United States Patent

[11] 3,589,633

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[22] Filed **Jan. 21, 1969**
[45] Patented **June 29, 1971**
[73] Assignee **Wrapping Machinery Company, Inc.**
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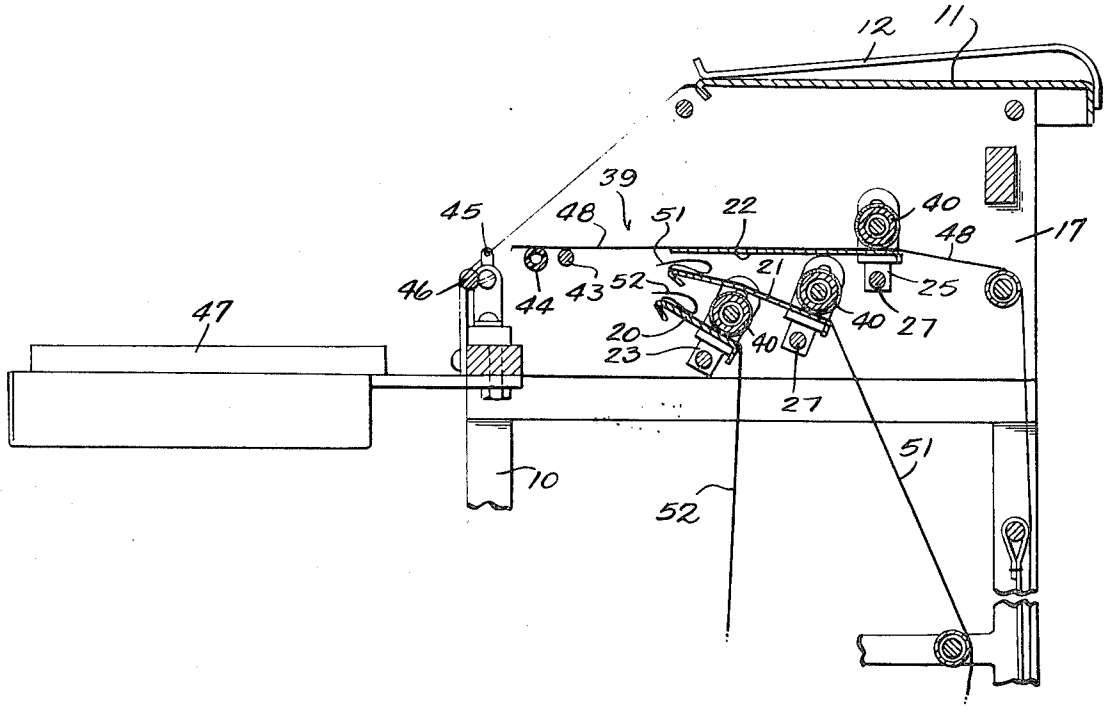
[54] **FILM SELECTOR**
5 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **242/55.3,** 242/58
[51] **Int. Cl.** **B65h 19/04**
[50] **Field of Search** 242/55.53, 55.3, 55.42, 55, 58, 75.2; 211/45, 46, 47, 150; 248/240.4; 108/6, 7

[56] **References Cited**
UNITED STATES PATENTS
3,367,589 2/1968 Chant, Jr. et al. 242/55.3

Primary Examiner—George F. Mautz
Attorney—Wheeler, Wheeler, House & Clemency

ABSTRACT: This disclosure relates to wrapping apparatus having a plurality of rolls of wrapping film, a film-handling station to which the free ends of the film are brought in the course of using the apparatus, and a film selector between the rolls and the station. The film selector comprises a shelf for each film web, a film restrainer for each shelf to capture the film web trained thereover, and pivotal mountings on which at least some of the said shelves are individually and independently swingable into and out of a position for handling the film at said station.



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SHEET 1 OF 2

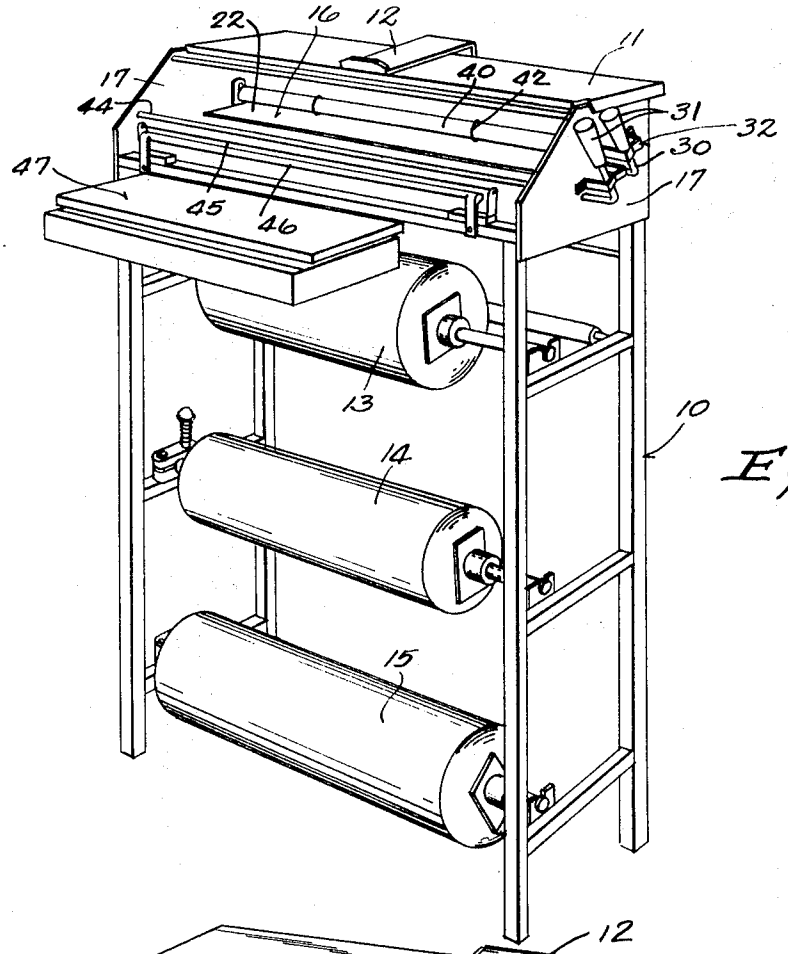


Fig. 1

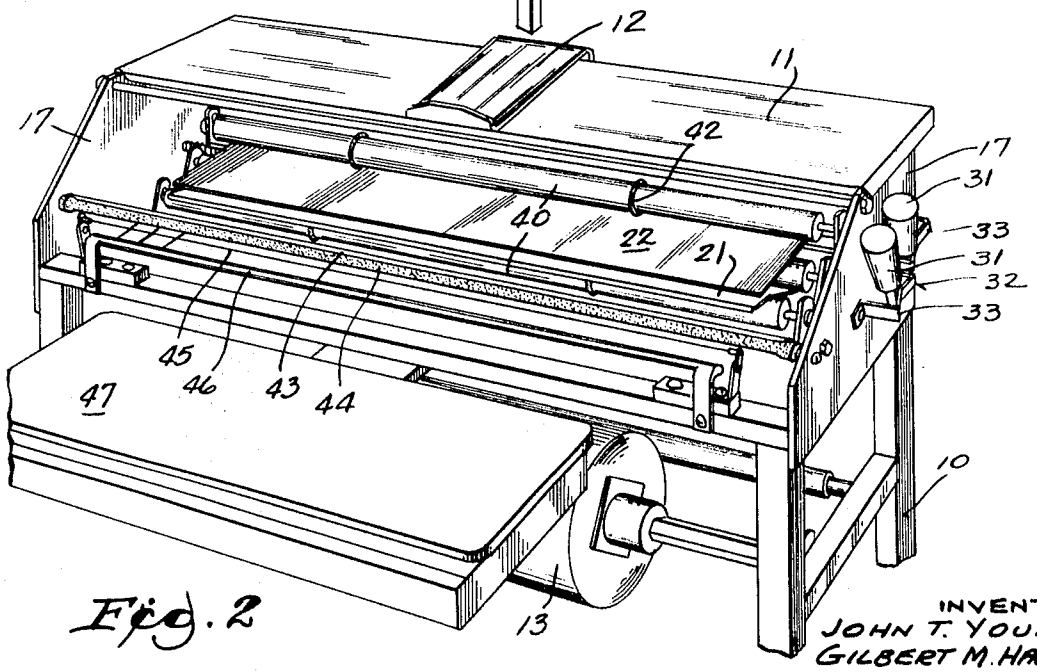


Fig. 2

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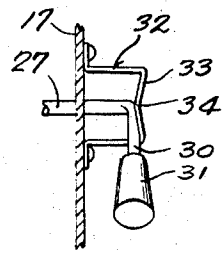


Fig. 4

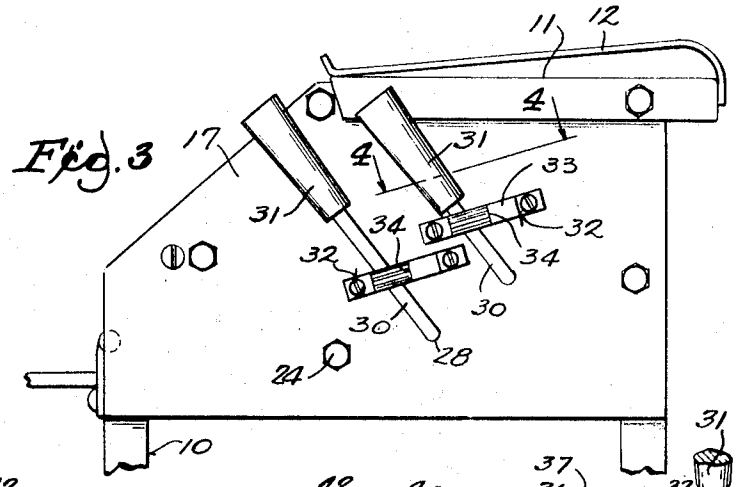


Fig. 3

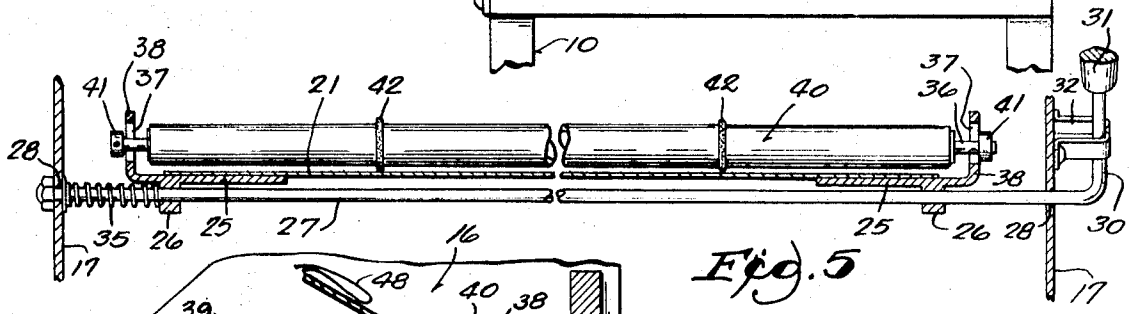


Fig. 5

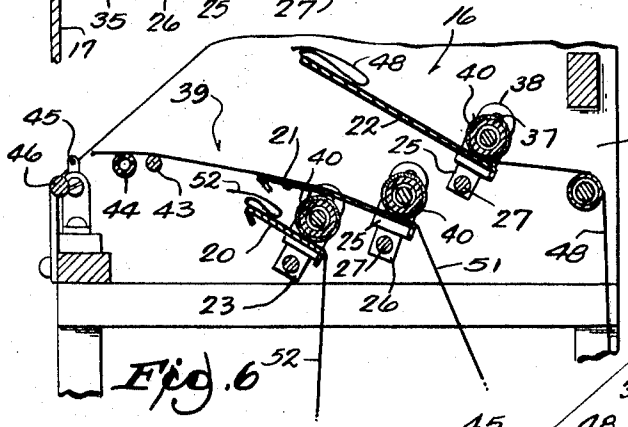


Fig. 6

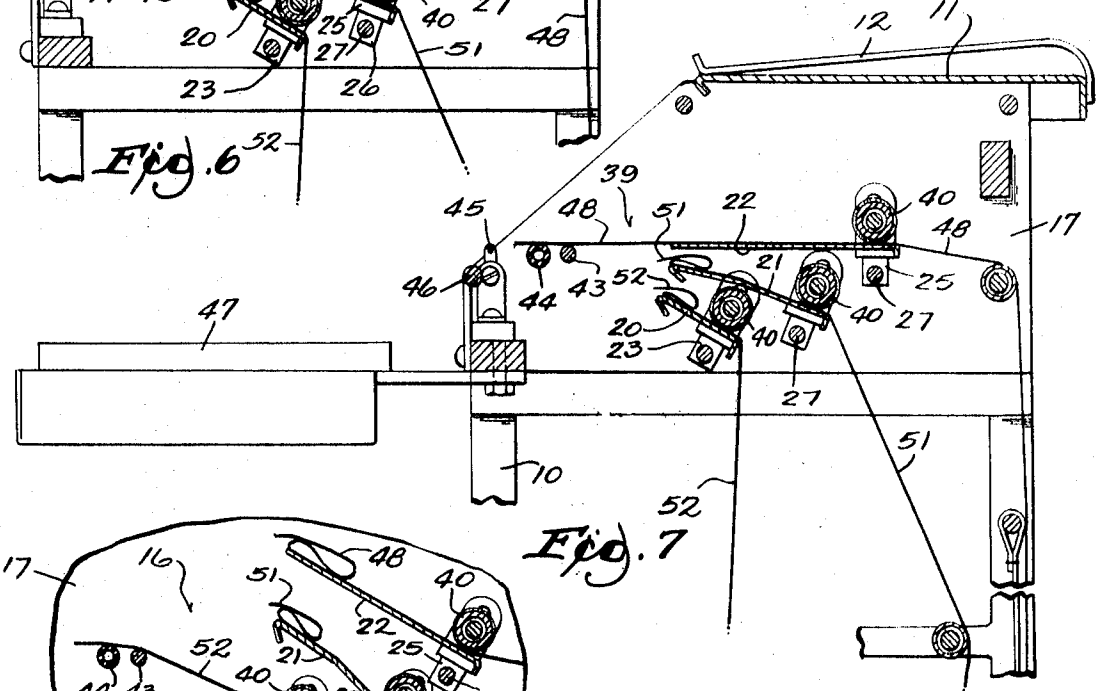


Fig. 7

Fig. 8

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FILM SELECTOR

BACKGROUND OF THE INVENTION

U.S. Pat. No. 3,367,589 shows a film selector involving a turret mounting upon which all selector shelves are concurrently movable as a unit.

SUMMARY OF THE INVENTION

According to the present invention, at least some of the shelves of the film selector are individually pivotally mounted. Accordingly the swinging movement of the individual shelves requires the shifting of less weight and the need to overcome less inertia and momentum than in the device shown in the prior patent aforesaid. Moreover, by individually pivotally mounting the shelves, the headroom required to accommodate the pivoting shelves is considerably reduced so that the unit can be more compact. The individually pivotally mounted shelves of the present invention are flipped from one extreme position to another through a relatively short arc of movement on a relatively short moment arm, as compared to the device shown in the prior patent aforesaid.

The present invention also incorporates a novel mechanism for each turnable shelf to selectively position and bias the shelf in its retracted and advanced positions.

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

DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view of wrapping apparatus having a film selector embodying the present invention.

FIG. 2 is an enlarged perspective view showing the upper position of the apparatus shown in FIG. 1.

FIG. 3 is a fragmentary enlarged side elevation of the upper portion of the apparatus shown in FIG. 1.

FIG. 4 is a cross section along the line 4–4 of FIG. 3.

FIG. 5 is a fragmentary cross section taken through one of the pivotal mountings for a film selector shelf.

FIG. 6 is a fragmentary longitudinal section showing the various shelves in one position of operation and in which the middle shelf is in use.

FIG. 7 is a fragmentary cross section similar to FIG. 6, but showing the top shelf in use.

FIG. 8 is a fragmentary cross section similar to FIG. 6, but showing the bottom shelf in use.

DESCRIPTION OF PREFERRED EMBODIMENT

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.

The wrapping apparatus comprises a stand or frame 10 which supports a wrapping table 11 which desirably has an elevated ledge 12 which supports the package during part of the wrapping sequence. Film rolls 13, 14, 15 are mounted at various levels on the frame 10. These film rolls may comprise film of different widths or film types so that the operator can select the film which is of a suitable size and/or character to meet his film requirements.

Beneath the table 11 is disposed a film selector assembly 16 which is housed between side plates 17. In accordance with the present invention, the film selector assembly 16 consists of a number of film guide shelves corresponding to the number of film rolls 13, 14, 15. In the illustrated embodiment, there is a lower film guide shelf 20, an intermediate film guide shelf 21, and an upper film guide shelf 22.

The lower shelf 20 has a fixed mounting on end brackets 23 secured to the sideplates 17, for example, by the bolts 24.

Middle shelf 21 and upper shelf 22 are pivotally mounted as best shown in FIG. 5, which illustrates the mounting of shelf

21. The shelf 21 is provided with end brackets 25 having down turned ears 26 fast to the pivot rod or rockshaft 27. The ends of the rockshaft 27 extends through openings 28 in the sidewalls 17. At one end the rockshaft is turned upwardly at 30 to form part of a handle 31 by which the rockshaft 27 may be turned. The upturned portion 30 of the rockshaft passes through the embrace of a staple shaped cam bracket 32 which has a bridge 33 which is V-shaped to provide a cam rise at 34. (See FIG. 4.)

The other end of the rockshaft 27 is provided with a spring 35 which bears between ear 26 of bracket 25 and the end wall 17 to bias the rockshaft 27 toward the right, as shown in FIG. 5. The operator can turn the rockshaft 27 through a small angle by exerting swinging pressure on the handle 31, whereupon the handle will follow the contour of the V-shaped bridge 33 and cause the rockshaft 27 to shift axially to the left, in FIG. 5, as it passes over the cam rise 34 in the cam bracket 33 in the course of shifting from one position to the other. The spring 35 resists this movement and tends to keep the shelf in one or the other of its extreme positions. With the handle 31 in its lowermost position shown in FIGS. 4 and 5, the shelf 21 will be in its lowermost position shown in FIGS. 6 and 7. With the handle swung to its uppermost position, the shelf will be swung to its uppermost position shown in FIG. 8.

The same form of cam and spring biasing mechanism is provided for positioning the upper shelf 22, and the same reference characters denote the corresponding parts.

At the rear or heel margin of each shelf 20, 21, 22 there is a film restrainer to capture the film trained over the shelf and prevent backlash of the film web. The film restrainer comprises a roller 40 having an axle 36 loosely mounted in vertically elongated slots 37 in upwardly turned end portions 38 of the mounting brackets 25. The axle 36 has end heads 41 which span across the slots 37 to confine the roller 40 to vertical movement along the slots 37.

The rollers 40 have O-rings or rubber tires 42 which press the film under the gravity bias of the roller 40 against the tray. As the film is drawn forwardly over the tray, the roller 40 will turn to permit the film to run over the shelf.

The respective mountings for the shelves 20, 21, 22 are staggered or offset rearwardly on the sideplates 17, thus to provide space between each shelf through which the film webs are trained. The pivotally mounted shelves 21, 22 are relatively long in the direction of film web movement, and the respective free ends of said shelves 21, 22 will reach approximately the same terminal position, notwithstanding the staggered mounting of their rear ends, as is indicated in FIG. 7. This terminal position is indicated in the drawings as film handling station 39. Accordingly, the discharge end of whichever shelf is in use will be in substantially corresponding positions for easy pickup of the film web by the operator. These positions are aligned with the web guides 43, 44 and cutoff wire 45. Accordingly, the film web will run smoothly off of whichever shelf 20, 21, 22 is in position for use at station 39.

At the front of the machine and spaced ahead of the film selector 16 is a cross film web guide rod 43 and a plastic cross rod 44. Just ahead of the plastic rod 44 is a hot wire web-severing tool 45. Ahead and somewhat below the hot wire 45 is a guard rod 46 which functions as a guard to protect the operator from inadvertently touching the hot wire.

Forwardly projecting from the stand 10 is a hotplate 47 by which the undersurface of the package is sealed after the prewrapping operation has been completed on the prewrap table 11.

FIG. 7 illustrates the situation in which the film web 48 from the lowermost film supply roll 15 is in use. Web 48 is trained over the uppermost shelf 22. Both of the swingable shelves 21, 22 are in their lowermost positions, and the spacing between the shelves is such that there is no interference between the shelves. The film web 48 extends forwardly and is adhered to the plastic cross rod 44, as is typical following a wrapping sequence using the hot wire 45 to sever the web.

When the film web **51** from the middle supply roll **14** is to be used, the film web **48** is folded back along the leading margin of shelf **22** where it will remain stored until the next occasion for its use, and the uppermost shelf **22** of the film selector **16** is flipped to its out-of-the-way uppermost position, as shown in FIG. **6**. In turning the shelf **22** from its position shown in FIG. **7** to its position shown in FIG. **6**, there is very little throw of the shelf as the moment arm on which the shelf turns with respect to axle **27** is very short. The weight, inertia, and momentum of a single shelf and its film restrainer **40** is low and does not require any substantial effort on the part of the operator and does not result in substantial impact blows when the selector seats in its new position.

For use of the film web **51** from the middle roll **14**, the middle selector shelf **21** is left in its lowermost position, as shown in FIG. **6**.

When the film web **52** from top supply roll **13** is to be used, as shown in FIG. **8**, the film web **51** of the middle shelf **21** is folded back onto the shelf, and the middle shelf **21** is flipped to its uppermost position as shown in FIG. **8**, thus enabling the operator to reach in and unfold the folded end margins of the film web **52** for use, as shown in FIG. **8**.

As previously described in connection with shelf **22**, very little effort is required to flip the midshelf **21** to its inactive position.

If the operator wishes to discontinue using the film web **52**, the end of the web will be folded back onto the shelf **20**, as shown in FIGS. **6** and **7**, and one or the other, or both, of the shelves for the other film webs **48**, **51** will be flipped to advanced position, as illustrated in FIGS. **6** and **7**.

Accordingly, the respective film selector shelves **21**, **22** are readily flipped between retracted and advanced positions, at the option of the operator.

We claim:

1. In wrapping apparatus having a plurality of webs of wrapping film, film rolls from which the webs are unwound, a film-handling station to which the free ends of the film webs are brought in the course of using the apparatus, and a film selector between said rolls and said station, the improvement in which said film selector comprises:

a shelf for each film web and over which the film web is trained,

a film restrainer for each shelf to capture the film web trained thereover, and shelf-mounting means including pivotal mountings on which at least some of said shelves are individually swingable into positions for manual pickup of the film at said positions.

2. In wrapping apparatus having a plurality of webs of wrapping film, film rolls from which the webs are unwound, a film-handling station to which the free ends of the film webs are brought in the course of using the apparatus, and a film selector between said rolls and said station, the improvement in which said film selector comprises a shelf for each film web and over which the film web is trained, a film restrainer for each shelf to capture the film web trained thereover, and shelf-mounting means including pivotal mountings on which at least some of said shelves are individually swingable into positions for manual pickup of the film at said positions, said shelf-mounting means mounting said shelves in rearwardly staggered relation with respect to said station, said shelves having different lengths whereby the ends of the shelves are in approximately corresponding terminal positions when in use, notwithstanding the staggered mounting thereof.

3. In wrapping apparatus having a plurality of webs of wrapping film, film rolls from which the webs are unwound, a film-handling station to which the free ends of the film webs are brought in the course of using the apparatus, and a film selector between said rolls and said station, the improvement in which said film selector comprises a shelf for each film web and over which the film web is trained, a film restrainer for each shelf to capture the film web trained thereover, and shelf-mounting means including pivotal mountings on which at least some of said shelves are individually swingable into positions for manual pickup of the film at said positions, said pivotal mountings providing separate axes on which the swingable shelves pivot, the forward edges of said shelves extending considerably beyond the axis of its pivotal mounting and the heel of the shelf being proximate the axis of its pivotal mounting.

4. In wrapping apparatus having a plurality of webs of wrapping film film rolls from which the webs are unwound, a film-handling station to which the free ends of the film webs are brought in the course of using the apparatus, and a film selector between said rolls and said station, the improvement in which said film selector comprises a shelf for each film web and over which the film web is trained, a film restrainer for each shelf to capture the film web trained thereover, and shelf-mounting means including pivotal mountings on which at least some of said shelves are individually swingable into positions for manual pickup of the film at said positions, the lowermost said shelf being fixed.

5. In wrapping apparatus having a plurality of webs of wrapping film, film rolls from which the webs are unwound, a film-handling station to which the free ends of the film webs are brought in the course of using the apparatus, and a film selector between said rolls and said station, the improvement in which said film selector comprises a shelf for each film web and over which the film web is trained, a film restrainer for each shelf to capture the film web trained thereover, and shelf-mounting means including pivotal mountings on which at least some of said shelves are individually swingable into positions for manual pickup of the film at said positions, each said pivotal mounting comprising a rockshaft, and means for articulating each said shaft including a spring which biases its said shaft axially, a lever on the shaft and a bracket against which the lever is biased by said spring, said bracket having a cam rise over which the lever moves in the course of turning the rockshaft.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,589,633 Dated June 29, 1971

Inventor(s) John T. Young and Gilbert M. Hagemann

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, Line 39, Add the following sentence:

"After discontinuance of withdrawal force, however, the roller 40 will restrain rearward movement of the film over the shelf".

Signed and sealed this 11th day of January 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patents

FORM PO-1050 (10-69)

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