Dec. 17, 1968 ISAMU UCHIDA 3,416,291

COIN COUNTING AND WRAPPING MACHINE

Filed Nov. 3, 1966 10 Sheets-Sheet 1

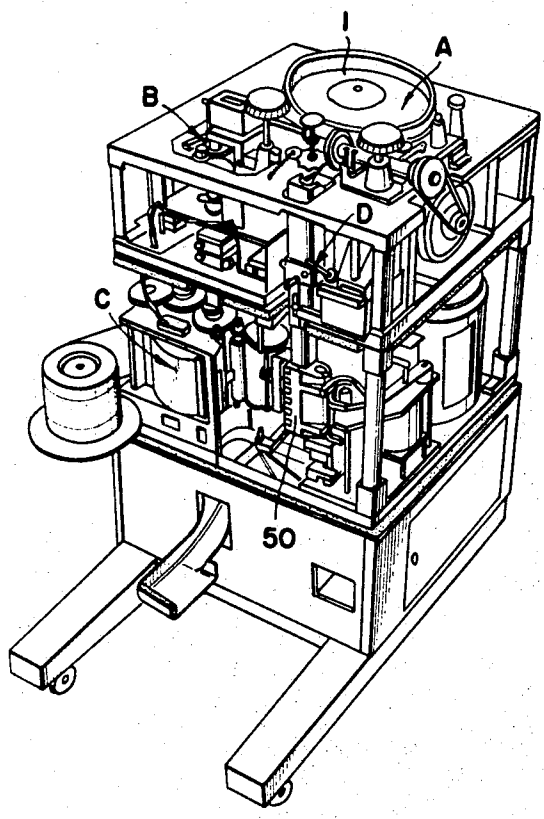


FIG. 1

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COIN COUNTING AND WRAPPING MACHINE

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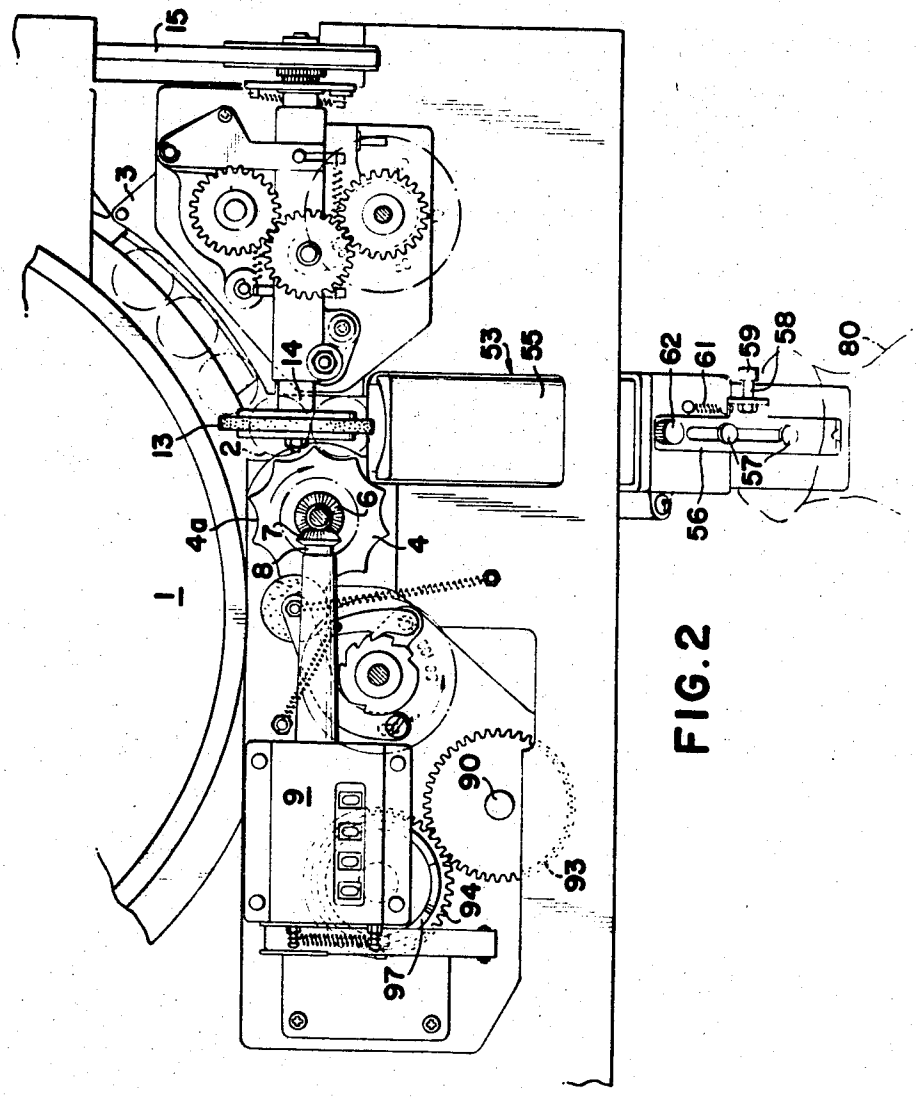


FIG. 2

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COIN COUNTING AND WRAPPING MACHINE

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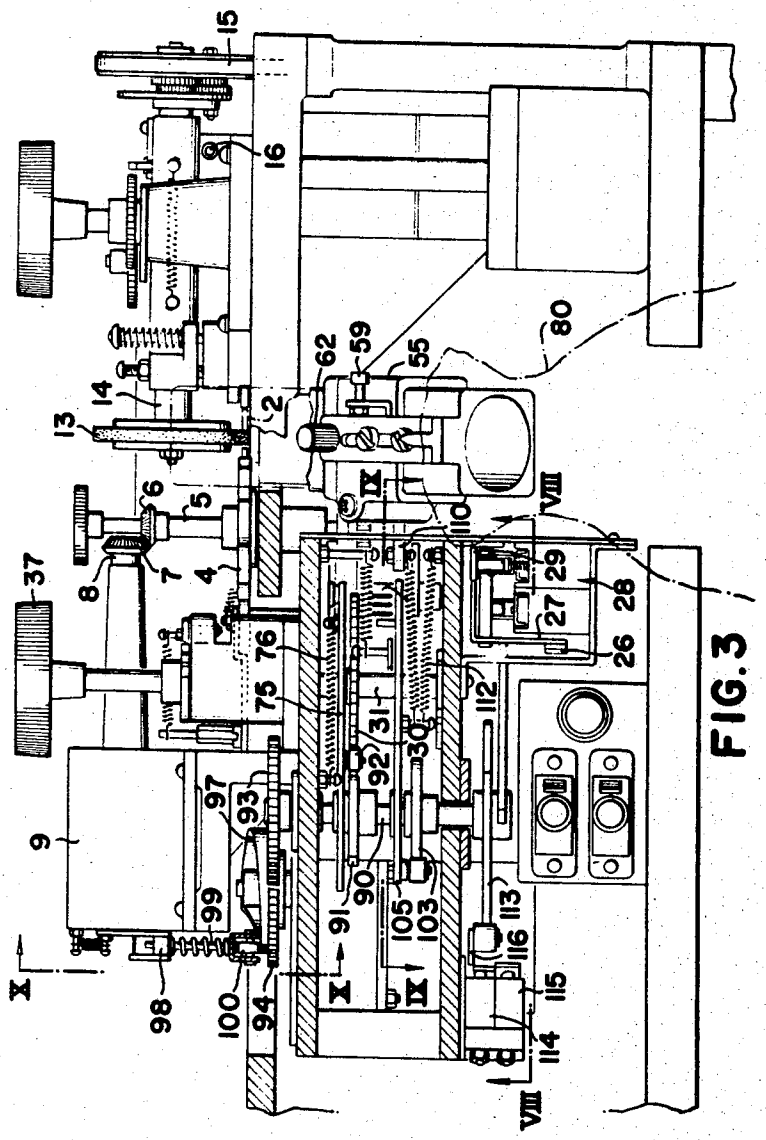


FIG. 3

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COIN COUNTING AND WRAPPING MACHINE

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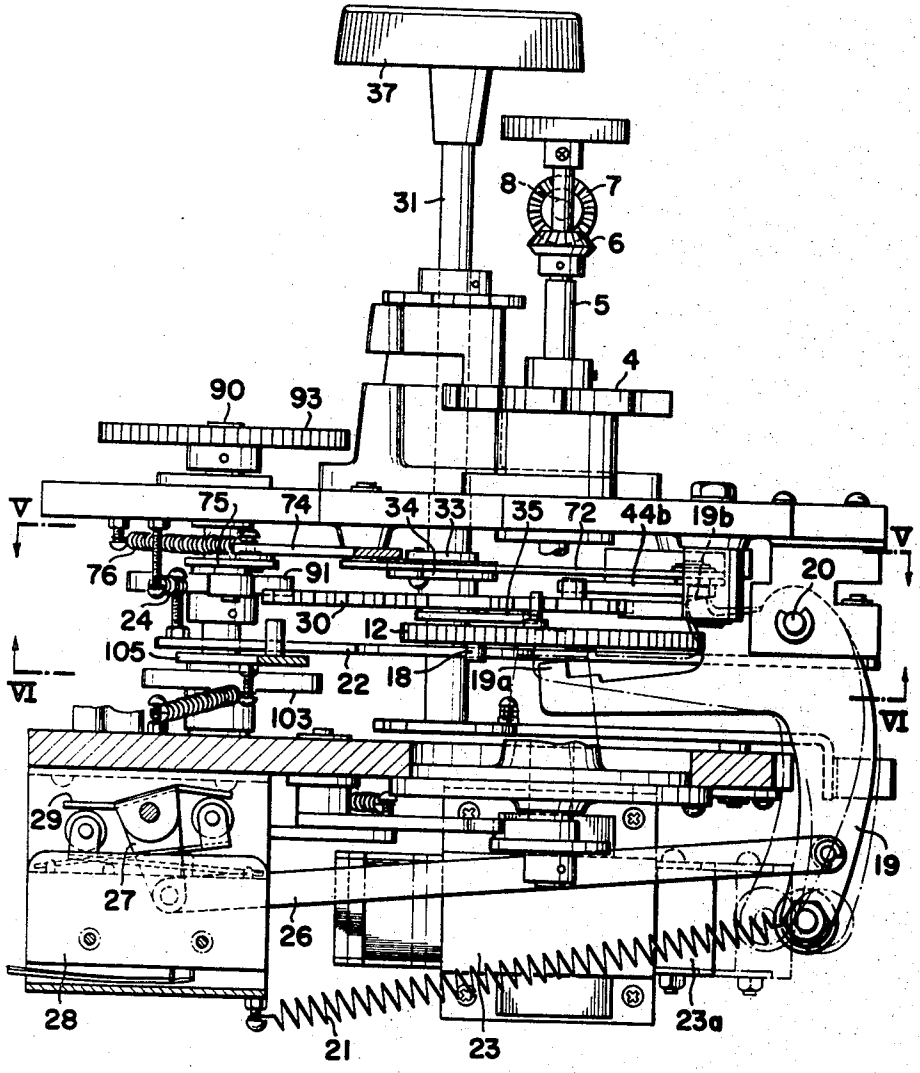


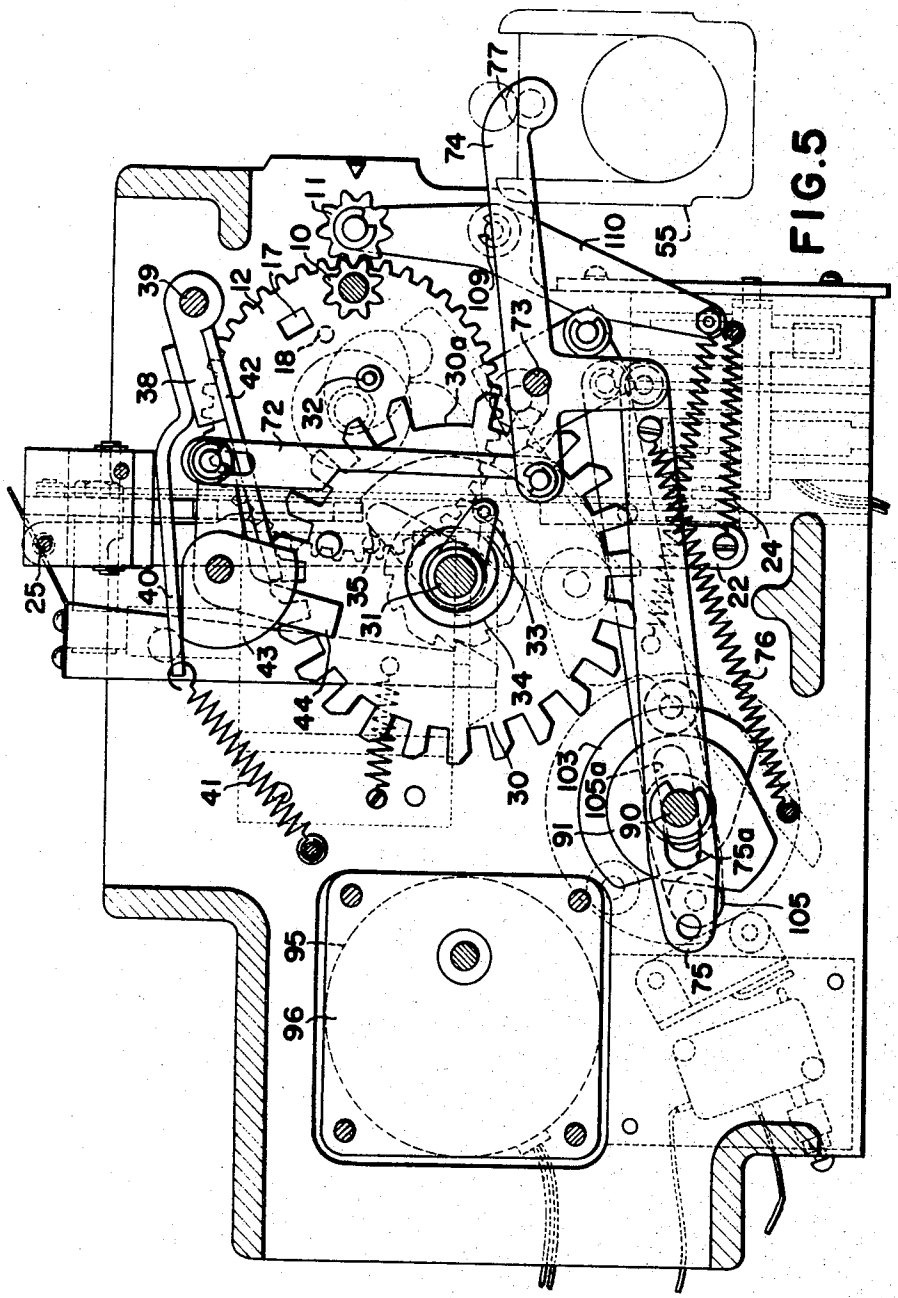
FIG. 4

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COIN COUNTING AND WRAPPING MACHINE

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FIG.5



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COIN COUNTING AND WRAPPING MACHINE

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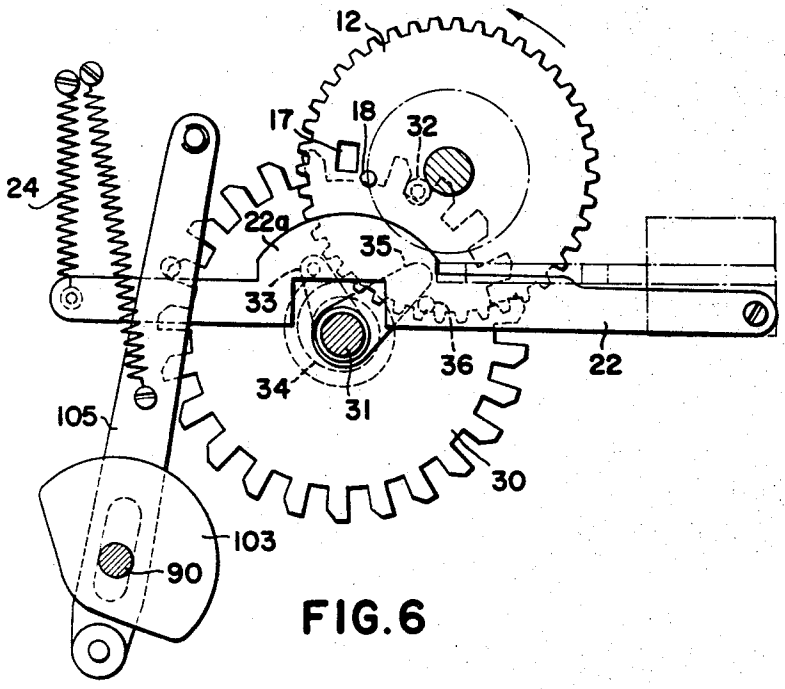


FIG.6

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COIN COUNTING AND WRAPPING MACHINE

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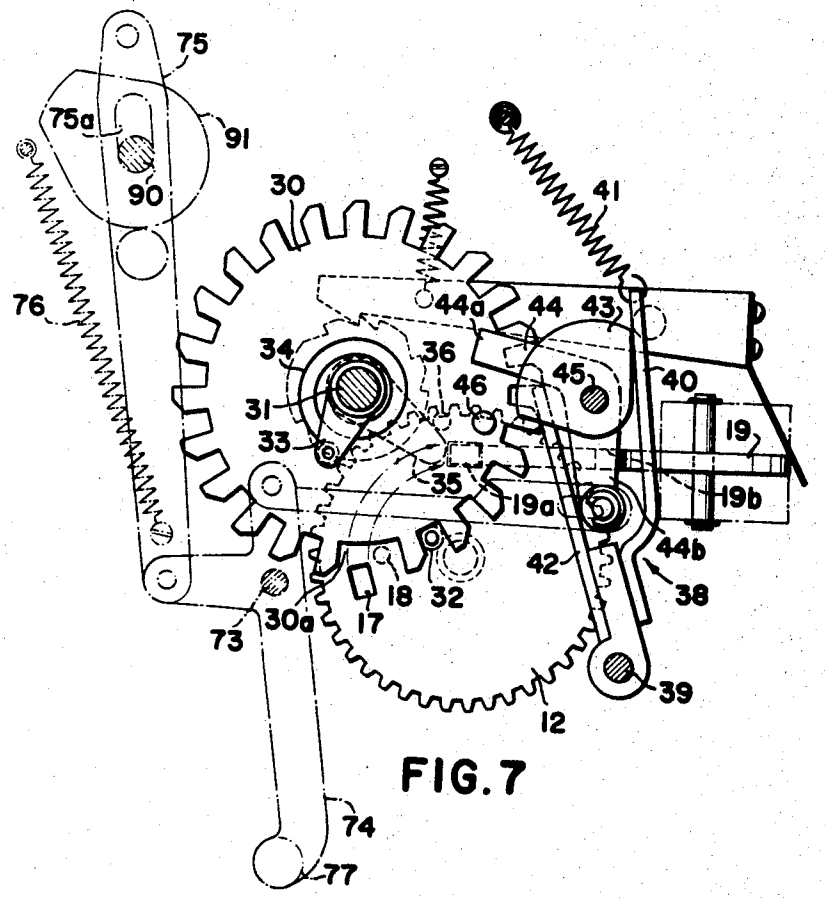


FIG. 7

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COIN COUNTING AND WRAPPING MACHINE

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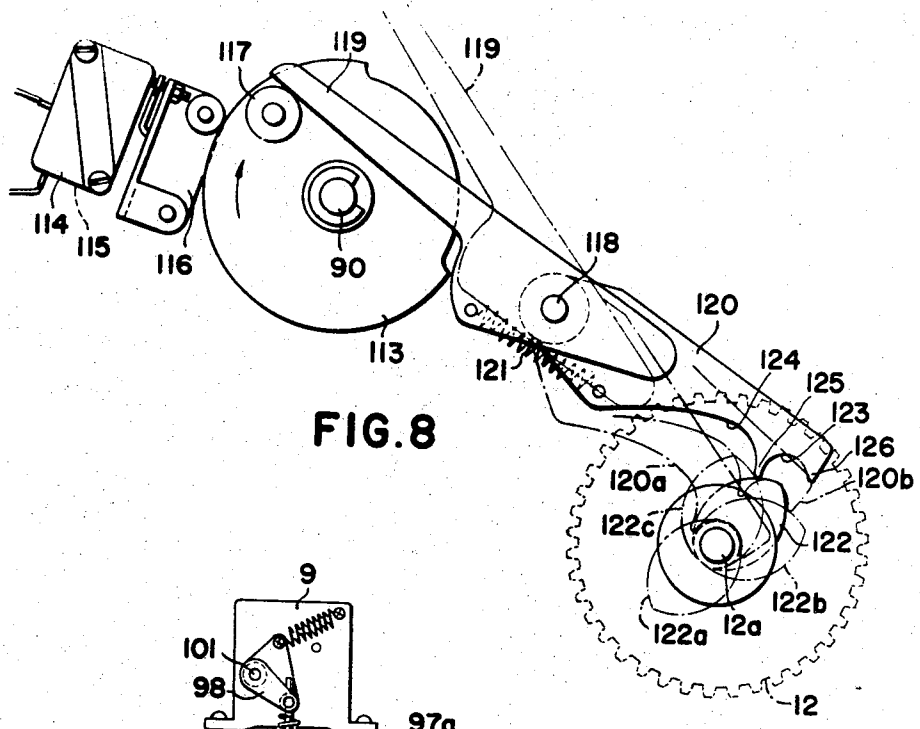


FIG.8

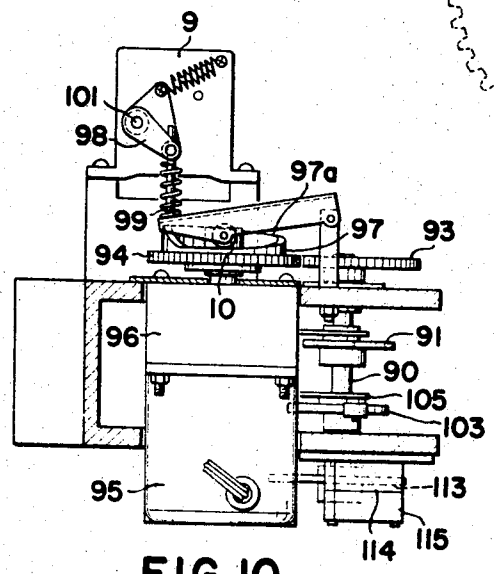


FIG.10

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COIN COUNTING AND WRAPPING MACHINE

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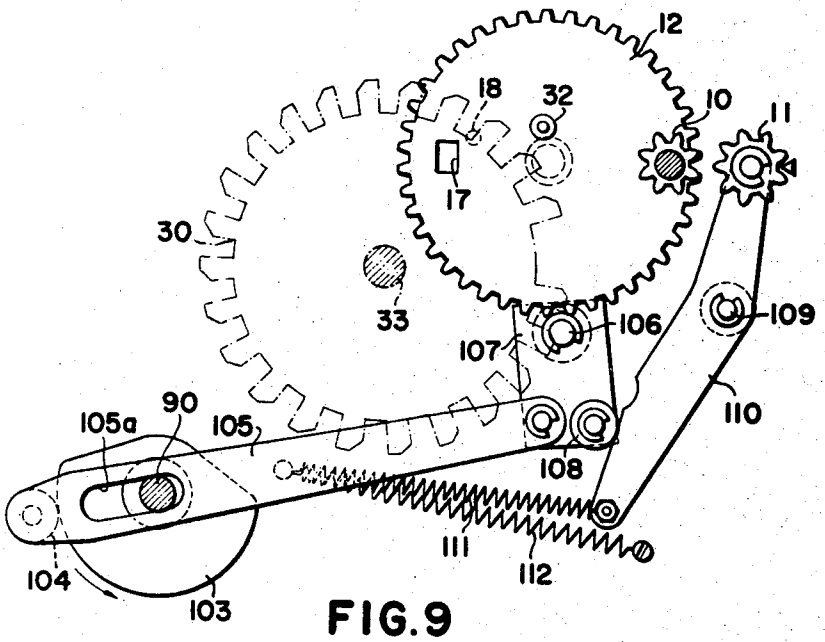


FIG.9

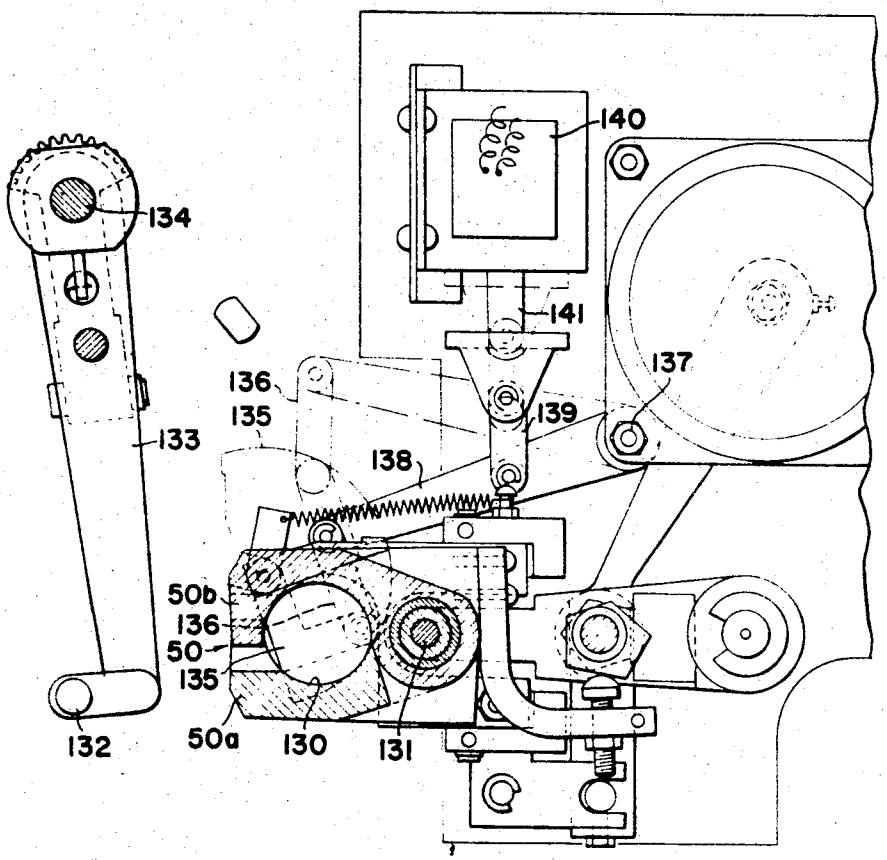

140
134
141
137
136
135
139
133
138
50b
136
50
135
132
50a
130
131

FIG. 11

United States Patent Office 3,416,291
Patented Dec. 17, 1968

3,416,291

COIN COUNTING AND WRAPPING MACHINE

Isamu Uchida, No. 10–1, 4-chome, Daito, Daito-ku, Tokyo, Japan

Filed Nov. 3, 1966, Ser. No. 591,743
12 Claims. (Cl. 53—78)

The present invention relates to a coin counting and wrapping machine and more particularly to a device by means of which each mechanism in the machine is set in starting position by a single operation.

Recently, coin counting and wrapping machines have been widely used for counting and wrapping coins in such facilities as, for example, banks and stores, where coins are handled in a large quantity. In such machines wherein coins are counted in predetermined numbers, e.g. fifty, stacked into a cylindrical shape and wrapped with a wrapping material, odd sums of coins remain in the machine without being wrapped when the machine is stopped. In order to start another cycle of coin counting and wrapping operation, therefore, it is necessary to remove the odd sum of coins from the machine and set each mechanism in starting position.

It is an object of the present invention to provide a device for coin counting and wrapping machines of the type described, by means of which a fraction of coins remaining in the machine is removed therefrom and each mechanism of the machine is set in starting position by a single operation.

Other objects and advantages of this invention will become apparent from the following detailed description taken with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view of a coin counting and wrapping machine, with a cover removed, in which the present invention is embodied;

FIGURE 2 is a plan view of a portion of the coin selecting section and the coin counting section of the machine shown in FIG. 1;

FIGURE 3 is a front view of the coin counting mechanism;

FIGURE 4 is a side view of an important portion of the coin counting mechanism;

FIGURE 5 is a plan view taken on line V—V of FIG. 4 and as viewed at right angles to the view of FIG. 4 so as to show the arrangement in the same direction;

FIGURE 6 is a bottom view taken on line VI—VI of FIG. 4;

FIGURE 7 is a plan view in enlargement of a fragment of the mechanism shown in FIG. 5;

FIGURE 8 is a view taken on line VIII—VIII of FIG. 3;

FIGURE 9 is a view taken on line IX—IX of FIG. 3;

FIGURE 10 is a view taken on line X—X of FIG. 3; and

FIGURE 11 is a plan view of a coin accumulating cylinder clearing mechanism in the coin wrapping section.

Referring now to FIG. 1, the illustrated coin counting and wrapping machine includes a coin selecting section A, a coin counting section B and a coin wrapping section C, said coin counting section B being arranged adjacent to an exit of the coin selecting section A, said coin wrapping section C being arranged below the coin counting section B and both said coin counting section B and said coin wrapping section C communicating with each other through a substantially vertical coin passage D.

The coin selecting section A includes a rotary disc **1** and an exit **2** for said coin selecting section A is formed adjacent to the outer periphery of said rotary disc **1**. At the exit **2** is disposed a movable adjusting member **3** having an arcuate inner peripheral edge which is arranged

in adjacent relation to the outer peripheral edge of said disc **1** so as to form a slot therebetween through which coins of smaller diameters are dropped. The width of said slot is adjusted according to the diameter of the coins to be screened and coins of smaller diameters having dropped through said slot are discharged through a discharge opening not shown. The terminal edge of the movable member **3** defines an outlet channel between it and a fixed member of the coin selecting section A, the width of said outlet channel corresponding to the diameter of the coins to be screened. Thus, coins of larger diameters are prevented from passing through said outlet channel. With the arrangement described, when the disc **1** is rotated at an appropriate rotational frequency, the coins supplied on the disc **1** are moved radially outwardly due to centrifugal force to be screened by said slot and outlet channel and coins of a desired kind only are discharged through the outlet channel. Since the coin selecting mechanism of the type described above is already known and does not constitute the essential part of the present invention, no further explanation will be given thereon.

The coin counting section B, which is arranged adjacent to the exit **2** of the coin selecting section A, includes a star-shaped counting wheel **4** with a plurality of arcuate recesses **4***a* formed peripherally thereof. This wheel is secured to a vertical rotary shaft **5** which is journalled in a fixed portion of the machine. The shaft **5** has a bevel gear **6** fixed to the top end thereof as shown in FIGS. 2 to 4, which bevel gear meshes with another bevel gear **7** secured to one end of a horizontal shaft **8**. The other end of the horizontal shaft **8** is connected to an integrating counter **9**. Fixed to the lower end of the vertical rotary shaft **5** is a gear **10** which is provided with a number of teeth corresponding to the number of recesses **4***a* formed in the wheel **4**. This gear **10** meshes with an idler gear **11** which in turn meshes with a first counting gear **12** free to rotate about a vertical shaft. Also disposed at the exit **2** of the coin selecting section A in adjacent relation to the star-shaped counting wheel **4** is a coin delivery rubber roller **13**, which is secured to one end of a horizontal shaft **14**. This horizontal shaft **14** is driven from an appropriate power source by way of a pulley mounted on the other end thereof. This roller assembly is supported on a fixed frame of the machine by means of a pivot **16**. The roller **13** which is retained in the position shown in FIG. 3 may be displaced upwardly as required by rotating the roller assembly about the pivot **16** clockwise. For this purpose an electromagnetic solenoid (not shown) is provided.

The roller **13** is driven in the position shown in FIG. 3 to deliver coins which are indicated by imaginary lines in FIG. 2. Each coin while being delivered fits in the recess **4***a* in the wheel **4** and turns said wheel by one tooth. It will be appreciated therefore that the gear **10** and therefore gear **12** are rotated clockwise by the number of teeth corresponding to the number of coins delivered.

The gear **12** is formed with a slot **17** extending from the undersurface to the upper surface thereof and a pin **18** is provided in proximity to said slot, projecting downwardly from the undersurface of said gear **12**. A generally L-shaped lever **19** having a hook **19***a* at one end is pivotally connected to the machine frame by means of a pin **20** in such position that the end extremity of the hook **19***a* is engageable with the slot **17** in the gear **12** and is biased to rotate clockwise by a spring **21** which is connected to the other end of said lever **19**. Due to such arrangement, the end extremity of the hook **19***a* of lever **19** is urged against the undersurface of the gear **12** by the bias of said spring **21**. Between the undersurface of the gear **12** and the hook **19***a* there is disposed a swing plate **22** in order to prevent wearing of

the tip end of the hook **19***a* due to friction between it and the undersurface of gear **12**. This swing plate **22** engages the hook **19***a* to prevent movement of said hook towards the gear **12** beyond said swing plate. The swing plate **22** has one end secured to the machine frame by a pin **25**, with the other end connected to a spring **24** which biases said swing plate to rotate counterclockwise and retains it in the position shown. The swing plate **22** is formed in its mid portion with a bent portion **22***a* which, when the swing plate **22** is in its normal position as shown in the figure, engages the hook **19***a* of the lever **19**, thereby preventing movement of said lever. It will be understood that, when the swing plate **22** is in the position shown, the hook **19** of the lever **19** does not come in contact with the undersurface of the gear **12** but when the slot **17** reaches a point close to the hook **19***a* upon rotation of the gear **12**, the pin **18** abuts against the bent portion **22***a* of the lever **22** causing said lever to turn clockwise against the bias of the spring **24**. The hook **19***a*, therefore, is released from engagement with the lever **22** and pressed against the undersurface of the gear **12** under the action of spring **21**. When the slot **17** has reached the position of the hook **19***a* upon further rotation of the gear **12**, the hook comes into engagement with the slot **17** and thereby rotation of the gear **12** and therefore of the star-shaped counting wheel **4** is stopped. The engagement of the hook **19***a* with the slot **17** is released by means of a solenoid **23**. This solenoid **23** is arranged such that its plunger pushes the end of the lever **19** opposite to the hook **19***a*. Upon excitation of the solenoid, the plunger **23***a* projects outwardly to cause the lever **19** to swing counterclockwise and thus the hook **19***a* is released from engagement with the slot **17**. As soon as the hook **19***a* is cleared from the gear **12**, the swing plate **22** is returned to its normal position shown in the figure under the action of spring **24** and thus the hook **19***a* is prevented from contacting the undersurface of the gear **12**. As will be appreciated from the foregoing description, the solenoid **23** is required to be excited only for a very short period. In this embodiment, since the gear **12** has fifty teeth, the hook **19***a* comes in engagement with the slot **17** every time 50 coins have been counted.

A link **26** has one end connected to the lower portion of the lever **19**, with the other end connected to a second link **27** for actuating a microswitch **28**. When the lever **19** is rocked for the engagement of the hook **19***a* with the slot **17**, an actuating arm for the microswitch is moved by way of the links **26** and **27**. When the microswitch **28** is actuated upon engagement of the hook **19***a* with the slot **17**, the coin delivery roller **13** is stopped and, at the same time, a wrapping mechanism as will be described later is actuated to wrap the coins which have already been counted and formed into a stack. Upon completion of the coin wrapping operation, the solenoid **23** is excited, whereupon the plunger is projected outward to the position indicated by the chain lines in FIG. 4, moving the lower end of the lever **19** to the right as viewed in the figure and thereby causing said lever to swing counterclockwise. In this manner, the hook **19***a* is released from engagement with the slot **17**.

A second counting gear **30** is rotatably mounted on a shaft **31** above and overlapping the gear **12** and a pin provided on the gear **12**, offset from the center thereof, engages the teeth of the gear **30** to advance said gear by one tooth each time the gear **12** rotates. The gear **30** is biased to rotate clockwise as viewed in FIG. 5 by a torsion spring **34** which is arranged to act between a protruding tab **33** fixed to or formed integrally with the shaft **31** and the gear **30**, and is retained in a predetermined position by a second protruding tab **35**, also fixed to or formed integrally with the shaft **31** of the gear **30** below said gear, and a pin **36** arranged for engagement with said protruding tab **35**. The stopping position of the gear **30** may be determined optionally by operating a knob **37**

which is provided at the top end of the shaft **31**. A bifurcated lever **38** is connected to the machine frame by a pin **39** and the free end of one of the arms **40** thereof is connected to a spring **41**, so that the other arm **42** of the lever **38** is elastically urged against the gear **30**. The arm **42** of the lever **38** and the gear **30** are arranged such that the arm **42** being in engagement with the gear **30** under the influence of the spring **41** prevents the clockwise rotation of said gear **30** but does not interfere with the counterclockwise rotation of the same.

A fan-shaped cam **43** is rotatably secured by means of a pin **45** for operative engagement with the arm **40** of lever **38** and a generally L-shaped lever **44** is provided for movement integrally with said cam **43**. One of the arms **44***a* of the lever **44** extends above the gear **30**, while the other arm **44***b* thereof extends above the lever **19** to engage with a projection **19***b* formed in the upper portion of said lever **19** so as to prevent further clockwise rotation of said lever after the swing plate **22** is retracted. The gear **30** carries a pin **46** projecting from the upper surface thereof at a point slightly radially inwardly of its outer peripheral edge. This pin **46** comes in contact with the arm **44***a* of the lever **44**, when the gear **30** is rotated counterclockwise as viewed in FIGS. 5 and 7, to cause the lever **44**—cam **45** assembly to rotate clockwise. Upon rotation of the assembly clockwise, the arm **44***b* of the lever **44** is disengaged from the projection **19***b* of the lever **19** first, permitting the lever **19** to rotate counterclockwise under the action of the spring **21**. The hook **19***a* is, therefore, pressed against the undersurface of the gear **12** and thereafter the hook **19***a* is brought in engagement with the slot **17** when the slot is moved to the position of said hook. Here, it is important that the location of the pin **46** is determined such that the arm **44***b* is released from engagement with the projection **19***b* when the plate **22** is moved inwardly by the pin **18**. At the same time, the cam **43** acts on the arm **40** of the lever **38** to rotate said lever clockwise. The rotation of the lever **38** results in disengagement of the arm **42** from the teeth of gear **30**, so that the gear **30** is rotated clockwise under the action of the torsion spring **34** until the pin **36** abuts against the tab **35** mounted on the shaft **31**.

As shown in FIGS. 5 and 7, one end of a link **72** is connected to the free end of the arm **44***b* of L-shaped lever **44**, while the other end thereof is connected to one end of the transverse arm of the T-shaped link **74** which is pivotally secured at **73**, the other end **77** of said transverse arm being arranged for abutment against the backside of a movable hollow member **55** within the passage D. A link **75** has one end connected to the end of the leg of link **74** and is urged to rotate clockwise by the bias of a tension spring **76** mounted thereon. The movable member **55**, upon movement, causes a counterclockwise swinging movement of the T-shaped link **74** by pushing it at one end but this swinging movement of the link **74** is not directly concerned with the present invention and therefore will not be described in further detail.

The link **75**, as shown in FIG. 5, is formed at the other end with a slot **75***a* in which a vertical cam shaft **90** is received. The cam shaft **90** has a first cam **91** fixed thereto below the link **75** and a cam follower roller **92** mounted on the link **75** rolls on the cam surface of said cam **91** in contact therewith.

The cam shaft **90** has fixed to the top end thereof a gear **93** which meshes with a gear **94** driven by a motor **95** through a reduction mechanism **96**. On the upper surface of the gear **94** is formed a cam **97** having a cam surface **97***a* and a roller **100** mounted on a cam follower lever **99** is arranged to roll on said cam surface **97***a*, said cam follower lever **99** being connected to the free end of a resetting lever **98** by means of which the scale of the counter **9** is reset to zero. Such being the arrangement, when the cam **97** is rotated with the roller **100** on the ridge of the cam surface **97***a*, the lever **99** is rotated counterclockwise

along with the shaft **101**, thereby resetting the scale of the counter **9** to zero.

The cam shaft **90** also has fixed thereto below the cam **91** a second cam **103** (FIG. 10) for cooperation with a cam follower **104** (FIG. 9) carried on a lever **105** which is in engagement with said cam shaft with the latter extending through a slot **105***a* formed therein. The lever **105** has one end connected to a link **107** arranged for pivotal movement about a pivot **106** . The link **107** carries a roller **108** abutting against the side edge of a lever **110** at a point in proximity of one end thereof, said lever **110** being supported by a pivot **109** and carrying the aforementioned idler gear **11** at the other end. In order to insure positive contact between the lever **110** and the roller **108**, a spring **111** is disposed between the lever **105** and lever **110**. There is also provided a spring **112** for biasing the lever **105** to the right as viewed in FIGS. 3 and 9. When the roller gets on the ridge of the cam **103** upon rotation of said cam, the lever **105** is pulled to the left against the bias of the spring **112**, with the result that the lever **110** is rotated clockwise, releasing the engagement between the gears **10** and **11**.

At the bottom end of the cam shaft **90** there is disposed a third cam **113** (FIG. 10), which, upon rotation, operates an arm **116** (FIG. 8) to thereby bring switches **114** and **115** into their closed positions. The switch **114** is a self-retaining switch for the operating circuit of the motor **95** and when this switch is in the closed position, the motor will not stop its operation even after the pressure is removed from a motor starting button (not shown). On the other hand, the switch **115** is provided to conduct current through the circuit of the wrapping section C in preparation for wrapping operation. The cam **113** carries thereon a roller **117** at a point offset from the axis of rotation thereof, so that when the cam **113** rotates, the roller **117** abuts against an end of a lever **119** pivotally mounted on a pin **118**, causing said lever **119** to make a swinging movement.

Also pivotally mounted on the pin **118** is a lever **120** which is connected to the lever **119** by a spring **121** so as to maintain said levers **119** and **120** in predetermined relative positions. The shaft **12***a* supporting the gear **12** is extended downward with an egg-shaped cam **122** fixed to the lower end thereof in substantially the same plane as that of the cam **113**. The lever **120** is disposed such that an end thereof is engageable with the cam **122**, and the side edge of the lever **120** facing the cam **122** is formed with two successive arcuate notches **123** and **124**. When the levers **119** and **120** are rotated by the roller **117** clockwise as viewed in FIG. 8, the projection **125** defined by said two arcuate notches **123** and **124** or the corner portion **126** defined by the arcuate notch **123** and an end of the lever **120** is brought into contact with the side face of the cam **122**, thus rotating said cam clockwise or counterclockwise to the position indicated by the chain line **122***a*. Such rotation of the cam **122** takes place under the action of said portion **125** or **126** even when the cam **122** is not in the position indicated by the solid line in FIG. 8 but is, for example, in the position indicated by the chain line **122***b* or **122***c*. When the cam **122** is positioned as indicated by the chain line **122***a*, the arcuate notch **123** of the lever **120** is brought into contact with the shaft **12***a* on the side opposite to the cam **122** and thereby prevents the subsequent rotation of the cam **122**. In this position of the lever **120**, the hook **19***a* of the lever **19** is engageable with the slot **17** in the gear **12**.

FIG. 11 shows the clearing mechanism for the coin accumulating cylinder **50**. The coin accumulating cylinder is arranged below the passage D and consists of a pair of members **50***a* and **50***b*, each of which has a concave surface so as to define a cylindrical coin accumulating hollow **130** when they are put together. Both members **50***a* and **50***b* are hingably connected to each other by means of a hinge pin **131**, so that they are opened by an appropriate opening mechanism (not shown) from the closed position indicated by the solid lines, provided for removal of the stack of coins having accumulated in said hollow transversely thereof.

A pair of levers, one of which only is designated by the numeral **133** and which are adapted to remove the stack of coins in the coin accumulating cylinder **50**, have one end swingably supported by a pin **134** and are provided at the other end with a pair of gripping pins, one of which only is designated by the numeral **132**, for clamping the stack of coins therebetween and transferring it to the coin wrapping mechanism. The coin wrapping mechanism may be of any of the known types, one of which is disclosed, for example, in United States Patent No. 3,037,336.

According to the present invention, a fan-shaped coin support plate **135** is disposed below the coin accumulating hollow **130**. This coin support plate **135** is pivotally connected to the bottom of the member **50***b* at its corner and a link **136** is disposed below the support plate **135**, which link has one end connected to the underside of said support plate, with the other end connected to a movable arm **138** which is free to swing about a pin **137**. The arm **138** is connected to a plunger **141** of a solenoid **140** at an intermediate portion thereof by way of a link **139**. Thus, it will be understood that, when the solenoid **140** is excited, the plunger **141** is retracted causing the lever **138** to swing clockwise as viewed in FIG. 11, with the result that the support plate **135** is displaced to the position indicated by the chain lines in the figure, permitting the coins in the accumulating hollow **130** to drop to be removed from the machine.

This support plate **135** will not interfere with the coin wrapping operation because of the arrangement such that, during the normal coin wrapping operation, the support plate **135** is cleared away from the bottom of the coin accumulating cylinder **50** by the pins **132** as said pins are brought below the coin accumulating cylinder by the swinging movement of the levers **133**.

The coin counting and wrapping machine of the invention operates in the manner described below.

During the normal coin wrapping operation, the passage D is positioned above the position indicated in FIG. 5 by the broken lines and the link **74** rotates counterclockwise from the position shown in the figure. The cam **43** is rotated clockwise by the member **55** by way of the links **74**, **72** and lever **44** as mentioned previously to act on the lever **38** and thus the arm **42** of said lever is released from engagement with the gear **30**. Under this condition, the gear **30** is returnable to its original position under the action of the spring **34** immediately after it is rotated by the pin **32** on the gear **12** counterclockwise. Simultaneously, the arm **44***b* of lever **44** is dislodged from the projection **19***b* of the lever **19**, permitting said lever **19** to be in contact with the undersurface of the gear **12** immediately after the swing plate **22** is moved inwardly.

When the machine is operated under the condition set out above, coins are delivered by the delivery roller **13**, while rotating the star-shaped counting wheel **4**. Thus, the gear **12** is turned by the number of teeth corresponding to the number of coins having been delivered, through the gears **10** and **11**, and completes its one full turn when a predetermined number, which is fifty in this embodiment, of coins have been delivered. The gear **12** starts to be rotated from a point at which the slot **17** is in engagement with the hook **19***a* and, when the gear **12** has made one full turn, the slot **17** is again brought to a point where it is engageable with the hook **19***a*. The swing plate **22** which prevents the hook **19***a* from contacting the gear **12** is retracted immediately before the slot **17** is brought to the engaging point, so that the rotation of the gear **12** is stopped by the hook **19***a* when the slot **17** has reached the aforementioned engaging point.

The coins which have been delivered during this coin counting process are sent through the passage D to the

coin wrapping section C where they are stacked in the coin accumulating cylinder. Upon engagement of the hook **19***a* with the slot, **17** the microswitch **28** is closed by the lever **19**, whereupon the wrapping machine is set in operation, removing the stack of coins from the coin accumulating cylinder and wrapping the same with a wrapping paper. The wrapping machine may be of any conventional type, e.g. of the type disclosed by United States Patent No. 3,037,336. It should be noted, however, that the present invention is not restricted to the use of only such wrapping machine but mechanisms of other types may also be employed.

Coincidently with the closure of the microswitch **28**, the solenoid for the delivery roller **13** is excited, whereupon said roller is lifted from its operative position and the delivery of coins is stopped.

When the coin wrapping process has proceeded to a certain degree or has been completed, the solenoid **23** is excited causing the plunger **23***a* to project outwardly to the position indicated by the chain lines in FIG. 4. As a result, the hook **19***a* is released from engagement with the slot **17** and at the same time the roller **13** is returned to its operative position, commencing another cycle of the coin counting process.

Supposing now that the machine has stopped its operation with an odd sum of coins (in a number less than 50 in this embodiment) in the coin accumulating cylinder **50**, it is necessary to rid said cylinder of the coins and also to set all mechanisms in their starting positions respectively before another cycle of operation is started.

According to the present invention, this can be achieved merely by pressing a push-button switch (not shown). Namely, when the push-button switch is pressed, the circuit of the motor **95** is closed to put said motor into operation. The driving force of the motor **95** is transmitted to the cam shaft **90** through the gears **94** and **93**. The rotation of the cam shaft **90** causes the cam **113** to rotate, bringing the switch **114** into the closed position. Thereafter, the motor **95** continues its operation even after the pressure is removed from the push-button switch.

Upon rotation of the gear **94** and therefore the cam **97**, the roller **100** rides on the ridge of the cam surface **97***a* causing a rocking motion of the lever **98** and thereby the scale of the counter is set to zero. Simultaneously the cam shaft **90** is rotated through the gear **93**. Therefore, the link **75** is pushed by the cam **91** to the right as viewed in FIG. 5, causing the link **74** to rotate counterclockwise about the pin **73**. This movement of the link **74** is transmitted to the L-shaped lever **44** through the link **72** causing it to rotate clockwise. As a result, the arm **44***b* of lever **44** is disengaged from the projection **19***b* of lever **19** and thus the hook **19***b* of lever **19** is brought into contact with the undersurface of the gear **12** soon after said hook is retracted from the plate **22**.

By the rotation of the shaft **90**, the second cam **103** is rotated to pull the lever **105** to the left as viewed in FIG. 9. This movement of the lever **105** releases the lever **110** to rotate clockwise and thereby the engagement between the gears **10** and **11** is terminated. In this case, since the engagement of the arm **42** of lever **38** with the gear **30** is released by the aforementioned clockwise rotation of the lever **44**, the disengagement of the gear **10** from the gear **11** sets the gear **12** free to rotate either clockwise or counterclockwise.

At the same time, the levers **119** and **120** are moved clockwise by the roller **117** on the cam **113**, whereupon the portions **125** and **126** of the lever **120** are brought in contact with the cam **122**, causing said cam to rotate to the position shown by the chain line **122***a* in FIG. 8. In this position of the cam **122**, the slot **17** in the gear **12** is engageable with the hook **19***a* of the lever **19**, namely the gear **12** is placed in the starting position. When the gear **94** has completed one full turn, the circuit connected to the motor **95** is broken.

On the other hand, when the push-button switch is pressed as mentioned previously, the circuit including the solenoid **140** is closed, whereupon the plunger **141** is retracted causing the coin support plate **135** to move away from below the coin accumulating hollow **130** of the coin accumulating cylinder **50** to the position indicated by the chain lines in FIG. 11 and thus the odd sum of coins in said acumulating hollow **130** drops down to be moved to the outside of the machine. In the manner described, all sections of the machine are set in their starting positions respectively.

The gear **30** and the mechanism related thereto, shown in FIG. 5, will not be detailed herein since they are not directly concerned with the present invention.

The details of the structure may be modified substantially without departing from the spirit of the invention and exclusive use of such modifications as come within the scope of appended claims is contemplated.

What is claimed is:

1. Apparatus comprising coin counting means, coin wrapping means, said coin counting means including control means to count coins delivered from said coin counting means to said coin wrapping means and to interrupt the delivery of coins when a predetermined number of coins have been delivered, said coin wrapping means including a coin accumulating cylinder for receiving coins from said coin counting means and accumulating coins as a stack therein and a coin wrapping mechanism for removing said stack of coins from said coin accumulating cylinder and wrapping the stack with a wrapping material, and further control means to reset said coin counting means and simultaneously discharge any partial stack of coins remaining in said coin accumulating cylinder.

2. Apparatus as claimed in claim **1** wherein said wrapping means comprises a displaceable coin support plate below said cylinder to retain coins therein and said contronl means includes a solenoid and a linkage means between said solenoid and plate whereby the solenoid controls and displacement of said plate and thereby the discharge of coins from the cylinder.

3. Apparatus as claimed in claim **1** wherein the counting means includes a gear provided with an opening, means to rotate said gear in proportion to the number of coins delivered to said cylinder, registration means to register with said opening at the beginning and ending of the formation of a stack of said predetermined number of coins and, in registration, to activate the control means of said counting means and wherein said further control means includes manually actuatable supplemental control means including displacement means to rotate said gear to bring said opening into registration with said registration means to actuate the control means of said counting means.

4. Apparatus as claimed in claim **3** wherein the counting means includes a gear arrangement to drive said gear, means to drive said gear arrangement in proportion to said delivery of coins and support means pivotally supporting said arrangement for selective engagement with said gear and wherein said manually actuatable means includes displacement means to displace said support means to disengage the gear arrangement and gear.

5. Apparatus as claimed in claim **3** comprising zeroizable intergrating counter means, said manually actuatable control means including zeroizing means coupled to and adapted to zeroize said inegrating counter means when operated to register said opening and registration means.

6. Apparatus as claimed in claim **5** wherein the counting means includes a gear arrangement to drive said gear, means to drive said gear arrangement in proportion to said delivery of coins, and support means pivotally supporting said arrangement for selective engagement with said gear and wherein said manually actuatable means includes displacement means to displace said support means to disengage the gear arrangement and gear.

7. Apparatus as claimed in claim **6**, wherein said wrapping means comprises a displaceable coin support plate

below said cylinder to retain coins therein and said control means includes a solenoid and a linkage means between said solenoid and plate whereby the solenoid controls the displacement of said plate and thereby the discharge of coins from the cylinder, said apparatus comprising means for the simultaneous operation of said solenoid and manually actuatable control means.

8. Apparatus as claimed in claim **7** wherein said manually actuatable control means includes a motor and a shaft driven by said motor and said displacement and zeroizing means include cams on said shaft.

9. Apparatus as claimed in claim **8** wherein said zeroizing means includes a cam follower and wherein the corresponding cam includes an axially disposed ridge displacing said follower, said zeroizing means including a linkage between said follower and integrating counter means.

10. Apparatus as claimed in claim **9** wherein the first said displacement means includes a further egg-shaped cam coupled to said gear to rotate the latter, a shaft, two levers mounted on said shaft for concomitant pivotal movement, one of said two levers being engaged by the first said cam of the first said displacement means, the other of said levers including a cam-shaped end to engage and rotate said egg-shaped cam.

11. Apparatus as claimed in claim **10** wherein the second said displacement means includes a lever displaced by the corresponding cam, spring means coupling the latter said lever to said support means, and means intermediate said lever and support means to transfer displacement of said lever to said support means.

12. Apparatus as claimed in claim **11** comprising a further cam on the shaft driven by said motor, a further lever operated by said further cam and a linkage system coupling the latter said lever to said counting means for orientation of the latter to a starting position.

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