March 16, 1971 V. E. PALMER ET AL 3,570,215

WRAPPING APPARATUS WITH MOVABLE HOT PLATE

Filed Jan. 17, 1968

Fig. 1

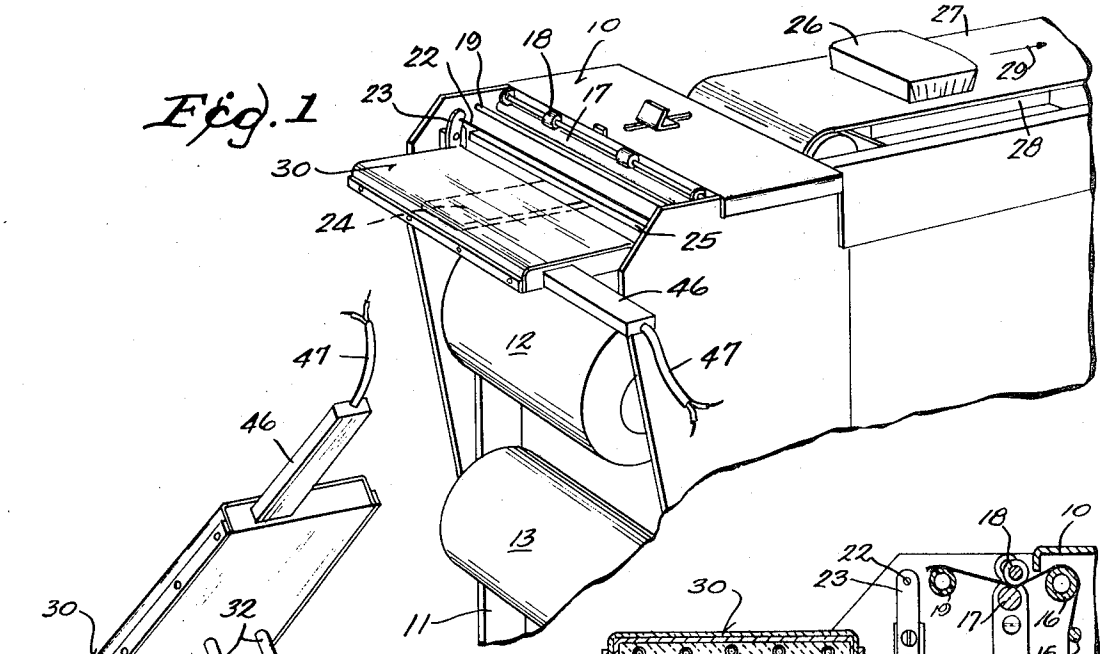


Fig. 2

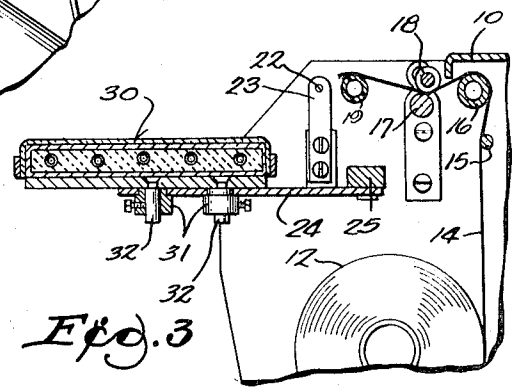


Fig. 3

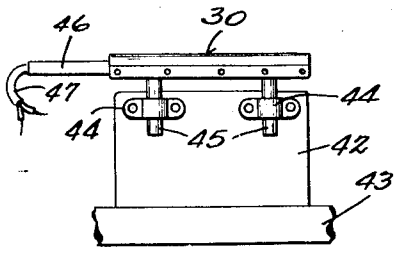


Fig. 6

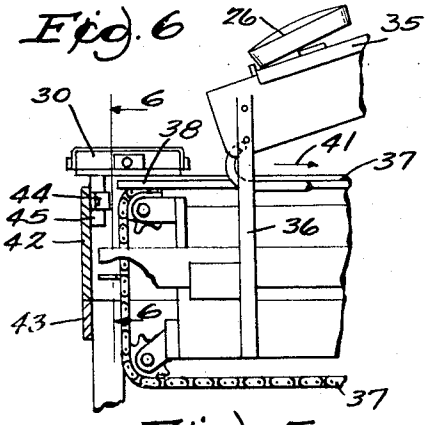


Fig. 5

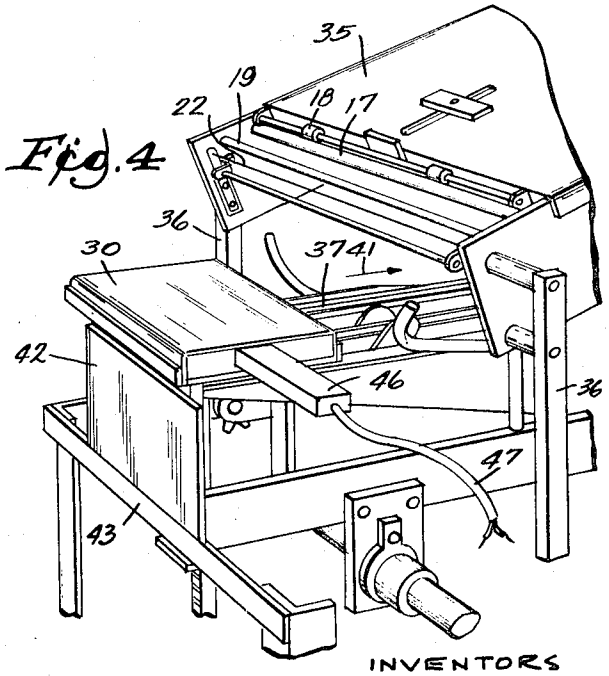


Fig. 4

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WRAPPING APPARATUS WITH MOVABLE HOT PLATE

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U.S. Cl. 53—201 4 Claims

ABSTRACT OF THE DISCLOSURE

This disclosure relates to package wrapping apparatus comprising a prewrap table, a conveyor, a package rest, and a portable hot plate removably mounted over said package rest.

CROSS REFERENCE TO RELATED APPLICATIONS

Cross reference is made to assignee's copending United States patent applications Ser. No. 640,876, filed May 24, 1967, now U.S. Patent 3,521,425 granted July 21, 1970, and Ser. No. 662,674, filed Aug. 23, 1967. These patent applications show wrapping apparatus of the type to which the movable hot plate of the present invention is applicable.

BACKGROUND OF THE INVENTION

In wrapping apparatus of the type shown in the cross referenced patent applications, it is sometimes necessary to process abnormal packages, for example, those of such a size and weight or shape that it is not expeditious to process the package completely on such apparatus. Under such circumstances, it is conventional in the art to "hand wrap" such a package. Typically, such a package is prewrapped on the prewrap table and is then transferred to a hot plate on which folded portions of the wrapping film is sealed. This "hand wrap" sequence does not utilize the conveyor. In the prior art apparatus, the hot plate used for hand wrapping is remote from the prewrap table. Accordingly, the operator cannot continue with the same motion previously used in connection with normal packages, but must use a different package transfer motion in moving the partially wrapped package from the prewrap table to the hot plate. This slows down the wrapping sequence and reduces output.

SUMMARY OF THE INVENTION

In accordance with the present invention, a movable or portable hot plate is provided with mounting structure by which it can be removably mounted immediately adjacent the prewrap table and substantially in the same position as the package rest to which a normal, partially wrapped package is normally transferred immediately after being partially wrapped at the prewrap table. This location for the hot plate permits a relatively high rate of processing of abnormal packages because the same sequence of wrapping steps and transfer motions of the partially wrapped package from the prewrap table to the package rest is also utilized as for normal packages.

The hot plate is provided with a handle for the easy manipulation thereof. Accordingly, it is a simple matter to remove the hot plate from its releasable mounting over the package rest and to transfer it to a stored location, whereupon the operator continues to use the same machine for wrapping normal packages.

Other objects, features, and advantages of the invention will appear from the following disclosure.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective view of one embodiment of wrapping machine with movable hot plate of the present invention attached thereto.

FIG. 2 is a perspective view showing the hot plate in spaced relation to the support arm to which it is removably attached.

FIG. 3 is a fragmentary vertical cross section taken through the apparatus of FIG. 1.

FIG. 4 is a fragmentary perspective view of a different form of wrapping apparatus to which the hot plate of the present invention is releasably attached.

FIG. 5 is a vertical cross section taken through the wrapping apparatus of FIG. 4, showing the hot plate attached thereto.

FIG. 6 is a fragmentary cross section taken along the line 6—6 of FIG. 5.

PREFERRED EMBODIMENTS OF THE INVENTION

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may be embodied in other specific structure. The scope of the invention is defined in the claims appended hereto.

FIGS. 1 through 3 relate to one embodiment of the invention in which the wrapping apparatus is substantially the same as that shown in the copending patent application Ser. No. 662,674 aforesaid. This wrapping apparatus comprises a prewrap table **10** supported on legs **11** which also support supply rolls **12**, **13** of transparent wrapping film **14**. Film **14** is drawn from one or the other of the rolls **12**, **13** and is threaded through a series of guide rollers **15**, **16**, **17**, **18** to a guide bar **19**. Bar **19** has a plastic surface to which the film tends to adhere. Adjacent to the bar **19** there is a hot wire severing tool **22** suitably mounted on end brackets **23**.

At a lower level and projecting rearwardly or outwardly toward the operator is a package rest in the form of a narrow, open-ended support arm **24**. Arm **24** has its inner end in cantilever connection to the frame cross piece **25**. Package rest **24** is unheated and is used to brace the package as the operator manually draws laterally extending film wings to the undersurface of the package.

After a normal package **26** has been wrapped on the prewrap table **10** and the support arm **24**, as described in said copending patent application Ser. No. 662,674, it is transferred manually to a conveyor, such as the belt **27**, for removal in the direction of arrow **29** to a discharge bin, etc. The belt is desirably heated by traveling over heating means such as a heated support apron **28** so as to heat seal or fuse overlapped film wings beneath the package.

In accordance with the present invention, a movable hot plate **30** can optionally be mounted over the support arm **24**, as shown in FIGS. 1 and 3. Means are provided for removably mounting the plate over the arm. For this purpose support arm **24** is provided with spaced sockets **31**, and the undersurface of the hot plate is provided with correspondingly spaced pegs **32** which are removably received within the sockets **31**. With the hot plate thus mounted on the support arm **24**, it is positioned in substantially the same spaced relationship to the prewrap table **10** as the arm **24** which supports it.

Accordingly, an abnormal package can be partially wrapped on the prewrap table **10** and can be transferred immediately to the hot plate **30** in the same motion which is normally utilized to transfer a normal, partially wrapped package from the prewrap table **10** to the package rest **24**. When the hot plate **30** is attached to the wrapping machine as shown in FIGS. 1 and 3, however, the pack-

age is placed on the hot plate to complete the wrapping operation by folding film wings under the package in the course of setting it down on the hot plate. The film wings are sealed to each other and to the undersurface of the package under the weight of the package against the hot plate.

After sealing the film against the hot plate, as above described, the completely hand wrapped package is transferred to a receiving bin or to a take-away conveyor or other package handling apparatus not shown. The conveyor **27** is not ordinarily used.

In the embodiment of the invention shown in FIGS. 4 through 6, the wrapping apparatus is of the type shown in copending U.S. patent application Ser. No. 640,876 aforesaid. The prewrap table **35** is elevated on legs **36** above the level of conveyor **37** which is spaced beneath the prewrap table **35** for normally processing packages as described in said copending application. Conveyor **37** carries the packages toward a heating means such as a heated apron similar to apron **28** of FIG. 1. The input end **38** of the conveyor **37** functions as a landing space or package rest to which a partially wrapped package is transferred from the prewrap table **35**, pending its removal by the conveyor **37** in the direction of arrow **41**.

In accordance with the present invention, means are provided to removably mount the hot plate **30** over the package rest **38**, but in a slightly different manner than in the embodiment of the invention shown in FIGS. 1 through 3. In this instance, a front panel **42** which is mounted on the cross piece **43** of the machine functions as a support stand and has sockets **44** into which hot plate pegs **45** extend. Thus the hot plate **30** will be securely mounted over the package rest **38** to receive and further process abnormal partially wrapped packages, as hereinbefore described.

In both of the embodiments herein disclosed, the hot plate **30** is desirably provided with a handle **46** through which electrical wiring cable **47** extends. The hot plate is manipulated by the operator by means of the handle **46**. It is a simple matter for the operator to transfer the hot plate from a storage position (not shown) to its mounted position as shown in the drawings by removably engaging the pegs beneath the hot plate with their support sockets. After the abnormal packages have been processed, the operator simply removes the hot plate by lifting its pegs out of the sockets and restoring the hot plate to its storage position.

Accordingly, wrapping machines embodying the present invention interchangeably present to the operator either an unheated package rest which is utilized in the normal processing of normal packages, or a removable hot plate having substantially the same position as the package rest and which is utilized when processing abnormal packages.

We claim:

1. In a package wrapping apparatus comprising a prewrap table, an unheated package rest on which normal packages are wrapped, a conveyor and heating means toward which the conveyor carries the normal packages for heat sealing said packages, the improvement to increase the utility of said apparatus and adapt it to process abnormal packages which are not adapted to be heat sealed by said heating means, said improvement comprising a portable hot plate and means for removably mounting the hot plate over said package rest to provide a heat seal surface for sealing the wrapping of abnormal packages in the same position as the unheated package rest is used for wrapping normal packages.

2. In a package wrapping apparatus comprising a prewrap table, an unheated package rest and a conveyor to carry away normally processed packages, the improvement comprising a portable hot plate and means for removably mounting the hot plate over said package rest to provide a heat seal surface for sealing the wrapping of abnormally processed packages, said package rest comprising a narrow open-ended support arm, said means comprising a pin and socket connection between the arm and the hot plate.

3. In a package wrapping apparatus comprising a prewrap table, an unheated package rest and a conveyor to carry away normally processed packages, the improvement comprising a portable hot plate and means for removably mounting the hot plate over said package rest to provide a heat seal surface for sealing the wrapping of abnormally processed packages, said package rest being disposed at the input end of said conveyor, said means comprising a support stand and a pin socket connection between the stand and the hot plate.

4. The apparatus of claim **1** in which said hot plate has a handle by which the plate can be manipulated in the course of removably mounting it over said package rest.

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