

April 2, 1963

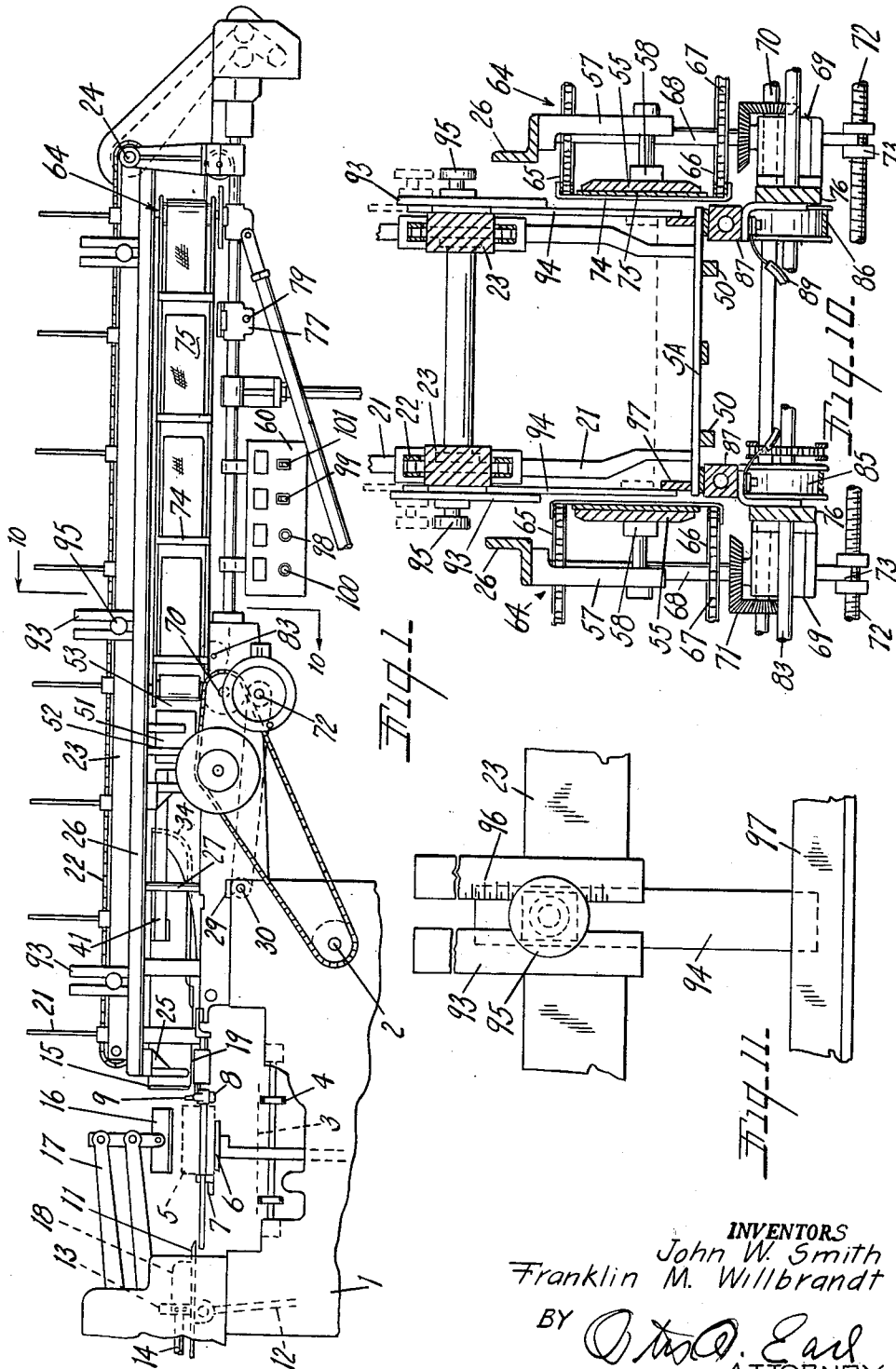
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3,083,514

WRAPPER SEALING MACHINE FOR LIMP POLYOLEFIN FILM WRAPPERS

Filed Oct. 5, 1961

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

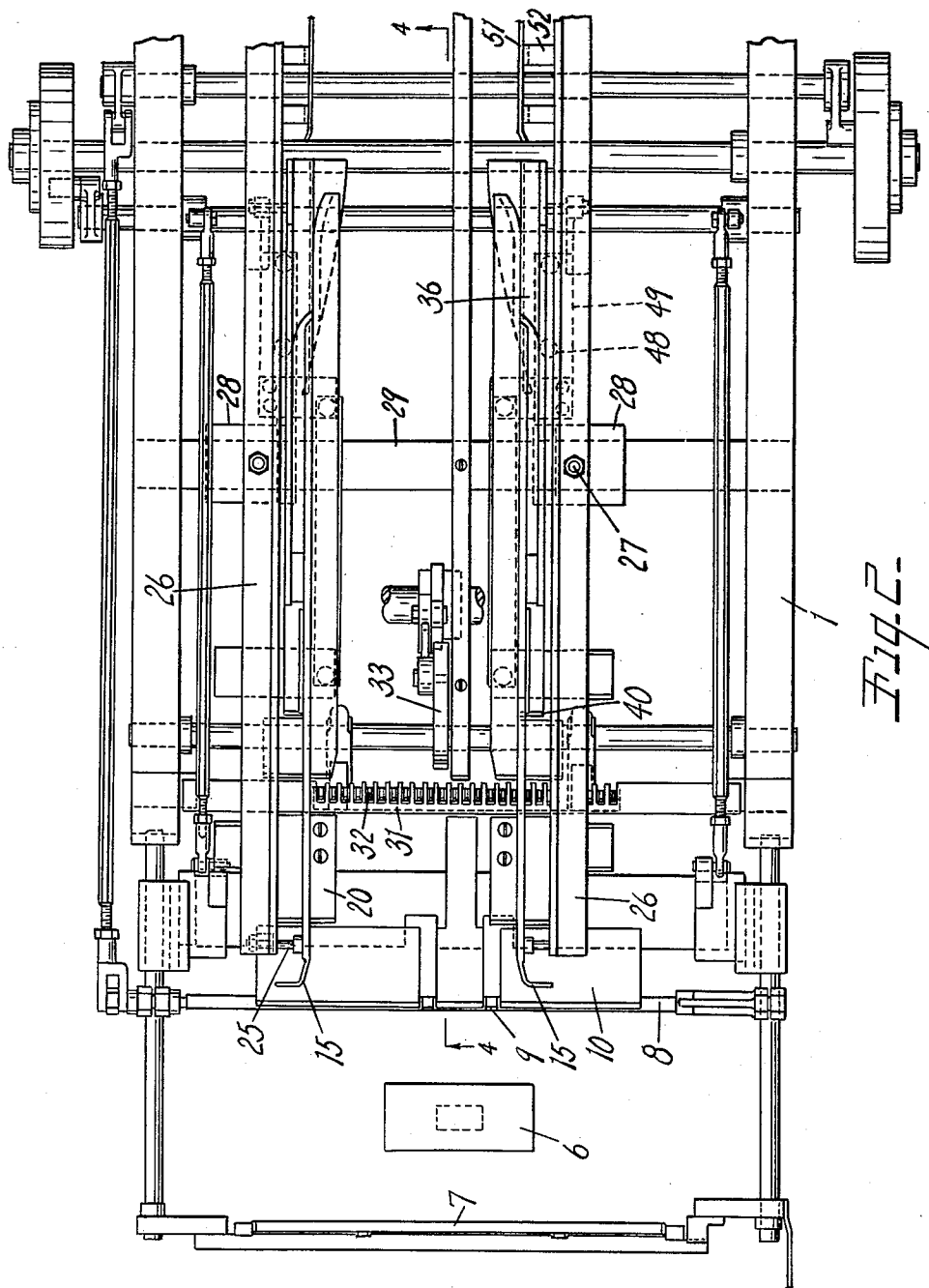


Fig. 2

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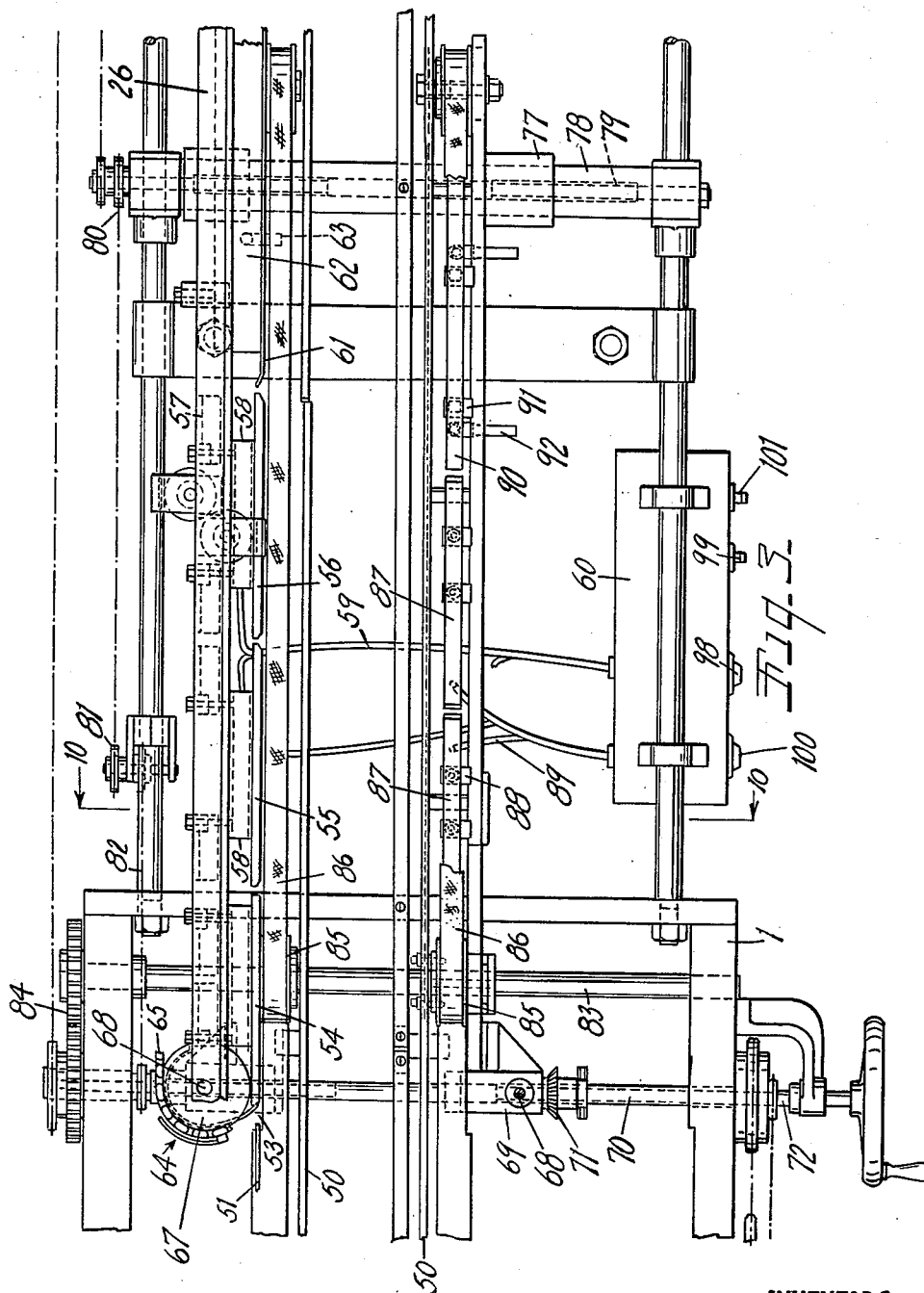
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4 Sheets-Sheet 3



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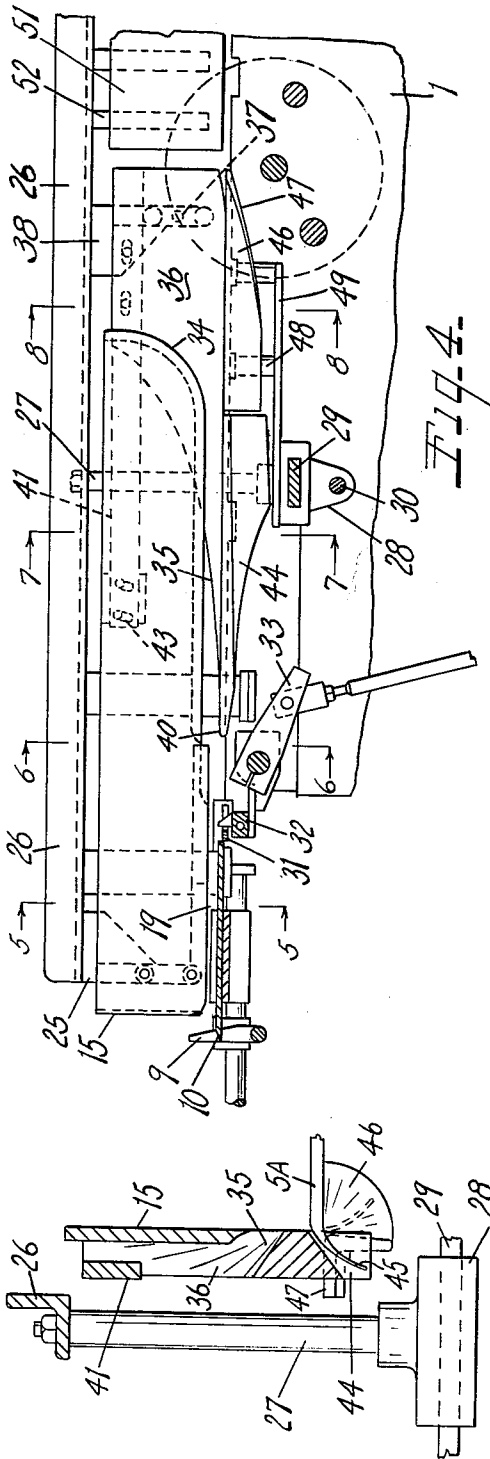
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WRAPPER SEALING MACHINE FOR LIMP POLYOLEFIN FILM WRAPPERS

Filed Oct. 5, 1961

4 Sheets-Sheet 4



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3,083,514

**WRAPPER SEALING MACHINE FOR LIMP POLY-
OLEFIN FILM WRAPPERS**

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Filed Oct. 5, 1961, Ser. No. 143,147

10 Claims. (Cl. 53—201)

This invention relates to improvements in wrapper sealing machine for limp polyolefin film wrappers. The present invention is an improvement of the machine disclosed and claimed in the copending application by John William Smith, Serial No. 800,815, filed March 20, 1959 for Machines for Sealing Wrappers of Polyolefin Sheet Material Around Packages.

The principal objects of this invention are:

First, to provide a machine capable of sealing end flaps on a package wrapped in polyolefin film material after the flaps have been folded across the ends of the package and onto the bottom face of the package where they are to be sealed.

Second, to provide a package sealing machine adjustable to alternatively seal a limp polyolefin film wrapper sheet around a package with the sealed area formed alternatively in overlapped end folds sealed along the ends or the bottom of the package.

Third, to provide a folding and sealing mechanism which will accept a package partially wrapped in a sheet of polyolefin material and complete the folds in the wrapper sheet either in upturned overlapped end folds or downturned underlapped end folds on the bottom of the package and seal the lapped folds securely without damage to the wrapping material.

Fourth, to provide a package sealing machine which will effectively seal a thin limp polyolefin sheet material around a thin package as thin as ten sheets of paper without damaging the wrapper and without creating wrinkles in the main package engaging portions of the wrapper.

Fifth, to provide a wrapper sealing machine which will at all times retain and control the position of a thin limp polyolefin wrapper sheet in wrapped relation around a package while forming seals in the overlapped portions of the wrapper sheet either at the ends or along the bottom of the package.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings, of which there are four sheets, illustrate a highly practical form of the wrapping and sealing machine.

FIG. 1 is a fragmentary side elevational view of the assembled wrapping and sealing machine.

FIG. 2 is an enlarged fragmentary plan view of the inlet or rear end of the wrapper folding and sealing portion of the machine with the overhead package advancing conveyor removed and with the package supporting and guiding elements in one of several possible adjusted positions.

FIG. 3 is a fragmentary top plan view of the trailing or folding end of the wrapper folding and sealing machine illustrating the sealing elements of the machine. FIG. 3 is a continuation of the right end of FIG. 2.

FIG. 4 is a fragmentary enlarged vertical longitudinal cross sectional view through the leading or inlet rear end of the wrapping machine taken along the plane of the line 4—4 in FIG. 2.

FIG. 5 is a fragmentary transverse vertical cross sectional view taken along the plane of the line 5—5 in FIG. 4.

FIG. 6 is a fragmentary transverse vertical cross sec-

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tional view taken along the plane of the line 6—6 in FIG. 4.

FIG. 7 is a fragmentary transverse cross sectional view taken along the plane of the line 7—7 in FIG. 4.

FIG. 8 is a fragmentary vertical transverse cross sectional view taken along the plane of the line 8—8 in FIG. 4.

FIG. 9 is a fragmentary transverse vertical cross sectional view similar to FIG. 7 but illustrating the flap folding elements in a different position adjusted to fold end flaps down under the ends of a thin package.

FIG. 10 is a fragmentary transverse vertical cross sectional view taken along the plane of the line 10—10 in FIGS. 1 and 3.

FIG. 11 is a fragmentary enlarged side elevational view of the package hold down rail supporting and adjusting mechanism shown in FIGS. 1 and 10.

Sheets of synthetic polyolefin film are now widely used and desirable for wrapping a variety of packages due to the transparent and impervious properties of the film, but the wrapping of packages in these materials is complicated by the fact that the sheets are soft and limp and hard to control and are further difficult to seal. Polyolefin films of which polyethylene is a popular example are thermoplastic and may be made to adhere to themselves, but the temperature at which sealing may be accomplished is extremely critical. If the temperature is too high the sheet material shrivels and shrinks away from the heated area and if the temperature is too low the sheets do not become sufficiently plastic and adhesive to stick together.

In the above identified copending application a machine is disclosed for wrapping a sheet of polyolefin material around a package and forming overlapped end folds on the ends of the package and fusing the end folds together to seal the package. FIG. 1 of the drawings herein illustrate the basic elements of the package wrapping portion of such a machine. 1 is the supporting framework or body of the machine which is provided with a drive shaft 2 driven by a suitable motor, not illustrated, to actuate the various components of the machine. A sheet of the wrapper film precut to size is introduced into the machine as indicated by the dotted line at 3 on a pair of transverse feed plates 4 so as to be located over a package to be wrapped indicated by the dotted lines 5 as the package is raised by a vertically reciprocating elevator 6. The package is passed upwardly between a back guide 7 and a front guide 8 to drape the wrapper sheet over the top, front and back of the package and holding fingers 9 may be rocked into engagement with the leading side of the package and wrapper to hold the wrapper in position. As the elevator reaches the top of its travel front folder plates 10 (see FIG. 2) move rearwardly to support the front edge of the package while a rear folder plate 11 is moved forwardly as by the lever 12 to support the rear of the package and fold the trailing end of the wrapper sheet up along the bottom of the package.

At this point the elevator 6 descends for another package and the pusher element 13 referred to as a transport head is advanced by the push rod 14 to advance the package between spaced vertical end support plates 15. Simultaneously with advancing of the transport head top end folders 16 are lowered by the arms 17 to fold down the ends of the wrapper sheet. When the package being wrapped is of substantial height, the transport head 13 is provided with rear end flap folders 18 that tuck rear folds over the end of the package. The trailing end of the end support plates 15 form front end folds in the end of the package and the three end folds enters between the end support plates with a bottom fold in the wrapper

projecting into the slot 19 along the bottom of the end support plates. The package is thereafter supported upon longitudinally extending rails 20 and is further advanced by the pusher bars or flights 21 carried by the chains 22 of an overhead package advancing conveyor. The conveyor is supported upon side frame members 23 pivoted on the driving axle 24 at the front end of the machine.

The final end flap folding structure is best illustrated in FIGS. 4 to 9 and consists of the previously described end support plates 15 which are carried by brackets 25 from two overhead angle rails 26. The rails 26 are supported at the rear end of the machine on posts 27 carried by brackets 28 on a rectangular cross slide bar 29. An adjusting screw 30 extending transversely of the machine permits the brackets 28 to be adjusted laterally to accommodate packages of different lengths. Near the rear end of the end support plates the packages are translated across a toothed support bar 31 where a bottom tack sealer head 32 is rocked upwardly by the crank 33 to tack seal the overlapped bottom edges of the wrapper sheet.

Forwardly of the bottom sealer 32 the end support plates 15 are beveled and curved progressively upwardly and outwardly as at 34 in spaced relationship along the inside of an oppositely curved and beveled upper edge 35 of a folding plate 36. The plate 36 is rockably supported at its forward end on the pivot 37 from the bracket 38 also carried by the support rail 26. With the folder plate 36 in the position illustrated in FIGS. 4 to 8, the projecting bottom end flap of a package will be folded upwardly and inwardly to a vertical position as indicated at 39 along the end of the package 5 in FIG. 8.

Alternatively the rear end of the folding plate 36 which tapers to a narrow nose 40 may be elevated above the support rail 20. This is accomplished by means of a rearwardly projecting bar or arm 41 on the folder plate 36 which is adjustably secured by the wing nuts 42 operating in slots 43 on the outside of the end support plate. When the nose 40 is raised as shown in FIG. 9 the downwardly and outwardly beveled underface 44 of the folder plate is raised above the support rails 20 and engages the outwardly projecting portion 45 of a wrapper sheet as shown in FIG. 9 which projects from a package such as the thin package 5A. The surface 44 then progressively plows or folds down the projecting wrapper 45 until it is engaged with the downwardly and inwardly inclined folding face 46 of a bottom folding bar 47 positioned forwardly of the end folding plate 36. The bottom folding bar 47 is supported as is shown in FIGS. 4 and 8 on short pedestals 48 mounted on a beam 49 that projects forwardly from the previously described adjustable bracket 28.

It will thus be seen that the projecting ends of the wrapper on a package can be folded either upwardly along the end of the package as in FIG. 8 or downwardly and onto the bottom of a package as in FIG. 9. Normally the bottom fold is used on thin packages but this is not essential. After passing from between the end folding plates 36 and bottom folding plates 46, the package with its end flaps selectively positioned is supported on longitudinal bottom rails 50 between the sealing elements of the machine. Forwardly of the end folding plate 36 the rail 26 supports a short end plate extension 51 by means of brackets 52. Ahead of the plate 51 and following a narrow vertical gap 53 there is a further end plate extension 54 and two heated vertical end sealing plates 55 and 56 all supported by suitable brackets 57 (see FIG. 10) from the rail 26. The plates 55 and 56 are heated by electrical heaters 58 energized through conductors 59 from the control box 60. Ahead of the forward end sealing plate 56 there is a vertical end cooling plate 61 provided with a refrigerant box or chamber 62 supplied with refrigerant from a suitable refrigerating system not illustrated through the conduit 63. With reference to FIG. 3, it should be noted that the foregoing end sealing and cooling elements and the supporting rail

26 therefore are shown only on the upper side of the package sealing way. A corresponding opposed series of sealing elements is omitted from the lower side of the package sealing way in order to better illustrate the bottom sealing elements to be described presently.

In order to prevent smearing and tearing of the overlapped end folds when they are heated to thermoplastic condition by the end sealing plates 55 and 56 there are provided a pair of carrier conveyors generally indicated at 64 on each side of the package sealing way. These are essentially the same carriers described and claimed in the above described copending application and consist of upper chain loops 65 and lower chain loops 66 trained around spockets 67 on upright shafts 68. (See FIG. 10.) The shafts 68 are journaled in slide brackets 69 slidably supported on the drive shaft 70. At their upper ends the shafts 68 support intermediate portions of the rails 26. Bevel gears 71 on the shafts 68 and 70 drive the conveyors 64 from the shaft 70 and an adjusting screw 72 extending across the machine below the slide brackets oppositely drives traveling nuts 73 engaged with the brackets 69 to adjust the spacing of the rails 26 and the end sealing plates 55, 56 and the conveyors 64 carried thereby. The chain loops 65-66 carry upright connector bars 74 to which are attached the leading ends of flexible buffer sheets 75 desirably formed of inert non-sticking woven Fiberglas. As the flights 21 of the overhead conveyor advance a package between the end sealing plates, the carrier conveyor 64 advances a buffer sheet 75 at the same speed between the ends of the package and the end sealing plates.

When the machine is adjusted by raising the nose 40 of the end folding plate 36 as previously described to wrap and seal thin packages such as 5A provision is made for sealing the flaps 45 on the bottoms of the ends of the package. This provision consists of a longitudinally extending rail 76 secured at its rear end to the inner side of the slide bracket 69 and projecting forwardly below the support rails 50. As appears in FIG. 3 the forward end of the rail 76 is supported by a laterally adjustable slide block 77 on the cross bar 78. The slide block 77 is adjusted laterally by a screw 79 driven at the upper side of FIG. 3 by a chain and sprocket 80 from the sprocket 81 and chain 82 from the previously described adjusting screw 72 so that the front and rear ends of the rail 76 adjusts laterally simultaneously with the slide blocks 69. The lower rail 76 in FIG. 3 is obscured by the upper support rail 26 but the slide block 77 is partially visible in this view.

The rails 76 at their rear ends support a drive shaft 83 driven by the gears 84 from the drive shaft 70 and the shaft 83 supports and drives a pair of pulleys 85 around which are trained narrow belts 86 of inert material such as the woven Fiberglas of the buffer sheets 75. The upper reaches of the belts 86 are supported at the level of the support rails 50 by means of a pair of heated bottom sealing plates 87 supported from the rails 76 by brackets 88. The bottom sealing plates are energized and heated through conductors 89 from the control box 60. Forwardly of the bottom sealing plates 87 the rails 76 support bottom cooling plates 90 by means of brackets 91 and the bottom cooling plates are supplied with refrigerant through the conduits 92.

When thin packages 5A such as a relatively few sheets of writing or drawing paper are to be wrapped, the packages do not have sufficient weight to hold the unfolded flaps 45 in contact with the belts 86 and the bottom sealing plates. In order to assure sealing pressure between the package wrapper and the belts the side frame members 23 of the package advancing conveyor are provided with longitudinally spaced upright slides 93 in which the vertically adjustable slide bars 94 are selectively positioned by means of the clamp screws 95. (See FIGS. 1, 10 and 11.) Scale indicia 96 is provided on the slides 93 to permit equal adjustment of all slides 94

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and hold down shoes or rails 97 secured to the lower ends of the adjustable slides are thus positioned parallel to the bottom sealing plates 87 and 90.

When thin packages 5A are advanced through the sealer the belt loops 86 advance at the same speed as the bottom folded flaps and prevent damage to the material of the wrapper sheet as the flaps are first heated to fusion temperature through the belts 86 by the bottom sealing plates 87 and are thereafter rapidly cooled by the bottom cooling plates 90. The hold down shoes 97 assure that proper sealing pressure will be applied to the overlapped folds during the sealing operation. When the bottom sealer is in operation the end sealers 55-56 are inoperative and the heating elements thereof can be turned off as by the control indicated at 98. Similarly the delivery of refrigerant to the end cooling plates 61 can be shut off as by actuation of the control 99. When the bottom sealers are not needed they can be deactivated by the bottom sealer control 100 and the bottom seal cooler control 101.

The foregoing structure provides in a single machine mechanism for selectively folding the end flaps of a polyolefin wrapper upwardly along the ends of a package or downwardly along the bottom of a package and thereafter advancing the package to a flat sealing area. Depending upon the adjustment of the flap folding mechanism the sealing mechanism can be selectively adjusted to apply first heat to the overlapped folds to present them to fusion temperature and to thereafter rapidly cool the fused flaps. In either the end or bottom position of the flaps a buffer member of inert non-sticky material is advanced with the package between the flaps being sealed and the heated end cooled sealing elements to prevent displacement of the material of the folds while it is plastic. Provision is made for adjusting the vertical pressure applied to the bottom flaps and the lateral pressure applied to the end flaps when they are being sealed and the mechanism described will rapidly seal packages in polyolefin wrappers without damage to the wrapper sheet.

What is claimed as new is:

1. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package, end flap folding means including shiftable end folding plates arranged to selectively fold the end edges of the sheet into upwardly folded end folds along the ends of relatively high packages and alternatively into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages, bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced and adjustable upright end support plates arranged to receive and support the ends of a package from said folding means, heated flat end sealing plates interposed in said end support plates, refrigerated flat end cooling plates interposed in said end support plates ahead of said sealing plates, heated bottom sealing plates interposed in said bottom support rails alongside said end sealing plates, refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates, control means connected to selectively actuate said end sealing plates and end cooling plates and alternatively said bottom sealing plates and bottom cooling plates, carrier conveyor loops positioned above and below said end support plates, buffer sheets of heat resistant non-sticking Fiberglas

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material having their leading edges connected between said conveyor loops to be advanced thereby along the inner sides of said end sealing and end cooling plates,

upright belt loops of heat resistant non-sticking Fiberglas material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,

a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,

hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,

and drive means connected to advance said flights of said package advancing conveyor and the laterally inner reaches of said carrier conveyor loops and the upper reaches of said belt loops at the same speed and in synchronism with said package advancing means.

2. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package,

end flap folding means arranged to selectively fold the end edges of the sheet into upwardly folded end folds along the ends of relatively high packages and alternatively into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,

bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced upright end support plates arranged to receive and support the ends of a package from said folding means,

heated flat end sealing plates interposed in said end support plates,

refrigerated flat end cooling plates interposed in said end support plates ahead of said sealing plates,

heated bottom sealing plates interposed in said bottom support rails alongside said end sealing plates,

refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,

control means connected to selectively actuate said end sealing plates and end cooling plates and said bottom sealing plates and bottom cooling plates,

carrier conveyor loops positioned above and below said end support plates,

buffer sheets of heat resistant non-sticking material having their leading edges connected between said conveyor loops to be advanced thereby along the inner sides of said end sealing and end cooling plates, upright belt loops of heat resistant non-sticking material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,

a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,

hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,

and drive means connected to advance said flights of said package advancing conveyor and the laterally inner reaches of said carrier conveyor loops and the upper reaches of said belt loops at the same speed.

3 In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package,

end flap holding means arranged to fold the end edges of the sheet into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,

bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced and adjustable upright end support plates arranged to receive and support the ends of a package from said folding means,

said bottom support rails being laterally adjustable with said end support plates, heated bottom sealing plates interposed in said bottom support rails,

refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,

control means connected to said bottom sealing plates and bottom cooling plates,

upright belt loops of heat resistant non-sticking material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,

a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,

hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,

and drive means connected to advance said flights of said package advancing conveyor reaches of said belt loops at the same speed and in synchronism with said package advancing means.

4. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package,

end flap folding means arranged to fold the end edges of the sheet into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,

bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced upright end support plates arranged to receive and support the ends of a package from said folding means,

heated bottom sealing plates interposed in said bottom support rails,

refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,

upright belt loops of heat resistant non-sticking material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,

a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,

hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,

and drive means connected to advance said flights of

said package advancing conveyor and the upper reaches of said belt loops at the same speed.

5. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package,

end flap folding means arranged to fold the end edges of the sheet into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,

bottom support rails arranged to receive and support the bottom of packages from said folding means, heated bottom sealing plates interposed in said bottom support rails,

refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,

upright belt loops of heat resistant non-sticking material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,

a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,

hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,

and drive means connected to advance said flights of said package advancing conveyor and the upper reaches of said belt loops at the same speed.

6. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package,

end flap folding means including shiftable end folding plates arranged to selectively fold the end edges of the sheet into upwardly folded end folds along the ends of relatively high packages and alternatively into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,

bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced and adjustable upright end support plates arranged to receive and support the ends of a package from said folding means,

said bottom support rails being laterally adjustable with said end support plates,

heated flat end sealing plates interposed in said end support plates,

refrigerated flat end cooling plates interposed in said end support plates ahead of said sealing plates, heated bottom sealing plates interposed in said bottom support rails,

refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,

control means connected to selectively actuate said end sealing plates and end cooling plates and alternatively said bottom sealing plates and bottom cooling plates,

carrier conveyor loops positioned above and below said end support plates,

buffer sheets of heat resistant non-sticking material having their leading edges connected between said conveyor loops to be advanced thereby along the inner sides of said end sealing and end cooling plates, rotatably supported upright belt loops of heat resistant non-sticking material having their upper reaches

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trained in lapped supported engagement with said bottom sealing and bottom cooling plates,
 a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,
 hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,
 and drive means connected to advance said flights of said package advancing conveyor and the laterally inner reaches of said carrier conveyor loops at the same speed and in synchronism with said package advancing means.
 7. In a wrapping machine having means for advancing a package to be wrapped with a sheet of limp polyolefin material draped over the front, top and back of the package, and further having means overlapping the bottom edges of the sheet on the bottom of the package, end flap folding means arranged to fold the end edges of the sheet into downwardly and inwardly folded bottom folds lapped on the ends of the bottom of relatively thin packages,
 bottom support rails arranged to receive and support the bottom of packages from said folding means, laterally spaced and adjustable upright end support plates arranged to receive and support the ends of a package from said folding means,
 said bottom support rails being laterally adjustable with said end support plates,
 heated bottom sealing plates interposed in said bottom support rails,
 refrigerated flat bottom cooling plates interposed in said bottom support rails ahead of said heated bottom sealing plates,
 rotatably supported upright belt loops of heat resistant non-sticking material having their upper reaches trained in lapped supported engagement with said bottom sealing and bottom cooling plates,
 a package advancing conveyor having a frame positioned over said end support plates and having package advancing flights translatable between said end support plates down to approximately the level of said bottom support rails,
 hold down rails vertically adjustably mounted on the frame of said package advancing conveyor and adjustable between closely and widely spaced relation to said bottom support rails,
 and drive means connected to advance said flights of said package advancing conveyor and the laterally inner reaches of said carrier conveyor loops at the same speed and in synchronism with said package advancing means.
 8. Sealing structure for a wrapping machine adapted to advance packages wrapped in limp polyolefin films with the ends of the wrappers folded on the ends of the packages and down under the ends of the bottoms of the packages comprising,
 a way including laterally spaced end plates and laterally spaced support rails arranged to receive the packages,
 a drive shaft extending transversely of said plates and rails toward their rear ends,
 slide brackets slidably mounted on said drive shaft each having an upright shaft projecting thereabove and supporting a side rail from which said end plates are supported,
 forwardly projecting support bars secured to said brackets and from which said support rails are supported,
 a transverse adjusting screw having oppositely threaded portions engaged with said slide brackets to oppositely adjust said end plates and support rails,
 a slide bar extending transversely of said machine forwardly of said drive shaft and having slide blocks thereon supporting the forward ends of said support bars,

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wardly of said drive shaft and having slide blocks thereon supporting the forward ends of said support bars,
 a second adjusting screw drivingly connected to said first adjusting screw and having oppositely pitched threaded portions engaged with said slide blocks to adjust the forward ends of said support bars simultaneously with the rear ends of the bars,
 heated end sealing plates mounted on said side rails ahead of said end plates,
 refrigerated end sealing plates mounted on said side rails ahead of said end sealing plates,
 heated bottom sealing plates mounted on said support rails laterally inwardly of said end sealing plates,
 refrigerated bottom cooling plates mounted on said support rails ahead of said bottom sealing plates,
 upper and lower sprockets driven by said upright shafts and having carrier chain loops trained therearound with reaches extending along the upper and lower edges of said heated and refrigerated end sealing plates,
 buffer sheets having their leading edges connected between said upper and lower chain loops and advanced thereby along the inner sides of said end sealing plates,
 pulleys mounted on said support bars below said support rails,
 means connected to said drive shaft driving said pulleys at the same speed as said chain loops,
 belts trained over said pulleys and said heated and refrigerated bottom sealing plates to advance concurrently with packages advanced along said way, said buffer sheets and belts being of a material that is inert to the temperature of said heated sealing plates and non-adhesive to said film,
 a conveyor positioned along said way and having flights arranged to advance packages along the way in spaced relation to said heated plates,
 means connected to selectively actuate said end sealing plates and to alternatively actuate said bottom sealing and cooling plates,
 and means connected to drive said conveyor at the same time and speed as said chain loops.
 9. Sealing structure for a wrapping machine adapted to advance packages wrapped in limp polyolefin films with the ends of the wrappers folded on the ends of the packages and down under the ends of the bottoms of the packages comprising,
 a way including laterally spaced end plates and laterally spaced support rails arranged to receive the packages,
 a drive shaft extending transversely of said plates and rails toward their rear ends,
 slide brackets slidably mounted on said drive shaft each having an upright shaft projecting thereabove and supporting a side rail from which said end plates are supported,
 forwardly projecting support bars secured to said brackets and from which said support rails are supported,
 a transverse adjusting screw having oppositely threaded portions engaged with said slide brackets to oppositely adjust said end plates and support rails,
 a slide bar extending transversely of said machine forwardly of said drive shaft and having slide blocks thereon supporting the forward ends of said support bars,
 a second adjusting screw drivingly connected to said first adjusting screw and having oppositely pitched threaded portions engaged with said slide blocks to adjust the forward ends of said support bars simultaneously with the rear ends of the bars,
 heated end sealing plates mounted on said side rails ahead of said end plates,

refrigerated end sealing plates mounted on said side rails ahead of said end sealing plates,
 heated bottom sealing plates mounted on said support rails laterally inwardly of said end sealing plates,
 refrigerated bottom cooling plates mounted on said support rails ahead of said bottom sealing plates,
 upper and lower sprockets driven by said upright shafts and having carrier chain loops trained therearound with reaches extending along the upper and lower edges of said heated and refrigerated end sealing plates,
 buffer sheets having their leading edges connected between said upper and lower chain loops and advanced thereby along the inner sides of said end sealing plates,
 pulleys mounted on said support bars below said support rails,
 belts trained over said pulleys and said heated and refrigerated bottom sealing plates to advance concurrently with packages advanced along said way, said buffer sheets and belts being of material that is inert to the temperature of the heated sealing plates and non-adhesive to said film,
 a conveyor positioned along said way and having flights arranged to advance packages along the way in spaced relation to said heated plates,
 means connected to selectively actuate said end sealing plates and to alternatively actuate said bottom sealing and cooling plates,
 and means connected to drive said conveyor at the same time and speed as said chain loops.

10. Sealing structure for a wrapping machine adapted to advance packages wrapped in limp polyolefin films with the ends of the wrappers folded on the ends of the packages and down under the ends of the bottoms of the packages comprising,
 a way including laterally spaced end plates and laterally spaced support rails arranged to receive the packages,
 a drive shaft extending transversely of said plates and rails toward their rear ends,
 slide brackets slidably mounted on said drive shaft each having an upright shaft projecting thereabove and supporting a side rail from which said end plates are supported,
 forwardly projecting support bars secured to said brackets and from which said support rails are supported,
 a transverse adjusting screw having oppositely threaded portions engaged with said slide brackets to oppositely adjust said end plates and support rails,

a slide bar extending transversely of said machine forwardly of said drive shaft and having slide blocks thereon supporting the forward ends of said support bars,
 a second adjusting screw drivingly connected to said first adjusting screw and having oppositely pitched threaded portions engaged with said slide blocks to adjust the forward ends of said support bars simultaneously with the rear ends of the bars,
 heated end sealing plates mounted on said side rails ahead of said end plates,
 refrigerated end sealing plates mounted on said side rails ahead of said end sealing plates,
 heated bottom sealing plates mounted on said support rails laterally inwardly of said end sealing plates,
 refrigerated bottom cooling plates mounted on said support rails ahead of said bottom sealing plates,
 upper and lower sprockets driven by said upright shafts and having carrier chain loops trained therearound with reaches extending along the upper and lower edges of said heated and refrigerated end sealing plates,
 buffer sheets having their leading edges connected between said upper and lower chain loops and advanced thereby along the inner sides of said end sealing plates,
 pulleys mounted on said support bars below said support rails,
 belts trained over said pulleys and said heated and refrigerated bottom sealing plates to advance concurrently with packages advanced along said way, said buffer sheets and belts being of material that is inert to the temperature of the heated sealing plates and non-adhesive to said film,
 a conveyor positioned along said way and having flights arranged to advance packages along the way in spaced relation to said heated plates,
 means connected to selectively actuate said end sealing plates and said bottom sealing and cooling plates,
 and means connected to drive said conveyor at the same time and speed as said chain loops.

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