The basic machine has the additional advantage of having a cabinet structure with hinged sides which can be swung open to lie in the operational plane of the machine which carries recording instruments, operation switches, dials and the like. At the same time the operator of the machine has ready access when the hinged sides are open to the web spool, operation-drive motors, cans, chain tracks, electronic equipment, temperature controls, differential mechanism, timing switches and all other necessary basic equipment required to function, motivate and drive the machine blocks assembled as part of the machine at any particular time.

The structure and operation of the machine, together with a series of alternate machine blocks, which constitutes one embodiment of this invention, are shown in the accompanying drawings, to which reference will now be had.

FIGURE 1 is a schematic drawing in perspective which illustrates the general principle of the machine without showing the details of the machine blocks.

FIG. 2 is a perspective elevation of the machine with machine blocks assembled together with a feed mechanism for supplying four rows of tablets to the die roll mechanism.

FIG. 3 is a perspective of a comparatively simple machine block including bearings adapted to receive rotary dies and rollers for perforating pockets in the webs.

FIG. 3A is a sectional elevation taken on the line 3A—3A of FIG. 3.

FIG. 4 is a perspective of a machine block which includes rotary dies mounted in position and feed escapement mechanism adapted to supply a plurality of tablets or small articles to be packaged.

FIG. 5 is a partially sectional elevation showing a machine block with mechanism peculiarly adapted to feed powder or other finely divided material into the pouches of the strip package.

FIG. 6 is a sectional plan view on the line 6—6 of FIG. 5.

FIG. 7 corresponds to FIG. 5 but shows an alternative mechanism adapted to feed liquid into the pouches formed in the packaging machine.

FIG. 8 is a sectional plan view on the line 8—8 of FIG. 7.

FIG. 9 is a plan view, FIG. 10 a partially sectional elevation, and FIG. 11 an end elevation of a machine block having sponge feeder rolls and cutting knives included therein. FIG. 11—A is a view showing the driving chain.

FIG. 12 illustrates the mechanism for compensating for any tendency for the two strips of which the packages are formed to get out of register. In other words, the mechanism is adapted to automatically maintain the webs of which the packages are formed in complete register, which is of utmost importance when the webs carry printed or illustrative insignia. Usually the pouches have such insignia on both sides and must be kept in register with one another.

FIG. 13 is a front elevation of the basic machine with its doors open to constitute instrument panels, and FIG. 14 is a top view of the same in which broken lines indicate the hinged mounting of the panels.

Having special reference to the schematic diagram of FIG. 1, the primary or basic element of the machine comprises a housing 10 having a base extension 11 to increase its stability, an upper cabinet section 12, the side elements of which are hinged to open out as hereinafter explained. Web roll cutters and guides are offset from the machine in FIG. 1 for convenience of description, but these elements form a part of the primary machine and include a web roll 13, a web cutter 14, a guide plate 15 having a triangular notch over which the web 16 passes,
The two webs formed by the cutter extend laterally out from the guide plate and upward over guides 17 and 18. Thence the webs approach each other and pass over guides 19 and downward between die rolls where the pouches are formed and filled. In forming simple pouches of relatively large size to receive powdered or granular material or a quantity of capsules, no preforming of pockets in the webs is necessary and no rollers are provided for that purpose. For convenience, the two parts of the divided web strips 16 are marked 16a and 16b.

Machine blocks designated 21, 22 and 23 are alternative frames in which die rollers may be mounted. A machine block 24 is a photo scanning and signaling element which may or may not be required. 25 represents a machine block adapted for feeding tablets, 26 a machine block adapted for feeding liquids, and 27 a machine block adapted for feeding powders, granules or the like. 28 represents a machine block which is particularly adapted for feeding the material to be packaged.

It is significant that the web roll is mounted inside of the housing of the main machine and nearer the bottom, the web being drawn out through a slot 30 in the front of the housing. The guide plate 31 turns the web strips 16a and 16b outwardly, and then pass upwardly at the front of the machine and do not interfere with the introduction of machine blocks such as 21, 22 and 23 which carry the die rolls.

Having generally described the arrangement and adjustability of the machine and machine blocks, reference may now be directed to FIG. 2 in which corresponding parts have the same reference characters.

As here shown, one machine block 29 has rolls 31 provided with lugs 32, over which the webs pass, and thus have pocket indentations preformed therein. The webs thence pass upwardly and wrap around the die rolls 35 where strip packages are formed.

A feed and escapement mechanism, which is shown in FIGS. 2 and 4, may be rigidly attached and form a part of one machine block or, on the other hand, the feed and escapement mechanism may constitute a separate machine block, as it is frequently desirable to substitute a special feed mechanism for powders and liquids as hereinafter described. There is, however, considerable advantage to be gained by making the feed and escapement mechanism a definite part of the machine block as shown in FIG. 4, so that the assembled machine block needs no only to be mounted on the housing of the basic machine and the adjustment of parts is necessary.

By reference to FIGS. 3, 3A and 4, such a machine block may readily be understood, and it comprises a frame 40 having opposite ends provided with slots, as shown at 41 and 42, within which are mounted bearing blocks 43 and bearing block races 45 having bearing blocks 44 therein.

Journaled in the bearing blocks 43 is a pair of rotary die rolls 50 having the usual pockets 51. Journaled in bearing blocks 44 are rolls 52 having lugs 53 which preform pockets in the web strips 16a and 16b, as they pass over these rolls. The lugs 53 on the rolls 52 correspond in location and in number to the pockets 51 on the rolls 50, and preferably the web strips pass from guides 18 through the notched opening 54 of the frame 40 and then pass upward between pocket forming roll 52 and adjacent die roll 50, over which the web strip wraps and passes downwardly between the die rolls in the usual manner.

The bearing blocks 43 are mounted to slide in the slots 41 and 42 and bearing block races 45 are slidably mounted outside of the bearing blocks 43 in the slots 41 and 42. Bearing blocks 44 are mounted to slide in the block races 45. As shown in the drawings, a larger screw 43a, with terminal in a knurled thumb knob 43b, is threaded through a tapped hole in the corner of the frame 40 and presses against the outer end of the bearing block race. A smaller screw 44a extends through a hole in the larger screw 43a, thence through a tapped hole in the end frame of the block race and extends inwardly to push against the bearing block 44. At its outer end the small screw 44a terminates in a knurled thumb knob 44b.

The structure is such that the larger screws turned by knobs 43b are used to adjust the position of the bearing blocks 43 and thus insure that the die rolls 50 are correctly placed relative to the feed mechanism. Moreover, the smaller screws adjust the position of the bearing blocks 44 and correctly fix the position of the preforming rolls 52 relative to the die rolls.

The machine blocks are preferably made up as shown in FIGS. 3 and 4 with a set of die rolls and a set of rolls for preforming pockets in the webs mounted in the same frame. However, it is not usually desirable to mount the transverse sealing rolls, such as shown in FIG. 2, in the same frame with the die rolls and, in fact, a separate machine block is preferably employed, because the position of the transverse sealing rolls would vary to a considerable extent with respect to the die rolls, depending on the size of the pockets or pouches being formed in the machine.

As shown in FIG. 2, an additional machine block 60 is mounted on the front of the machine housing and carries a pair of cutter rolls 61 and 62 adapted to make periodic transverse cuts in the strip package between pockets and may also make a longitudinal cut segregating the strip package into individual sealed packages.

A feed trough 63 is mounted on the frame 40 and attached thereto, as shown in FIG. 4, is a feed hopper 64 which delivers the tablets or other solid objects into several vertical troughs 65. An agitator mechanism comprised of a perforated strip 66 is adapted to slide back and forth in response to finger 67 which extends upwardly through a hole 68 in the strip 66. The finger is a part of and extends from a pivot block 69 which is spring pressed in one direction by spring 70 and moves against the spring by the action of a roller 71 on the lower end of the block 69 which contacts a rotary cam 72. The tablets are fed from the main storage hopper 75, as shown in FIG. 1, to the feed hopper 65 so that the channels 66 are kept filled with tablets or other solid articles to be packaged.

The pellets are individually, or in multiples, allowed to feed down into the pockets by an escapement mechanism which comprises small fingers 78 which are mounted in a plate 155 attached to an escapement plate 156. Escapement plate 156 is mounted so that it is pushed periodically and carries with it the escapement fingers by the action of cam 157 mounted on the end of one of the die rolls.

From each trough 65 the pellets are released individually by escapement pins 78, the arrangement being such that the pellets from the several troughs are dropped simultaneously into the preformed pockets between the webs just before the web strips 16a and 16b are heat sealed to each other.

The storage hopper 75 is a machine block which is capable of being attached and put into use or removed, according to the requirements of the operator. For example, if the machine block 49 having the hopper and escapement mechanism permanently attached to it, is to be used, then in that case the storage hopper machine block will also be attached to discharge the tablets into the machine hopper.

In case the operator desires to package powdered or granular substances, another machine block the operating parts of which are shown in FIGS. 5 and 6, will be substituted for the machine block 40 and the feed mechanism designated 64 and the storage hopper 75, and its parts will not be employed.

In FIGS. 5 and 6 a frame 80, which corresponds to the frame 40, has a pair of primary die rollers 81 mounted in the frame with bearings 43. A pair of sealing rollers 82, also located in the usual manner, are mounted in a separate frame 93 which forms a separate machine block, is mounted on the machine base and may be fixed at a desired position relative to the machine block carrying the die rolls, determined by the size of
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the desired pouch being filled. The sealing rollers produce transverse seals closing the ends of the pouches. Web strips 83 and 84 correspond to 16a and 16b and wrap around the rollers 81 and continue downward between the sealing rollers 82. As clearly shown in FIG. 6, the die rollers 81, which are heated in the usual manner, have collars 85 and 86 near their ends and a central collar 87.

The arrangement is such that the web strips are pressed together and heat sealed along their longitudinal edges, as indicated at 87 and 88 and in the center as indicated at 89. Two feeder mandrels 90 project downwardly from supporting plate 91, extend between the die rolls in the openings formed by the collars 85, 86 and 87 and end as shown in FIG. 5, at 92 close to the sealing rollers 82, which operate to press the web strips together and form a transverse seal, thereby closing the pouches at the bottom. This arrangement does not in any way interfere with the feeding of finely divided or granular material into the mandrels 90 from the top.

As the webs progress, and after the pouches have been filled, the next transverse seal formed by the sealing rollers 82 closes and seals the top of the packages which in the meantime have received a measured quantity of the granular material being packaged.

In FIGS. 5 and 6 a mechanism is shown for feeding measured quantities of granular material to be packaged. 95 is a hopper into which the granular material is introduced and from which it is elevated by an auger 96 in a conveyor tube 97. The auger 96 is rotated by a gear 98 and pinion 99. As the granular material is carried up in the tube 97 it soon reaches discharge opening 100 having a guide lip 101. The frame 80 has slots 110 in which bearing blocks 111 are slidably mounted. Attached to the shaft 105 is a gear wheel 112 which meshes with a rack 113. The rack is at the outer end of a piston rod 114 which is actuated by any suitable mechanism, e.g., a cylinder 115, as for example by air or by solenoid. The motion of the piston rod 114 and of the rack 113 is reciprocal. In one position, as shown in full lines in FIG. 5, the arms 104 extend outwardly so that the pockets 102 come directly in position to receive granular material which is continuously being discharged from the opening 106. A doctor blade 160 is mounted in a relatively fixed position and rests on top of the cup or pocket 102. This arrangement is such that when piston rod 113 is retracted, the rack cannot cause the gear to turn because the arm 104 cannot swing, since it is held down by the doctor blade 160. However, when the piston rod 113 retracts, the first movement is one of drawing the shaft 106 with its bearings 111 to the back end of the slots 110 in which they are located. This movement is not great but is sufficient so that the cup moves across and is raised by the doctor blade, after which the arms 104 are free and the further action of the piston 113 causes them to quickly swing over and dump the contents of the cup into the top of the hollow mandrels 90.

The pockets in their upside-down position are directly over the open upper end of the mandrels 90, and the action is so sudden that none of the granular material falls out of the pouches in transit but is forcibly dumped when the pocket element strikes the supporting plate 91. Thus a measured quantity of granular material is discharged into each mandrel, falls downwardly therein, as shown in FIG. 5, and becomes sealed into the pouches as already described. In the operation of the device the piston moves backward and forward, and the arm is quickly returned to the position shown in FIG. 5. The arrangement shown in FIGS. 5 and 6 is well adapted to making large size packages, and hence only two are shown. It should, however, be understood that a single large package may be made at a time or that smaller ones, depending on the size of the machine, the requirements of the trade and the desire of the operator.

The granular material as shown in the drawings is continually agitated by a pump having centrifugal blades 161, which are mounted at the bottom of a rotary sleeve 162 and are rotated by a gear wheel 163 actuated by worm 164.

FIGS. 7 and 8 illustrate a machine block which may be substituted for that shown in FIGS. 5 and 6, when it is desired to fill the strip packages with liquid or semi-liquid substances. Referring to FIGS. 7 and 8, 120 indicates a frame, which corresponds to frame 80 and frame 40, and has mounted therein a pair of die rolls 121 each of which, as illustrated in FIG. 8, has a plurality of corresponding collars 122 which heat the web strips 124 longitudinally and leave spaces between seals into which filler mandrels 125 extend. The liquid or semi-liquid substance to be packaged is contained in a pressure storage tank 126 from which it flows through a check valve 127 into a pocket in measuring plunger 130. A flexible tube or hose 131 connects the pocket to the outer end of the mandrel 125 and does not interfere with the reciprocating action of the measuring plunger 130 which is actuated by cam 170. The stroke of the measuring plunger 130 is determined by an adjustment of a screw mechanism 171. The quantity of liquid picked up in the pocket 130 depends entirely on the stroke of the plunger.

The reservoir 126 is maintained full of liquid by a hydraulic head which feeds the closed tank through spring-presssed check valve 172. The check valve 127 at the outer end of the plunger 130 is set strongly so that it will not open by reason of the hydraulic pressure existing in the tank 126, but when the plunger is pushed in by the cam 170, check valve 127 will open and a measured amount of liquid will enter the pocket and will be transmitted thence through the flexible hose 131 and discharged into the top of the hollow mandrel 125. The amount of liquid picked up with each stroke of the plunger depends entirely on the distance that the plunger travels and the area of the measuring pocket within it.

Transverse sealing rollers 140 correspond to the sealing rollers 82 of FIG. 5 and act to transversely heat seal the web strips 124 and thus close the lower ends of the packages just before a measured quantity of liquid or semi-liquid material is forced from the measuring pocket 130 through flexible tube 131 and is discharged through mandrel 125 into the package. As soon as the strip package moves downwardly another transverse seal is made by the sealing rollers 140, thus closing the packages at the top.

While I have described only the mechanism for a single package, it will be understood that there will be as many mandrels as there are pockets to be filled and as many flexible tubes and measuring pockets, all of which will be coupled with pressure storage tank 126. For example, in the arrangement shown in FIG. 8, there will be four mandrels and four pipes, but it is clear that a single series of pockets may be made and filled, or two or more, depending on the size and quantity of packages which are desired.

Finally the strip packages when completed may be severed into individual packages either by knives indicated at 135 or by cutters such as shown in FIGS. 9, 10 and 11, for which special reference will now be had.

Referring particularly to FIGS. 9, 10 and 11, another machine block is here illustrated which comprises generally a pair of feed rolls and a cutter mechanism which is peculiarly adapted to sever the strip packages at the seals while avoiding the very troublesome tendency for the web packaging material just after it is severed to ride on the face of the knife instead of proceeding in a continuous downward flow as desired.

The machine block here shown comprises a frame 250 in which is mounted a pair of sponge puller rolls 251 and 252 having end shaft extensions 263 mounted in bearing blocks 264, which as shown in FIG. 10 are mounted in bearing block races 261 at the outer and inner end of frame 280. At the inner end of roller 282 the shaft 283.
extends beyond the frame 280 and has mounted thereon a sprocket wheel 286. Also mounted on the frame, as shown in FIG. 10, is a cam 290 driven by sprocket 291. Two bearing lugs 292 and 293 are mounted on the bottom of the frame 280 at opposite sides for carrying a sliding rod 294 having a collar 295 affixed thereon. Another block 296 is attached to the slidable rod 294, and spring 298 between the bearing block 292 and the block 296 tends to force the rod 294 against the buffer 299 which is mounted on the adjusting screw 300 supported from the frame 280 by bracket 301. A moving scisor block 302 attached to the block 296 moves back and forth as rod 294 is reciprocated by the action of cam 290. This moving blade 302 cooperates with a stationary blade 303, which is attached to the frame 280 and has a beveled edge which cooperates with the moving blade.

The cam 290 has a notch with a radial surface 304 and, as the cam is rotated in a clockwise direction, it pushes against the block 295 and moves the slidable rod 294 against the action of the spring 298. The cam is so shaped that the movement of the block 295 and of the rod 294 is adequate to produce a scissor-like cut in the sealed section of the strip package which is being pulled downwardly through the sprocket rolls 281 and 282 and is then quickly returned to open position against the spring 298.

A bumper 299 may be of rubber or like elastic material, and its position is adjusted by the screw 300 so that the end of the rod 294 in its backward movement strikes against the bumper, and the block 295 does not contact the actuating surface 306 of cam 290, but only a small clearance is provided.

The moving blade 362, as clearly shown in FIG. 11, is attached at one end to block 296 and at the opposite end is guided by a pair of small rollers 305. Centrally attached to the moving blade 302 is a block 306. A clearance follower 307 having end lugs 308 is mounted on the ground surface of the moving blade 302 and is attached by a wire spring 309 which extends through block 306 and through holes in the lugs 308. The clearance follower is so arranged that when the movable knife is operated, it makes a cut thus severing the strip package, permitting the lower part to immediately drop. The upper part of the strip tends to ride on the movable blade and the clearance follower by the action of the spring wire 309 pushes it off the knife.

This simple mechanism has overcome a difficulty which has existed in transverse cutters for strip packages and has given repeated trouble in the past.

The small-scale semi-diagramatic view of FIG. 11A illustrates the chain drive for an assembly including machine block 80 having rotary dies 81 and a sprocket wheel 81a, a machine block 93 having sealing rollers 82 driven by sprocket 82a, the machine block 280 of FIG. 9, 10 and 11, the sprocket rolls 281 and 282 driven by sprocket wheel 286 and cam 290 driven by sprocket 291. A drive motor 350 has a sprocket wheel 351 which operates continuously in one direction as shown by the arrow. Drive chain from the sprocket 351 passes around a take-up sprocket 352 mounted on a pivoted arm 353 which puts tension on the chain by reason of spring 354. The chain then continues over drive sprocket 385 at 356, then over sprocket 81a, continues downward over sprocket 82a and around sprocket 286, thence over sprocket 310 mounted on bracket 311, thence the chain continues over sprocket 291 which drives the cam and returns to the motor sprocket 351.

Bracket 311 is pivoted at 360 and may be swung backward or forward by an adjusting screw 361 which extends through the housing of the machine and has a thumbscrew nut 362 which may readily be adjusted to position the sprocket 310.

If the cut made by the reciprocating cutter of FIG. 10 is too low or too high, and adjustment of the thumb nut 362 causes the drive chain to move in one direction or the other so as to make a rotary adjustment at the die rolls 81, the transverse sealing rolls 82 and the puller rolls 281 and 282. This movement of the chain is brought about because the sprocket 352 which is held against the chain by the spring 354 keeps the chain always at the desired tension for correct operation, although the whole position of the chain is adjusted as above described.

It will be understood that the drive motor 350 and the sprockets are all located within the body of the machine housing into which the shafts of the rollers extend, and therefore the chain drive may be easily and quickly uncoupled in case only one or two machine blocks are employed.

Furthermore, the adjusting screw 361 may be unplugged from the bracket 311 so as to permit the ready removal of the machine block 280 if this is not required for any particular operation.

All of the parts which have been described, together constitute a complete machine block which may be readily attached to or detached from the frame 280. It is evident from the drawings of FIG. 12 of which is shown in FIG. 9, by means of heavy bolts 313 which extend through close fitting holes 314 in the body of the machine with the bolt head preferably seated in a counter-sunk hole 316. The frame 280 has precision tapped holes 317 to receive the bolts 313. While the machine blocks as shown and described in FIGS. 9, 10 and 11 having the other figures already described, are comparatively heavy, the inner surface is manufactured so that it can be mounted in exactly fitted contact with the outer surface of the machine body, and only two of the heavy bolts above described are necessary to maintain it in exactly the correct relation to the other parts of the machine.

It will be noted that the sprockets, such as 286, 291 and 310, with their mountings all project beyond the inner surface of the frame, but they are not close to the side of the frame 280 and extend into the opening in the body of the machine and can thus readily be driven by motors located inside the machine body.

Referring to FIG. 12, there is here illustrated a registration control mechanism which will now be described: 200 represents a web which may have insignia printed thereon, one such being indicated at 201. If the insignia, of which it will be understood there is a very large number, uniformly spaced along the web, pass a predetermined spot 202 at the proper position the electric eye will not actuate the relay circuit, but if the insignia become slightly out of register, the electric eye mechanism 203 will immediately actuate the relay which will act in the usual manner through the control circuits and will cause one or the other of the switches 204 and 205 to be energized and electric current to be conducted either to solenoid 206 or to solenoid 207, as the case may be. If solenoid 207 is actuated, a dog 208 is pushed into the notches of the dog ring 209 and locks it against turning, or if solenoid 206 is actuated, dog 210 locks dog ring 211.

As shown in the drawing, the registration control device includes a housing 212 which is fastened onto the end of shaft 213 by pin 214, and therefore the housing and what it contains rotates with the shaft 213 as it is driven by main chain drive 215 and sprocket wheel 216 mounted on shaft 213. Worm gear 217 is mounted on the shaft 213 within the housing and engages worm 218 on a transverse shaft 219 which has mounted on its outer end a gear wheel 220. A differential is mounted in the housing 212 and consists of an inner rotatable shaft 225 on which dog wheel 209 is mounted. Shaft 225 also carries a beveled gear 226 which meshes with differential beveled gear 227. A second beveled gear 228 corresponds to 226 and is attached to dog wheel 209 having a dog ring 211 attached to it at its outer end. The beveled gears 226 and 228 mesh with the differential bev.
eled gear 227 which is mounted on shaft 230 and carries gear wheel 231 which is coupled to gear 220 by an intermediate gear wheel 232.

A commutator disc 234 is mounted on shaft 235 having a sprocket wheel 236 which is coupled to a sprocket wheel 237 on a shaft 238 of the axle of one of the small rolls. The sprockets 236 and 237 are interconnected by the usual chain 240. The two sprocker rolls are permanently interconnected so that they must operate together by meshing gear wheels 241 and 242.

The operation of the registration control mechanism is as follows:

When the web strips are fed to the die rolls, the position guide is made adjustable so as to assure that the insignia printed on the webs are maintained in register one with the other. However, if the transverse scaler rolls become slightly out of position, this discrepancy will be immediately observed by the electric eye and one of the solenoids 256 or 257 will be actuated and one of the dogs will then lock either dog wheel 250 or dog wheel 251, as the case may be. Immediately the differential will act to very slightly adjust the transverse scaler rolls and produce its sealing action exactly at the point where it is desired that it should take place between the printed insignia on the webs.

Referring to Figs. 13 and 14, the upper part of the body of the machine constitutes a cabinet with finished surfaces 320 parallel to one another and spaced to form an opening 321 so that machine blocks may be mounted on the finished surfaces 320 and bridge the opening 321 with driving parts extending inside the machine. The face of the machine also has finished surfaces 322 on which the web guides 17 and 18 are mounted as already shown in Figs. 1 and 2. One of the upper web guides 18, as shown in Fig. 13, instead of being firmly attached to the machine surface 322, is preferably mounted on the bracket 324 which is attached to the surface 322 by heavy thumb screws 325 so that the position of this guide 18 may be slightly modified to adjust between the web strips and insure that they are completely in register when they carry printed matter or insignia, as already explained.

Mounted on the frame of the machine is an electric-eye scanner 326 which may be adjusted along the web by screw 327 which extends through a lug 328. The upper cabinet part of the machine has doors 332 of L-shaped contour which are hinged at 331 and have front panels 332 on which instruments are mounted and side panels 333 which are adapted to close the machine at the back when swung into closed position, as indicated in broken line in Fig. 14. When the panels are swung open, the instrument panel surfaces 332 are parallel with the front surfaces of the machine.

As indicated in Figs. 13 and 14, there are electric meters 340 and 341, and heater control switches 342 and 343 may for example be mounted from the right-hand panel. On the left-hand panel a relay circuit instrument 344 and a vibrator feed control switch 345 are provided. The arrangement is particularly effective since only the faces of the instruments need appear on the outer surface of the panels, whereas the instruments themselves are on the back of the panels and swing inside of the machine casing when the shutters are closed.

I claim:
1. A multi-purpose strip packaging machine comprising a primary or basic machine structure having an enlarged base to support it in an upright position, a hollow body, means therein for rotatably mounting a large web roll, a slot in the front of the hollow body through which the web is drawn from the web roll, a machine block securely fastened to the body of the machine but readily detachable therefrom composed of a frame, bearing blocks supported thereby and die rolls mounted in the bearings, and a plurality of additional interchangeable machine blocks each adapted to be readily attached or detached from the body of the machine, one of said interchangeable machine blocks having mounted thereon a complete mechanism for feeding tablets, another of said interchangeable machine blocks having mounted thereon a complete mechanism for feeding predetermined quantities of liquid to the pockets between the webs, and another of said interchangeable machine blocks having mounted thereon a complete mechanism for feeding predetermined quantities of liquid to the pockets between the webs.

2. A multi-purpose strip packaging machine comprising a primary machine casing supported in an upright position containing a power motor, web roll supports near the bottom and having a slot in the front surface through which the web is led off from the roll, a plurality of pre-assembled machine blocks, one of which includes a frame and a pair of die rolls, means for slitting the web and guiding the two web strips around the machine block and down between the die rolls, means for adjusting the position of the die rolls relative to each other, a pair of socket forming rolls mounted in the same frame and having lugs spaced to cooperate with the pockets in the die rolls and independent means for adjusting the socket forming rolls.

3. A multi-purpose strip packaging machine comprising a primary machine casing supported in an upright position containing a power motor, web roll supports near the bottom and having a slot in the front surface through which the web is led off from the roll, a plurality of pre-assembled machine blocks means for readily attaching and detaching said blocks to and from the machine casing, one of said blocks including a frame and a pair of die rolls, means for slitting the web and guiding the two web strips around the machine block and down between the die rolls, means for adjusting the position of the die rolls relative to each other, a pair of socket forming rolls mounted in the same frame and having lugs spaced to cooperate with the pockets in the die rolls, independent means for adjusting the socket forming rolls and a machine block which includes a frame and a pair of transverse sealing rolls mounted therein.

4. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, a web roll mounting within the body unit and an expendable web roll thereon, a cutting knife and a triangular guide outside of the body of the machine adapted to longitudinally cut the web as it leaves the body of the machine and to guide the two narrow web strips so formed in opposite directions, the web guides mounted on the front of the machine body opposite the cutter, an independent, readily detachable packaging head, another pair of web guides projecting from the body on opposite sides of the packaging head, rotary dies mounted in said detachable packaging head, and an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine.

5. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, a web roll mounting within the body unit and an expendable web roll thereon, a cutting knife and a triangular guide outside of the body of the machine adapted to longitudinally cut the web as it leaves the body of the machine and to guide the two narrow web strips so formed in opposite directions, a pair of web guides mounted on the front of the machine body opposite the cutter, another pair of web guides projecting from the body adjacent to an independent, readily detachable packaging head, rotary dies mounted in said detachable packaging head, an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent unit having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being
determined by the length of the packages to be formed in the machine, and a detachable photo scanning and registration mechanism adapted to be mounted on the body unit as desired.

9. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, a web roll mounting attached to the body unit and an expendable web roll thereon, a cutting knife and a triangular guide outside of the body of the machine adapted to longitudinally cut the web as it leaves the body of the machine and to guide the two narrow web strips so formed in opposite directions, a pair of web guides projecting from the body adjacent to an independent, readily detachable packaging head, rotary dies mounted in said detachable packaging head, an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine, and a differential mechanism adapted to closely adjust the sealing rollers in a rotary direction to position the places where sealing takes place.

7. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, a web roll mounting within the body unit and an expendable web roll thereon, a cutting knife and a triangular guide outside of the body of the machine adapted to longitudinally cut the web as it leaves the body of the machine and to guide the two narrow web strips so formed in opposite directions, a pair of web guides projecting from the body adjacent to the cutter, another pair of web guides projecting from the body adjacent to an independent, readily detachable packaging head, rotary dies mounted in said detachable packaging head, an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine, a differential mechanism adapted to closely adjust the sealing rollers in a rotary direction to position the places where sealing takes place, means for causing the differential to operate in one direction or the other in response to an electrical scanning device, another machine block comprising a removable frame adapted to be attached to the body of the machine, a pair of sponge rollers mounted in said frame, bearing blocks slidably supported in the frame and adapted to be adjusted toward and from each other to increase or decrease the torque on the webs which pull through or advance from the main web roll by said sponge rollers, and a knife mechanism mounted on the same frame having one stationary knife and a cooperating knife reciprocated by a cam, means for absorbing the thrust of the cutter at the end of the stroke, and means for adjusting the location of the absorbing means.

8. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, a web roll mounting within the body unit and an expendable web roll thereon, a cutting knife and a triangular guide outside of the body of the machine adapted to longitudinally cut the web as it leaves the body of the machine and to guide the two narrow web strips so formed in opposite directions, a pair of web guides mounted on the front of the machine body opposite the cutter, another pair of web guides projecting from the body adjacent to an independent, readily detachable packaging head, rotary dies mounted in said detachable packaging head, an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine, a differential mechanism adapted to closely adjust the sealing rollers in a rotary direction to position the places where sealing takes place, and means for causing the differential to operate in one direction or the other in response to an electrical scanning device.
guide the two narrow web strips so formed in opposite directions, the web guides mounted on the front of the machine body, opposite the cutter, another pair of web guides projecting from the body on opposite sides of the packaging head, rotary dies mounted in said detachable packaging head, and an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine.

15. A multi-purpose packaging machine comprising an independent body unit having an enlarged base, at least one web roll mounting attached to the body unit and an expendable web roll thereon, means for providing two web strips and guiding the said strips in opposite directions, web guides mounted on the front of the machine body, an independent, readily detachable packaging head, another pair of web guides projecting from the body on opposite sides of the packaging head, rotary dies mounted in said detachable packaging head, and an independent machine block mounted on the body of the machine below the packaging head and adapted to be readily detached therefrom, said independent machine block having a pair of transverse sealing rolls, the spacing between the packaging head and the transverse sealing rolls being determined by the length of the packages to be formed in the machine.

16. A multi-purpose strip packaging machine comprising a body having an upright supporting surface, a plurality of preassembled machine blocks, means for removably attaching the machine blocks to the upright surface of the base, each of said machine blocks being composed of a frame, a plurality of die rolls and means for precisely adjusting the position of the die rolls relative to each other, whereby one machine block may be substituted for another without readjusting the die rolls so that the machine may readily be set up to produce strip packages of different kinds and sizes.

17. A multi-purpose strip packaging machine comprising a body having an upright supporting surface, a plurality of preassembled machine blocks, means for removably attaching the machine blocks to the upright surface of the base, each of said machine blocks being composed of a frame, a plurality of die rolls, means for precisely adjusting the position of the die rolls relative to each other, a pair of pocket forming rolls mounted in the same frame and having lugs spaced to cooperate with the pockets in the die rolls, a plurality of independently preassembled machine blocks adaptably mounted on the upright supporting surface below the die rolls and each having a frame and a pair of transverse sealing rolls mounted therein, and means for adjustment of the sealing rolls relative to each other, whereby the machine may be assembled for one strip package operation and readily adapted for other strip package operations by substitution of one machine block for another to change the die rolls and by the substitution of one machine block for another to change the sealing rolls.

18. A multi-purpose strip packaging machine comprising a base having a vertical supporting panel, a frame detachably mounted on the panel and having a pair of rotary longitudinal strip sealing dies adaptably mounted therein, a second independent frame detachably and adjustably mounted on the panel and having a pair of rotary transverse strip sealing dies mounted therein and an independent movable machine block attached to said panel having a frame and a complete filler head above the rotary longitudinal strip sealing dies, said removable machine block being adapted to be replaced by another block attached to said panel whereby solids, granular material or liquids may be supplied to the machine.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,054,236

John H. Stroop

September 18, 1962

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 73, before "smaller" insert -- more --.

Signed and sealed this 8th day of October 1963.

(S Seal)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWIN L. REYNOLDS
Acting Commissioner of Patents