United States Patent [19]

Feldman

[11] **3,800,499**

[45] **Apr. 2, 1974**

[54] **PACKAGING MACHINE**

[76] Inventor: **Irving Feldman,** 43 Barnes St., Providence, R.I. 02906

[22] Filed: **Oct. 10, 1972**

[21] Appl. No.: **296,241**

[52] **U.S. Cl.** **53/168,** 53/219, 53/390

[51] **Int. Cl.** **B65b 67/10**

[58] **Field of Search** 53/33, 168, 211, 214–219, 53/390; 242/55.2, 55.3

[56] **References Cited**

UNITED STATES PATENTS

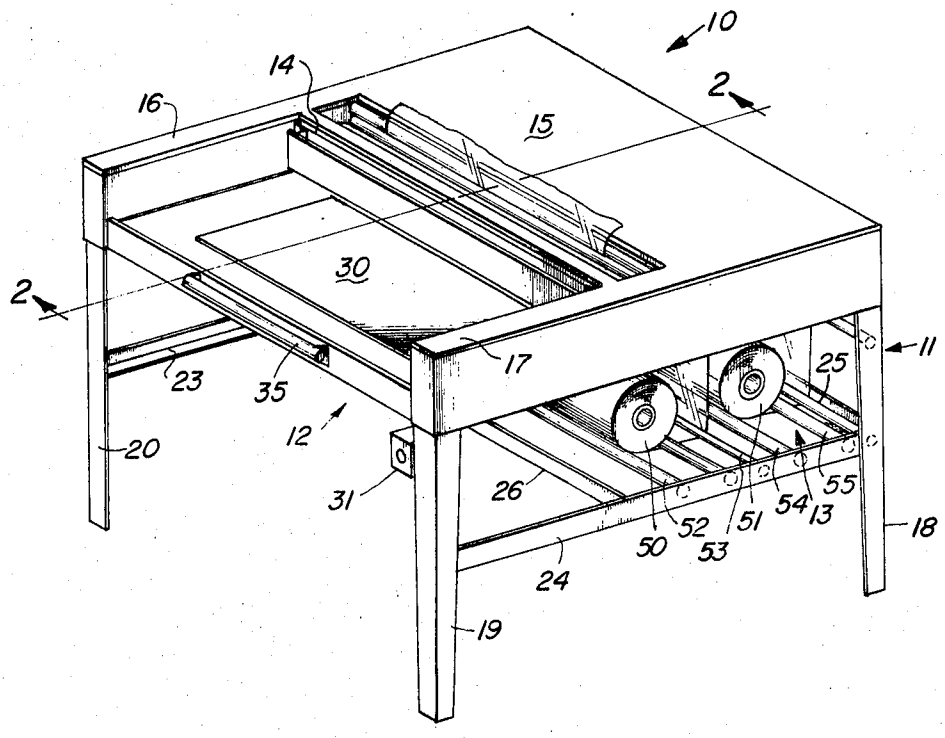
3,691,727	9/1972	Doerscheln	53/390
3,724,167	4/1973	Pizmoht	53/390
3,552,091	1/1971	Johnston	53/390 X

Primary Examiner—Robert L. Spruill
Attorney, Agent, or Firm—Wolf, Greenfield & Sacks

[57] **ABSTRACT**

A packaging machine for use in hand wrapping of articles in a flexible, heat sealable sheet material. The packaging machine has at least four corner supports to provide balance to a fixed wrapping platform and a movable heat sealing tray in all positions of the heat sealing tray. A sheet material feed system extends to an operative supply position to allow dispensing of one of at least two different types of sheet material while positively preventing dispensing of other than that one sheet material.

5 Claims, 7 Drawing Figures



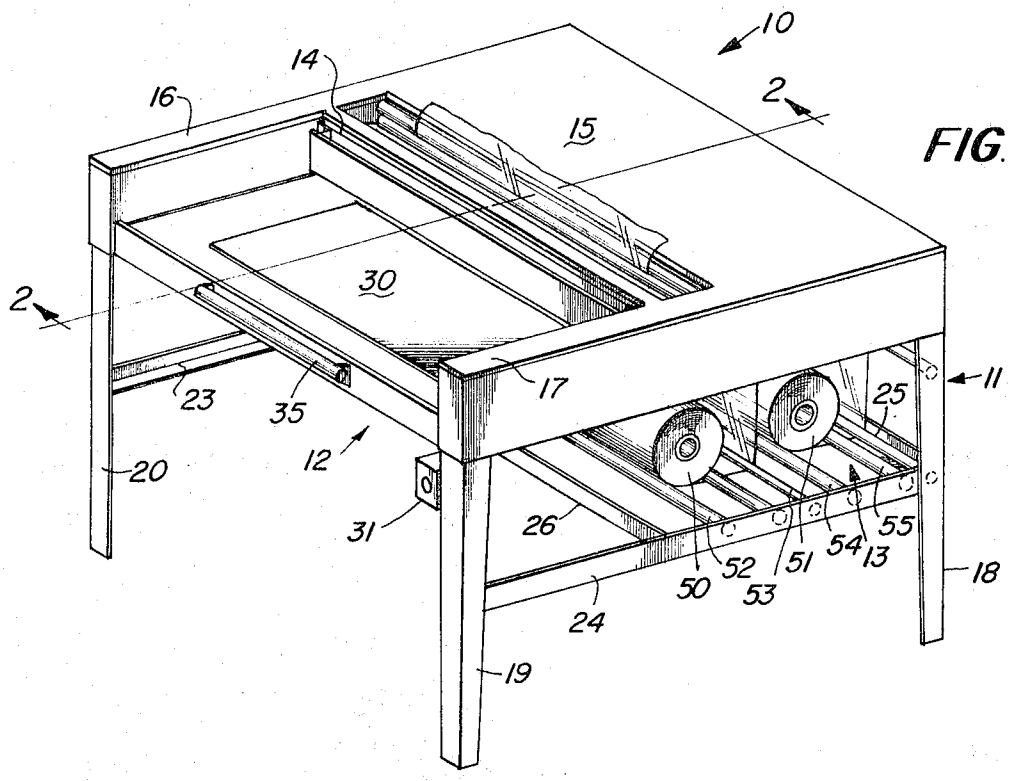


FIG. 1

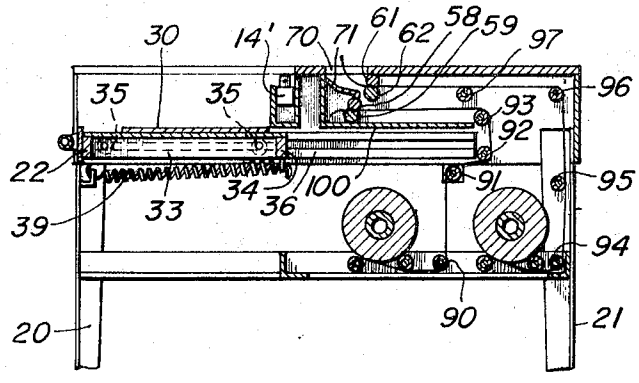


FIG. 2

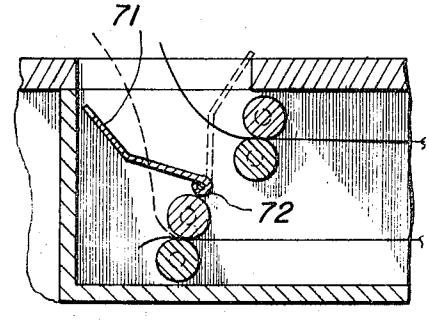


FIG. 3

FIG. 4

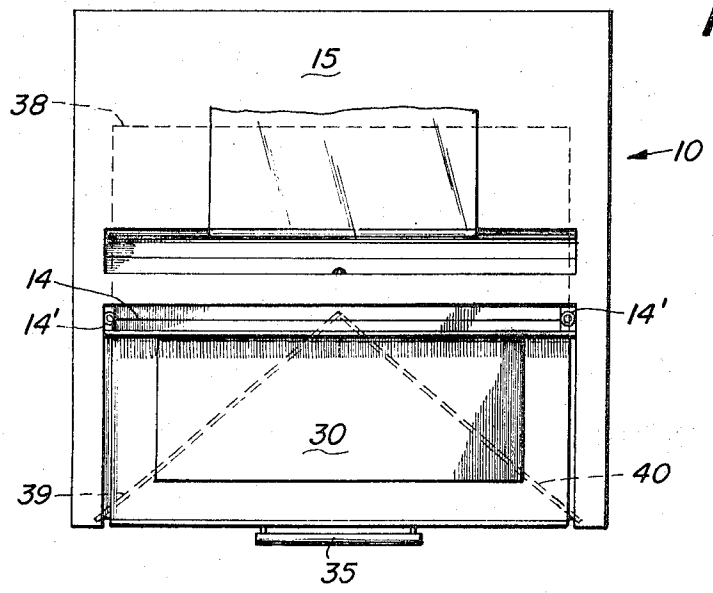


FIG. 5

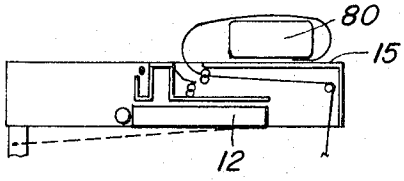
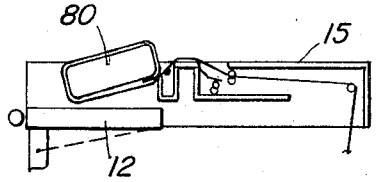


FIG. 6



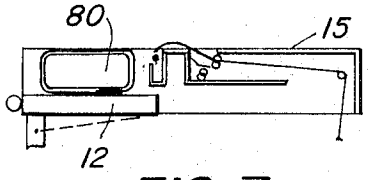


FIG. 7

PACKAGING MACHINE

BACKGROUND OF THE INVENTION

It has long been known to construct a machine for hand wrapping of articles in a flexible, heat sealable sheet material. For example, laundry articles such as fresh laundered sheets can be wrapped in a light gauge, thermoplastic sheet with the sheet sealed by resting the package on a heated heat sealing tray. Polyvinyl chloride (PVC) extruded sheet (in roll form) having a thickness of from about 0.0005 inch to 0.002 inch is commonly used in packaging machines of the type described herein. In older machines for this purpose, the plastic film was wrapped about the articles to be packaged on a support platform and then the wrapped package brought forward to a heated stationary upper surface of the machine for sealing the separate plies of the sheet material. In the older machines, the heat sealing tray was normally in a fixed position in front of the support platform causing the operator to reach over the heat sealing tray to the wrapping platform and thus causing undue strain and fatigue in the operator.

In more recent machines, the heat sealing tray used is often mounted on slidable supports extending from a fixed wrapping platform which is in turn mounted by four upright corner legs or posts. Such heat sealing trays can be pressed by the operator's body to an inoperative position allowing the operator to get close to the wrapping platform and wrap the articles. The operator then moves backward allowing the biased heat sealed tray to move forward to present the heat sealable tray near the body of the operator for heat sealing of the wrapped articles.

However, the more recent machines noted above are often imperfectly balanced due to the fact that the heat sealable tray when in the operative position tends to be wobbly, inadequately supported and causes the balance of the entire machine to be poor.

The prior art packaging machines as described above often employ a single sheet supply in the form of a roll mounted on a central axle. This limits such machines to dispensing of a single gauge and width of heat sealable sheet material and makes it time consuming to use different gauges and widths of feed material.

SUMMARY OF THE INVENTION

It is an object of this invention to provide an efficient packaging machine for use in the hand wrapping of articles in flexible, heat sealable sheet material.

It is another object of this invention to provide a machine in accordance with the preceding object which has good stability with long life and ease of operation.

Still another object of this invention is to provide a machine in accordance with the first mentioned object which machine permits dispensing of two different gauge or width sheet materials with a positive stop for rapidly and simply blocking the supply of all sheet materials except a preselected one thereof.

According to the invention, a packaging machine for use in hand wrapping articles in a flexible, heat sealable sheet material has a fixed wrapping platform and a heat sealing tray with a heated surface portion. The tray is mounted for movement between an operative position forward of the wrapping platform and an inoperative position under the wrapping platform. A support means

allows for ease of changing sheet material supply. Legs of the packaging machine provide for positive stability in both the operative and inoperative position of the heat sealing tray. A flip bar means provides for cut off of one sheet material supply while leaving ready access to a second sheet material supply as desired. It is a feature of this invention that the support legs give good stability to this slidable heat sealing tray allowing for positive support of the tray in all positions of use. Still another feature of the invention is the use of novel support means for the rolls of stock sheet material which allows changing of an exhausted roll merely by resting the roll on support rollers thus cutting down time necessary to provide a new stock roll. Still another feature of this invention resides in the provision for using readily accessible different stock sheet materials which may be necessary with different types of articles to be packaged.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other features, objects and advantages of the present invention will be better understood from the following specification when read in conjunction with the accompanying drawings in which:

FIG. **1** is a side perspective view of a preferred embodiment of a packaging machine in accordance with this invention;

FIG. **2** is a cross sectional view thereof through line **2—2** of FIG. **1**;

FIG. **3** is a semidiagrammatic side view of an element thereof;

FIG. **4** is a top plan view thereof;

FIGS. **5–7** are diagrammatic views of a method of wrapping articles in accordance with this invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

With reference now to the drawings and particularly FIGS. **1–3** a packaging machine for wrapping articles such as laundry and the like in a flexible, heat sealable sheet material, is illustrated generally at **10** and has a table-like support frame indicated generally at **11** with a slidable heat sealable tray drawer **12**, a sheet stock supply area **13** and an electric resistance wire severing means **14.**

The table-like supporting frame **11** has a substantially horizontal package wrapping platform **15** with integral forwardly extending arms **16** and **17.** The platform **15** is supported by four corner legs **18, 19, 20** and **21** provided with bottom lockable casters (not shown) for conveniently transporting the apparatus from place to place and making it stationary in operation by suitable locking means (not shown). The height of the wrapping platform **15** permits an operator to stand adjacent the apparatus with the drawer **12** moved inwardly to the rear of the machine and to package items within arm's reach at a convenient height. Horizontal, side, angle iron, cross bars **23** and **24** extend between the forward and rearward legs on each side of the machine and are fixed to the legs to stabilize them. Similarly, transverse angle iron, cross bars **25** and **26** extend from side to side and are fixed to side rear legs **18, 21** and bars **23, 24** respectively. A sheet metal wall panel **100** extends from side to side of the apparatus with a channel forward configuration for mounting the wire **14.**

The drawer **12** mounts a conventional heat sealing platform or tray **30** as known in the art. The tray **30** is electrically connected to a suitable current supply

through a control box **31** mounted on the machine frame. The tray **30** is carried by the drawer frame comprising parallel side rails **33** and front and rear rigid metallic bars **22** and **34** forming a rectangular frame. The side rails **33** each carry outwardly extending rollers **35**, each pivotally mounted on an axle and slidably received by a channel member **36** on either side of the machine. Thus, the drawer can be slid to its forwardmost position as shown in FIG. **2** or to its rearward inoperative position shown by the dotted outline **38** in FIG. **4.** The drawer is normally biased to the forward position by tension springs **39, 40** fixed to the forward legs **19** and **20** at one point and fixed to the rear frame member **34** of the drawer to provide an outward bias. A front handle **35** is preferably positioned at thigh height of the operator so that the operator may by walking inwardly, automatically push the drawer to its rearmost position while stepping back allows operative positioning of the drawer.

The platform area of the machine carries a conventional hot wire severing means **14** mounted by insulators **14'** on either end and extending transversely of the apparatus. The hot electrical resistance wire is suitably connected to the electric control apparatus **31** to permit heating of the wire to temperatures sufficient to cut the thin film or sheet material used in the machine. Electric current is also supplied to the heat sealing tray as known in the art generally at temperatures in the range of 150° F to 450° F to permit conventional heat sealing by merely resting several plies of the sheet stock to be joined on the heat sealing tray.

The film stock feed in the preferred embodiment comprises a first roll **50** and a second roll **51** which rests on sets of rollers **52, 53** and **54, 55.** The rollers extend transversely of the machine between side cross bars **23, 24** and are mounted in suitable roller bearings (not shown). Thus, when a roll such as **50** is used up, a new roll merely is placed on top of the rollers **52** and **53** and threaded through the machine. The machine frame supports transverse guide rods **90-93** and transverse rotatable nip rolls **58, 59** over which the sheet stock from roll **50** is passed. Similar transverse guide rods **94–96** and nip rollers **61, 62** are provided to allow feed from roll **51.** A transversely extending slot **70** is provided in the platform through which the sheet material can be drawn in use.

As best shown in FIG. **3,** a selector flip bar **71** extends across the machine and is pivotal on a central axle **72** from its position shown in full lines in FIG. **3** to the position shown in dotted lines in FIG. **3** as desired. Thus, when the flip bar is in the down position, the operator may only obtain sheet material from roll **50.** Conversely, when a different gauge or width film is desired, the operator flips the bar **71** to its dotted line position and then can obtain feed stock from the roll **51.** This feature provides a positive stop for feeding of one roll while allowing feeding of the other roll.

In use of the packaging machine of this invention, an article such as a laundry bundle **80** is placed on the stationary wrapping platform **15.** Then a desired length of film from the roll **50** or **51** is pulled out by hand through the opening **70.** As the desired length of film is withdrawn, the operator's hands position the film as shown in FIG. **5.** During these steps, body pressure of the operator is exerted against the sliding heat sealing tray drawer **12** and it is held under the stationary platform **15** in the position shown in FIG. **5.** This provides the operator with complete freedom of his hands and there is no necessity to actuate any mechanism to move the sliding tray **12** into its inoperative position. After the first wrapping is made, the operator merely steps back from the wrapping platform **15** and releases body pressure from the drawer **12** to permit it to slide out simultaneously with the movement of the operator away from the stationary platform **15.** Concurrently, the operator picks up the bundle from the stationary platform **15** as the tray slides out and draws the film down over the hot severing wire **14** which causes the heated resistant wire to cut the film as illustrated in FIG. **6.** The package is then placed on the tray portion **30** and the heated tray seals together the plies of the thermoplastic film as shown in FIG. **7.** The operator then lifts the partially completed package, stretches the ends of the film of the package being formed and wipes the ends under the package. Aferwards the package is again put down on the heat sealing tray **30** to form the final seal at the wiped over ends as is well known in the art.

Because the drawer **12** is firmly supported even in its forwardmost position, wiggling and instability of the apparatus is avoided even when heavy packages are wrapped. The apparatus of this invention takes up no more floor space than prior apparatus of a similar nature even though it has a stability factor since the forward legs **19** and **20** are positioned far enough apart for an operator to step into the space where the drawer **12** is shown in FIG. **4** and such space would be necessary even if the drawer were to freely slide out without forward supports.

While a specific apparatus of this invention has been shown and described, it should be understood that many variations are possible. For example, conventional trip means can be used to activate the hot wire severing means only when it is desired to cut the film. Such trip means for periodic actuation of the hot wire as desired are well known in the art. Similarly, the flip bar arrangement and roller feed devices of the present invention can be employed in other film packaging machines with the advantages noted above. The exact construction if the machine frame can vary greatly although in all cases it is preferred that the vertical legs define substantially the outer periphery of the machine even when the heat sealing tray is extended. In some cases, it is preferred to mount the stationary platform **15** on a transverse hinge to allow upward pivoting thereby opening the top of the apparatus to permit ease of threading the film to the nip rolls **58, 59** and **60, 61.**

I claim:

1. In a packaging machine for use in hand wrapping articles in a flexible, heat sealable sheet material,

said packaging machine comprising,

a fixed wrapping platform,

a heat sealable tray having a heated surface portion and mounted for movement between an operative position forward of the platform and an inoperative position under the platform,

means for biasing said heat sealing tray to its operative position,

wherein the improvement comprises,

frame support means for supporting said fixed platform and heat sealing tray in both said operative and inoperative positions,

said frame support means defining an outer perimeter dimensioned and positioned to encompass and

balance said fixed platform and heat sealing tray when said heat sealing tray is in its forward position.

2. The improvement in a packaging machine in accordance with claim 1 and further comprising,

roll support means comprising at least two pair of parallel rollers each positioned to carry a feed roll of said sheet material,

and selector means for permitting feed of sheet material from one roll while blocking feed of other rolls of sheet material.

3. The improvement in a packaging machine in accordance with claim 2 wherein said selector means comprises a flip bar pivotal to a first and second position.

4. The improvement in a packaging machine in accordance with claim 1 and further comprising,

said frame support means comprising fixed supports positioned in part forward of said fixed wrapping platform for providing positive support for a forward portion of said heat sealing tray when said tray is in its operative position,

said fixed wrapping platform and heat sealing tray being substantially horizontally positioned.

5. The improvement in a packaging machine in accordance with claim 4 and further comprising,

said frame support means further comprising rail means for supporting and guiding said movement of said heat sealing tray.

* * * * *