

Sept. 15, 1964

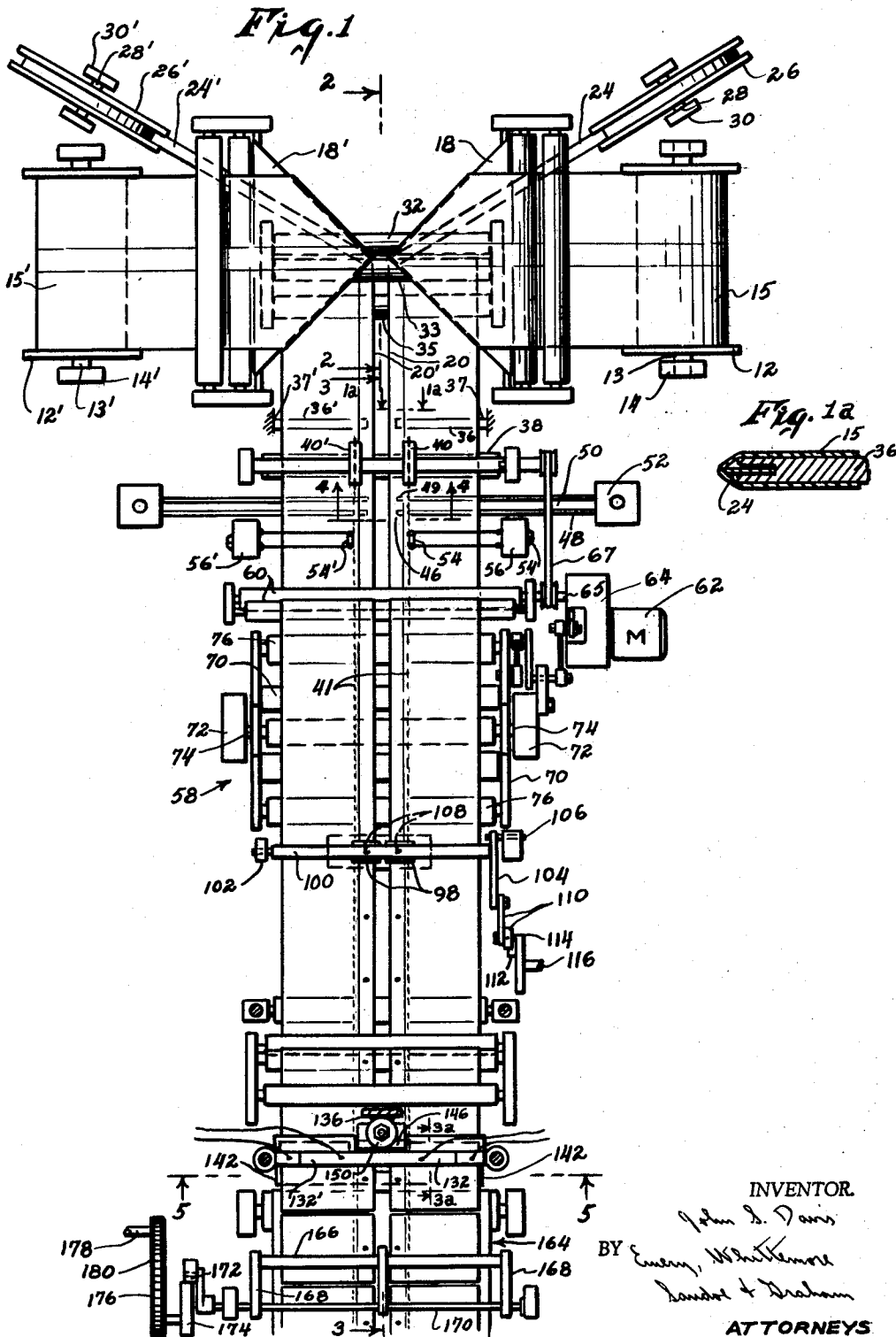
J. S. DAVIS

3,148,598

MAKING BAGS WITH ENCLOSED STIFFENER AT TOP

Filed Nov. 30, 1961

3 Sheets-Sheet 1



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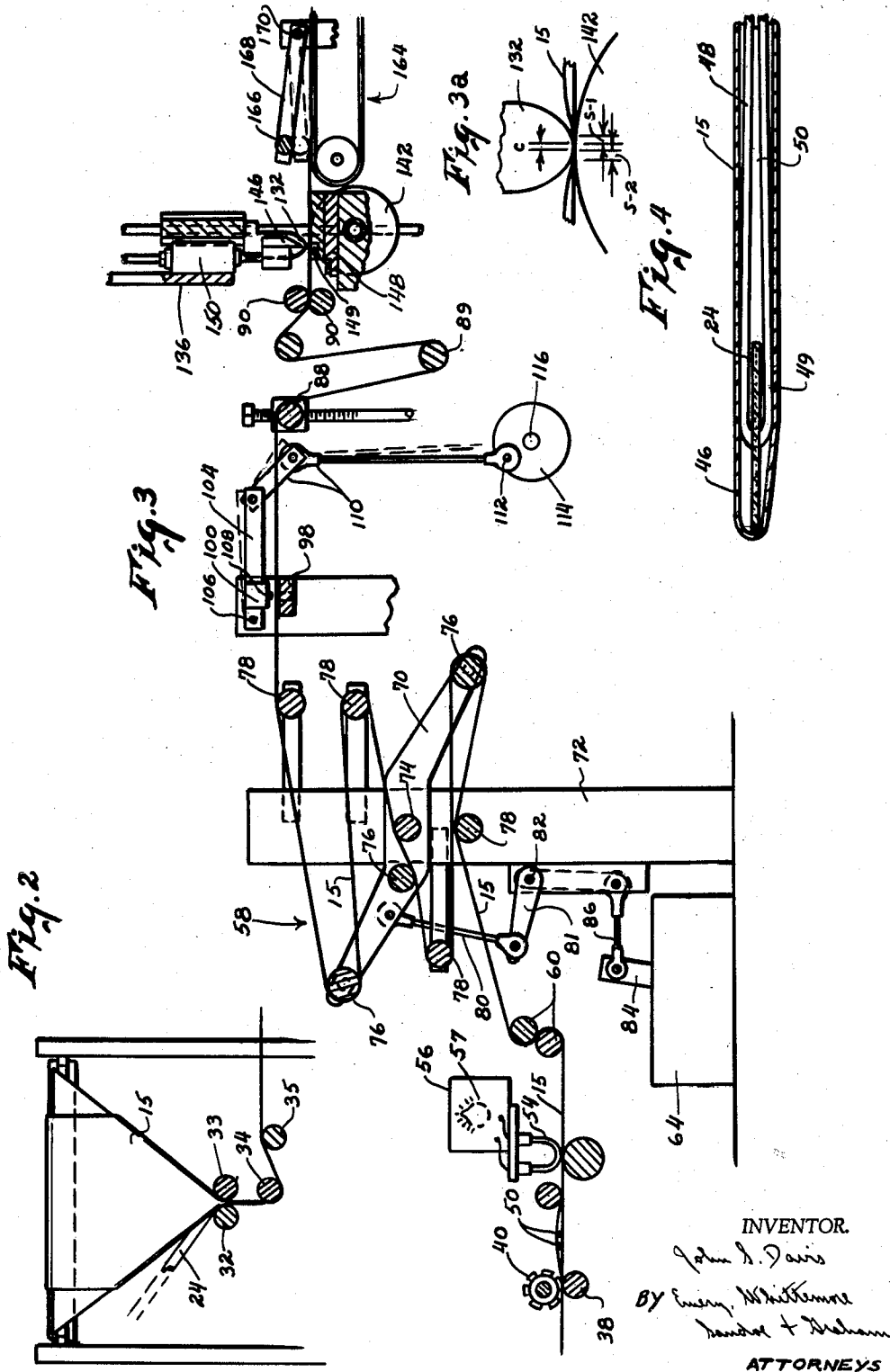
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3 Sheets-Sheet 2



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Fig. 5

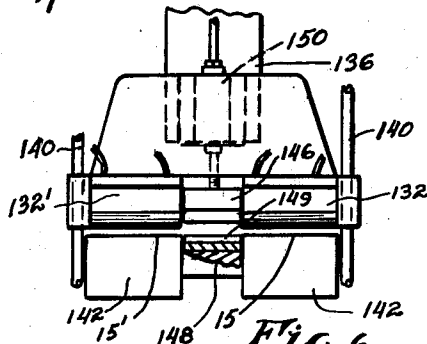


Fig. 6

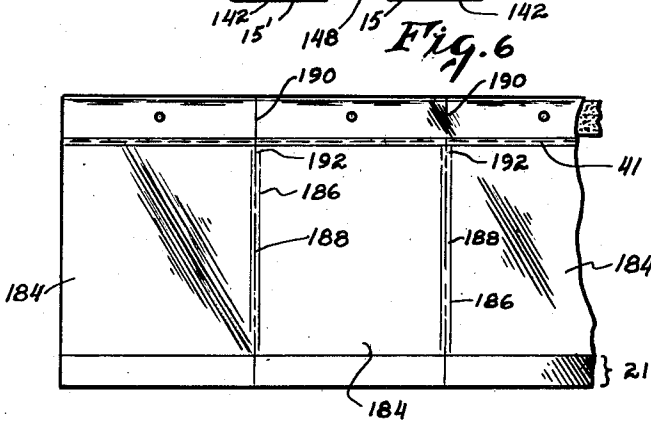


Fig. 7

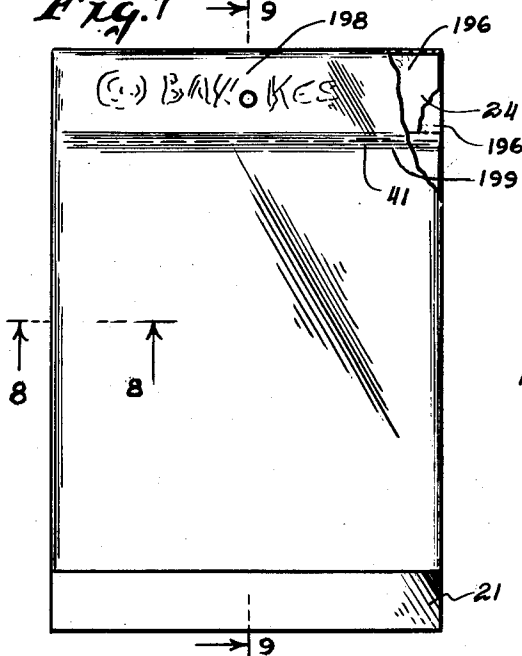


Fig. 8

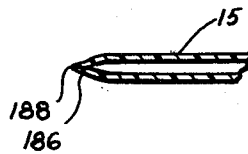
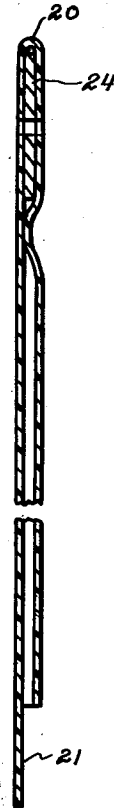


Fig. 9



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MAKING BAGS WITH ENCLOSED STIFFENER AT TOP

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This invention relates to methods and apparatus for making plastic bags of the type which hang from a pin or stud on a display rack. More particularly, the invention relates to that type of bag in which there is a reinforcing or stiffening element, such as a strip of cardboard, enclosed by the plastic along the top of the bag and in a compartment which is sealed off from another compartment used for enclosing merchandise.

It is an object of the invention to provide an improved method and apparatus for making bags of the character indicated. One feature relates to the application of adhesive for holding the reinforcing strip in its compartment even though both ends of the compartment are open. Another feature relates to improvements in the sealing of the top compartment from the lower one in which the merchandise is to be enclosed; and still another feature relates to the cutting apart of a continuous web to make individual bags.

Another object of the invention is to make plastic bags more economically by increasing the production obtained from a bag-making machine. This is done partly by improved sealing means that operate on a continuously and fast-moving strip; and partly by cutting bags apart in a manner that eliminates the usual registration problems encountered on high-speed bag-making machines.

It is another object to make two rows of bags simultaneously on the same machine and with webs of bag material correlated so that certain equipment serves in the making of bags of both rows. This increases production out of proportion to the additional apparatus required and thus reduces the cost of the bags.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a diagrammatic top plan view of apparatus for making plastic bags in accordance with this invention;

FIGURE 1a is a greatly enlarged sectional view taken on the line 1a—1a of FIGURE 1;

FIGURES 2 and 3 are diagrammatic sectional views taken on the lines 2—2 and 3—3, respectively, of FIGURE 1;

FIGURE 3a is a greatly enlarged sectional view taken on the line 3a—3a of FIGURE 1;

FIGURE 4 is a greatly enlarged sectional view taken on the line 4—4 of FIGURE 1;

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 1 and showing the station at which the individual bags are cut apart;

FIGURE 6 is an enlarged top plan view showing the way in which the bags are made from the continuous web.

FIGURE 7 is an enlarged view, partly broken away and in section, of a single bag made in accordance with this invention; and

FIGURES 8 and 9 are enlarged sectional views taken on the lines 8—8 and 9—9, respectively, of FIGURE 7.

The bag-making apparatus shown in FIGURE 1 includes a spool 12 rotatably supported on an axle 13 from

a fixed frame 14. A web 15 of plastic material, preferably polyethylene, is wound on the spool 12, and this web 15 is withdrawn from the spool and passed over a folder guide 18 which folds the web 15 along a line 20 parallel to the longitudinal edges of the web but offset sufficiently from the center line of the web so that one side of the fold extends some distance beyond the other side to provide a flap 21 (FIGURE 9).

A strip 24 of reinforcing material, preferably cardboard, is fed into the fold in a manner such as illustrated in FIGURES 1 and 2. The strip 24 is withdrawn from a spool 26 supported by an axle 28 which is carried by a fixed frame 30.

The strip 24 can be fed into the fold across the spool 12, but the construction illustrated makes the apparatus more compact and facilitates the feeding of the strip by feed rolls 32 and 33 that grip the web 15 directly and the strip 24 by pressure of the folded web against the strip.

Beyond the feed rolls 32 and 33, the folded web 15, with the reinforcing strip 24 located in the fold, passes around a guide roll 34 and then across a second guide roll 35.

A second spool 12' is located at the other side of the machine and a web 15' is folded and fed to the feed rolls 32 and 33 with a reinforcing strip 24' located in the fold. The apparatus for this second web 15' is the same as that already described for the web 15 and corresponding parts are indicated by the same reference character with a prime appended.

In order to hold the reinforcing strip 24 firmly in the fold of the web 15, there is a rod 36 supported from a fixed support 37 and extending into the folded web 15 between the folds. The rod 36 has a slotted end, and the reinforcing strip 24 fits into the slot and is held against the fold of the web 15 by pressure from the bottom face of the slot, as clearly shown in FIGURE 1a.

There is a similar rod 36' supported from a fixed support 37' on the other side of the machine for holding the reinforcing strip 24' in the fold of the web 15'; the construction being similar to that shown in FIGURE 1a. These rods 36 and 36', with their slotted ends, may be located beyond the positions shown in FIGURE 1, in the direction of travel of the webs; but it is a feature of the construction that they are located close enough to the region where the reinforcing strips 24 and 24' are permanently held in position by sealing the compartment in which they are located, as will be more fully explained.

From the guide rolls 34 and 35, the webs 15 and 15' advance through the machine in parallel relation to one another. They pass over a roll 38 at a perforating station. Immediately above the roll 38, there are perforating wheels 40 and 40' located in position to make discontinuous perforations through the webs 15 and 15', respectively, along lines immediately adjacent to the edge of the reinforcing strips 24 and 24'. These perforations, which are optional, are used only on bags where it is desirable to have the merchandise compartment severable from the compartment that carries the reinforcing strip. This permits the merchandise-carrying portion of the bag to be torn from the upper compartment without removing the upper compartment from its pin, stud, or other support.

The perforations provided by the cutters on the perforating wheels 40 and 40' extend through both layers of plastic in the upper compartment of the plastic bags, or through a sealed area that separates the upper and lower compartments of the bag from one another, so that tearing the bag from its support does not break the seal that encloses the merchandise-carrying compartment of the bag. Numeral 41 designates the perforations made by the wheels 40 and 40'.

In order to prevent the reinforcing strip 24 or 24'

from sliding out of the upper compartment, when the upper compartment is open at both ends, adhesive is used to bond the strips 24 and 24' to their respective webs 15 and 15'. This adhesive is preferably applied to both surfaces of the reinforcing strip 24, though it can be applied to only one surface, if desired. In the construction illustrated in FIGURES 1 and 4, the adhesive is applied to the upper surface of the strip 24 through a nozzle 46 at the discharge end of a long tube 48 extending into the fold of the web 15. Adhesive may be applied to the bottom of the strip 24 through a nozzle 49 at the end of another tube 50.

These tubes 48 and 50 are supported from a location outside of the web and preferably form an adhesive supply tank 52 (FIGURE 1). The tubes 48 and 50 are preferably made long enough to accommodate webs of maximum width for which the apparatus is suitable. The nozzles 46 and 49 have some clearance, around at least a portion of their lips, from the strip 24 so that they apply lines of adhesive with sufficient depth to permit the adhesive to spread over the surface of the strip when the layers of plastic web are pressed firmly against the lines of adhesive at the next feed-roll station.

Before the webs pass through the next feedroll station, however, they travel across and in contact with sealers 54 and 54'. These sealers are preferably runners, each of which consists of a hot wire which is heated by electrical resistance, and the electric current is supplied from the transformers or other supply sources located in housings 56 and 56' located at the sealing station along the path of travel of the webs.

The amount of current supplied to the sealers 54 and 54' is correlated with the resistance of the sealers and the speed and gauge of the plastic webs 15 and 15'. The heat supplied is adjustable by a controller 57 and it is also correlated with the kind of material used for the webs 15 and 15', but the sealing by means of these hot wires 54 and 54' can be carried out only with thermoplastic materials capable of heat-sealing by heat supplied through one layer of the plastic to the next layer. Such seals are easily made on polyethylene webs so long as the amount of heat from the sealers is kept within a temperature range that does not burn or melt through the layers of the webs.

In the process of this invention, as thus far described, the webs move with continuous and uniform motion. For some subsequent operations it is desirable to have the webs move with intermittent motion; and it is necessary, therefore, to provide a slack accumulator 58.

The webs 15 and 15' are fed to the slack accumulator by continuously-rotating feed rolls 60. These feed rolls 60 are driven by an electric motor 62 through a clutch-and-transmission assembly 64 having its outlet end connected with an axle 65 of one of the feed rolls 60. The perforators 40 and 40' are preferably driven from the axle of the feed roll 60 through a belt-and-pulley connection 67.

The slack accumulator 58 may be of a number of different types, but the preferred construction includes arms 70 supported from a fixed frame 72 by an axle 74. There are guide rolls 76 at opposite ends of the arms 70 and at an intermediate location near the axle 74 which also serves as a guide roll.

After passing between the feed rolls 60, the web 15 passes over a fixed guide roll 78, then around a movable guide roll 76 which has its opposite ends supported by the arms 70. From this first guide roll 76, the web 15 passes around another fixed roll 78, then under the movable roll 76 and across the axle roll 74 to another fixed roll 78 supported from the frame 72. The web 15 passes from this other fixed guide roll 78 to another roll 76 at the upper end of the arms 70, and thence across a top fixed roll 78 to other stations of the bag-making machine.

The slack accumulator has a link 80 extending downwardly to a bell crank 81 that rocks about a shaft 82.

This bell crank 81 is connected with a lever 84 by a link 86. Movement of the lever 84 adjusts the speed ratio of the transmission 64.

After passing beyond the slack accumulator, the feeding of the web is by a step-by-step movement; but before passing to the rolls which impart this step-by-step feed, the webs 15 and 15' pass over guide rolls 88 and 89. The guide roll 88 produces a loop in the webs and the difference between the guide rolls 88 and 89 is adjustable to change the length of this loop. The purpose of this loop is to obtain an adjustment for insuring that the distance between operating stations ahead of the loop and those beyond the loop are exactly equal to a multiple of the width of the bag blanks that are to be produced from the webs.

The web 15 is pulled through the machine, beyond the slack accumulator 58, with a step-by-step movement imparted to it by feed rollers 90 which move the web, with each operation, for a distance equal to the intended width of each individual bag that is to be made from the web. The intermittently-operated feed rolls 90 withdraw slack from the slack accumulator 58 when they are operating, and slack accumulates in the slack accumulator 58 when there is an interruption in the operation of the feed rolls 90.

The operation of the intermittent feed rolls 90 and that of the constantly or uniformly operating feed rolls 60 is so correlated that there is very little change in the speed of the feed rolls 60 as the result of movement of the slack accumulator and consequent shifting of the lever 84. Thus the operation of the feed rolls 60 does not vary in speed sufficiently to cause any perceptible change in the fused seal produced by the hot runners 54 which seal off the top compartment of each bag.

Beyond the slack accumulator 58, the webs 15 and 15' pass a hole-punching station at which the webs pass over blocks 98. There is one of these blocks located under the reinforcing strip of each of the webs. A bar 100 is supported at one end from a bearing 102 (FIGURE 1) and the other end of the bar 100 is connected with an actuator arm 104 which rocks about a fulcrum 106 to move punchers 108 toward and from the blocks 98.

The actuator arm 104 is moved by a linkage 110 from a crank pin 112 on a flywheel 114. This flywheel is rotated by an axle 116 in timed relation with the feed rolls of the machine so as to bring the pins 108 down into openings in the blocks 98 when the webs 15 and 15' are at rest between intermittent movements.

Thus the punchers 108 make holes through the webs 15 and 15' and their associated reinforcing strips 24 and 24' so that each individual bag has an opening near its upper end by which it can be hung from a pin or stud on a display rack.

The webs 15 and 15' continue their intermittent travel to a sealing and cutoff station. At this station there are hot elements 132 and 132' (FIGURE 1) located over the folded webs 15 and 15'; but these hot elements extend across only those portions of the folded webs which are beyond the reinforcing strips 24 and 24'. The hot elements 132 and 132' are connected together by a frame 136 and they move up and down on bearings, here illustrated diagrammatically as vertical rods 140, to move the hot elements 132 and 132' into and out of contact with the webs 15 and 15', respectively. A roller 142 is located under the hot elements 132 and 132' and this roller 142 supports the webs 15 and 15', as is best shown in FIGURE 5.

When the hot elements 132 and 132' are brought down against the webs 15 and 15', respectively, they melt their way through the webs to sever the plastic along the lines at which the web is divided into separate bags.

FIGURE 3a shows the hot element 132 in contact with the web 15 and pressing the web 15 against a backing roller 142. At the location where the hot element 132 exerts its maximum pressure against the web 15, the

web is melted across a region indicated by the dimension C. On both sides of this region indicated by the dimension C, there are regions where the web 15 is heated highly enough to seal the upper and lower portions of the web together but not hot enough to melt through the plastic. The region on the advance side of melt is indicated by the dimension S-1; and the sealed region behind the melted region is indicated by the dimension S-2 in FIGURE 3a. Thus the hot element 132 not only severs individual bags but it seals the front side of one bag and the rear side of the adjacent bag.

The roller 142 is preferably made of a soft plastic material capable of temporarily withstanding the temperature of the hot elements 132 and 132' as these elements melt their way through the polyethylene and momentarily touch the roller 142. The hot elements are lifted away from the roller 142 immediately upon completing the melting through of the webs 15 and 15'. Various materials can be used for the pad 142; the preferred material is "Teflon"; i.e. polytetrafluoroethylene.

The hot elements 132 and 132' cannot be used effectively across the entire width of the webs because they cannot melt through the reinforcing strips 24 and 24', these strips being ordinarily made of cardboard. For cutting through the webs and these reinforcing strips 24 and 24', a cutter 146 is employed. This cutter may be of various constructions. It may be a shear, but in the preferred construction of the invention, the cutter 146 is an industrial razor blade. An anvil 148 is located below the cutter 146 and has a narrow slit 149 immediately below the edge of the cutter and narrow enough so that the stiffness of the web and reinforcing strip across the groove 149 provides sufficient stiffness to cause the web and reinforcing strip to cut instead of bending.

The cutter 146 is carried by a piston rod of an air cylinder 150, supported on the same frame 136 which carries the hot elements 132 and 132'. When the frame 136 moves downwardly far enough to bring the hot elements 132 and 132' into contact with the webs, the cutter 146 is preferably spaced a short distance above the webs. When the cut is to be made, working fluid is supplied to the hydraulic motor 150 and this moves the cutter 146 downwardly for the short additional distance necessary to sever the webs.

The blade of the cutter 146 can be one continuous blade for cutting both of the webs 15 and 15' simultaneously, or it can be made in two parts which are located in position for severing each web. In any event, the cutter 146, whether made in one part or two, is operated by the motor 150 in timed relation with the pauses in the travel of the web and the movements of the hot elements 132 and 132' into contact with the webs. It is an important feature of the invention that the webs are severed through the reinforcing strips 24 and 24' at the same station as they are severed through the sealed regions to form separate bags.

The reason for the importance of this feature is that the lines of severance through the reinforcing strips and through the sealed regions must accurately align with one another and it is not possible to obtain such accurate alignment in high-speed bag-making machines where the cuts are made at different stations along the length of the webs. In earlier manufacture of bags of the type to which this invention relates, it was necessary to punch out substantial portions of the webs and reinforcing strips so that severance of the sealed regions of the webs at a subsequent station did not have to align accurately with the cut through the reinforcing strip. This necessitated bevelled edges on the top compartment of each bag; it increased substantially the amount of cutting required; and it introduced waste in the operation which had to be disposed of rapidly in order not to interfere with the operation of the machine. In all high-speed bag-making machines, it is desirable to have slit cuts which entail no waste because the waste presents a constant hazard of accumulation and interference with subsequent cuts.

A conveyor 164, which is preferably of the endless belt type, runs at a higher speed than the speed of the webs 15 and 15'. The conveyor advances the webs 15 and 15' by friction with them, but there is slippage between the rapidly-moving conveyor 164 and the webs. A pressure roller 166 on an operating arm 169 is periodically brought into contact with the webs 15 and 15' to press the end portion of each bag blank against the belt of the conveyor 164. Thus each bag is advanced on the conveyor belt to a delivery station where successive bags are accumulated and packed for shipping.

The arm 168 is oscillated by a shaft 170 actuated by a crank 172 (FIGURE 1). The crank 172 is moved by a cam 174 on the shaft 176 driven from a power shaft 178 through chain-and-sprocket driving means 180. This operation of the cam 174 is in timed relation with the other power-driving means of the bag-making machine so as to bring the pressure roller 166 against the web once for each bag length formed from each web.

FIGURE 6 shows the way in which successive bags 184 are formed by the spaced sealed regions 186 where the layers of the web are joined together.

The dot-and-dash lines 188 are the lines along which the webs are melted through and severed by the hot elements 132 and 132' and the lines 190 are the lines of severance produced by the cutter 146. The reference character 192 indicates the land of unsevered web left between the lines of severance 188 and 190.

Since the webs are not folded on their center lines, there is an extension 21, as previously explained, where one fold of the web extends beyond the other. This extension forms a flap at the bottom of each bag, best shown in FIGURES 7 and 9. This flap facilitates opening the bag for filling. The bag is generally heat sealed at the lower end of the shorter panel, and the extension 21 is usually cut off after sealing.

FIGURE 7 shows the reinforcing strip 24 and also shows adhesive 196 which spreads out and covers most of the surfaces of the strip 24, and the confronting faces of the plastic web, after the web has passed between the feed rolls 60 (FIGURE 3), which apply pressure to the adhesive while it is still liquid.

If the machine is operated with minimum adhesive so that the adhesive does not always spread evenly over the surfaces of the reinforcing strip 24 and sometimes covers portions of the strip and leaves other portions uncovered, then it is preferable to have the portion of the plastic, which covers the strip 24, coated with ink or otherwise made opaque so that the adhesive is not visible in the finished bag. This coating, which usually includes printing or advertising matter, is indicated by the reference character 198 in FIGURE 7.

It is possible to spread the adhesive completely so as not to require a printed portion to hide or disguise mal-spreading of adhesive. This is accomplished by applying more adhesive than previously applied, and then making the longitudinal heat seal which prevents excess adhesive from extending beyond this heat-sealed line.

In FIGURE 7 the line of perforation 41 is shown located within an area 199 over which the two layers of the folded web are heat-sealed to one another to separate the upper and lower compartments of the bag.

FIGURE 8 shows a sectional view through an edge of one of the bags; the edge being indicated by the line 188 along which one bag is severed from another. The area of sealing is indicated by the reference character 186. With ideal operation, the area 186 on each side of the bag is the same, but the area 186 may be slightly wider on one side than the other as the result of tolerances in the operation of the machine.

The preferred embodiment of the invention has been illustrated and described, but changes and modifications can be made and some features can be used in different combinations without departing from the invention as defined in the claims.

What is claimed is:

1. In the making of plastic bags, each of which has a top compartment sealed off from the remainder of the bag and with a reinforcing strip enclosed in the sealed-off compartment, by folding a web of plastic film as it comes from a supply reel, feeding a reinforcing strip into the fold and then longitudinally sealing the confronting faces on both sides of the fold together along a region just beyond that edge of the strip which is remote from the fold, the improvements which comprise applying a band of adhesive between at least one side of the fold and a confronting face of the reinforcing strip before sealing said confronting faces together, the amount of the adhesive applied being sufficient to spread under pressure over a substantial area of the reinforcing strip, performing the longitudinal sealing operation before applying pressure to the web to spread the adhesive, and after the longitudinal sealing applying external pressure to press the material of the web against the adhesive and the reinforcing strip.

2. The method of making plastic bags as described in claim 1, and in which the plastic web is at least translucent over most of its area, and has substantially opaque coating over part of its area, and the web is folded to cover the sealed off compartment with the portions of the web having the coating overlying the reinforcing strip within the sealed off compartment.

3. The method of making plastic bags as described in claim 1, and in which the adhesive is applied continuously between the folded web and both sides of the strip while the web and strip are in continuous motion.

4. The method of making plastic bags described in claim 1, and in which the folded plastic web is sealed by moving it with continuous motion across a heated surface.

5. The method of making plastic bags described in claim 1, and in which the web is passed through a slack accumulator beyond the region of longitudinal sealing, the folded web is advanced intermittently beyond the slack accumulator, the folded web is then sealed at transversely extending regions across its full width and the web is severed into bags between intermittent movements intermediate between the front and rear limits of the transversely extending regions, the severance being made through the full width of the web and strip at the same station and in the same line along the path of travel of the web.

6. In the making of plastic bags, each of which has a top compartment sealed off from the remainder of the bag and a reinforcing strip enclosed in the sealed-off compartment, folding a web of plastic film as it comes from a supply reel, feeding a reinforcing strip into the fold, sealing the plastic lengthwise of the web along the side of the strip opposite the fold, heat-sealing the folded layers of plastic together across the transverse width of the web over longitudinally-spaced regions of substantial extent lengthwise of the folded web, an improvement which comprises severing the folded web to make individual bags therefrom by melting through the web at lines intermediate the forward and rearward limits of the transversely-sealed regions, and by shearing through both the plastic and the strip of the sealed-off compartment by a single cutting operation, both the melting and shearing being performed at the same time and at the same station along the path of movement of the web.

7. The method of making plastic bags described in claim 6, and in which both cutters are supported from a common support and the support is reciprocated toward and from the folded web in coordination with the intermittent feed of the folded web.

8. Apparatus for making plastic bags including a machine having feed means for advancing a web of plastic material from a supply reel to guide means at which the web is folded lengthwise, means that feed a reinforcing strip into the fold of the web, an adhesive applicator

having a discharge nozzle in position to apply a line of adhesive between the inside surface of the folded web and at least one side of the reinforcing strip at a location on the downstream side of the guide means at which the web is folded, pressure means that bring the web and strip toward one another and into contact under sufficient pressure to spread the adhesive over the surface of said strip, a sealer that bonds the overlying layers of the folded plastic together along a line adjacent to the reinforcing strip but on the side of the strip that is opposite to the fold of the web the sealer being located along the path of travel of the web between the applicator and the pressure means.

9. In the apparatus described in claim 8, the improvement which comprises a web of plastic material having an opaque coating on the portion of the transverse width of the web that covers the reinforcing strip in the folded web.

10. The apparatus described in claim 8, and in which the applicator includes two tubes extending between the two layers of the folded web toward the fold thereof and with each of the tubes terminating at a discharge outlet substantially midway between the opposite longitudinal edges of a different side of the reinforcing strip, and there are means for supplying a continuous flow of adhesive to said tubes.

11. The apparatus described in claim 8, and in which the sealer is a hot runner that contacts with the web along a portion of its length for sealing the layers of the folded web together as the web travels at substantially uniform speed along the length of said hot runner.

12. In apparatus for making plastic bags, each of which has a top compartment sealed off from the remainder of the bag and with a reinforcing strip enclosed in the sealed off compartment, which apparatus includes feed means for advancing a web of plastic sheet material from a supply reel, a guide at which the web is folded progressively in the direction of its length as it advances, means for feeding a reinforcing strip into the fold of the web adjacent to said guide, a sealer that bonds together the layers of the folded web longitudinally and adjacent to the edge of the strip opposite to the fold of the web, and means for bonding together the layers of the folded web across the transverse width of the web, said means for bonding including a heated element that melts through the plastic to form a line of severance at which the web is severed to form individual bags, the improvement which comprises a shearing cutter at the same longitudinal station as said heated element, and in substantial alignment with the portion of the heated element that melts through the plastic, to cut through both the web and the plastic at said compartment substantially in register with said line of severance that results from the melting by the heated element.

13. The apparatus described in claim 12, and in which there are means for feeding two webs to the apparatus and for holding both webs with their folds adjacent to one another and the open sides of the folded webs facing in opposite directions, means for advancing the folded webs in parallel relation through the apparatus, and at the cutting station there are means to cut through both of the webs, said means for cutting through both of the webs being at the same station and operated by common actuating mechanism.

14. In a bag-making machine in which a plastic web is fed to the machine and progressively folded with a reinforcing strip fed into the fold, sealing means that seal the folded web longitudinally just beyond that edge of the strip remote from the fold to form a separate bag compartment for the strip and means for holding the other edge of the strip adjacent to the fold including a guide supported beyond the region of folding of the web but ahead of the sealing means and extending inwardly between the two layers of the folded web and to said strip, the guide having surfaces that extend across a por-

tion of the width of the upper and lower surfaces of the strip and a surface that bears against the edge of the strip remote from the fold, said guide being located in position to hold one edge against the inside of the fold while the layers of web are being sealed along the opposite edge to form the longitudinal seal.

15. In a bag-making machine in which a plastic web is fed to the machine and progressively folded with a reinforcing strip fed into the fold, sealing means that seal the folded web just beyond that edge of the strip remote from the fold to form a separate bag compartment for the strip, other sealing means that make longitudinally-spaced, transversely extending sealed areas of the two layers across the web beyond the longitudinal seal that extends along the edge of the reinforcing strip, said other sealing means including a heated element that contacts with the web over a substantial length of the web, the heated element having a contour that heats the plastic highly to melt and sever it at a mid-portion between the forward and rearward limits of each of said areas and

that simultaneously with said melting seals the layers of plastic together both ahead of and behind said mid-portion of the area for substantially the full width of the folded web from the longitudinal seam to the edge of the folded web remote from the fold, and a shearing cutter at the same longitudinal location as the heated element and in position to cut through the web and the reinforcing strip across the width of said compartment and in register with the line of severance made by said heated element.

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