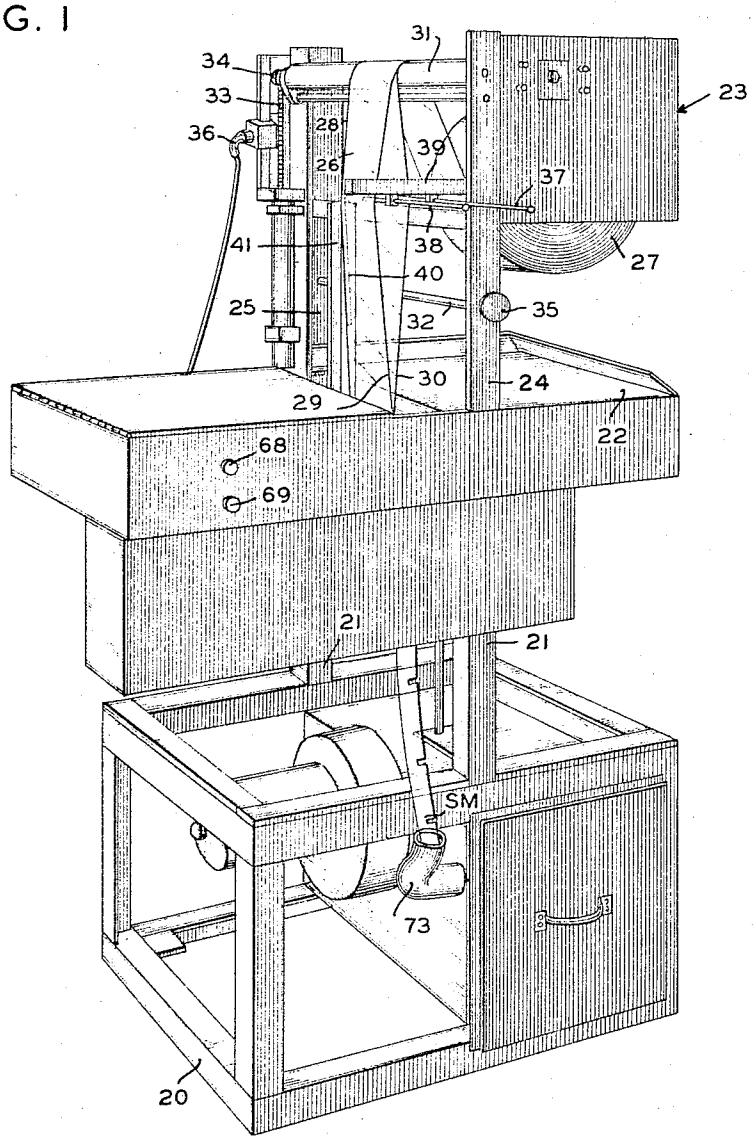
Jan. 23, 1968 H. C. HOUSE 3,364,650

COMBINED BAGGING AND PACKAGING MACHINE

Filed Feb. 24, 1964 5 Sheets-Sheet 1

FIG. 1



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COMBINED BAGGING AND PACKAGING MACHINE

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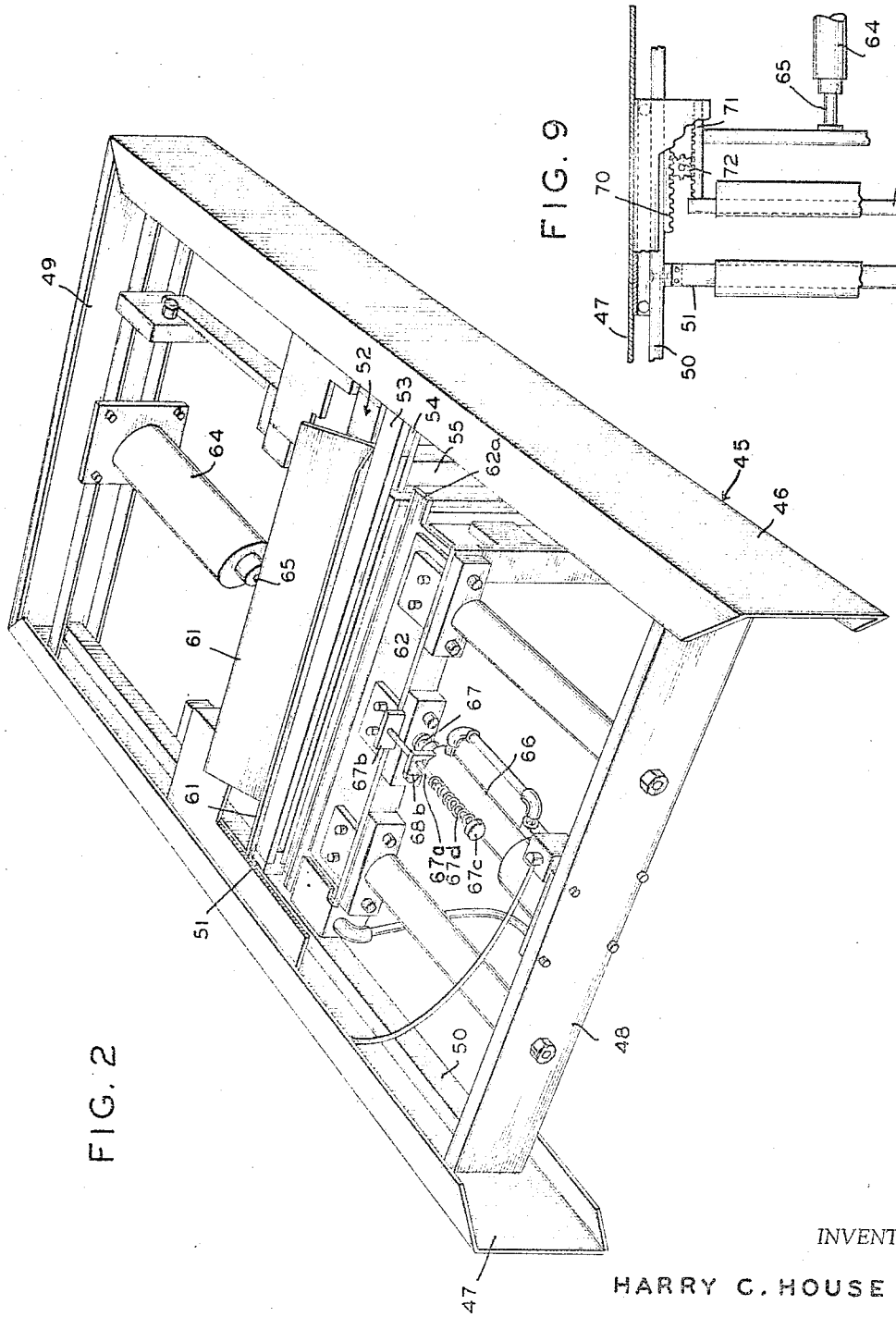


FIG. 2

FIG. 9

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COMBINED BAGGING AND PACKAGING MACHINE

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FIG. 3

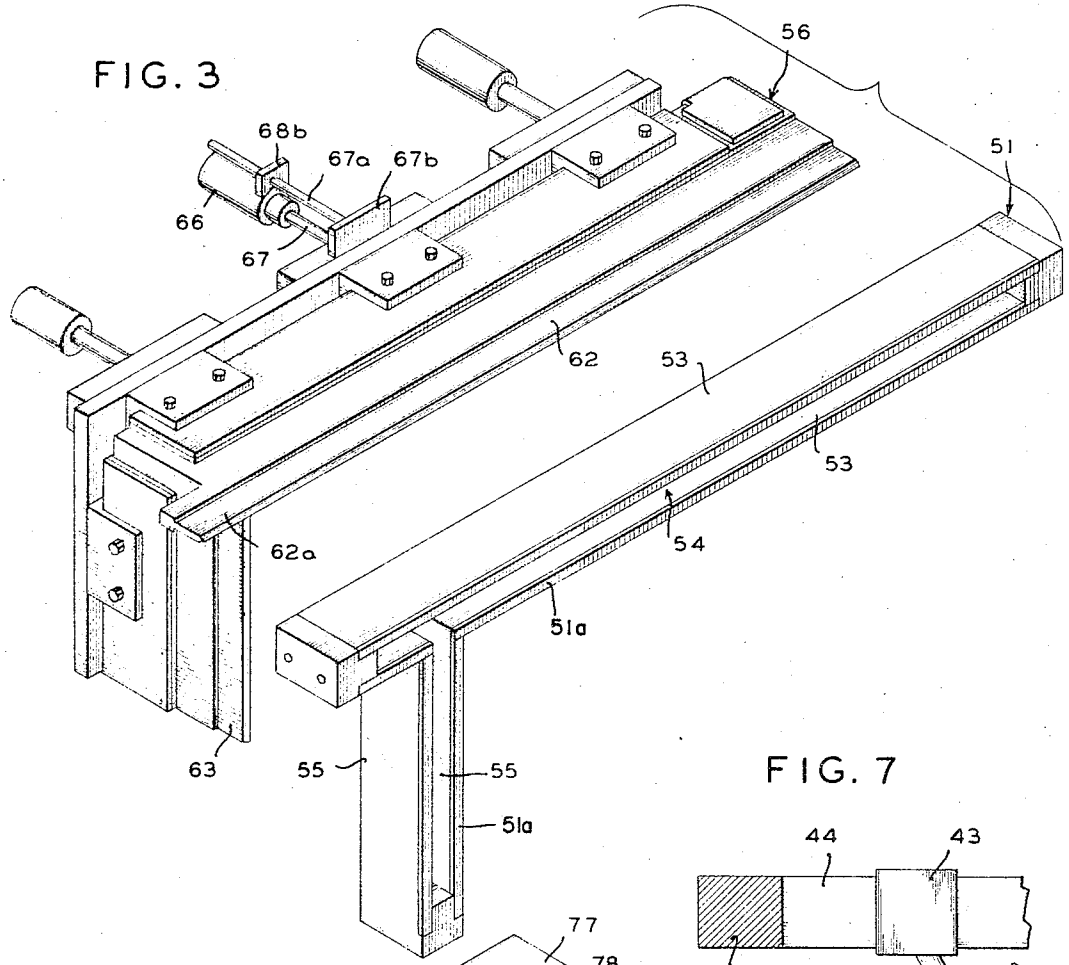
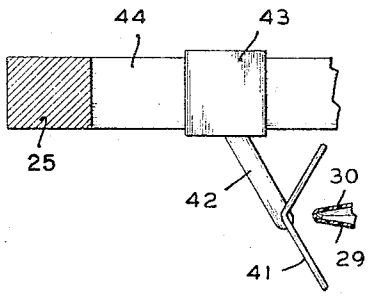


FIG. 7



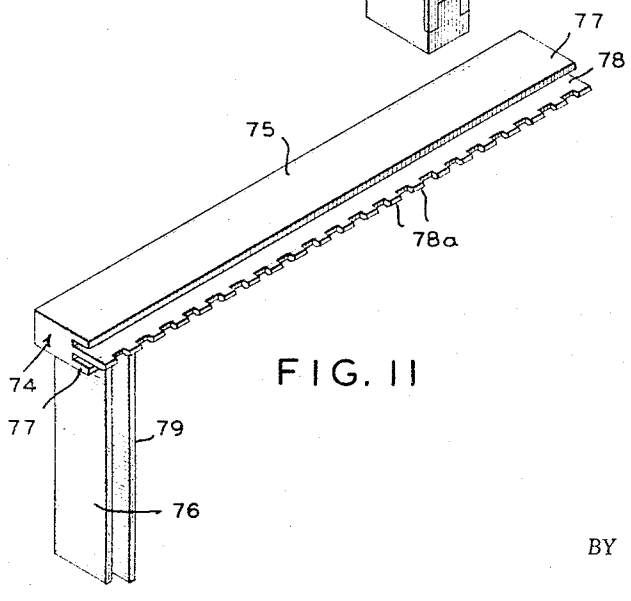


FIG. 11

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COMBINED BAGGING AND PACKAGING MACHINE

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FIG. 4

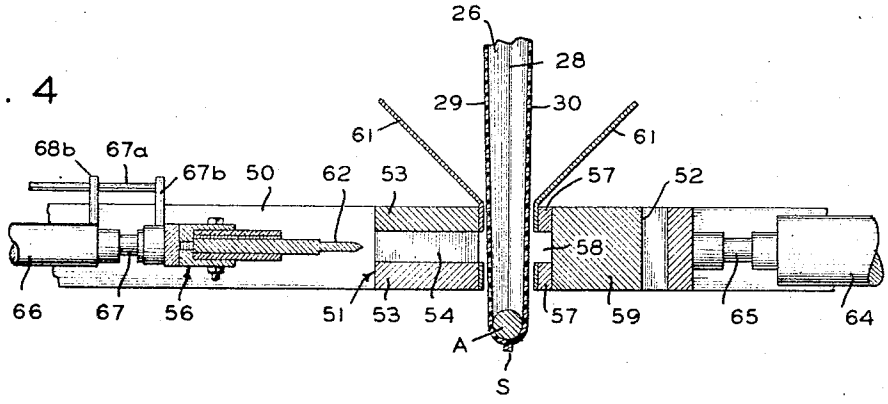


FIG. 5

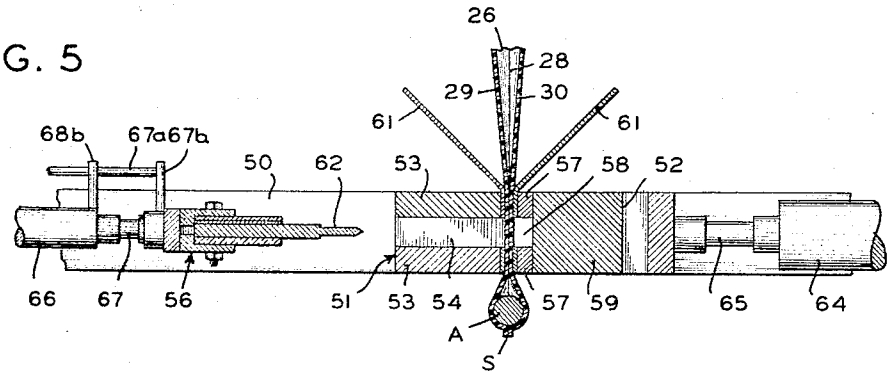


FIG. 6

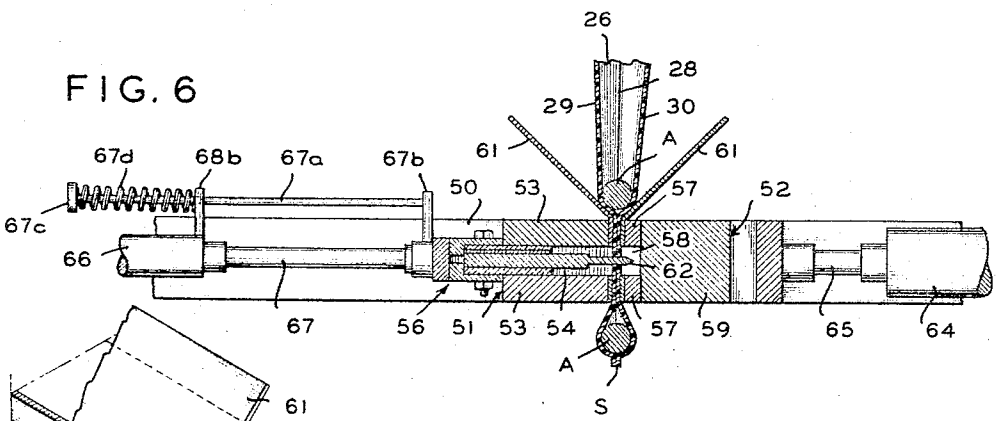
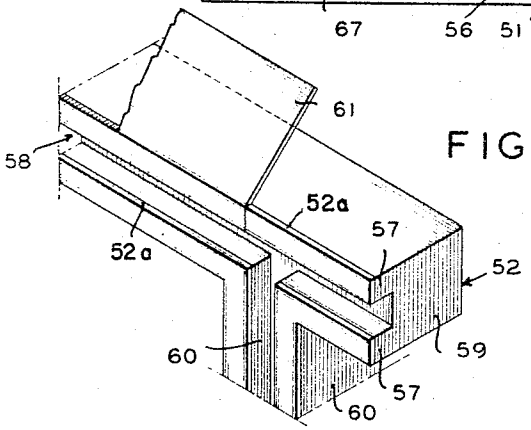


FIG. 8



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COMBINED BAGGING AND PACKAGING MACHINE

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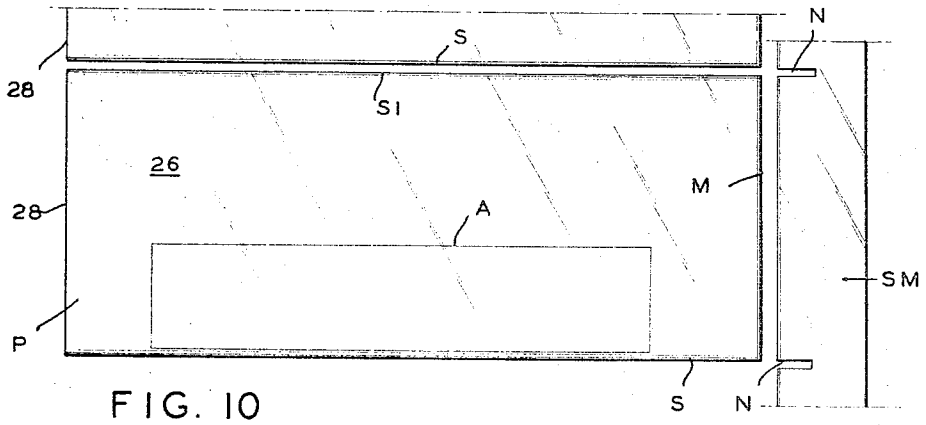


FIG. 10

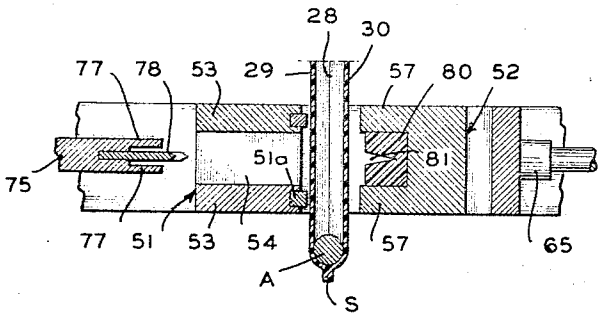


FIG. 12

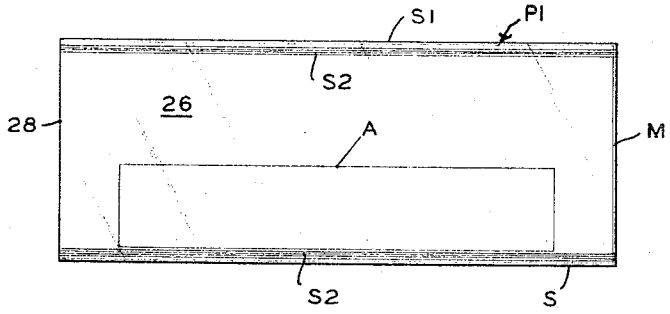


FIG. 13

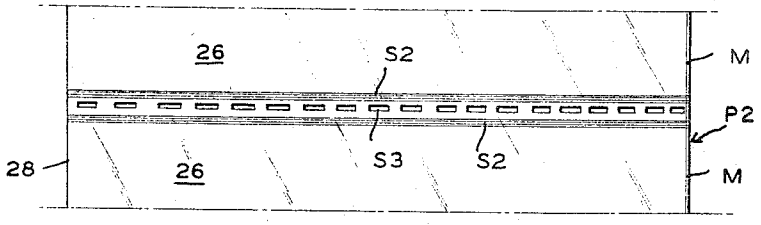


FIG. 14

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United States Patent Office

3,364,650

Patented Jan. 23, 1968

3,364,650

COMBINED BAGGING AND PACKAGING MACHINE

Harry C. House, Cincinnati, Ohio, assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Feb. 24, 1964, Ser. No. 346,848

5 Claims. (Cl. 53—182)

This invention relates to combined bagging and packaging machines, and more particularly to such machines wherein the bag or finished package is produced from a continuous length of a thermoplastic material in surrounding relationship with respect to the article to be packaged. Thus, fabrication of the bag and the packaging of the goods therein is accomplished in a single operation.

Desirably the machine or apparatus is automatic in operation and is readily adjustable for severing bags into desired uniform widths from a source of suitable sheet material, appropriate mechanism being provided for selectively varying the rate of advancement of said sheet material so that bag width will be in direct relationship to the size of the article being packaged.

The bags, or packages, are produced or fabricated from a continuous length of thermoplastic sheet material which is advanced progressively through the machine from a source of supply, the material being severed transversely to produce bags of predetermined widths wherein the cut or side edges thereof are heat-sealed. Desirably, the sheet material is folded upon itself along a longitudinal medial line with the free longitudinal edges disposed in the same forward direction and the folded longitudinal edge provides the closed ends or bottoms of fabricated bag-like containers which are produced from lengths severed transversely from the folded sheet which is advanced from the source of supply and travels downwardly so as to present the open longitudinal edges toward an operator positioned in front of the machine.

Machines of this character are provided with vertically disposed spreading means positioned in the downward path of the folded thermoplastic sheet material for spreading apart the open end thereof a sufficient distance to permit the convenient insertion of an article to be packaged or bagged and it will be understood that, after the sheet material has been advanced through the machine to a point beneath the spreading means, the sheet material is heat-sealed transversely, at a point beneath the spreader, to provide a closed side or leading edge for the initial bag or container, severance also being accomplished at the point of seal to remove any surplus wrapping material.

In operation, an article to be packaged is inserted between the opposed layers of the supply stock and will come to rest upon either the inner surface of the sealed side edge referred to hereabove or a receiving bowl or trough provided for this purpose; advancing the sheet material to a point where the article being bagged will have passed beyond the transverse sealing and severance mechanism, and actuation of such mechanism at that point, will result in the detachment of a filled and fabricated bag from the end of the folded sheet material, it being understood that the newly created extremity of the supply stock also is sealed simultaneously with the severing operation and thus provides a leading edge for each successive bag. As to the fabricated bag, the bottom thereof is closed by reason of the folded longitudinal edge of the thermoplastic supply stock and the side edges have been heat-sealed; further, the present invention also contemplates the heat-sealing of the bag mouth, as a unitary operation when the side seal is created, whereby a completely enclosed package is produced.

The sheet material from which such bags are fabricated may be a heat-sealable plastic olefin film, such as

the polyethylene, polypropylene, and the like, having transparent characteristics, and the sealing and severing means may be an electrically heated blade whereby the second side edge and open mouth of a bag length is heat-sealed simultaneously with the severance thereof from the folded supply stock. When a bag length is fed to the sealing and severance mechanism, the feeding or advancing of the folded sheet material is halted by a timed control to permit accomplishment of sealing and severance, the machine being manually adjustable as to bag width and operated intermittently for feeding or advancing a new bag length into position for filling and for severance of a filled bag length during each cycle of operation.

Machines of the character discussed hereabove are known in the art and heat-sealing has been accomplished heretofore by utilization of a heated metallic element, having a knife-like edge, which is brought into contact with the superposed layers of thermoplastic film, a suitable platen or the like being provided and against which the layers of film are engaged at the moment of sealing and severance. Temperature and dwell time are adjusted, or controlled, in strict accordance with the nature and gauge of the thermoplastic film employed. Edge seals are produced in this manner. Where a fin-type seal is required, having edges of film extending beyond the line of seal, two spaced seals are required, with extreme care being exercised not to burn through the film, and severance between the space seals as by use of a cold knife is required.

Applicant has discovered that provision of a platen, or other form of back-up member, is not required and that by utilization of a novel form of sealing blade, and by simultaneously restraining the film against lateral movement, highly efficient seals may be produced by bringing the heating blade into contact with the film and, where knife-edge seals are desired, by continuing movement of the heating blade until it passes through the film. Following this novel method of sealing, it is possible to accomplish fin-type seals by producing a pair of spaced seals and employing an intermediate knife edge which passes entirely through the layers of film or which, if desired, may produce a composite perforated knife-edge seal to permit the production of a multiplicity of united packages which are susceptible of convenient detachment without disturbing package contents.

It is with novel sealing mechanism of this character that the present invention is particularly concerned whereby a transverse end seal and longitudinal top or bag mouth seal may be produced simultaneously it being highly desirable that sharp right angles be created as between the pair of transverse seals and the mouth end closing seal and that surplus material be removed by a sharp and clean severance.

It is a major object of the present invention to provide a combined bagging machine of the class set forth which is simple in construction and highly efficient in operation.

It is a further object of the invention to produce a combined bagging machine of the class set forth having a novel sealing blade for simultaneously producing side and end seals in a single operation while passing through superposed layers of thermoplastic sheet material folded in surrounding relationship about an article being packaged.

It is a still further object of the present invention to provide novel mechanism in a machine of the class set forth for securely restraining superposed layers of thermoplastic film, disposed in surrounding relationship about an article being packaged, against lateral movement during engagement of unrestrained portions thereof by a heated sealing element.

It is a further object of the present invention to provide interchangeable and novel sealing mechanism, in a combined bagging and packaging machine of the class set forth whereby packages may be produced selectively having either knife-edge or fin-type side seals.

Further objects and advantages of the invention will be readily apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is a perspective view of a combined bagging and packaging machine illustrating one embodiment of the present invention;

FIGURE 2 is a fragmentary perspective view, on an enlarged scale, illustrating the novel sealing and severance mechanism and supporting structure;

FIGURE 3 is a fragmentary perspective view, also on an enlarged scale, illustrating the sealing and severance blade and the sheet material restraining element associated therewith and through which said blade passes during the sealing and severance operation;

FIGURE 4 is a detail sectional view through the horizontally disposed portion of the sealing and severance blade and associated structure illustrating the sheet material with an article to be packaged positioned therein, immediately prior to initiation of sealing action;

FIGURE 5 is a detail sectional view similar to FIGURE 4 and illustrating the film restraining mechanism advanced to engaging position immediately prior to advancement of the sealing and severance blade;

FIGURE 6 is a detail sectional view similar to FIGURE 5 and illustrating the sealing and severance blade at the completion of its operative stroke;

FIGURE 7 is a detail sectional view illustrating the mounting and adjustable relationship of the vertically disposed protective guide for the folded edge of the sheet material;

FIGURE 8 is a fragmentary perspective view of one of the film restraining or gripping jaws;

FIGURE 9 is a fragmentary plan view illustrating mechanism for controlling movement in unison of the opposed sheet material restraining or gripping jaws;

FIGURE 10 is a plan view of the sealed and severed package produced in accordance with the present invention;

FIGURE 11 is a fragmentary perspective view of a modified form of sealing and severance blade whereby fin-type seals may be produced;

FIGURE 12 is a detail sectional view, comparable to FIGURE 4 illustrative of the modified film restraining elements required in connection with utilization of the sealing and severance blade illustrated in FIGURE 11;

FIGURE 13 is a plan view of a sealed and severed package with fin-type seals; and

FIGURE 14 is a fragmentary plan view illustrative of a plurality of fin-type bags prior to detachment as between adjacent bags.

With continued reference to the drawings, as illustrated more particularly in FIGURES 1 and 2 thereof, the novel bagging and packaging machine of the present invention comprises a supporting base **20** having vertically disposed standards or posts **21** mounted thereupon. A work surface or table **22** is supported upon the standards **21**, at a desirably convenient level, for receiving a supply of articles to be bagged or packaged. This work surface may be provided with rear and end retaining walls or flanges and, for convenience of operation, may be placed at the right of the machine or at the left thereof, for right-handed and left-handed operators, respectively, and articles to be packaged may be stacked or otherwise positioned upon the table for ready accessibility. It should be understood that while this work surface, or table, has been illustrated and described as a unitary part of the device, this is by no means essential since articles to be packaged may be supported otherwise or presented to the operator as may be desired.

A suitable housing, indicated generally at **23** is

mounted upon uprights or posts **24** and **25**, which extend above the work table, for supporting a supply of thermoplastic sheet wrapping material **26** together with mechanism whereby such material may be advanced or fed through the machine in the performance of bagging and packaging functions.

This sheet wrapping material **26** is provided in the form of a roll **27** carried upon a shaft or reel appropriately journalled within the housing **23**, and may be of any suitable thermoplastic material, such as one of the polyolefins including polyethylene, polypropylene, and the like, and is folded along a longitudinal medial line **28** to dispose the two juxtaposed halves **29** and **30** thereof in the same general direction for providing one longitudinal closed end along the medial line **28** and an open end between the free longitudinal edges of the half portions **29** and **30**, thereby creating a continuous pocket which extends throughout the entire length of the folded sheet.

From the supply roll **27** the sheet or film **26** passes over a suitable festooning device (not shown) supported within the housing **23** and is threaded or fed through the machine up and over a feed or drive roller **31**. Suitable braking and other mechanism, as is well known in this art, is provided for controlling the intermittent advancement of the folded supply sheet or film during operation of the machine, the festooning device functioning automatically to obviate any possibility of slack during such intermittent operation.

Selectively adjustable means is provided for intermittently advancing or feeding uniform and predetermined lengths of sheet material through the machine and such means may include a horizontally disposed rod **32** having operative connection with rack and pinion mechanism **33** and **34** and provided with a control knob **35** whereby the length of sheet material being advanced may be adjusted conveniently, and closely controlled, in strict accordance with the size of the article being packaged. If desired, hydrauiic means indicated at **36** may be provided for returning the rack **33** to normal position, a one-way clutch (or comparable device) being associated with pinion **34** which may have direct connection with the feed or drive roller **31**.

As the sheet material **26** is fed downwardly, beyond the feed roller **31**, the juxtaposed halves thereof **29** and **30** are separated by means of suitable spreader mechanism disposed within the path of movement. This spreader device may be in the form of horizontally mounted rods or the like **37** and **38** which are adjustably secured to the bracket **39** carried by the post **24**, desirably, one of these rods terminates in a vertically disposed depending portion **40** which may be adjusted so as to engage with the inner surface of the medial fold **28** of the sheet material. Further, to avoid any possibility that the juxtaposed halves **29** and **30** of the sheet material may cling together by reason of static electricity, or the like, a suitable static eliminator (not shown) may be provided as is well known in this art.

To support the folded inner extremity or edge **28** of the sheet wrapping material, and prevent possibility of damage thereto as by forceful contact with an article being packaged or the like, a vertically disposed V-shaped guide or back-up plate **41** is provided and this plate is supported by an arm **42** (FIGURE 7) carried by a sleeve **43** or the like which is slidably adjustable upon the bar **44** mounted between the uprights **24** and **25**. It will be obvious that the back-up plate **41** and spreader mechanism or arms **37** and **38** are readily adjustable in accordance with the width of the folded sheet material **26**.

A horizotally disposed sealing and serving unit is positioned within the machine below the level of the spreader mechanism and, as an initial step in connection with the operation of the novel machine of the present invention, a transverse seal S (FIGURE 4) is provided adjacent the leading extremity of the sheet material after it has been

advanced to packaging position beyond the lower extremity of the depending portion 40 of the spreader means. This transverse seal, which is accomplished by subjecting the end of the folded supply sheet to the action of the novel transverse sealing and severing unit (to be described hereafter), becomes one side edge of the first bag or packaging unit and each subsequent sealing and severance operation provides simultaneously the mouth closing seals as well as the other side edge seal of said bag and also the first side edge seal of the next successive packaging unit.

As illustrated more particularly in FIGURES 2 through 6 of the drawings, the novel horizontally disposed sealing and severance mechanism or unitary assembly is mounted within a substantially rectangular chassis or frame indicated generally at 45 and which includes side rails 46 and 47 and end members 48 and 49. Opposed beams or bars 50 are supported between the end members 48 and 49 and the extremities of one of an opposed transversely disposed pair of gripping or restraining jaws 51 and 52 is secured to said beams for reciprocatory movement.

The jaw 51 (FIGURES 3 and 4) includes a pair of horizontally disposed bars 53, spaced as indicated at 54, and a depending pair of vertically disposed spaced bars 55 and the heated sealing and severance element 56, which is generally T-shaped and will be described more fully hereafter, passes through said space when sealing is accomplished. The jaw 52 (FIGURES 4 and 8) is provided with a complementarily conformed face and comprises horizontally disposed bars 57, spaced as at 58 and carried by the transverse member 59, and vertically disposed spaced bars 60. Complementary halves 61 of a trough or receiving bowl are mounted upon the opposed faces of the bars 53 and 57, as shown more particularly in FIGURES 4, 5 and 6, and as the trough is closed for the reception of an item to be packaged, the juxtaposed halves 30 and 29 of the folded sheet material are restrained between the opposed faces of the bars 53 and 57 of the jaws 51 and 52.

As shown more particularly in FIGURE 3 of the drawings, the sealing and severance element 56, which may be metallic or of any other suitable material, is generally T-shaped in configuration and includes a horizontal cross bar or head portion 62 for producing the side seal and a vertical off-set stem portion 63 for producing the bag mouth seal. To provide for a sharp right angle between the side and mouth seals, which are produced simultaneously, the projecting portion or extremity 62*a* is provided on the cross bar 62, it being understood that this projecting portion severs through surplus sheet material which is removed as the bag mouth is sealed. Through such structure a sharp right angle is provided at the juncture of the side and mouth seals thereby insuring the efficacy thereof and eliminating serious deficiency present in prior art practices where such juncture has a tendency to provide a weakened area in the sealed package.

Desirably the leading or sealing face of the sealing and severance element is provided with a sharp, knife-like edge which penetrates through the juxtaposed halves of thermoplastic material and, in such passage, produces a cleanly welded edge on the bag or package being completed as well as providing a similar sealed side edge for the next successive bag or container. Electrical means, not shown and with suitable thermostatic control as is well known in this art, is provided for maintaining the sealing and severance element at an appropriate sealing temperature in accordance with the specific characteristics of the thermoplastic material employed. Further, where such a sealing element is required only to pass through (by melting) thermoplastic film, and does not contact platens or the like which are perforce maintained at substantially lower temperatures, the sealing blade is not subjected to intermittent cooling influences during operation of the machine and constantly uniform seals may be produced with greater speeds of machine operation than has been possible heretofore.

Suitable means is provided for actuating the restraining jaws 51 and 52 and the sealing and severance element 56. Such means may be hydraulic and includes a fluid cylinder 64 mounted adjacent the end bar 49 of the frame 45 and having a piston 65 fixedly connected to the jaw 52. Thus, upon advancement of the piston 65 the jaw 52, carrying therewith one half of the receiving trough, will be moved toward restraining position and means (such as rack and pinion, or the like, as illustrated in FIGURE 9) is provided for simultaneosuly imparting reverse motion to the companion jaw 51, carrying therewith the complementary half of the receiving trough, whereby these jaws may move in unison toward and away from each other.

In like manner a fluid cylinder 66 is mounted upon the end bar or member 48 of the frame 45 and the piston 67 of this hydraulic cylinder is fixedly connected to the sealing and severance element 56. Thus, upon advancement of the piston 67, in timed relation to the restraining of the juxtaposed halves of sheet material between the jaws 51 and 52, the sealing and severance element 56 will be advanced or projected through the space 54 in the jaw 51 so as to engage and penetrate the sheet material whereby side edge and mouth sealing and severance is completed.

In connection with the advancement of the sealing and severage mechanism through the film, at which time melting and sealing is accomplished, it has been found highly advantageous to control the rate of movement of the sealing and severance blade whereby at the completion of the stroke, and immediately prior thereto as at the moment of contact with the juxtaposed layers of sheet material, the blade travels at a substantially reduced rate of speed in comparison with the initial and return speed of movement thereof. Suitable mechanism is provided for this purpose, thereby insuring that each severed edge will be completely sealed, the strength of such seals being many times greater than the tear strength of the sheet material per se.

One form of mechanism for controlling the rate of movement of the sealing blade may include a rod or the like 67*a* having an extremity secured to an upstanding flange 67*b* mounted upon the piston 67. This rod passes through an aperture in a companion flange 68*b* carried by the fluid cylinder 68 and is provided with a threaded or otherwise adjustable cap or the like 67*c*, a coil spring 67*d* being interposed between the flange 68*b* and the cap 67*c*. It will be obvious that as the piston nears the end of its stroke the spring 67*d* is under constantly increasing pressure, this resulting in the slowing down or retarding of the forward movement of the sealing element.

The complete sequence of sealing and severance is illustrated in FIGURES 4, 5 and 6 of the drawings in step-by-step operation. In FIGURE 4, with an initial side seal S provided and a cylindrical article A to be packaged resting thereupon, the jaws 51 and 52 are in open or retracted position. In FIGURE 5, advancement of the piston 65 of the fluid cylinder 64 has closed the restraining or gripping jaws 51 and 52 against the halves 29 and 30 of the folded sheet material and also has brought together the complementary halves 61 of the receiving trough or bowl. In FIGURE 6, a new article A has been positioned within the receiving trough and advancement of the piston 67 of the fluid cylinder 66 has projected the sealing blade 56 through the space 54 provided in the jaw 51 and into the space 58 of the jaw 52 whereby sealing and severance has been completed and a completely sealed package will be delivered to an appropriate area or receptacle upon retraction of the restraining or gripping jaws.

The bagging and packaging machine may have any suitable automatic or manual control, as indicated by the start-stop buttons 63 and 69 (FIGURE 1) or, if desired, a foot control (not shown) may be provided.

There has been illustrated somewhat diagrammatically in FIGURE 9 of the drawings one mechanical arrangement for moving the jaws 51 and 52 toward and away from each other in unison. As shown, a rack 70 is secured to the inner surface of each beam member 50 and a complementary rack 71 is secured in spaced parallel relationship to the adjacent extremities of the jaw 52. A pinion 72 mounted upon a suitable stub shaft or the like is interposed between each pair of racks 70 and 71 and meshes therewith. With this arrangement of elements, as jaw 52 is moved under the influence of the piston 65 toward closed or film restraining position, the beams 50 are moved in the opposite direction carrying therewith the opposed restraining or gripping jaw 51. Thus, the opposed jaws move in unison at all times whether toward or away from each other.

A completely sealed package P has been illustrated in FIGURE 10 of the drawings having knife-edge side seals S and S1 and a mouth seal M, article A being enclosed therein. It will be noted that side edge seal S also is created on the leading edge of the folded sheet material 26 and that the surplus material SM has been notched as indicated at N by the extending portion 62*a* of the cross bar 62 of the sealing element 56, thus creating a sharply right-angular sealed corner at the intersection of the two seals. To dispose continuously of such surplus material, this may be directed into a vent tube 73 (FIGURE 1) having vacuum means associated therewith.

Where it is desired to avoid contacting the film under restraint by metallic surfaces, the opposed faces of the jaws 51 and 52 may be provided with protective coatings or inserts indicated respectively at 51*a* and 52*a* (FIGURES 3, 8 and 12).

There has been illustrated in FIGURES 11 and 12 of the drawings a modified form of sealing element whereby fin-type seals may be produced. As shown, this form of sealing and severance element 74, which may be metallic or of any other suitable material, is generally T-shaped in configuration and includes a horizontal cross-bar or head portion 75 for producing the side edge seal and a vertically disposed offset stem portion 76 for producing the bag mouth seal. The head portion 75 is provided with a pair of spaced and relatively narrow bar-type sealing edges 77 and with a centrally located sealing and severance knife-type blade 78. In distinction, the bag mouth sealing is accomplished by a single knife-type blade 79.

In operation, when the restraining or gripping jaws 51 and 52 are closed against the folded sheet material, the spaced sealing edges 77 come into contact with the juxtaposed layers of film, the jaw 52 being provided with a platen or the like 80 (produced from suitable material such as Teflon, or the like) and simultaneously therewith the centrally located severance blade 78 enters into a notch 81 in the platen 80 whereby complete severance is accomplished. Thus, each bag edge is provided with a seal S2 (FIGURE 13) parallel to but spaced from the severed edges S and S1.

If desired, the severance blade 78 may have a sealing edge in the form of closely spaced teeth 78*a* in which event instead of a line of complete severance being accomplished, a row of perforations S3 (FIGURE 14) will be provided whereby a plurality of attached and completely sealed packages will be produced. Each of these being subject to ready detachment.

The package P1, illustrated in FIGURE 13 of the drawings, has a bar-type seal S2 located adjacent the side edge seals S and S1 whereby fin-type side seals have been created. The bag mouth seal M is illustrated as a simple knife-edge seal. It will be understood however, that fin-type seals also may be provided at the bag mouth with particular facility.

The packages P2, illustrated fragmentarily in FIGURE 14 of the drawings, have bar-type side edge seals S2 and a perforated partially sealed edge S3 therebetween, it being understood that the edges of each aperture in the line of perforation has been heat-sealed when the teeth 78*a* penetrated the juxtaposed layers. Thus, the sealed packages illustrated in FIGURES 13 and 14 are not only fin-type but have dual seals along the edges thereof.

With the novel bagging and packaging machine of the present invention, adjustment as to bag size (whether depth or width) may be accomplished with particular facility and, in the event that open end packages are required, the sealing and severance element may be removed and a single horizontally disposed knife-edge sealer substituted. In this manner the inventive concept may be carried into practice, sealing and severance of juxtaposed layers of film being accomplished with particular efficiency and with the sheet material unsupported at the point of contact with the sealing element.

It will be understood that the invention is not considered limited by that which is shown in the drawings and described in the specification and reference therefore is had to the claims for summaries of the essentials of the invention, novel features of construction and novel combination of parts for all of which protection is desired.

What is claimed is:

1. A bagging and packaging machine comprising adjustable means for intermittently advancing downwardly a predetermined length of folded thermoplastic sheet wrapping material having an open side, a spreader for spreading the open side of said sheet wrapping material, first and second reciprocable gripping jaws mounted transversely beneath the spreader and movable in unison toward and away from each other to restrain the folded sheet wrapping material therebetween, said first gripping jaw having a recess extending therethrough and the opposed face of said second gripping jaw being provided with a complementarily shaped and aligned recess, a transversely mounted reciprocable heated sealing element for sealing and severing said folded sheet wrapping material, said sealing element having a forwardly directed edge and being movable through the recess in said first gripping jaw independently of and in timed relation to the closing of said gripping jaws to a position where said forwardly directed edge penetrates the layers of sheet wrapping material restrained between said gripping jaws and enters into the recess in the face of said second gripping jaw providing a sealed and severed edge along the path of penetration, and means for reducing the speed of movement of said heated sealing element immediately prior to penetration through the restrained sheet wrapping material.

2. Sealing and severance mechanism for thermoplastic sheet material comprising first and second reciprocable gripping jaws movable toward and away from each other to intermittently restrain at least two juxtaposed layers of such sheet material therebetween, said first gripping jaw having a recess extending therethrough and the opposed face of said second gripping jaw being provided with a complementarily shaped and aligned recess, a transversely disposed heated sealing element for sealing and severing said juxtaposed layers of sheet material, said sealing element having a forwardly directed edge, means for moving said sealing element through the recess in said first gripping jaw independently of and in timed relation to the closing of said gripping jaws to a position where said forwardly directed edge penetrates the layers of sheet material restrained between said gripping jaws and enters into the recess in the face of said second gripping jaw providing a sealed and severed edge along the path of penetration, and means for reducing the speed of movement of said heated sealing element immediately prior to penetration through the restrained sheet material.

3. Sealing and severance mechanism as set forth in claim 2 wherein the leading edge of said heated sealing element is of T-shaped configuration including a horizontally disposed cross bar and a vertically disposed offset stem portion and the recesses in said gripping jaws are of complementary configuration.

4. Sealing and severance mechanism as set forth in claim 3 wherein said cross bar is provided with a pair of spaced and relatively narrow bar-like sealing surfaces with a centrally located knife-like sealing and severance blade of greater depth than said bar-like sealing surfaces projecting therebetween.

5. Sealing and severance mechanism as set forth in claim 4 wherein the leading edge of said knife-like sealing and severance blade is constituted by a plurality of relatively narrow and uniformly spaced teeth.

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