on the plates 40 beneath the web roll 28. It will be apparent from FIGURES 2, 3 and 4 that the cover web 9 passes down from the roll 28 under the guide roll 56 and under the tensioning roll 45, then upwardly over the main tensioning roll 36 and down under the idler roll 44, thus presenting a bight 57 of the web over said main tensioning roll between the beforementioned rolls 45 and 44 as clearly shown in FIGURE 2. From the idler roll 44 the cover web 9 passes upwardly over the idler roll 55 and thence downwardly and under the idler roll at the position previously mentioned as the position at which the cover web is applied over the pocketed web as clearly illustrated in FIGURE 2.

A magnetic brake unit 58 is supported at 59 on the framing, as best shown in FIGURES 1 to 4, and includes a rotor shaft 60 having a sprocket 61 fixed thereon and chain coupled at 62 with the sprocket 42 fixed on the main tensioning roll 36. The purpose of this magnetic brake unit is to apply controlled drag or braking action on the main tensioning roll 36, thus to resist drawing off of the cover web 9 from the roll 28 as said web, being heat sealed to the underlying pocketed web 5, and said pocketed web is moved along.

The magnetic brake herein described is a well known commercial article available on the open market at Vickers, Incorporated—Electronics Products Division—of St. Louis, Mo. It is well known that this type of brake has its projected rotor shaft attached to an inner member enclosed by and rotating with an outer member, both members being independently supported by stator bearings and being separated from each other by a space or gap which remains constant. Said gap contains finely divided dry ferromagnetic particles. A stator coil is included, and when said coil is not energized the magnetic particles within the gap have insignificant frictional or bonding effect, but when the stator coil is energized, a magnetic film is produced in the gap and produces the bonding or braking action which is proportional to the applied energizing current. Controlling of the degree of energization will, of course, control the degree of braking action which will

be applied by the magnetic brake 58 to the main tensioning roll 36. It will be apparent that this braking action may also be modified somewhat by the adjustment of the tension springs 53 at 52, and also by the adjustable application of the brake shoe 22 against the braking disk 32, best shown in FIGURE 2, but this last mentioned braking action serves principally to prevent overrunning of the roll 28 at the ends of the successively applied step movements of the pocketed web 5 or packages with which the cover web 9 is moved along and drawn off the supply roll 28.

Electric eye scanning means generally designated 63 is adjustably supported at 64 on the framing 24 as best shown in FIGURES 2, 3 and 4 in position to project a control beam 65 across the path of movement of the control marks 66 which are applied in equidistantly spaced relation and in predetermined relation to the indicia 67 printed on the web 9 as best shown in FIGURES 2 and 4.

It is to be understood that the previously mentioned drive shaft 16 is continuously rotated and rotates once for each step cycle or advance movement of the cover web 9 and the pocketed web 5 to which it is heat sealed. It will be observed by reference to FIGURE 1 that the cams 68 and 69 are affixed to the shaft 16. While these cams may be placed at any position along the shaft 16, they are shown in FIGURE 1 as placed adjacent the web conveyor indexing unit 17. The cam 68 is disposed to control a normally open signal cutout switch indicated at 70 in FIGURE 8, and the cam 69 is disposed to control the schematically illustrated normally closed reset switch 71. These switches are indicated in cooperative relation to the cams 68 and 69 in FIGURE 1.

In FIGURE 8, control parts and assemblies hereinabove referred to are schematically shown in association with control circuitry to aid in the presentation of an outlining of the web registering practice and procedure, like reference characters being applied to the schematic illustrations with respect to parts herein previously described. Power supply lines are shown at L1 and L2, master switch means being indicated at MS.

The scanning unit is indicated at 63 and is to be understood to comprise a conventional commercially available #341 Dietz Scanner, the designated cooperating amplifier also being a conventional and commercially available Dietz AD 170. Therefore, no detailed reference to the construction of these units is deemed necessary herein, reference being made only to the usual amplifier relay indicated at 72.

The circuitry through the amplifier includes the circuit relay CR which when energized and deenergized will respectively open and close the contacts CR1 and CR2. T1 and T2 indicate electrical energy sources which in this example disclosure may be considered as variable transformers, T1 serving to supply electrical energy at a value for conditioning the magnetic brake 58 for applying the desired predetermined definite low tension and stretch to the web 9, and T2 serving to supply electrical energy at a value for conditioning the magnetic brake 58 for applying the desired predetermined definite higher tension and stretch to said web 9. It is to be understood that electrical energy sources other than the transformers T1 and T2 may be employed, either or both preferably being variable as to electrical energy output.

It will be apparent by reference to FIGURE 8 that when the circuit relay CR effects a closing of the contacts CR1, the AC current will be directed through T1 and the rectifier 73 as DC current of the predetermined low value to the magnetic brake 58, and when the contacts CR2 are similarly closed, the AC current will be directed through T2 and the rectifier 73 as DC current of the predetermined, higher value to the magnetic brake 58.

A manual reset switch 74 may be employed for use in setting up operations or testing, or to re-establish normal operation following any accidental blocking of the beam.

Before proceeding to a description of the operation cycle, certain basic considerations should be reviewed.

As before stated, the printed indicia 67 must have a print repeat and control mark repeat which is slightly shorter than the fixed stroke or web stroke movement per cycle, the web 9 being pulled from its supply roll 28 and through the tensioning and stretching means clearly shown in FIGURES 2 through 6 during each step stroke. The tension rolls, under predetermined and selected magnetic brake control can only apply stretching forces on the web as the web is pulled by the machine.

The web 9 is kept in registration by applying cycles of low and high tensions on the web as decided and signalled by the electric eyes' monitoring of the eye spots or control marks 66. Tension application pulls the mark back, and as loss of registration is occurring the mark creeps forward.

The T1 electrical energy source is assigned to the manually set value of tension that is somewhat under or lower than the theoretical ideal tension that would stretch the short repeat web 9 into registration, whereas the T2 electrical energy source is assigned to the manually set value of tension that is somewhat above or higher (as much as three times higher) than said lower set tension.

Since T1 is a tension or holding back and stretching of the web 9 that is less than sufficient to bring about registration, repeated cycles of T would result in the scanned control mark 66 creeping forward or advancing from its proper location relative to the pocket or point with which it is intended to register. On the other hand, since T2 is a tension or holding back and stretching of the web 9, that is more than sufficient to bring about registration, repeated cycles of T2 would result in the scanned control mark 66 creeping backward or retreating from its proper location relative to the pocket or point with which it is intended to register.

In operation, the web stretching tensions applied are either T1 or T2, never an overlapping or cumulation of T1 and T2 tensions. The relatively low or T1 tension is applied when no photoelectric scanner signal is created. The relatively high or T2 tension is applied when such a signal is created.

Each control mark or spot desirably cuts or blocks the beam 65 during early motion of the web in a given feed cycle, preferably during the first two or three inches of motion, and web motion occurs over only the first 105° of the feed cycle, the web resting during the remainder of the cycle in the example disclosure made herein.

The signal cutout cam 68 is set to close the normally open signal cutout switch just as a given control mark 66, when in proper registration position, cuts or blocks the scanner beam 65. A closed condition of the signal cutout switch 70 will render the photo-eye signal ineffective, and with no effective signal the call or demand will be for, or remain at, the relatively low or T1 tension.

If the control mark or spot 66 cuts scanner beam 65 before the signal cutout switch 70 closes, the photo-eye signal will call for or demand the higher T2 tension.

The amplifier relay 72 will operate to a closed position only when the signal cutout switch 70 is in an open position, as determined by its control cam 68. This cam has a rise which closes the switch 70 and the cam rise holds the switch closed through the full web pull cycle until after the full forward advance of the pocketed web is completed. This, of course, will not be the full 360° of rotation of the shaft 16 because a dwell in the cycle or stationary condition of the web is necessary, as before stated. When the switch 70 is thus closed, any undesirable cutting of the beam 65 will have no effect on the amplifier relay 72 to undesirably shift tension applications. The reset switch 71 is a momentarily operational switch which will cause the contacts of the amplifier relay 72 to open and stay open when it is momentarily operated to open position by its control cam 69. When the switch 71 is open the contacts of the amplifier relay 72 will not close even though the signal cutout switch 70 is closed and the light beam 65 is broken.

It will be apparent from the foregoing that the cover web 9 after being heat sealed at 11, 12 to the underlying pocketed web 6 which is clamped to the indexed clamp chain means 19 best shown in FIGURES 1 and 7 will be moved along step-by-step as the clamp chain means is indexed, and it will be apparent by reference to FIGURES 3 and 4 that the web stretching tension applied as the web is drawn between the rolls 36 and 45 will be applied throughout the full width of the web. Overrunning of the supply roll 28 will be prevented by the adjusted braking action at 35 on the brake disk 32 and this braking action may be adjusted at 35. It will also be recalled that the resistance to drawing off of the web 9 from its supply roll 28 may also be manually varied at 52 by adjusting the tension of the springs 53 which yieldably press the tensioning roll 44 against the main tensioning roll 36 to which braking action is automatically applied through the magnetic brake means 58 in the manner previously described.

At the start of a cycle, a web mark 66 is above or in advance of the eye position or scanning point a distance such that it will have attained a reasonably high speed in the web movement cycle when it passes said scanning point. The amplifier relay will then be open. See FIGURE 2. Two inches would be acceptable. The normally open switch 70 will be open at this time and the normally closed switch 71 will be closed. The circuit relay CR will be deenergized and T1 will be now supplying energy to the brake 58 through the normally closed contacts of CR1, thus to apply to web 9 the relatively low T1 tension and stretch.

Assuming perfect registration, the next occurrence is that of the leading edge of the mark cutting the beam 65 simultaneously with the closing of switch 70. In practical operation, the switch 70 will be closed either slightly before or after the breaking of the beam 65. At the time the beam 65 is broken, if the switch 70 is open, that is in the circuit broken condition, then the relay contacts 72 of the amplifier will be caused to close. If at this time namely, when the beam is broken, the switch 70 is closed then the amplifier relay contacts will not close.

The switch 70 will be closed to carry current for the remainder of the motion of the web. Sometime after the web stops but within the cycle, cam 68 allows switch 70 to open so that it will be open at the start of the next pull cycle. It could however be opened after the mark or spot 66 has normally cleared the beam 65 by a reasonably safe distance.

The reset cam operated switch 71 is momentarily opened and then closed by its cam 69 after the cover web has been completely moved a cycle step and after it has been heat sealed to the pocketed web so as to be moved along therewith by the package conveying chain 19. This guarantees that the contacts of the amplifier relay 72 will be open at the start of each cycle. The operation of this switch 71 can take place while the web is still stationary or at a safe time before the next mark 66 passes in front of the beam 65.

If during test scanning, the web 9 is out of registration, the beam would be broken prior to the closing of switch 70 and the relay contacts 72 of the amplifier would close effecting energization of coil CR and causing the higher tension T2 to be applied to the web.

As before stated, the low tension setting should be sufficiently high so that some stretching of the web 9 would occur, but not enough stretch so that it would fully achieve registration. However, this lower tension can bring the web close to registration so that the T2 tension will not have so much work to do in achieving actual registration. The T2 tension can be, and has in some installations been, in the neighborhood of 3 times T1, but this is not necessarily the case. A good operation would be when either T1 or T2 will persist for several cycles. That is, it is not desired to go from T1 to T2 on each cycle.

It will be apparent from the foregoing that alternated

sequences of low tension applications and higher tension applications will be applied resulting in maintenance of the cover web indicia in tolerance range registration with the pockets of the pocketed web. Each sequence of the low and higher tension applications will comprise one or more of said low tension or higher tension applications according to the demand signal from the electric-eye scanning means.

While the preferred example disclosure of the invention made herein features intermittent feeding of the web during the tension stretching thereof, and application to the pocketed web, it is to be understood that the novel web tensioning and stretching and indicia registering procedure herein claimed can be applied to other uses. It is also to be understood that the improved web registering procedure may be applied to practices wherein the indicia is applied to the web which is to be pocketed, rather than the cover web, in which instance the registration of the web may be with relation to the molds in which the pockets are to be formed or to work stations in the machine. Other variations in part arrangement and practices also may be resorted to in practicing the invention within the scope of the appended claims.

I claim:

1. The herein described method of registering and maintaining registry of an indicia pattern repeat bearing web with package pockets, work stations or like units, said method comprising intermittently moving the units, providing a web with repeated indicia patterns and registration control markings applied thereon, said patterns and markings being applied in length and spacing less than will be required for proper registration with the known spacing of the units with which registration must be brought about and maintained so that stretching must be resorted to in bringing about and maintaining said registration, intermittently moving the web with relation to said units providing a web mark positioning control by monitoring the web position in relation to the units under an electric eye scanner beam and indicating the intermittent motion of the units, and while moving the web, applying to the web under the web mark positioning control, alternated sequences of predetermined definite low tension stretch applications less than that necessary to bring about registration attainment and predetermined definite high tension stretch applications greater than that necessary to bring about registration attainment, thereby to maintain the desired registration of the web borne indicia pattern repeats with said units.

2. The herein described method of registering and maintaining registry of an indicia pattern repeat bearing web with package pockets, work stations or like units, said method comprising moving units in step-by-step fashion, providing a web with repeated indicia patterns and registration control markings applied thereon, said patterns and markings being applied in length and spacing less than will be required for proper registration with the known spacing of the units with which registration must be resorted to in bringing about and maintaining said registration, moving the web with relation to said units and in step-by-step fashion, providing a web mark positioning control by monitoring the web mark positions in relation to the units under an electric eye scanner beam and by indicating the intermittent motion of the units, and while moving the web, applying to the web under the web mark positioning control, alternated sequences of predetermined definite low tension stretch applications less than that necessary to bring about registration attainment and predetermined definite high tension stretch applications greater than that necessary to bring about registration attainment, thereby to maintain the desired registration of the web borne indicia pattern repeats with said units wherein each said sequence of stretch application is applied in one or more units of duration.

3. The herein described method of registering and maintaining registry of an indicia pattern repeat bearing web with package pockets, work stations or like units,

said method comprising intermittently and in step-by-step fashion moving the units, providing a web with repeated indicia patterns and registration control markings applied thereon, said patterns and markings being applied in length and spacing less than will be required for proper registration with the known spacing of the units with which registration must be brought about and maintained so that stretching must be restored to in bringing about and maintaining said registration, intermittently and in step-by-step fashion moving the web with relation to said units monitoring the web position in relation to the units under an electric eye scanner beam and indicating the intermittent motion of the units to provide a web mark positioning control, and while moving the web, applying to the web under the web mark positioning control, one or more sequences of a predetermined definite low tension stretch application whenever said control demands lesser stretching to maintain registration, and one or more sequences of a predetermined definite higher tension stretch application whenever said control demands greater stretching to maintain registration.

4. The herein described method of registering and maintaining registry of an indicia pattern repeat bearing web with package pockets, work stations or like units, said method comprising intermittently moving the units, providing a web with repeated indicia patterns and registration control markings applied thereon, said patterns and markings being applied in length and spacing less than will be required for proper registration with the known spacing of the units with which registration must be brought about and maintained so that stretching must be resorted to in bringing about and maintaining said registration, intermittently moving the web with relation to said units, providing a web mark positioning control by monitoring the web position in relation to the units under an electric eye scanner beam and indicating the intermittent motion of the units, and while moving the web applying to the web under the web mark positioning control and through electrically variable magnetic brake tension drag imposition, a predetermined definite low tension stretch whenever said control demands lesser stretching to maintain registration, and a predetermined definite higher tension stretch whenever said control demands greater stretching to maintain registration, thereby to maintain the desired registration of the web borne indicia pattern repeats with said units.

5. The method defined in claim 4 wherein the changes from predetermined definite low tension stretch application to predetermined definite higher tension stretch application and vice versa are effected without any break in the continuity of stretch application or any relaxation of stretch application below the predetermined definite low tension stretch.

6. In the herein described method of forming packages wherein two webs are opposed and sealed together with pocketed fill therebetween, one said web being adapted to have fill receiving pockets formed therein and the other web constituting a cover web, and one said web having repeated indicia patterns and registration control markings applied thereon, the method of registering and maintaining registry of said indicia patterns with work stations or like units, said registering method comprising, intermittently moving the units, employing a said one web whereon said patterns and markings are applied in length and spacing less than will be required for proper registration with the known spacing of the units with which registration must be brought about and maintained so that stretching must be resorted to in bringing about and maintaining said registration, and the steps of intermittently moving the indicia bearing web with relation to said units, monitoring the web position in relation to the units under an electric eye scanner beam and indicating the intermittent motion of the units to provide a web mark positioning control, and while moving said indicia bearing web, applying thereto under the web mark positioning

control, one or more sequences of a predetermined definite low tension stretch application whenever said control demands lesser stretching to maintain registration, and one or more sequences of a predetermined definite higher tension stretch application whenever said control demands greater stretching to maintain registration without any break in the continuity of stretch application or any relaxing of stretch application below the predetermined definite low tension stretch between or during said sequences.

7. The method defined in claim 6 wherein each said sequence of stretch application is applied in one or more units of duration.

8. In a machine for forming filled packages, means for step-by-step advancing a web having equidistantly spaced fill containing pockets, means for applying and securing to said web and moving therewith in intermittent motion, a cover web having thereon repeated indicia patterns designed to register with the pockets and registration control markings associated with said patterns, said patterns and markings being applied in length and spacing less than will be required for proper registration as aforesaid so that stretching must be resorted to in bringing about and retaining said registration, electric eye scanner means for monitoring the position of said cover web during movement of said cover web in each machine cycle, continuously driven switch means actuated in synchronism with the step-by-step cycling of said machine, and registration effecting means including devices operating under said switch means, electric eye scanner means and web mark positioning control for applying to the indicia pattern bearing web alternated sequences of predetermined definite low tension stretch applications less than that necessary to bring about registration attainment and predetermined high tension stretch applications greater than that necessary to bring about registration attainment, thereby to maintain the cover web indicia in tolerance range registration with the pockets of the pocketed web.

9. Machine structure as defined in claim 8 wherein the devices for applying the alternated sequences of predetermined definite low and high tension stretch applications apply each sequence in one or more units of duration.

10. In a machine for forming filled packages, means for step-by-step advancing a web having equidistantly spaced fill containing pockets, continuously driven input means for driving said means for step-by-step advancing, means for applying and securing to said web for intermittent movement therewith a cover web having thereon repeated indicia patterns designed to register with the pockets and registration control markings associated with said patterns, registration control means including tensioning roll web stretching means through which the indicia bearing web is drawn by the moving pocketed web as it is being applied over the pockets, electric eye scanner means for projecting a scanner beam across the path of intermittent movement of the registration control markings, said registration control means further including switching means coupled to said continuously driven input means for actuation thereby in synchronism with the stepping movement of said means for step-by-step advancing, and means electrically controlled by said switching means, scanner beam and web control mark positioning for alternately and in unbroken sequence applying to the tensioning roll means a first predetermined definite braking action less than that necessary to apply registration attaining stretch to the cover web and a second predetermined definite braking action greater than that necessary to apply registration attaining stretch to the cover web, thereby to maintain the cover web indicia in tolerance range registration with the pockets of the pocketed web.

11. Apparatus as defined in claim 10 wherein the braking action applying means includes a single magnetic brake.

12. Apparatus as defined in claim 10 wherein the braking action applying means includes a single magnetic brake, a first electrical energy supply source means for conditioning the magnetic brake to apply the first pre-

determined definite braking action, and a second electrical energy supply source means for conditioning the magnetic brake means to apply the second predetermined definite braking action, said means electrically controlled comprising means for alternately placing said first and second electrical energy supply source means in electrical connection with said magnetic brake.

13. Apparatus as defined in claim 12 wherein at least one said electrical energy supply source means comprises a variable transformer.

14. Apparatus as defined in claim 12 wherein each said electrical energy supply source means comprises a variable transformer.

15. Apparatus as defined in claim 10 wherein the braking action applying means includes a single magnetic brake, a first electrical energy supply source means for conditioning the magnetic brake to apply the first predetermined definite braking action, and a second electrical energy supply source means for conditioning the magnetic brake means to apply the second predetermined braking action, at least one said electrical energy supply source means being variable to alter the degree of the predetermined magnetic brake action controlled thereby, said means electrically controlled comprising means for alternately placing said first and second electrical energy supply source means in electrical connection with said magnetic brake.

16. Apparatus as defined in claim 10 wherein the braking action applying means includes a single magnetic brake, a first electrical energy supply source means for conditioning the magnetic brake to apply the first predetermined definite braking action, and a second electrical energy supply source means for conditioning the magnetic brake means to apply the second predetermined braking action, each said electrical energy supply source means being variable to alter the degree of the predetermined magnetic brake action controlled thereby, said means electrically controlled comprising means for alternately placing said first and second electric energy supply source means in electrical connection with said magnetic brake.

17. Apparatus as defined in claim 10 wherein the braking action control is such that the value of the second predetermined definite braking action is a multiple of the value of the first predetermined definite braking action.

18. Apparatus as defined in claim 10 wherein the braking action applying means includes a single magnetic brake, a first electrical energy supply source means for conditioning the magnetic brake to apply the first predetermined definite braking action, and a second electrical energy supply source means for conditioning the magnetic brake means to apply the second predetermined braking action, said second electrical supply source means being effective in action to bring about a braking action of a value which is a multiple of the value of the braking action brought about by action of the first electrical energy supply source means.

19. Apparatus as defined in claim 18 wherein each said electrical energy supply source means comprises a variable transformer.

20. Apparatus as defined in claim 18, said continuously driven means including a continuously rotatable drive shaft rotatable once for each step cycle, and said switch means including a cam actuated switch, cam means operated by said shaft and effective in combination with control circuitry and said cam actuated switch for controlling said electrical supply sources.

21. Apparatus as defined in claim 10 wherein the braking action applying means includes a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll, said rolls engaging full width across said stretching web.

22. Apparatus as defined in claim 10 wherein the braking action applying means includes a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll,

said rolls engaging full width across said stretching web, and there also being included manually adjustable means for varying the pressure applied to said presser roll.

23. Apparatus as defined in claim 10 wherein the braking action applying means includes a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll, said rolls engaging full width across said stretching web, said presser roll being carried on a freely swingable frame and there being included tension spring means for biasing the frame to yieldably oppose the presser roll to the brake roll.

24. Apparatus as defined in claim 10 wherein the braking action applying means includes a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll, said rolls engaging full width across said stretching web, said presser roll being carried on a freely swingable frame and there being included tension spring means for biasing the frame to yieldably oppose the presser roll to the brake roll, and manually operable means for varying the tension of said tension spring means.

25. Apparatus as defined in claim 10 wherein the cover web is drawn off a supply roll supported by means including a brake disk turnable with the roll as the web is drawn therefrom, and spring pressed brake shoe means engaging said disk and yieldably resisting rotation thereof.

26. Apparatus as defined in claim 25 wherein there also is included manually operable means for varying the effective pressure application by the brake shoe.

27. In a machine for forming filled packages, means for advancing a web having equidistantly spaced fill containing pockets, means for applying and securing to said web a cover web having thereon repeated indicia patterns designed to register with the pockets and registration control markings associated with said patterns, registration control means including tensioning roll web stretching means through which the indicia bearing web is drawn by the moving pocketed web as it is being applied over the pockets, electric eye scanner means for projecting a scanner beam across the path of movement of the registration control markings, and means electrically controlled by scanner beam and web control mark positioning for alternately and in unbroken sequence applying to the tensioning roll means a first predetermined definite braking action less than that necessary to apply registration attaining stretch to the cover web and a second predetermined definite braking action greater than that necessary to apply registration attaining stretch to the cover web, to maintain the cover web indicia in tolerance range registration with the pockets of the pocketed web, the cover web being drawn off a supply roll supported by means including a brake disk turnable with the roll as the web is drawn therefrom, spring pressed brake shoe means engaging said disk and yieldably resisting rotation thereof and said means for advancing including means for moving the web step-by-step, said means for applying braking action to the cover web including a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll, said rolls engaging full width across said stretching web.

28. Apparatus as defined in claim 27 wherein the means for moving the webs step-by-step includes a drive shaft rotatable once for each step cycle, and cam means operated by said shaft and effective in combination with control circuitry and switch means for controlling said first and second predetermined definite tension applications.

29. In a machine for forming filled packages, means for advancing a web having equidistantly spaced fill containing pockets, means for applying and securing to said web a cover web having thereon repeated indicia patterns designed to register with the pockets and registration control markings associated with said patterns, registration control means including tensioning roll web stretching means through which the indicia bearing web is drawn by the moving pocketed web as it is being applied over the pocket-

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ets, electric eye scanner means for projecting a scanner beam across the path of movement of the registration control markings, means electrically controlled by scanner beam and web control mark positioning for alternately and in unbroken sequence applying to the tensioning roll means a first predetermined definite braking action less than that necessary to apply registration attaining stretch to the cover web and a second predetermined definite braking action greater than that necessary to apply registration attaining stretch to the cover web, to maintain the cover web indicia in tolerance range registration with the pockets of the pocketed web, the cover web being drawn off a supply roll supported by means including a brake disk turnable with the roll as the web is drawn therefrom, spring pressed brake shoe means engaging said disk and yieldably resisting rotation thereof and said means for advancing including means for moving the webs step-by-step, said means for applying braking action to the cover web including a main magnetic brake roll over which the stretching web is trained and a presser roll for pressing the stretching web against said brake roll, said rolls engaging full width across said stretching web, and manually adjustable means for varying the pressure applied to said presser roll, said presser roll being carried on a freely swingable frame

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and tension spring means for biasing the frame to yieldably oppose the presser roll to the brake roll, and manually operable means for varying the tension of said tension spring means.

30. Apparatus as defined in claim 29 wherein the means for moving the webs step-by-step includes a drive shaft rotatable once for each step cycle, and cam means operated by said shaft and effective in combination with control circuitry and switch means for controlling said first and second predetermined definite tension applications.

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