United States Patent [19]

Pizmoht

[11] **3,724,167**

[45] **Apr. 3, 1973**

[54] **WRAPPING MACHINE**

[75] Inventor: **Frank Pizmoht**, Willoughby, Ohio

[73] Assignee: **Heat Sealing Equip. Mfg. Co.**, Cleveland, Ohio

[22] Filed: **Mar. 28, 1968**

[21] Appl. No.: **717,049**

Related U.S. Application Data

[63] Continuation of Ser. No. 493,075, Oct. 5, 1965.

[52] **U.S. Cl.**.....**53/390**, 242/55.3

[51] **Int. Cl.**....**B65b 11/02**, B65b 11/04, B65b 49/00

[58] **Field of Search**.....53/214–219, 389, 53/390; 146/214; 225/34; 226/127, 128; 242/55.3; 312/39, 40, 41

[56] **References Cited**

UNITED STATES PATENTS

1,463,717	7/1923	Munn	53/219 X
2,593,325	4/1952	Matthews	53/390
3,176,443	4/1965	Klampe	53/390
3,298,265	1/1967	Millican et al.	53/390 X

Primary Examiner—Leonard D. Christian

Attorney—Fay, Sharpe and Mulholland

[57] **ABSTRACT**

A machine to facilitate the wrapping of packages having a framework, rods attached to the framework for rotatably supporting a plurality of rolls of wrapping material and a platform on which the packages may be wrapped. An adjustable film selector, slidable under the platform, holds the ends of the wrapping material. Separators are utilized to isolate the different pieces of wrapping material from each other as they unwind from the rolls.

11 Claims, 3 Drawing Figures

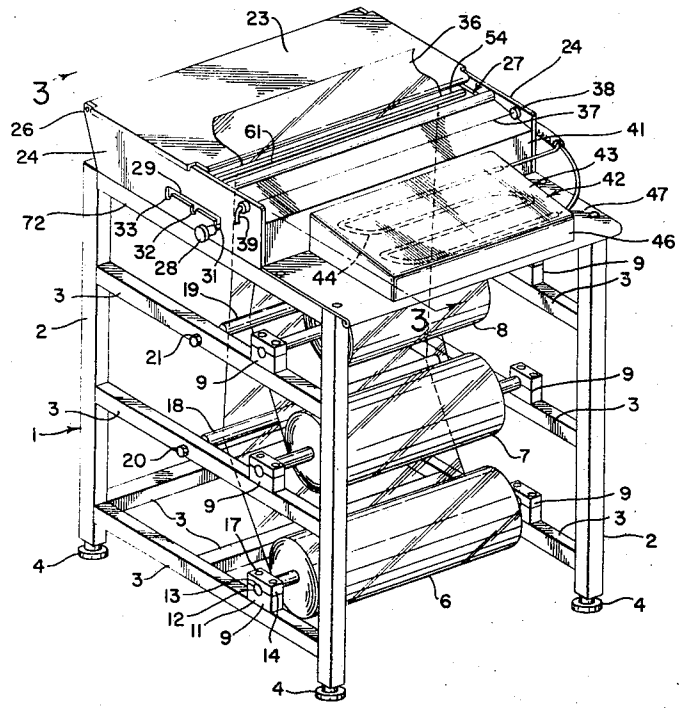


FIG. 1

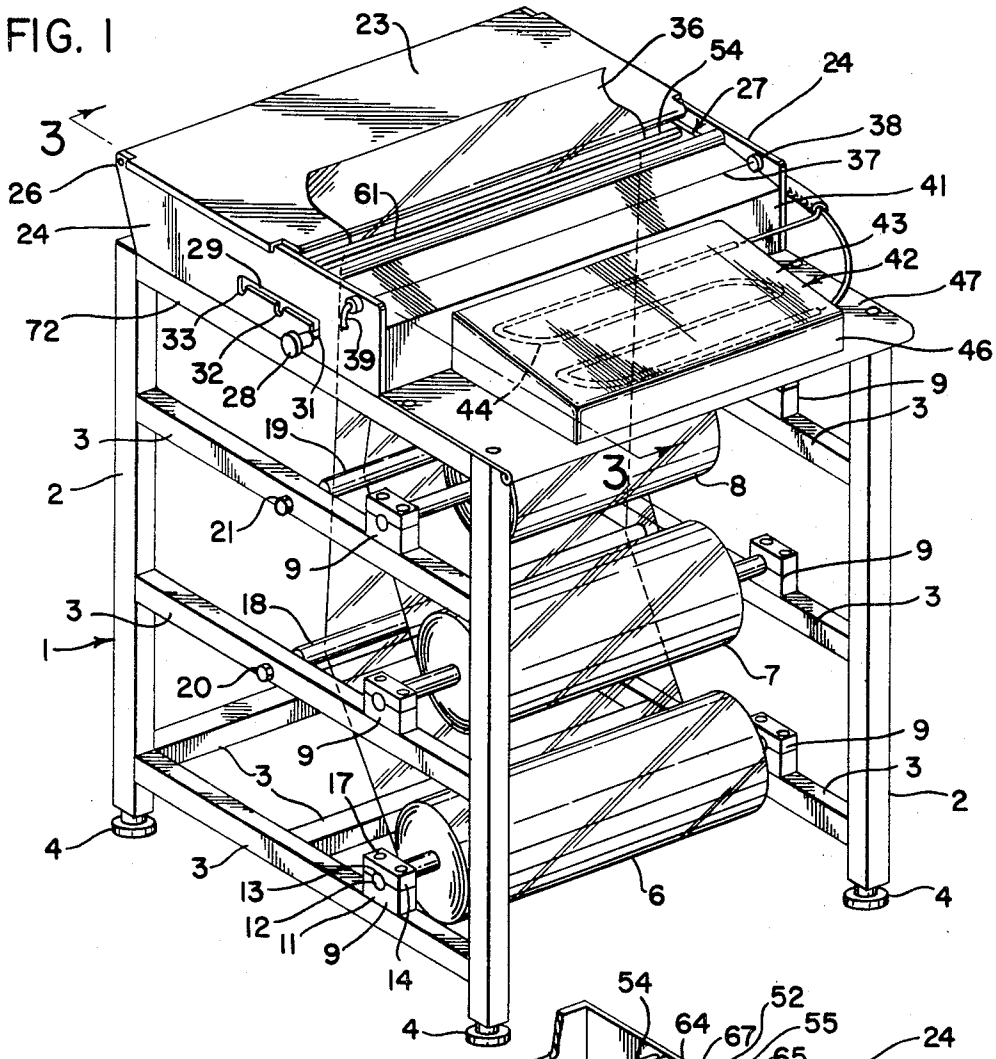
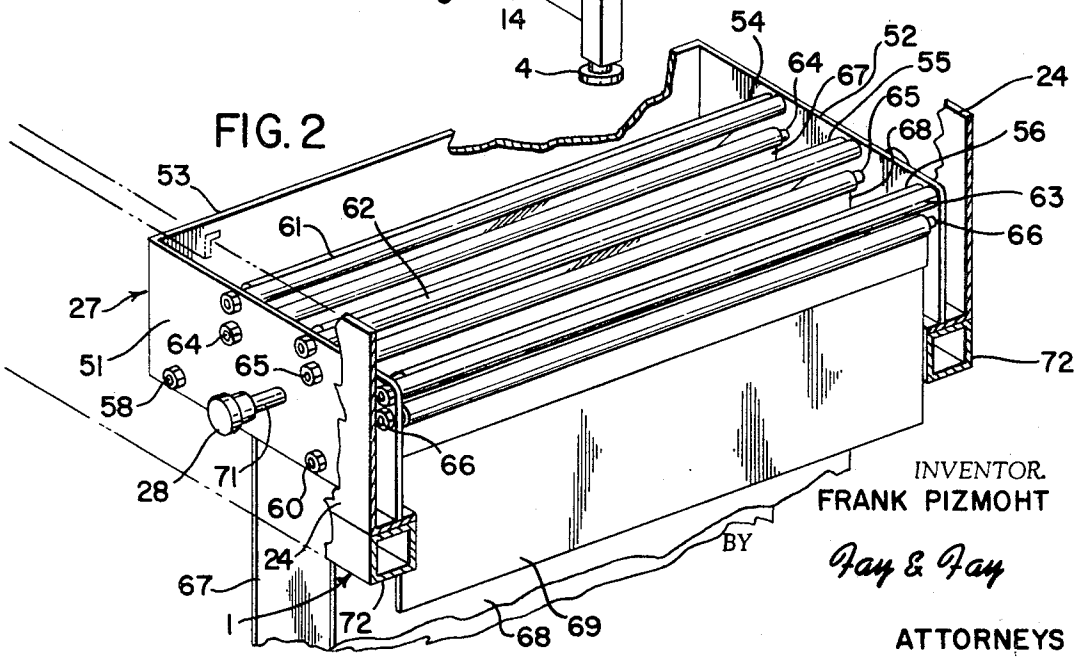


FIG. 2



INVENTOR.
FRANK PIZMOHT

BY

Fay & Fay

ATTORNEYS

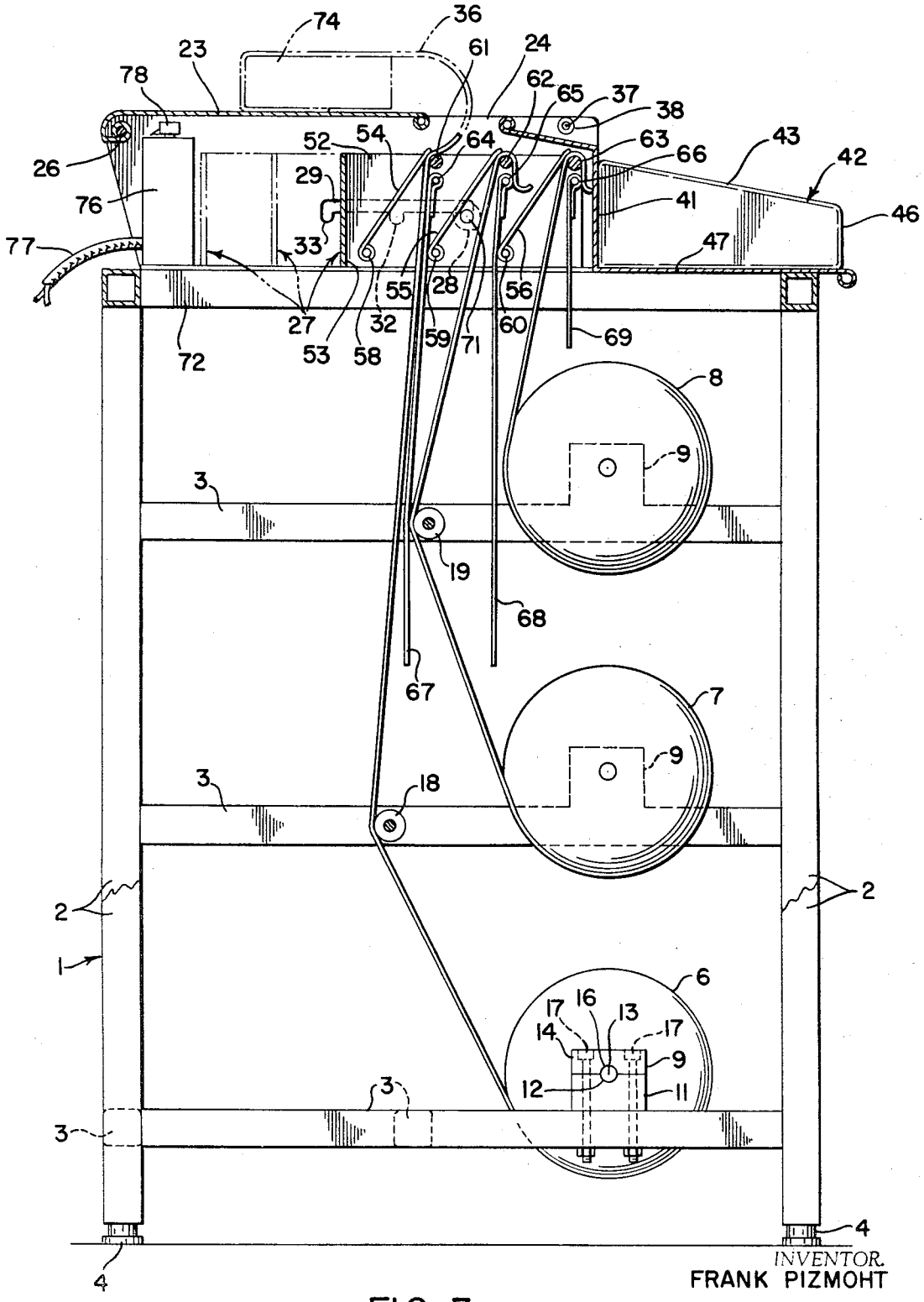


FIG. 3

INVENTOR.
FRANK PIZMOHT

BY

Fay & Fay

ATTORNEYS

WRAPPING MACHINE

This is a continuation of application Ser. No. 493,075 filed Oct. 5, 1965.

This invention relates to a machine to facilitate the wrapping of packages. More specifically, this invention relates to a device for wrapping packages with thermoplastic material. Today when thermoplastic materials have become common in wrapping all types of commodities, including foods, it has become important to produce a machine that will greatly facilitate this procedure. That is, it is desirable to have a machine which will provide a ready supply of wrapping material, means to cut the material and a heating pad to seal the completed package. It is also advantageous if the machine has facilities for wrapping different sizes of packages by providing various widths and lengths of wrapping material.

Attempts to solve this problem have produced various forms of wrapping machines. In Sadell, U.S. Pat. No. 3,043,071 a wrapping machine is contemplated, wherein a roll of thermoplastic wrapping material is located toward the rear of the machine and rollers immediately forward of the roll guide the wrapping material to an adjacent wrapping platform. An electrically heated cutting wire is provided forward of the wrapping platform in order to sever the wrapping material. A sealing plate is down and forward from the hot wire.

United States Pat. No. 2,987,864 by Miller provides a similar device to that of Sadell's except that rollers are not used to guide the wrapping material. Sadell has inherent limitations due to the fact that relatively complicated roller mechanisms guide the wrapping material to the wrapping platform It is also not practical to use more than one roll of thermoplastic material in both of the above machines. This is because the thermoplastic material generally has a tendency to stick together. And any attempt to run several strands of this material through the same rollers would result in sticking to the point where the machine would become inoperative. Furthermore, reloading of these machines is cumbersome and awkward since it must be done from the back. This makes it necessary to move the machines away from the wall where they are usually located, to reload them with heavy rolls and then to move them back into position. This is particularly important when it is realized that the machines are usually operated and reloaded by women employees, and that the rolls weigh in the neighborhood of 40 pounds.

The present invention proposes a solution to the problem of wrapping packages with thermoplastic material by providing a structure which is capable of holding several different sizes of rolls of wrapping material and selectively presenting each size to the operator. The wrapping material is both positioned and held by a film selector which enables the operator to select the size of the wrapping desired, and quickly bring it to the position which is most convenient for his use. The film selector further has an advantage in that it holds each of the ends of the wrapping material away from rolls to which it has a tendency to stick. Applicant's machine is also designed to facilitate the wrapping of packages and reloading of the machine in the minimum possible time. The reloading procedure is facilitated by placing the rolls of wrapping material in a position of maximum convenience. That is, they are

placed at a minimum height from the ground for easiest lifting and at a position immediately adjacent to the operator.

More specifically, this invention contemplates a machine for wrapping and heat-sealing packages which comprises a framework, means suspended by the framework for supporting rolls of thermoplastic wrapping material and a platform above the framework upon which the packages are wrapped. An adjustable film selector or carriage is also provided under the wrapping platform, which moves in a plane substantially parallel to the platform. Means within the film selector for separately holding the ends of the wrapping material are provided in order that each roll is easily accessible. Sheets of fabric projecting downwardly toward the rolls from the film selector keep the rolls of thermoplastic wrapping material separate as they unwind. A heated plate for sealing the package is provided at the forwardmost position above the framework and an electric hot wire is positioned between the wrapping platform and the heated sealing plate in order to sever the wrapping material.

The advantages of the applicant's invention are apparent when it is realized that several sizes of thermoplastic wrapping material may be used simultaneously; that is, by simply moving the film selector to any one of a number of selected positions a flipper-like device presents the exact size of the wrapping material or film desired at the forward end of the wrapping platform where it is most convenient for the operator of the machine. By simply grasping the wrapping material or film, placing it around the package on the platform, moving the package to a forward position and placing it on the heated sealing plate, it is apparent that the material will be first severed and then sealed around the package immediately thereafter. A teflon covering over the heated sealing plate may also be provided to stop any scorching of the wrapping material. The teflon material allows the heat to pass through it enough to seal the package and yet not enough to burn it or create sticking to the plate. The advantage of placing the wrapping material in a forward position is that the machine may then be easily reloaded. It should also be noted that the reloading of the present invention is a simple matter and does not need the complicated threading through intricate rollers as was required in the prior art.

Standard electrical elements such as variable resistors and step down transformers may also be located on the framework toward the rearward side to adjust the temperature of the electric cutting wire and sealing plate.

FIG. 1 is a perspective view of the invention.

FIG. 2 is a perspective view of the carriage mounted in the machine which has been partially cut away.

FIG. 3 shows a side cross-sectional view of the invention taken on line 3—3 of FIG. 1.

FIG. 1 shows a perspective view of the wrapping machine which is the subject of this invention. A framework 1 includes vertical members 2 and horizontal members 3. In a vertical plane, the horizontal members 3 are generally spaced equidistant from each other and are rigidly attached to the vertical members 2 as by welding or mechanical fasteners. The vertical members 2 rest on supports 4. A vertical row of rolls 6, 7 and 8 of

wrapping material are suspended toward the front of the machine by a securing means 9 which are attached to horizontal members 3. The securing means 9 may include a block 11 having a semi-circular groove 12 therein in which the axial support 13 of the roll 6 rests. A similar block 14 having a semi-circular groove 16 therein is used to clamp the axial support 13 of the roll 6 in place. Screws 17 or other means are used to secure the top block 14 on the bottom block 11 and to regulate the pressure on the axial support 13. The force of the blocks 9 and 14 on the axial support 13 must be small enough to permit the roll to unwind when the operator pulls the wrapping material or film and large enough to retard any rolling when the film is released. It is anticipated that the axial support 13 of the rolls may be secured by numerous other methods as long as the required pressure is applied.

Each of the rolls 6, 7 and 8 are shown as having a different width in order that they may be used to wrap different size packages. Rollers 18 and 19 are attached to different pairs of horizontal members 3 and are parallel to rolls 6, 7 and 8. The rollers 18 and 19 are secured to the horizontal members by placing their ends through holes in the horizontal members 3 and securing them by means of nuts 20 and 21, respectively.

On top of frame 1 vertical panels 24 pivotably support a wrapping platform 23. Wrapping platform 23 has a thin bar 26 through its back portion which is connected to panels 24.

A film selector or carriage 27 is mounted within the panels 24 and rests on the top of the panel legs 2. A knob 28 is connected to film selector 27 and protrudes through panels 24 by means of a horizontal opening 29 having three vertical slots 31, 32 and 33. Film selector 27 has flippers through which wrapping material 36 passes and is held thereby.

An electrically heated cutting wire 37 is attached to the panels 24 by suitable means 38 such as a screw and nut. Electric cutting wire 37 is supplied by power through lead 39 which goes to a conventional source.

A front panel 41 separates the carriage 27 from a sealing pad 42. The sealing pad 42 has a forwardly sloping top portion 43 and an electrical heating element 44 within it. A covering of teflon 46 on sealing pad 42 is often used to assure that the wrapping material will not be scorched. The teflon covering 46 is usually wrapped about a frame which is placed on the top portion of the sealing pad 42. A horizontal plate 47 supports the sealing pad 42.

FIG. 2 is a perspective detailed view of the carriage 27. Film selector or carriage 27 has side walls 51 and 52 and a rear wall 53. Connected to side walls 51 and 52 and situated between them are three grippers or flippers 54, 55 and 56. These flippers are maintained in an upwardly sloping position by means of axial supports along their bottom edge. These axial supports are generally in the form of shafts 58, 59 and 60. These shafts are secured to the walls of the carriage 51 and 52 in order to rotatably support the flippers. Above and forward of each of the supporting shafts are three other shafts 61, 62 and 63 against which the respective flippers lean.

Rods 64, 65 and 66, located immediately below shafts 61, 62 and 63 and attached to walls 51 and 52 of the carriage, are used to support sheets of fabric 67, 68 and 69. It is necessary that some fabric such as canvas be used which will not be attracted or stick to the thermoplastic wrapping as it comes off the rolls 6, 7 and 8. All the rods and shafts referred to above are secured to the side walls 51 and 52 by means of threading on the ends of the rods or shafts and placing a nut over the top of them. However, other attaching means will be obvious.

The knob 28 is attached to the carriage 27 by means of a rod 71. The knob 28 is rigidly connected to the carriage 27 in order that it may move the carriage along a horizontal member 72.

FIG. 3 shows a side cross-sectional view of the invention in operation. The thermoplastic wrapping material from the rolls 6, 7 and 8, respectively, pass upward into the flippers 54, 55 and 56. The thermoplastic material from roll 6 passes around roller 18 and the material from roll 7 passes around roller 19 in order to align them for passage into their respective flippers. The fabric sheets 67, 68 and 69 also aid in keeping the different rolls of the thermoplastic wrapping material separate. Each end of the wrapping material from the respective roll is held between a flipper and an abutting shaft. The mere weight of the flippers against the rod will hold the light wrapping material in place. However, the pressure of the flipper on the rod is not enough to make the material difficult to pull from the roll. As previously mentioned, the carriage or film selector is movable in a horizontal direction. In order to bring the desired size of thermoplastic wrapping material to the position where it is easily accessible to the operator of the machine it is only necessary that the knob 28 be moved to the appropriate slot. As shown in FIG. 3, the carriage is in its foremost position in order that the material from the rearmost flipper may be pulled on to the wrapping platform 23. As seen there, the wrapping material is brought through the flipper and on to the wrapping platform where is is used to wrap package 74. Once the package is wrapped, it is then brought toward the operator or to the right of FIG. 2 whereupon it is cut by electric cutting wire 37 and sealed by sealing pad 42.

If it is desired to use any other size of thermoplastic wrapping material, it is only necessary to move the knob 28 into a different position. This will cause a different size wrapping material to be brought into a position immediately forward of the platform 23 where it can be easily used by the operator. FIG. 3 also indicates a control means 76 which is supplied by a conventional power supply through lead 77. The control means is generally in the form of a variable resistor and a transformer having an adjustment knob 78. The control means 76 may be connected to the sealing pad 42 and/or the electric cutting wire 37. It is also anticipated that separate controls may be used to regulate the sealing pad 42 and electric cutting wire 37.

While this invention has been described with respect to the preferred embodiment it is anticipated that changes will be obvious to one skilled in the art.

I claim:

1. A machine for wrapping and heat sealing packages comprising: a framework, means mounted on said framework for rotatably supporting a plurality of rolls of thermoplastic wrapping material, a platform above said framework on which packages are wrapped, an ad-

justable carriage slidably mounted under said platform for movement in a plane substantially parallel to said platform, means included within said carriage for separately holding the free ends of the material from each of said rolls, means for isolating the different pieces of said wrapping material from each other as they unwind from said rolls, a heated sealing plate mounted on said framework adjacent to said platform and an electrically heated wire between said platform and said heated sealing plate for cutting said wrapping material.

2. A machine for wrapping and heat sealing packages comprising: a framework, a platform for supporting a package to be wrapped mounted on and above said framework, means on said framework and disposed below said platform for rotatably supporting a plurality of rolls of thermoplastic wrapping material, a carriage slidably mounted on said framework for movement in a plane generally parallel to said platform, said carriage including individual gripping means to grip and yieldably support the individual free ends of the wrapping material from said rolls, a heated sealing plate mounted on said framework adjacent said platform and spaced therefrom to thereby provide an opening for the passage of the wrapping material, the movement of the carriage serving to present a selected free end of a given roll of said wrapping material at said opening, and a heated material severing means.

3. A machine for wrapping and heat sealing packages of claim 2 wherein said means for separately holding the ends of said wrapping material comprises a bearing means, flippers which are supported by and rotate about said bearing means an elongated generally rigid abutment means spaced from said bearing means, said flippers being in yieldable engagement with the said abutment means so that when said thermoplastic wrapping material is drawn between the abutment and said flipper said flipper may pivot and permit the wrapping material to pass through.

4. The machine of claim 2 further characterized in that it includes means for isolating the different pieces of said thermoplastic material from each other as they unwind from said rolls.

5. The machine for wrapping and heat sealing packages of claim 4 wherein said means for isolating different pieces of said thermoplastic wrapping material from each other comprise sheets of canvas which are suspended from shafts on said film selector.

6. The machine for wrapping and heat sealing packages of claim 5 wherein said heated sealing plate is contained in a TEFLON wrapping.

7. A machine for wrapping and heat sealing packages of claim 6 wherein rollers, which are connected to said framework, are provided to assure the distribution of said thermoplastic wrapping material to the proper position.

8. The machine for wrapping and heat sealing packages of claim 7 wherein said means for supporting said rolls of thermoplastic wrapping materials are bars supported within indentations in blocks, said blocks having connecting means which may vary the pressure on said bars supporting said rolls.

9. In a wrapping station having a wrapping position means supporting at fixed axial positions a plurality of rotatable supply rolls of plastic film of different widths or other different characteristics; and a slidably mounted selector mechanism for presenting selected ones of said film to the wrapping position in any sequence as desired, said selector mechanism comprising: a plurality of squeeze assemblies for squeezing and holding a plurality of ends of film at spaced apart positions, there being a different squeeze assembly for each different end of film to be presented to the wrapping position; common support means for supporting said plurality of squeeze assemblies near the forward end of the wrapping position; and lever means secured to said common support means for moving said squeeze assemblies as a unit to carry the end of a selected on of said films to the wrapping position and to carry the end of a nonselected film away from the wrapping position while maintaining said supply rolls at their respective fixed axial positions.

10. Apparatus as claimed in claim 9 further characterized in that each of said squeeze assemblies includes a support shelf over which the film is passed and a pressure roller mounted above said support shelf and adapted to press down on the film passing over said support shelf.

11. Apparatus as claimed in claim 10 further characterized in that a pickup well is provided forward of said support shelf for receiving the end of the film.

* * * * *