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Uchida et al.

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[54] **COIN WRAPPING APPARATUS**

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[52] **U.S. Cl.** **53/212**; 53/389

[51] **Int. Cl.** **B65b 11/04**

[58] **Field of Search** 53/210, 211, 212, 389

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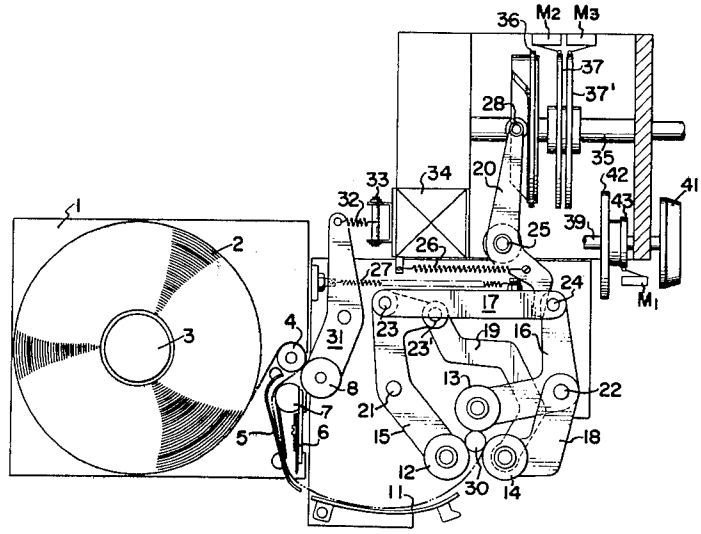
[57] **ABSTRACT**

Herein disclosed is a coin wrapping apparatus of a new construction, by which a stack of a predetermined number of coins is automatically wrapped with a predetermined length of wrapping tape. By the coin wrapping apparatus of an embodiment of this invention, the stack of large or small diameter coins can be selectively wrapped with a large or small amount of wrapping tape to fit the diameter of coins to be wrapped.

11 Claims, 9 Drawing Figures



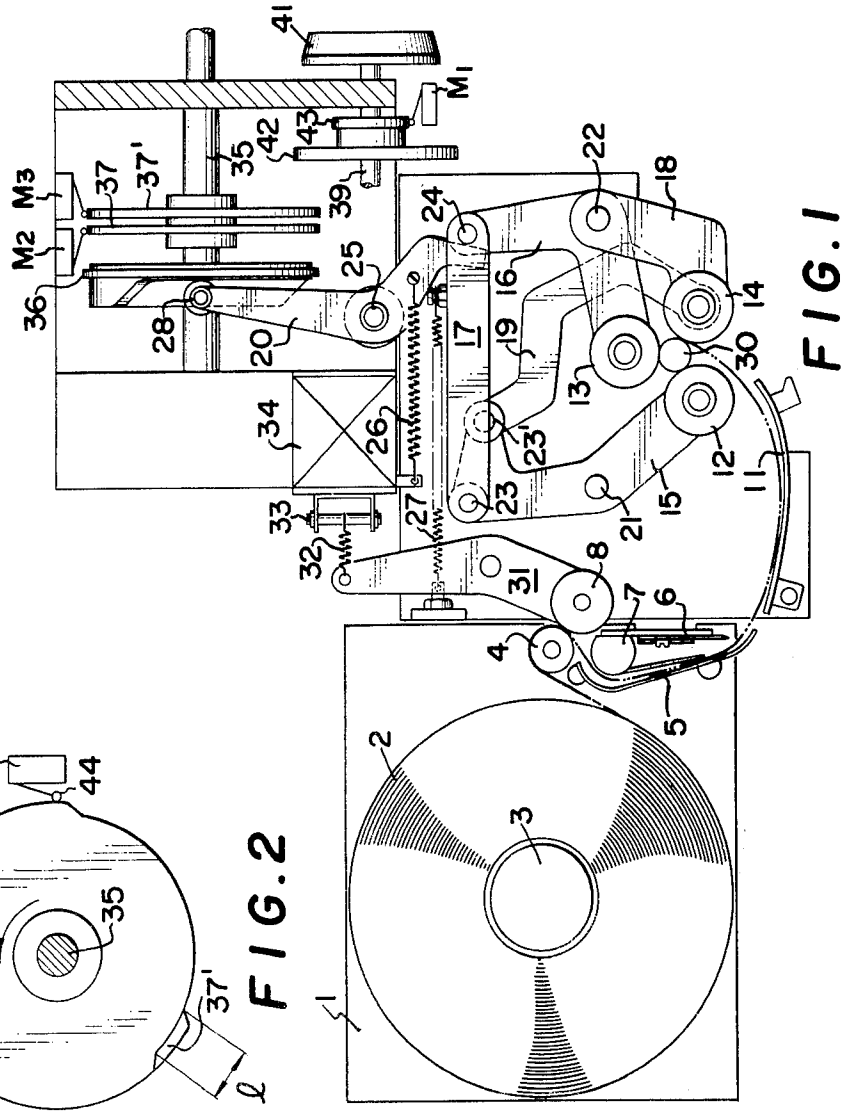
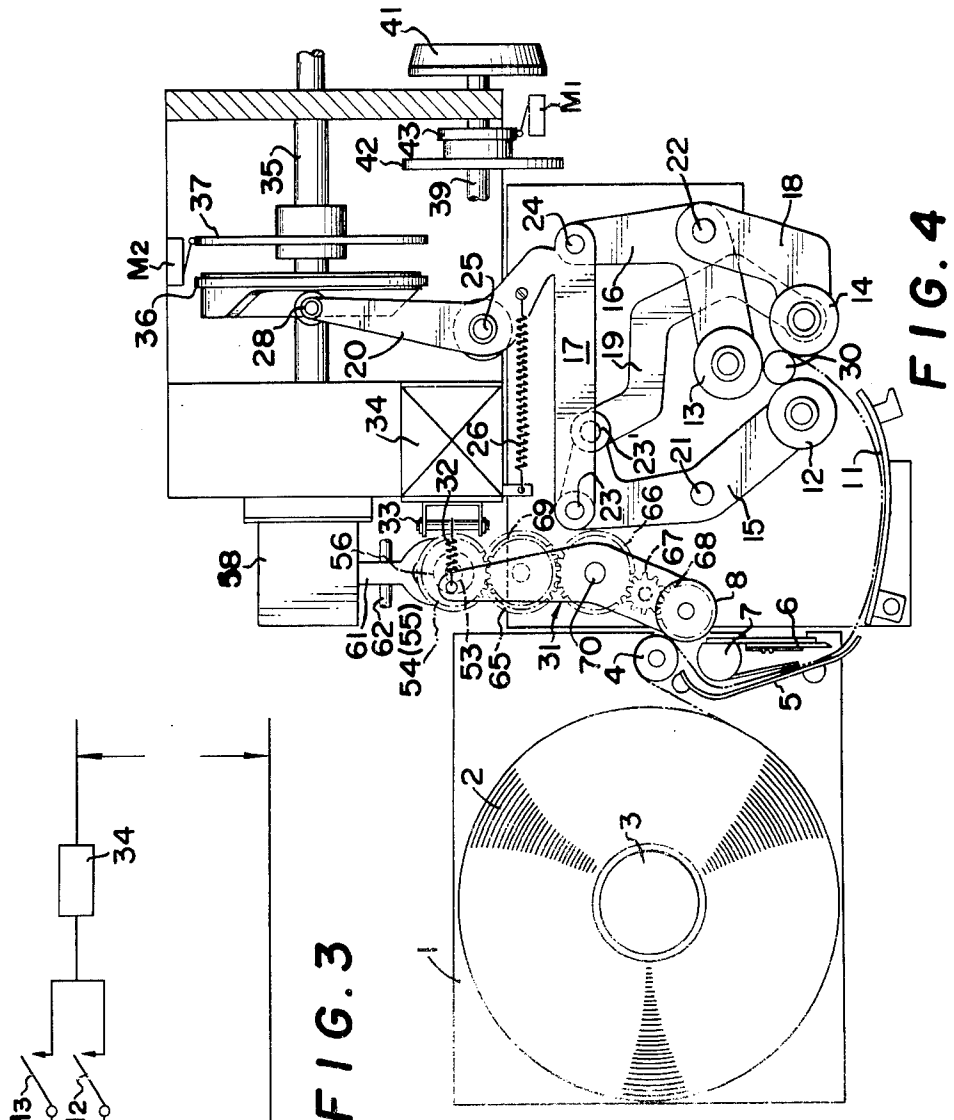

41
M1
42
43
35
37
37'
M3
M2
39
24
22
18
36
25
16
14
28
20
17
19
13
30
34
26
23'
12
11
33
27
23
21
15
32
31
8
7
6
4
5
2
3
1

FIG. 1

M3
44
37
35
37'
Q

FIG. 2


41
M1
42
43
39
37
35
M2
36
28
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24
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17
30
13
34
26
23'
21
12
11
32
23
66
15
33
69
56
67
68
8
58
62
61
54(55)
53
65
31
70
4
7
6
5
2
3
1

FIG. 4

34
M3
M2
M1

FIG. 3

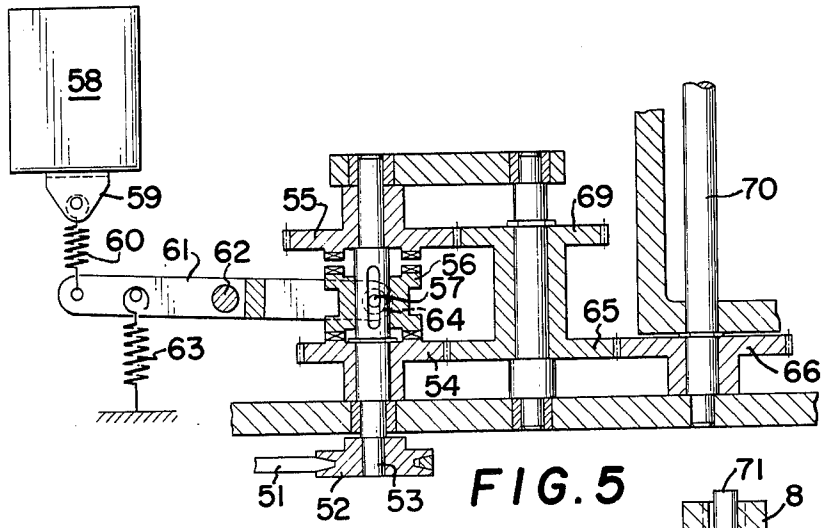

FIG. 5

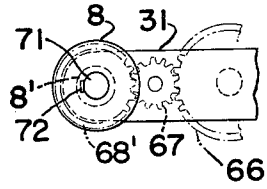

FIG. 6

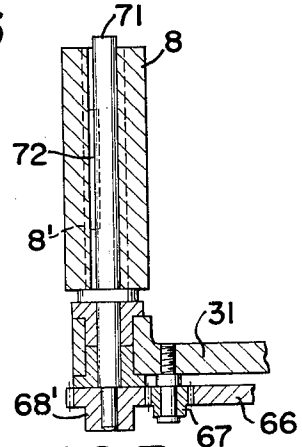

FIG. 7

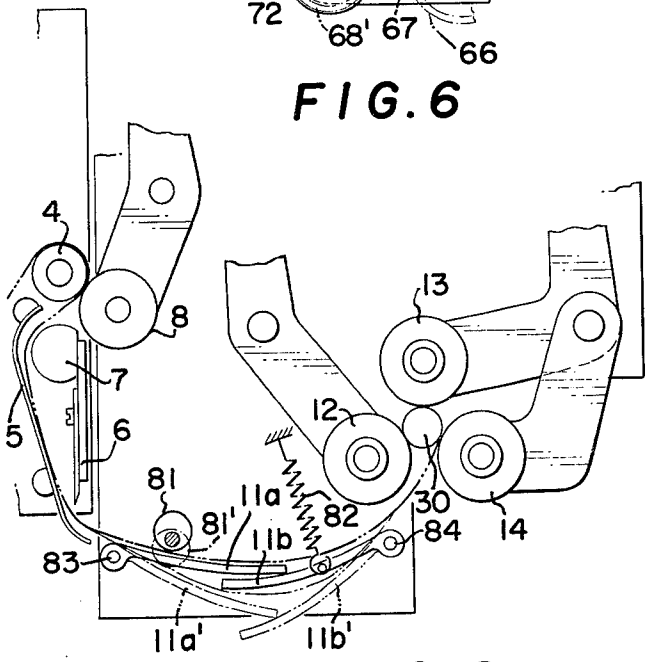

FIG. 8

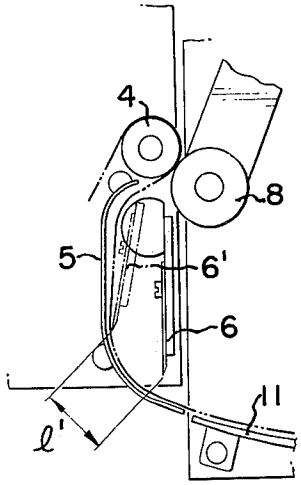

FIG. 9

COIN WRAPPING APPARATUS

This invention relates to a coin wrapping apparatus, and more particularly to an apparatus by which a stack of coins of large or small diameter can be wrapped respectively with a long or short wrapping tape.

Conventional coin wrapping apparatus has several defects. For instance, in the conventional coin wrapping apparatus, the wrapping means includes three wrapping rolls, but only one roll is movable and the other rolls are fixed in position. In such wrapping means, the center position of the stack of coins being wrapped varies depending the diameter of coins to be wrapped. As such, the wrapping operation cannot be conducted accurately.

Moreover, in the conventional coin wrapping apparatus, coins of different diameters have been wrapped with a constant length of paper tape. When a stack of coins of small diameter is wrapped, the winding number of the wrapping tape around the stack becomes so great, while the winding number of the wrapping tape for the stack of coins of large diameter may be so small, that the satisfactory strength can not be obtained in the part of the wrapping tape.

It is a main object of this invention to provide a new coin wrapping apparatus.

It is a further object of this invention to provide a coin wrapping apparatus by which the stack of coins can be selectively wrapped with a large or small length of paper tape to fit the diameter of coins to be wrapped.

It is a still further object of this invention to provide a coin wrapping apparatus in which the stack being wrapped can be held at a fixed position notwithstanding variations in the diameter of coins to be wrapped.

Other objects and advantages of this invention will be made apparent from the following description.

According to this invention, there is provided a coin wrapping apparatus which comprises accumulating means for stacking a predetermined number of coins in the form of a cylinder; wrapping means for winding the stack of coins with a length of tape; means for transporting the stack of coins for said accumulating means to said wrapping means; a tape supply; a guide roll fixed adjacent to said tape supply; a driving roll opposite to said guide roll; an electromagnet unit when energized, to push said driving roll against said guide roll, thus allowing said driving roll to feed the tape from said tape supply to said wrapping means in cooperation with said guide roll; a cutter blade positioned downstream to said driving roll and being responsive to stretch of the tape by said wrapping means for cutting, guide means inbetween said guide roll and said wrapping means; and control means comprising a first cam disc rotating at a predetermined speed and a microswitch electrically connected both to said electromagnet unit and an electric power supply, the actuater of said microswitch abutting on the circumferential periphery of said cam disc, and the circumferential periphery of said cam disc including a portion that causes said microswitch to close and the remaining portion that causes the same to open in cooperation with said actuater, thus enabling the periodic energization of said electromagnet unit, and said wrapping means being adapted to be put into operation in response to deenergization of said electromagnet unit, whereby when said electromagnet unit is energized, said driving roll feeds the required length of tape to said wrapping means, and when said electromagnet unit is deenergized and when said wrapping means is put into operation, the required length of tape is cut and wound around the stack of coins while feeding of the tape is stopped.

In accordance to one illustrative embodiment of this invention, there is provided a wrapping means for use with the coin wrapping apparatus, which comprises: three wrapping rolls generally standing respectively at the vertexes of an equilateral triangle in a horizontal plane; two connecting levers each having one of said wrapping rolls mounted at one end thereof and being pivotably supported at the mid portion thereof by fixed axels; a connecting rod having opposite ends pivotably connected to the remote ends of said connecting levers from said one ends thereof, a first arm having the remaining wrapping roll mounted at one end thereof and being pivotably supported at the other end by one of said fixed axels; a second arm having said remaining wrapping roll mounted at one end thereof and being pivotably connected to said remote end of one of said levers; a second cam disc rotating at a predetermined speed; and a control lever pivotably supported at the mid portion thereof by a fixed axel and having one end cooperatively connected to said connecting rod and the other end abutting on the circumferential periphery (i.e. the cam surface) of said second cam disc, said control lever and said connecting rod being biased by a spring means so that said wrapping rolls are forced to converge and hold the stack of coins inbetween, and said second cam disc having such a circumferential periphery (i.e. cam surface) that when said electromagnet unit is energized, said second cam disc acts on said control lever to cause said connecting rod to move the counter to the pull action afforded by said spring, thereby keeping said wrapping rolls away from each other, and when said electromagnet unit is deenergized, said second cam disc acts on said control lever to be subject to spring bias thereby allowing said wrapping rolls to hold the stack of coins therebetween.

In accordance with another embodiment of this invention, it is proposed to employ a control means of the same type described the above, except that the length of the portion of the circumferential periphery or cam surface of the cam disc that causes said micro switch to close in cooperation with the actuater is made different from that of the other control means and a switching means is used to selectively put one of these control means in operation in accordance with the dimension of the diameter of coins to be wrapped.

In the other embodiment of this invention, a speed change system for changing the peripheral speed of the driving roll is provided in place of one of said two control means, for conducting the selective wrapping operation to fit the diameter of coins to be wrapped.

Now, this invention will be explained in more detail with reference to the accompanying drawings, wherein;

FIG. 1 is a plan view of the coin wrapping apparatus according to an embodiment of this invention.

FIG. 2 is a side view showing the control means of the apparatus of FIG. 1.

FIG. 3 shows the electric circuit of the control means of FIG. 1.

FIG. 4 is a plan view of the coin wrapping apparatus of another embodiment of this invention.

FIG. 5 is a side view showing the construction of the principal portion of the speed change system of the apparatus of FIG. 4.

FIG. 6 is a plan view showing the driving roll according to an embodiment of this invention.

FIG. 7 is a side sectional view of said driving roll.

FIG. 8 is a plan view showing the guide passage according to an embodiment of this invention.

FIG. 9 is a plan view showing the cutter blade according to a further embodiment of this invention.

Now, referring to FIG. 1, a roll of wrapping paper tape 2 is held on a mandrel 3 which is supported on a tape supply base 1. Adjacent to the roll of wrapping paper tape 2, a guide roll 4 is fixed. A guide means 5, a cutter blade 6 and a support member 7 therefor are disposed downstream on the guide roll 4. These units together constitute a wrapping tape supply. If desired, the wrapping tape supply may be, as a whole unit, detachably mounted in a machine frame so that when a stack of coins of different height is to be wrapped, the wrapping tape supply may be easily replaced by a different supply unit having a wrapping paper tape of different width.

A driving roll 8 is provided on one end of a lever 31 and adjacent to the guide roll 4. The lever 31 is supported at the mid portion thereof by a pivot and connected at the other end to a plunger 33 of an electromagnet unit 34, so that the driving roll 8 is responsive to periodic actuation of the electromagnet unit 34 to move into or out of contact with the guide roll 4 thereby periodically feeding the wrapping paper tape of a predetermined length.

The electromagnet unit 34 is periodically energized by a control means.

The control means comprises a cam disc 37 rotating at a predetermined speed and a microswitch M_2 electrically connected to the electromagnet unit 34 and an electric power supply. The actuater 44 (FIG. 2) of the microswitch M_2 abutts on the circumferential periphery of the cam disc 37 which includes a portion that causes the microswitch M_2 to close to thereby energize the electromagnet unit 34, and the remaining portion that causes the microswitch M_2 to open to thereby deenergize the electromagnet unit 34. In this particular embodiment, as shown in FIG. 2, the circumferential periphery of the cam disc 37 has sank (or recessed) and raised portions. The actuater 44 can touch the raised portion but cannot touch the sand (or recessed) portion.

In order to selectively wrap the stacks of coins of different diameters with wrapping paper tape of different length in accordance with the diameter of coins to be wrapped, there are provided another can disc 37′ and a microswitch M_3. In this embodiment, the sank (or recessed) portion of the circumferential periphery of the cam disc 37′ is made shorter by "*l*" than that of the cam disc 37 as shown in FIG. 2. For selectively actuating the microswitch M_2 or M_3, a microswitch M_1 is used which is operated by a handle 41 through a cam 43. When a stack of small diameter coins is to be wrapped, the microswitch M_1 is switched to the side of microswitch M_2, and then the paper tape as long as that determined by the cam disc 37 is fed. When a stack of large diameter coins is to be wrapped, the microswitch M_1 is switched to the side of microswitch M_3. The circuit associated with the microswitches is shown diagramatically in FIG. 3.

Referring again to FIG. 1, the wrapping paper tape thus fed in a predetermined amount is guided by the guide means 5 and the passage means 11 to a wrapping station. The wrapping station comprises three wrapping rolls 12, 13 and 14, and a support 30 for the stack of coins. A predetermined number of coins are accumulated and stacked in the form of a cylinder. The stack of coins thus formed is then transported to the wrapping station. These accumulating and transportion means will not be herein explained in detail, because such means does not constitute the object of this invention. To the support 30, the stack of a predetermined number of coins is periodically fed. It is necessary that supply of the coin stack to the wrapping station is synchronized with the feeding of the wrapping tape. The tape feeding rate is determined by the rotating speed of the cam disc.

The wrapping rolls 12, 13 and 14 stand respectively on the vertexes of an equilateral triangle on a horizontal plane. As is shown in FIG. 1, wrapping rolls 12 and 13 are respectively mounted on the ends of levers 15 and 16. These levers 15 and 16 are respectively supported by pivots 21 and 22 at fixed points. The other ends of the levers 15 and 16 are connected respectively to the ends 23 and 24 of a connecting rod 17. The remaining wrapping roll 14 is mounted on one end of an arm 18 which is supported at the other end by the pivot 22. The wrapping roll 14 is also mounted on one end of an arm 19 which is in return, pivotably connected to the end portion 23′ of said lever 15. The connecting rod 17 is spring-biased by a spring 27 to permit the wrapping rolls 12, 13 and 15 to converge and hold the coin stack inbetween while wrapping the stack with the wrapping tape. The connecting rod 17 is made cooperative with a lever 20 by butting one end of the lever 20 against the connecting rod 17. The lever 20 is also spring-biased by a spring 26, and supported by a pivot 25. As shown in FIG. 4, the lever 20 may be integrally connected to the connecting rod 17, such as by welding. In such case, it suffices that only the lever 20 is spring-biased. The lever 20 has a roll 28 provided at the other end. The roll 28 abuts against the circumferential periphery of a cam disc 36 rotating at a predetermined speed. The cam disc 36 is provided with an arc projection axially rising from a portion length of the circumferential periphery. Accordingly, when the roll 28 rides on the rising projection, the lever 20 is moved about the pivot 25 to push the connecting rod 17 in the right-hand direction as seen in FIG. 1. Thus, the wrapping rolls 12, 13 and 14 are moved away from each other, and release the coin stack after the completion of the wrapping operation.

The wrapping operation can be synchronized with the tape feeding simply by aligning the rising projection of the cam disc 36 with the raised portion of the cam discs 37, 37′.

With this arrangement, the wrapping operation is conducted in the following manner:

the microswitch M_1 is selectively switched to either side of microswitch M_2 or M_3 with reference to the diameter of the coins to be wrapped. When the actuater 44 abuts on the circumferential periphery of the cam disc 37, 37′, the electromagnet unit is energized, thus allowing the driving roll 8 to feed the tape to the wrapping station which is now inoperative. After a predetermined length of tape is fed, the wrapping station starts to wrap the coin stack with the tape thus fed.

In a preferred embodiment, the arms 15 and 16 and the connecting rod 17 are so designed and positioned

that the connecting rod 17 and those arms and the associated pivots 21 and 22 form a parallelogram.

In a preferred embodiment of this invention, the arms 15 and 16 and the connecting rod 17 are so designed and positioned that the opposite ends of the rod 17 and the pivots 21 and 22 are always positioned on vertexes of a parallelogram and that the length from the end 12 to the pivot 21 is identical with that from the end 13 to the pivot 22. In such construction, the wrapping rolls 12, 13 and 14 can be moved substantially at the same time and the same amount.

In another embodiment of the invention, it is proposed to vary the rotating speed of the driving roll 8 by means of a change-over mechanism of transmission system. With reference to FIGS. 4 and 5, such mechansim comprises a shaft 53 rotating with a pulley 52 driven by means of a V-belt 51. The shaft 53 carries toothed wheels 54 and 55 rotatably fitted thereon and a dog clutch 56 slidably fitted thereon between said toothed wheels. Said dog clutch 56 is so constructed that it is fixed in the rotating direction but slidable in the axial direction relatively to the shaft 53 by means of a key 57 carried thereon and it is selectively engageable with either of the corresponding portions formed on the side surfaces of said toothed wheels. When a electromagnet 58 is supplied with electric current, a plugner 59 is attracted due to the energization of said electromagnet, and consequently one end of a forked arm 61 is moved upward about a pivot axis 62 against the action of a spring 63 by means of a spring 60, so that the other end of said arm 61 is moved downward. The dog clutch 56, which engages with a roller 64 supported on the end of said arm 61, is moved on the shaft by the movement of said arm 61 until said dog clutch comes into engagement with the lower toothed wheel 54, so that the rotation is transmitted through the shaft 53, the dog clutch 56, the toothed wheel 54, toothed wheels 65, 66 and 67 to a toothed wheel 68, which drives the driving roll 8 which feeds the shorter wrapping paper 2' to wrap the smaller diameter coins.

When the mechanism is set to wrap the larger diameter coins, the electromagnet 58 is deenergized, so that the one end of the forked arm 61 is moved downward under the action of the spring 63, while the other end of said arm is moved upward. Accordingly, the dog clutch 56 is moved upward to come into contact with the toothed wheel 55, and thus the rotation is transmitted through the shaft 53, the dog clutch 56, the toothed wheels 55, 69, 65, 66 and 67 to the toothed wheel 68. By constructing the gear ratio of this toothed wheel train so as to obtain increased speed as compared with the case of wrapping the smaller coins, the driving roll 8 can be rotated at a suitable rotating speed to feed the longer packing paper 2' within a constant actuating time to wrap the larger coins.

Now, the description will be given to a mechanism for varying the wrapping paper feeding amount by chaning the diameter of the driving roll 8, with reference to FIGS. 6 and 7.

According to this mechamism, the driveing roll 8 is actuated under the conditions of constant rotating speed and constant actuating time, but the driving roll 8 having smaller diameter is used to decrease the wrapping paper feeding amount in care of wrapping the smaller coins, while the driving roll 8 having larger diameter is used in case of wrapping the larger coins. As shown in FIG. 7, this mechanism includes a shaft 71 which is rotatably supported at the end of the lever 31 and has a driving toothed wheel 68' fixed on the lower end thereof, to which the rotation is transmitted from a driving source. The shaft 71 carried a driving key 72 which can easily fit in the keyward formed in the inside surface of the bore of the driving roll 8. Accordingly, the driving roll 8 is easily movable in the axial direction to permit the interchange of the roll 8' having different diameters, while it is fixed in the rotating direction on the shaft by the driving key 72, so that the driving roll 8 is rotated by the shaft 71 to feed out the wrapping paper to wrap the coins.

From the construction of the present invention as explained above it will be understood that the smaller amount of the wrapping paper is supplied to the smaller coins and the larger amount of the wrapping paper is supplied to the larger coins, to accomplish the wrapping operation. Consequently, the coins having larger or smaller diameters can be wrapped with more uniform and suitable amount of the wrapping paper as compared with the conventional paper feeding methods, so that the edges of the wrapping paper can be tightened to form neatly curled portions and the satisfactory strength can be obtained.

When a large amount of wrapping tape is fed to wrap a stack of large diameter coins, the wrapping tape tends to wave on the guide means to thus cause wrapping troubles. According to this invention, it is proposed to enlarge the length of the guide passage. As shown in FIG. 8, the guide passage 11 comprises two passage-length adjustment cantilevers 11*a* and 11*b* pivoted at one ends 83 and 84 and positioned so as to overlap with each other at the other end. The lower cantilever 11*b* is spring-biased by a spring 82 and thus supports the upper cantilever 11*a* at the other end. A stopper 81 supported on an eccentric axel is positioned adjacent to the upper cantilever for preventing the same from rising above. By turning the stopper 81 about the eccentric axel, the passage-length cantilever 11 is lowered to enlarge the length thereof. In another embodiment, the cutter blade 6 is moved to the position 6' by rotating the support 7.

We claim:

1. A coin wrapping apparatus to operate with accumulating means for stacking a predetermined number of coins in the form of a cylinder;

wrapping means for winding the stack of coins with a length of tape;

means for transporting the stack of coins from said accumulating means to said wrapping means;

a tape supply;

a guide roll mounted in said apparatus adjacent to said tape supply;

a driving roll mounted in said apparatus opposite to and closely spaced from said guide roll;

a selectively energizable electromagnet unit adapted, when energized, to move said driving roll toward said guide roll into engagement with tape guided over the guide roll, thereby to cooperate with said guide roll to feed the tape from said tape supply to said wrapping means;

a cutter blade positioned downstream relative to said driving roll along the direction of travel of the tape, and being responsive to stretch of the tape by said wrapping means for cutting the tape,

guide means mounted in said apparatus between said guide roll and said wrapping means; and

control means for said apparatus comprising a first cam disc rotatably mounted in the apparatus, means for rotating said disc at a predetemined speed, and a microswitch electrically connected to said electromagnetic unit and to an electric power supply, said microswitch including an actuator member adapted to engage and be actuated by the periphery of said cam disc, the periphery of said cam disc including a first raised surface portion adpated to engage said actuator to close said microswitch and a second recessed surface portion that allows the microswitch to open, thereby to periodically energize and deenergize said electromagnet unit, said wrapping means being activated in response to deenergization of said electromagnet unit to wrap said stack of coins, whereby when said electromagnet is energized, said driving roll feeds a required length to tape to said wrapping means, and when said electromagnet unit is deenergized and said wrapping means is activated, the required length of tape is cut and wound around the stack of coins while feeding of the tape by said driving roll is stopped, said wrapping means comprising,

three wrapping rolls respectively located in a predetermined array at the vertexes of an equilateral triangle,

two connecting levers, each having one of said wrapping rolls mounted at one end thereof and each being pivotally mounted in said apparatus at their mid-portion on fixed pivot points,

a connecting rod having opposite ends pivotably connected to the ends of said connecting levers remote from said one ends thereof, said connecting rod and said connecting levers being disposed with respect to each other such that the opposite ends of said connecting rod and said fixed pivot points always are located at the corners of a parallelogram,

a first arm having the other of said wrapping rolls mounted at one end thereof and pivotally mounted at its other end on one of said fixed pivot points,

a second arm, said other to said wrapping rolls also being mounted, simultaneously, at one end of said second arm, and said second arm being pivotally connected to said remote end of one of said levers,

a second cam disc rotatably mounted in said apparatus for rotation by said rotating means at said predetermined speed; and a control lever pivotally mounted in said apparatus at its mid portion on a fixed pivot point and having one end cooperatively connected to said connecting rod and its opposite end engaging the periphery of said second cam disc, first spring means for biasing said control lever to move its one end away from the cooperative connection with said connecting rod, second spring means for biasing said connecting rod to positions wherein said wrapping rolls are forced to converge and hold the stack of coins therebetween, and said second cam disc having a predetermined peripheral configuration selected such that when said second cam disc does not act on said control lever, the action of said first spring means causes said control lever to move away from the cooperative connection to said connecting rod to allow the connecting rod to move under the pulling action of said second spring means, thereby allowing said wrapping rolls to hold a stack of coins therebetween, and when said second cam disc acts on said control lever to cause said connecting rod to move against the pull action of said second spring means, thereby keeping said wrapping rolls away from each other.

2. A coin wrapping apparatus as defined in claim **1** which further comprises:

another control means comprising a third cam disc corresponding to said first cam disc and having a different length in the peripheral portion thereof that causes said microswitch to close in cooperation with said actuator; another microswitch electrically connected both to said electromagnet unit and an electric power supply; and

a switching means for selectively putting one of the control means in operation to fit the diameter of coins to be wrapped.

3. A coin wrapping apparatus as defined in claim **1** which further comprises means for driving said driving roll and means for selectively changing the peripheral speed of said driving roll to fit the diameter of the coins to be wrapped.

4. A coin wrapping apparatus as claimed in claim **2,** wherein said guide means comprises two tape passage-length adjustment cantilevers each pivoted at one end thereof and positioned so as to overlap with each other at the other end, the lower one of said cantilevers being spring-biased and supporting the other upper cantilever at said other end and a support for preventing said upper cantilever from rising above a given level.

5. A coin wrapping apparatus as claimed in claim **4,** wherein said cutter blade is adjustable in position.

6. A coin wrapping apparatus comprising a coin wrapping station adapted to receive and support a cylindrical stack of coins therein; and means for supplying coin wrapping tape to said wrapping station including a guide roller over which the tape passes in its path of travel to said wrapping station and a tape driving roller cooperating with said guide roller; selectively operable means for moving said driving roller towards said guide roller into engagement with the tape on the guide roller to selectively feed the tape to the wrapping station;

means at said wrapping station for selectively guiding and wrapping said tape about a satck of coins at said station; and

control means for said moving means and said wrapping means including a first cam disc rotatably mounted in said apparatus, means for rotating said disc at a predetermined speed, and a microswitch operatively connected to said moving means for controlling the operation thereof; said first cam disc having first and second cam portions on its periphery located at different radial distances from its axis of rotation, and said microswitch including an actuator member adapted to be engaged only by said first cam portion during rotation of the cam disc to actuate said moving means only during engagement of said actuator member with said first cam surface, said control means actuating said wrapping means upon deactivation of said moving menas when said second cam surface portion moves below said actuator, said wrapping means comprising,

three wrapping rolls respectively located in a predetermined array at the vertexes of an equilateral triangle,

two connecting levers, each having one of said wrapping rolls mounted at one end thereof and each being pivotally mounted in said apparatus at their mid-portion on fixed pivot points,

a connecting rod having opposite ends pivotally connected to the ends of said connecting levers remote from said one ends thereof, said connecting rod and said connecting levers being disposed with respect to each other such that the opposite ends of said connecting rods and said fixed pivot points always are located at the corners of a parallelogram,

a first arm having the other of said wrapping rolls mounted at one end thereof and pivotally mounted at its other end on one of said fixed pivot points,

a second arm, said other of said wrapping rolls also being mounted, at one end of said second arm, and said second arm being pivotally connected to said remote end of one of said levers.

7. The coin wrapping apparatus as defined in claim **6** wherein said control means includes a second cam disc rotatably mounted in said apparatus for rotation by said rotating means at said predetermined speed; and a control lever pivotally mounted in said apparatus at its mid-portion on a fixed pivot point and having one end cooperatively connected to said connecting rod with its opposite end engaging the periphery of said second cam disc, spring means for biasing said control lever and said connecting rod to positions wherein said wrapping rolls are forced to converge and hold the stack of coins therebetween, and said second cam disc having a predetermined peripheral configuration selected such that when said moving means is activated said second cam disc acts on said control lever to cause said connecting rod to move counter to the pull action afforded by said spring means, thereby keeping said wrapping rolls away from each other, and when said moving means is deactivated to allow said control lever to move under the influence of said spring thereby allowing said wrapping rolls to hold a stack of coins therebetween.

8. The coin wrapping apparatus as defined in claim **7** wherein said control means further includes a third cam disc, having first and second cam surface portions corresponding to the first and second cam surface portions of said first cam disc with the length of said first cam surface portion of the third cam disc being greater than the first cam surface portion of the first cam disc; another microswitch connected to said moving means; and a switching means for selectively putting one of the microswitches in operation to control the moving means; the lengths of said first cam portions being selected in accordance with the diameter of the coins to be wrapped.

9. A coin wrapping apparatus as defined in claim **8** which further comprises means for driving said driving roll and means for selectively changing the peripheral speed of said driving roll to fit the diameter of coins to be wrapped.

10. A coin wrapping apparatus comprising a coin wrapping station adapted to receive and support a cylindrical stack of coins therein; and

means at said wrapping station for selectively guiding and wrapping a coin wrapping tape about a stack of coins at the station;

said wrapping means including:

three wrapping rolls respectively located in a predetermined array at the vertexes of an equilateral triangle;

two connecting levers, each having one of said wrapping rolls mounted at one end thereof and each being pivotally mounted in said apparatus at their mid-portion of fixed pivot points;

a connecting rod having opposite ends pivotally connected to the ends of said connecting levers remote from said one ends thereof, said connecting rod and said connecting levers being disposed with respect to each other such that the opposite ends of said connecting rod and said fixed pivot points always are located at the corners of a parallelogram;

a first arm having the other of said wrapping rolls mounted at one end thereof and pivotally mounted at its other end on one of said first pivot points;

a second arm, said other of said wrapping rolls also being mounted, at one end of said second arm, and said second arm being pivotably connected to said remote end of one of said levers.

11. The coin wrapping apparatus as defined in claim **10** including control means comprising a cam disc rotatably mounted in said apparatus for rotation at a predetermined speed; and a control lever pivotally mounted in said apparatus at its mid-portion on a fixed pivot point and having one end cooperatively connected to said connecting rod with its opposite end engaging the periphery of said cam disc, spring means for biasing said control lever and said connecting rod to positions wherein said wrappong rolls are forced to converge and hold the stack of coins therebetween, and said cam disc having a predetermined peripheral configuration such that said cam disc selectively acts on said control lever to cause said connecting rod to move counter to the pull action afforded by said spring means, thereby keeping said wrapping rolls away from each other, and to allow said control lever to move under the influence of said spring thereby allowing said wrapping rolls to hold a stack of coins therebetween.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 3,899,864
DATED : August 19, 1975
INVENTOR(S) : Isamu Uchida, Kenkichi Watanabe, Hideshi Sentoku

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

Column 1, line 61, "actuater" is changed to --actuator--.

Colume 2, line 38, "spring bias" is changed to --spring-bias--;
line 42, after "described", --the-- is deleted;
line 44, "micro switch" is changed to --microswitch--;
line 45, "actuater" is changed to --actuator--.

Column 3, line 32, "comprises" is changed to --comprise;
lines 35 and 44, "actuater" is changed to --actuator--;
line 45, "sand" is changed to --sank--;
line 50, "can" is changed to --cam--.

Column 4, line 57, "the" is changed to --The--;
line 59, "actuater" is changed to --actuator--;
line 61, "disc" is changed to --discs--.

Column 5, line 26, "plugner" is changed to --plunger--;
line 58, "chaning" is changed to --changing--;
line 60, "driveing" is changed to --driving--.

Column 6, line 5, "keyward" is changed to --keyway--.

Column 7, lines 9 and 10, "adpated" is changed to --adapted--;
line 18, after "length", --to-- is deleted;
line 48, "mid portion" is changed to --mid-portion--;

Column 8, line 28, "support" is changed to --stopper--;
line 45, "satch" is changed to --stack--;
line 62, "menas" is changed to --means--.

Column 10, line 43, "wrappong" is changed to --wrapping--.

Signed and Sealed this

sixteenth Day of *March 1976*

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks