United States Patent [19]

Wylie et al.

[11] **3,717,940**

[45] **Feb. 27, 1973**

[54] COIN MACHINE

[75] Inventors: **Richard D. Wylie**, Gaffney; **Bobby Morrison**, Spartanburg, both of S.C.

[73] Assignee: **Deering Milliken Research Corporation**, Spartenburg, S.C.

[22] Filed: **May 3, 1971**

[21] Appl. No.: **139,457**

[52] **U.S. Cl.** **34/236,** 53/184, 198/210, 221/219

[51] **Int. Cl.**.....**F26b 19/00**

[58] **Field of Search** 53/184; 198/210, 25; 34/236; 219/388; 221/219

[56] **References Cited**

UNITED STATES PATENTS

3,126,682	3/1964	Krance	53/184 X
3,572,491	3/1971	Wylie	198/26
3,597,852	8/1971	McCollough	34/236
3,603,479	9/1971	Kuster et al.	198/210
3,618,743	11/1971	Behatar	198/210

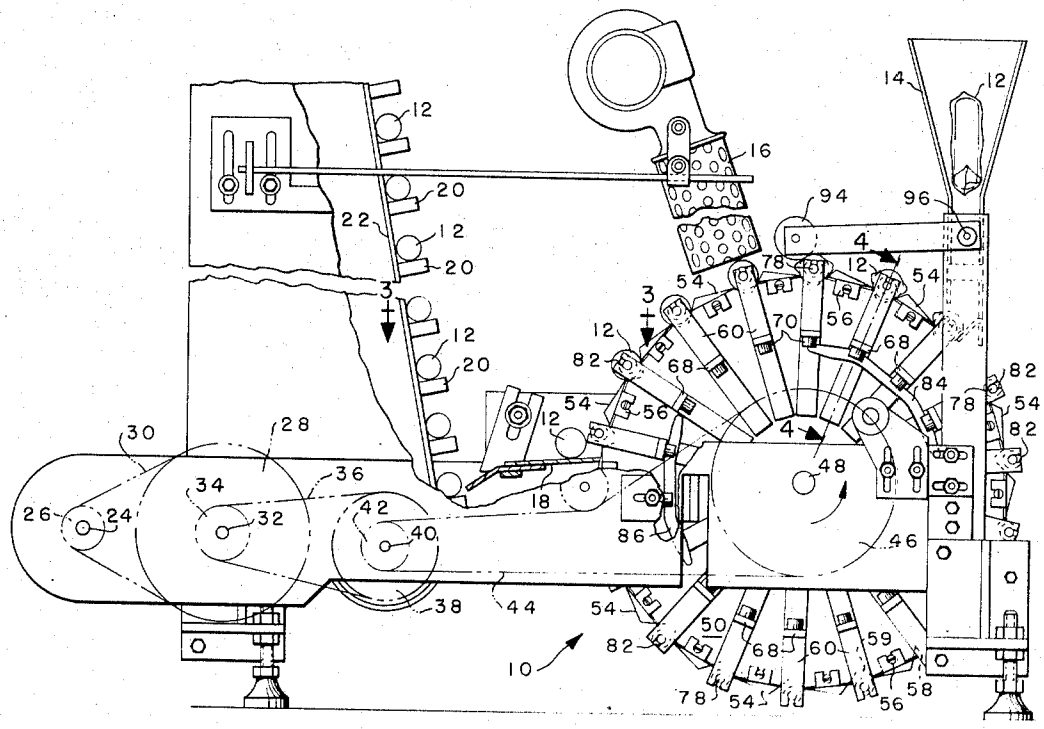
Primary Examiner—Carroll B. Dority, Jr.

Attorney—Norman C. Armitage, H. William Petry and Earle R. Marden

[57] **ABSTRACT**

Improved mechanism to transfer rolls of coins wrapped in shrink film from the wrapping station to the heat shrink station and further to the coin elevator by means of a rotary transfer drum which securely holds the rolls of coins during transfer thereof.

11 Claims, 6 Drawing Figures



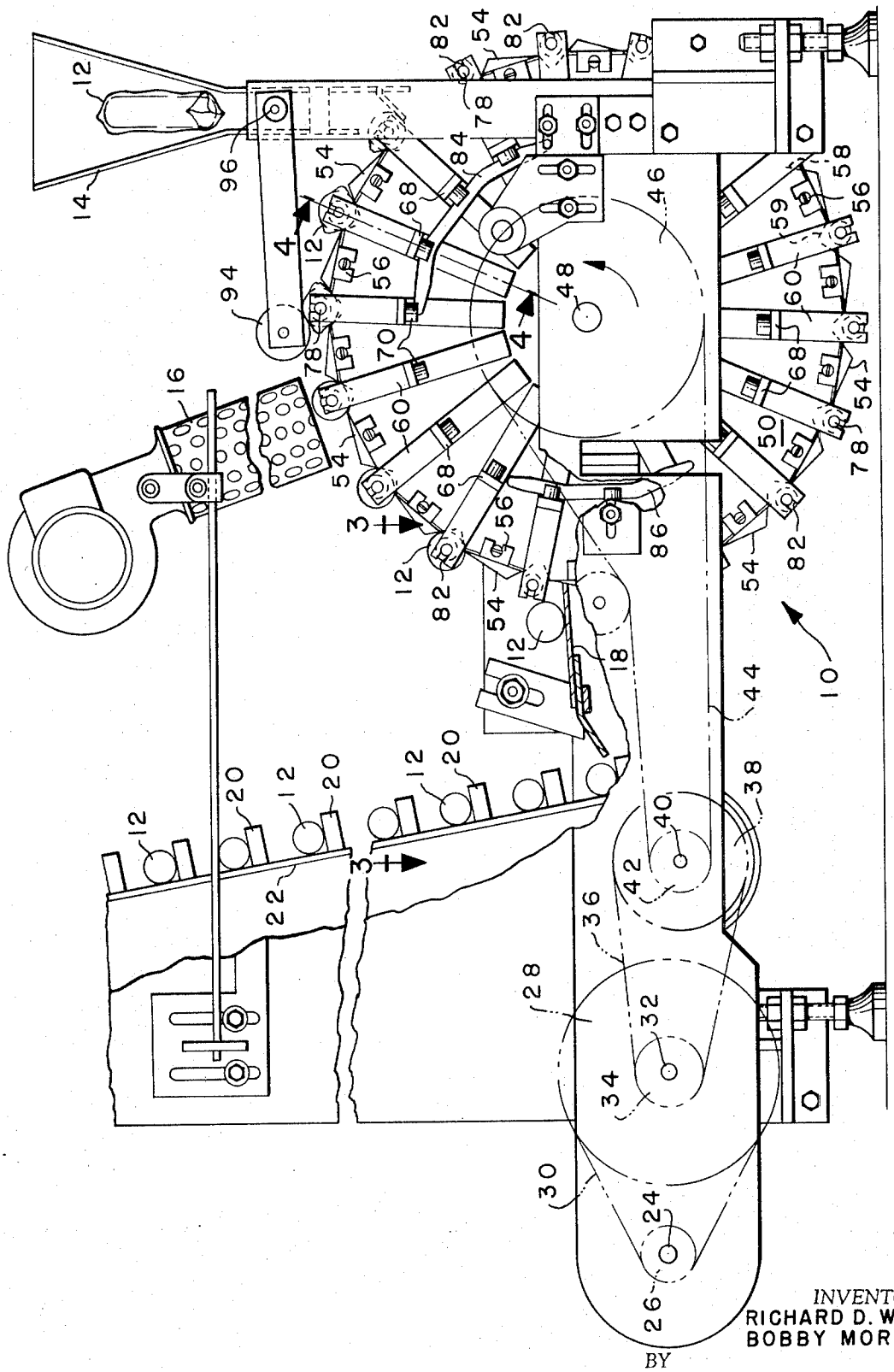


FIG. -1-

INVENTOR.
RICHARD D. WYLIE
BOBBY MORRISON

BY

Earle R. Marden

ATTORNEY

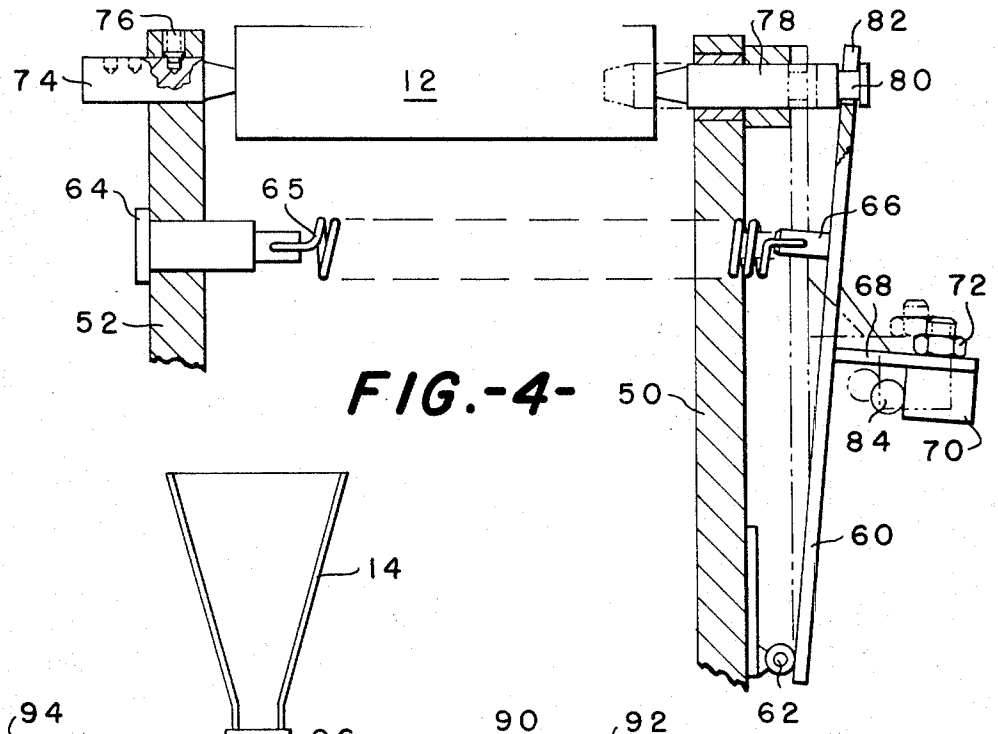


FIG.-4-

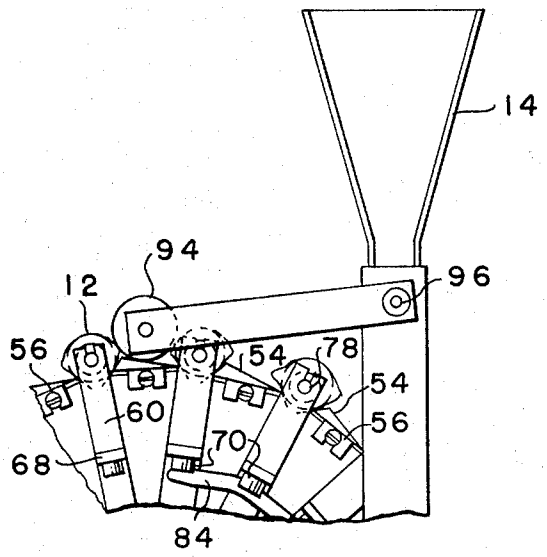


FIG.-2-

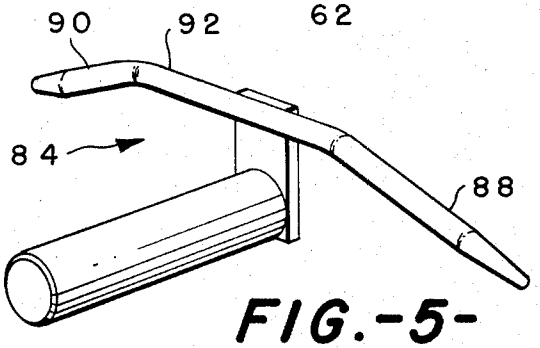


FIG.-5-

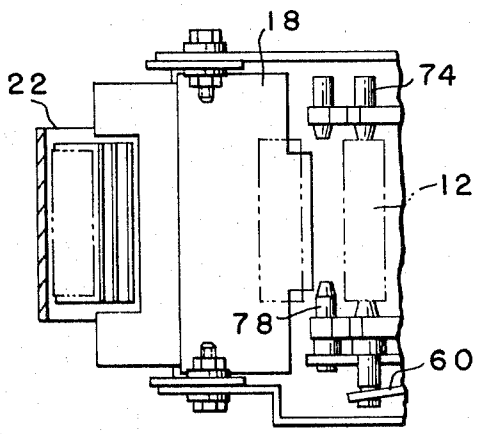


FIG.-3-

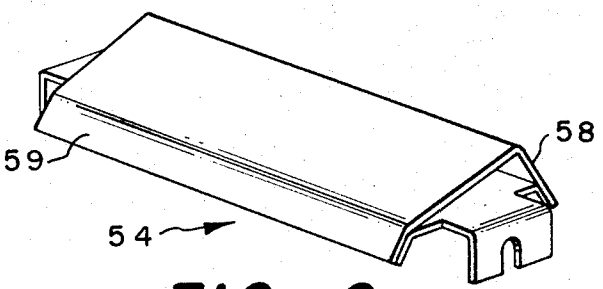


FIG.-6-

INVENTOR.
RICHARD D. WYLIE
BOBBY MORRISON

BY

Earle R. Marden

ATTORNEY

COIN MACHINE

In the packaging of coins in shrink film it is necessary to transfer the coins wrapped in shrink film to a heating station in order to form a compact wrapped roll of coins. To attain maximum efficiency it is necessary that such operation be automatic so that one operator can operate more than one machine.

Therefore, it is an object of this invention to provide apparatus to automatically transfer coins loosely wrapped in shrink film to a heating zone to shrink the film down around the coins to form a compact roll of coins.

Other objects and advantages of the invention will become clearly apparent as the specification proceeds to describe the invention with reference to the accompanying drawings, in which:

FIG. 1 is a side elevation view of the new and improved coin roll transfer mechanism;

FIG. 2 is a blown-up view of the coin chute and roll transfer;

FIG. 3 is a view taken on line 3—3 of FIG. 1;

FIG. 4 is a view taken on line 4—4 of FIG. 1 showing the transfer of the coin rolls from the transfer mechanism to the elevator conveyor;

FIG. 5 is a perspective view of the cam employed to separate the roll holders at the entrance to the transfer mechanism; and

FIG. 6 is a perspective view of the transfer drum cleat which supports the rolls of coins.

Looking now to FIG. 1, the new and improved coin roll transfer mechanism is generally denoted as reference numeral 10. Rolls of coins 12 automatically loosely wrapped in shrink film by a coin wrapping machine (not shown) are delivered to the coin roll transfer mechanism via a suitable chute 14. The coin rolls 12 are rotated past a pair of electric heaters 16 whereat the shrink film shrinks down around the coins to form a compact package. From the heaters 16 the coin rolls 12 are delivered to a platform 18 where they roll into a position between the cleats 20 of the elevator 22 and are carried upwardly thereby to a packaging station where they are either placed in a box or a bag for delivery to the customer.

The coin transfer mechanism 10 and the coin elevator 22 are driven by a motor (not shown) which has a shaft 24 on which is mounted a sprocket 26 which drives sprocket 28 through an endless chain 30. Sprocket 28 in turn is mounted on a shaft 32 on which is secured another sprocket 34 which drives the endless chain 36 to rotate the sprocket 38 to drive the elevator 22 in an endless path. The sprocket 38 is mounted on a shaft 40 on which is also mounted the sprocket 42 which drives the endless chain 44 to rotate coin transfer mechanism 10 through the sprocket 46 mounted on the coin transfer mechanism shaft 48.

The coin transfer mechanism 10 basically consists of two aluminum circular plates 50 and 52 mounted on the shaft 48 and a plurality of coin roll support cleats 54 (see FIG. 6) secured between the plates 50 and 52 by suitable screws 56. The cleats are so designed and spaced from one another so that the roll of coins 12 is supported on the rear slanted portion 58 of one cleat and the front slanted portion 59 of the next adjacent cleat. It should be noted that the rear portion 58 is slanted at a greater angle than the front portion 59 to ensure that the coins from the chute 14 drop into the proper position and remain in such position as the coin mechanism 10 rotates in the direction indicated by the arrow in FIG. 1.

The coin transfer mechanism 10 has a plurality of lever arms 60 pivotally connected to the circular plate 50 at 62 and spring biased toward the plate 50 by a spring 65 fixed at one end by anchor 64 in the plate 52 and fixed at the other end to a stud 66 secured to the lever arms 60. A plate member 68 is welded or otherwise secured to the outside of lever arms 60 and supports a cam follower 70 therein by means of a nut 72.

Secured in circular plate 52 is a plurality of pins 74 secured therein by set screws 76 which cooperate with pins 78 slidably mounted in circular plate 50. Pins 78 have a cut out portion 80 slidably held in groove 82 in the top of lever arms 60.

For reasons hereinafter explained, cam members 84 and 86 are mounted to the frame of the coin transfer mechanism and cooperate with the cam followers 70. The cam members 84 and 86 are generally of the shape shown in FIG. 5 wherein both ends 88 and 90 of the cam bend backwards away from the plane 92 of the center portion.

OPERATION

As described briefly before, a roll of coins 12 loosely wrapped in shrink film is delivered into the coin chute 14. From the coin chute 14 the roll of coins drops into the space between adjacent coin roll support cleats 54. Connected to the chute 14, but not shown, is a weighted gate, such as that shown in U.S. Pat. No. 3,572,491, which retards the movement of the coin roll into the coin roll transfer mechanism until an approximate space rotates into the correct position under the coin roll chute 14. Prior to the dropping of the roll of coins 12 from the chute 14 into the aforementioned space, the lever arm 60 adjacent the space to be occupied has been pivoted outwardly by the engagement of the cam follower 70 with the portion 88 of the cam 84. As the coin transfer mechanism 10 is rotated further to the position where the coin roll 12 will be dropped into the space, the lever arm 60 will be pivoted all the way out against the bias of spring 64 by the portion 92 of the cam to allow the coin roll 12 to drop into the space between the pins 76 and 78. Then as the coin roll mechanism continues to rotate, the cam follower 70 will ride down the cam portion 90 of the cam 84 allowing the spring 64 to pivot the lever arm inwardly towards the circular plate 50 to allow the pin 78 to engage the end of the coin roll 12 to secure it in position between the pins 76 and 78. At about the same time the weighted roller 94 pivots to the coin chute 14 at 96, rolls across the top of the coin roll to tamp the individual coins in the package and to seat the package properly in the space between adjacent cleats 54.

The coin transfer mechanism 10 continues to rotate in the counterclockwise direction to rotate the coin rolls 12 toward the elevator 22 past the heater 16 to shrink the film down around the coins to form a compact coin roll package. As the coin rolls approach the elevator after the film has been shrunk the cam follower 70 engages the cam 86 to pivot the lever 60 outwardly to release the roll of coins and allow it to fall onto the platform 18 so they can roll toward the elevator 22 and be carried away by one of the cleats 20.

It can readily be seen that we have provided a coin roll transfer mechanism which is simple in design and efficient in operation to automatically receive loosely wrapped rolls of coin and transfer such coins past a heating station to shrink the film down around the coins to provide a compact roll of coins.

Although we have described in detail the preferred embodiment, it is contemplated that other advantages and modifications will become obvious to those skilled in the art and therefore we desire to be limited only by the scope of the invention as defined in the claims.

That which is claimed is:

1. A coin roll transfer system comprising: a means to supply coin rolls loosely wrapped in shrink film to said system, a means to convey rolls of coin from said system, heating means between said supply means and said conveying means to shrink the shrink film down around said coin rolls, a substantially circular coin roll transfer means rotatably supported between said supply means and said conveying means, means rotating said coin roll transfer means to transfer coin rolls from said supply means past said heating means to said conveying means, said coin roll transfer means including a means to hold the coin rolls in position during transfer, said coin roll holding means including a plurality of lever arms pivotally mounted to said substantially circular coin roll transfer means and having a pin operably associated with the coin rolls during transfer thereof, said lever arms being spring biased and said coin roll holding means further including a cam follower on said lever arms and a first cam means on said coin roll transfer means to pivot said lever arms against the spring bias.

2. A coin roll transfer system comprising: a means to supply coin rolls loosely wrapped in shrink film to said system, a means to convey compact rolls of coins from said system, heating means between said coin roll supply means and said coin roll conveying means to shrink the shrink film down around the rolls of coins, coin roll transfer means rotatably supported between said supply means and conveying means, said coin roll transfer means including two substantially circular plate members spaced from one another, means operably associated with said plate means to support a roll of coins therebetween, means rotating said coin roll transfer means to transfer coin rolls from said supply means to said conveying means past said heating means, said means supporting a roll of coins between said plate members including a lever arm pivotally mounted to the exterior of one of said plate members and having a pin member engaging the roll of coins during transfer thereof.

3. A coin roll transfer system comprising: a means to supply coin rolls loosely wrapped in shrink film to said system, a means to convey compact rolls of coins from said system, heating means between said coin roll supply means and said coin roll conveying means to shrink the shrink film down around the rolls of coins, coin roll transfer means rotatably supported between said supply means and conveying means, said coin roll transfer means including two substantially circular plate members spaced from one another, means operably associated with said plate means to support a roll of coins therebetween, means rotating said coin roll transfer means to transfer coin rolls from said supply means to said conveying means past said heating means, said coin roll support means including at least two cleat members connected to said plate members and spaced from one another to provide a space therebetween to accommodate a roll of coins.

4. The structure of claim 1 wherein said coin roll transfer means include a second cam means adjacent said conveying means to pivot said lever arms against the spring bias to release the coin rolls from said pin.

5. The structure of claim 2 wherein said lever arm is spring biased and said coin roll supporting means further includes a cam follower on said lever arm and a first cam means on one of said plate members to pivot said lever arm against the spring bias.

6. The structure of claim 5 wherein said spring bias is exerted by a spring means connected to one of said plate members and extending through a space between said plate members and projecting through an opening in the other of said plate members and being connected to said lever arm.

7. The structure of claim 6 wherein said coin roll transfer means further includes a second cam means adjacent said conveying means to pivot said lever arms against the bias of said spring to release the coin rolls from said pin.

8. The structure of claim 3 wherein said means supporting a roll of coins between said plate members includes a lever arm pivotally mounted to the exterior of one of said plate members and having a pin member engaging the roll of coins during transfer thereof.

9. The structure of claim 8 wherein said lever arm is spring biased and said coin roll supporting means further includes a cam follower on said lever arm and a first cam means on one of said plate members to pivot said lever arm against the spring bias.

10. The structure of claim 9 wherein said spring bias is exerted by a spring means connected to one of said plate members and extending through a space between said plate members and projecting through an opening in the other of said plate members and being connected to said lever arm.

11. The structure of claim 10 wherein said coin roll transfer means further includes a second cam means adjacent said conveying means to pivot said lever arms against the bias of said spring to release the coin rolls from said pin.

* * * * *