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Shooter et al.

[11] **3,744,614**

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[54] **ROTATING MECHANISM**

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[52] **U.S. Cl.** ..... **198/33 AB**, 271/51

[51] **Int. Cl.** **B65g 47/24**

[58] **Field of Search** ..... 198/33 AB; 271/65, 271/51

[56] **References Cited**

UNITED STATES PATENTS

3,100,039	8/1963	Oderman et al.	198/33 AB
3,638,577	2/1972	Plasser et al.	198/33 AB

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[57] **ABSTRACT**

A mechanism for positioning a record member on a platform, rotating the platform 180° and then removing the record member from the platform is disclosed. Included in the mechanism is a pair of drive rolls mounted on a rotatably mounted platform which engages and positions a record member on the platform. The platform is then rotated during which movement the drive rolls are disabled. Upon reaching a 180° rotation of the platform, the drive rolls are again operated to remove the record member from the platform. A stationary drive member positioned adjacent the platform will alternately engage each drive roll upon the positioning of the platform in a horizontal plane.

14 Claims, 3 Drawing Figures

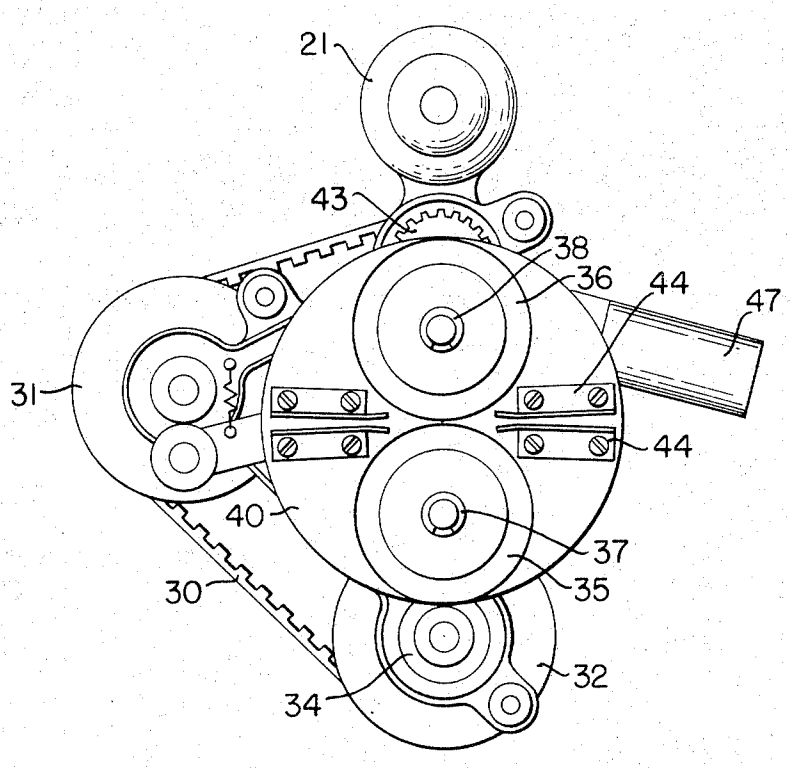


FIG. 1

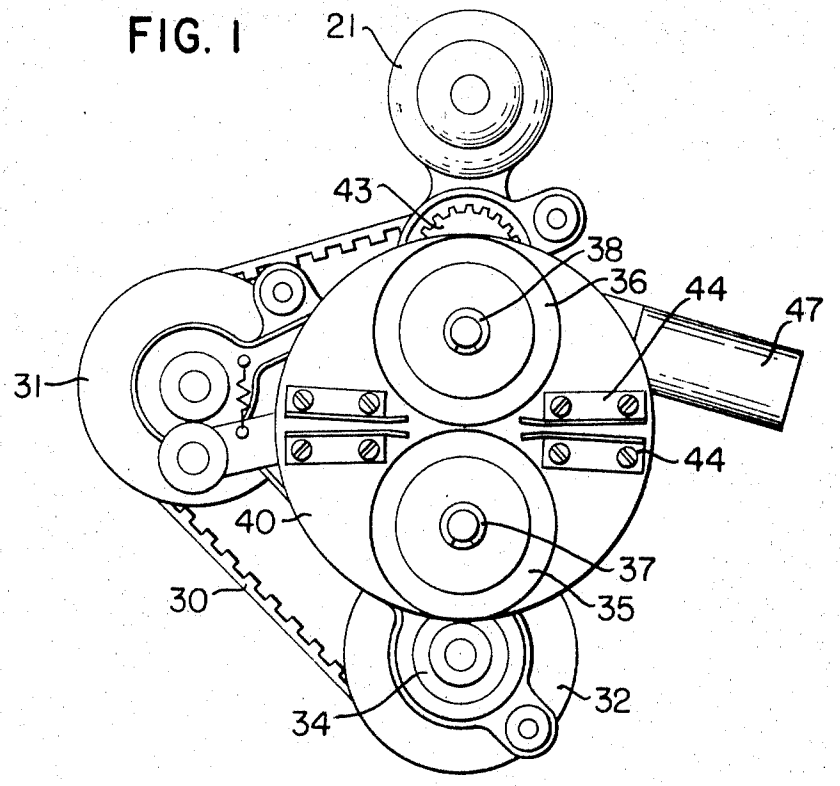

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FIG. 2

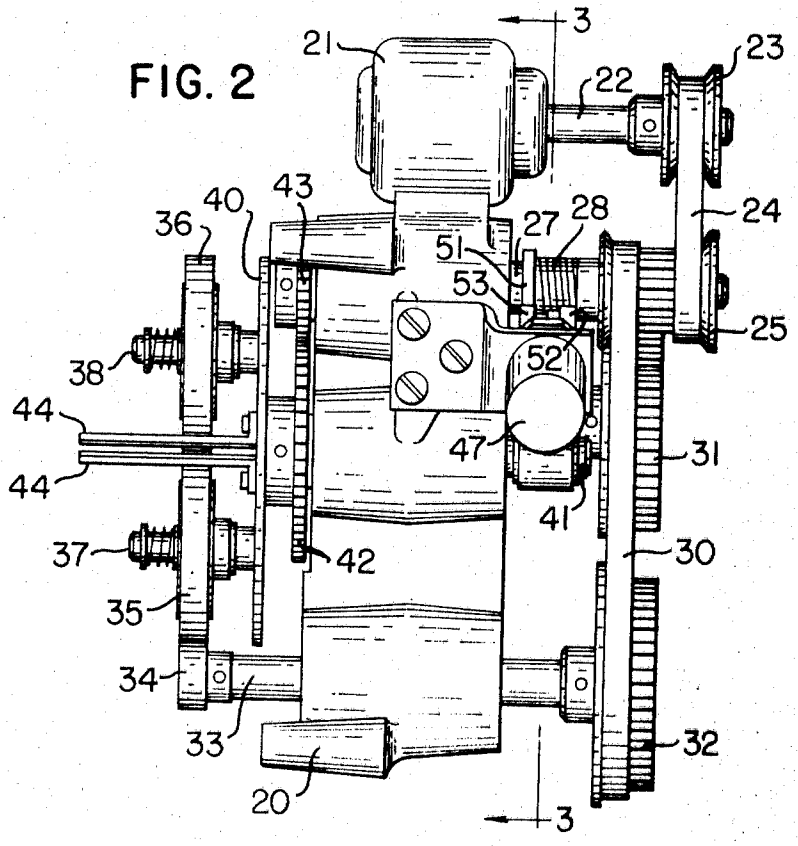
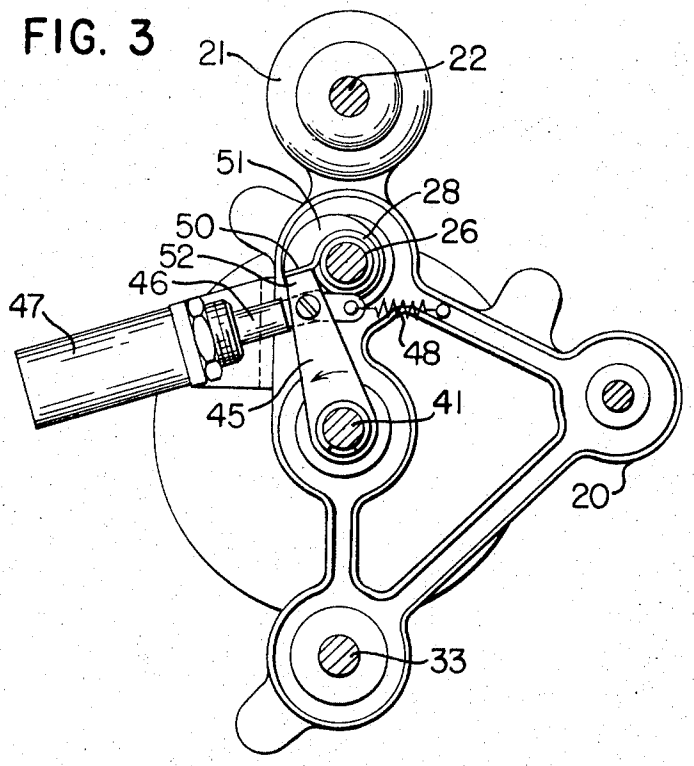

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FIG. 3



ROTATING MECHANISM

BACKGROUND OF THE INVENTION

The present invention is utilized in a credit-card printer in which information is encoded on one side of the card in the form of color bars and on the other side in human readable form. The use of color bars to encode information on a tag or other type of record medium is fully disclosed in U.S. Pat. No. 3,671,722. To provide as high a rate of operation of the printing of the credit card as possible, the credit card is required to be moved from a display station where the information to be printed is read by an operator to a printing station where the information to be encoded is printed with the credit card being rotated to present the proper printing surface to the printing mechanism in as short a time as possible. In some instances the encoded information is to be printed on the same side as the human readable information is printed. Thus the card is to be tranported to the printing mechanism without rotation of the card occurring.

SUMMARY OF THE INVENTION

Therefore it is an object of this invention to provide a mechanism for rotating a record member 180°. It is another object of this invention to provide a mechanism for rotating and feeding a record member through a predetermined distance, which is simple in operation, low in cost, and compact in construction. In carrying out these objects of the invention, there is provided a rotatably mounted platform on which are mounted a pair of drive rolls which coact upon the positioning of a record member therebetween. A stationary drive member positioned adjacent the platform engages one of the drive rolls when the platform is in a home position. Operation of the drive rolls will position a record member on the platform, thereby initiating a rotation of the platform through 180° by a second drive means. Rotation of the platform will disengage the operated drive roll from the stationary drive member. Completion of the rotation of the platform will engage the other drive roll with the drive member resulting in the record member being driven from the platform. If the platform is not rotated, the drive rolls will feed the record member past the platform to a printing station.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of the rotating mechanism showing the drive rolls and the support guides.

FIG. 2 is a side view of the rotating mechanism.

FIG. 3 is a sectional view taken on lines 3—3 of FIG. 2 showing details of the spring clutch and its solenoid control.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 2, there is shown a side view of the rotating mechanism which includes a triangular-shaped body member **20** (FIG. 3) to which is mounted a constantly operating motor **21**. The drive shaft **22** of the motor **21** will transmit the rotational movement of the motor by means of a hub member **23** pinned to the shaft **22** and a drive belt **24** to a second hub member **25** rotatably supported on a drive shaft **27** journaled in the body **20**. A spring clutch **28** having one end secured to the drive shaft **27** is positioned adjacent the hub member **25**. As will be explained more fully hereinafter, release of the spring clutch **28** will couple the rotation of the hub member **25** to the drive shaft **27**.

A drive belt **30** (FIGS. **1** and **2**) mounted on the hub member **25** will transmit rotation of the hub **25** to a idler hub member **31** rotatably mounted on the body member **20** and to a hub member **32** pinned to a drive shaft **33** journaled in the body member **20**. Pinned to the other end of the shaft **33** is a drive roll **34** which normally engages one of two drive rolls **35, 36** rotatably mounted on studs **37, 38** secured to a platform **40**. The platform **40** is secured to a shaft **41** (FIGS. **2** and **3**) journaled within the body **20**. Pinned to the shaft **41** adjacent the platform **40** is a gear member **42** which engages a second gear member **43** pinned to the shaft **27**. It will be seen from this construction that rotation of the drive shaft **27** and gear **43** will result in the rotation of the platform **40**. As shown in FIGS. **1** and **2**, riveted to the front of the platform **40** are two sets of guide supports **44** which are separated by the drive rolls **35, 36**. The drive rolls **35, 36** are mounted with their peripheral edges separated by less than the thickness of a record member such that the positioning of a record member on the guide supports and between the rolls will allow one of the rolls which is being driven by the drive roll **34** to drive both the record member and the other drive roll. It is obvious that the feed rolls can be mounted to engage each other such that both rolls will be operated by the drive roll **34**. This will depend on the type of material used for the drive rolls.

As shown in FIG. **3**, rotatable mounted on the shaft **41** is an arm assembly **45** having its free end rotatably secured to a plunger **46** of a solenoid **47**. As shown more clearly in FIG. **2**, the arm assembly **45** has a pair of spread apart ends **52, 53** secured together. A spring **48** secured to the end of the plunger **46** normally urges the plunger **46** and the arm asesembly **45** in a clockwise direction upon the deenergizing of the solenoid **47**. In this latter position, one end **52** (FIG. **2**) of the arm assembly **45** will engage and hold one end **50** of the spring clutch **28** in a position which disengages the clutch from the hub member **25**.

In the operation of the mechanism, the motor **21** will be operated continuously thereby rotating the hub member **25** and the drive roll **34** in the manner described previously. Upon the positioning of a credit card within one set of the guide supports **44** and into engagement with the drive rolls **35, 36**, the credit card will be moved by the drive rolls until it is positioned within both sets of guide supports **44**. At this time, sensing means, in this case photo-electric cells, will sense the leading and trailing edges of the credit card. Once the photo-cells have sensed that the credit card has been positioned on the platform **40**, the solenoid **47** (FIG. **3**) is energized rocking the arm assembly **45** counter-clockwise. This movement removes the end **52** of the assembly from engagement with the end **50** of the spring clutch **28** thereby releasing the spring clutch which couples the drive shaft **27** to the movement of the hub member **25**. Rotation of the shaft **27** will, through the engagement of the gears **42, 43**, rotate the platform **40** and the credit card through a 180° rotation. Initial rotational movement of the platform **40** will disengage the drive roll **35** from the drive roll **34** as viewed in FIG. **1**, thus stopping the movement of the rolls **35, 36** and the credit card. Upon completion of the 180° movement of the platform **40**, the drive roll **36** will engage the drive roll **34** resulting in the movement

of the credit card off the platform. As the credit card is being transported from the platform, another credit card is being positioned within the guide plates **44** preparatory to another rotational operation. It will be seen from this construction that the rotation of the credit card consumes very little time in the movement of the card between printing stations and that the movement of the card on the rotating mechanism is a by-product of the operation of the rotating movement. It should also be pointed out that the rotation of the credit card occurs within its own length which provides for a very compact construction.

After the solenoid **47** has been energized to release the spring clutch **28** as described previously, the solenoid will be immediately deenergized thereby allowing the spring **48** to rotate the arm assembly **45** clockwise as viewed in FIG. **3.** The movement of the arm assembly **45** will bring the end portion **53** of the arm assembly into engagement with a cam surface **51** (FIGS. **2** and **3**) which is secured to the shaft **27.** At this time, the cam surface **51** will prevent the arm assembly **45** from moving to an engaging position with the end **50** of the spring clutch **28.** Upon the completion of one revolution of shaft **27,** the cam surface **51** will position the end portion **52** of the arm assembly **45** into engagement with the end **50** of the spring clutch **28,** thereby disabling the spring clutch from engagement with the hub member **25.** This action disengages the shaft **47** from the hub member **25,** thus stopping the platform **40.** With this construction the platform **40** can only be rotated through 180° upon each operation of the solenoid **47.**

under certain conditions, the operator will want to encode the information in color bars on the same side of the credit card as the human readable information is located. When this is to occur, the operator will interrupt the energizing circuit to the solenoid **47** which allows the drive roll **34** to continuously operate the drive rolls **35, 36** thereby transporting the record card through the guide supports **44** on the platform **40** to the printing station. Thus the mechanism functions as a transport mechanism irrespective of whether a rotation of the card is required.

What is claimed is:

1. A mechanism for rotating a record member between a record receiving and a record dispensing position comprising

a. supporting means mounted for rotation between a record receiving and a record dispensing position;

b. a pair of drive members rotatably mounted on said supporting means in a juxtaposition for moving a record member positioned therebetween when operated, each of said drive members having a driving surface which occupies the same predetermined position when the supporting means is rotated between a record receiving and a record dispensing position;

c. a first drive means positioned adjacent said supporting means and the predetermined position of the driving surfaces of said drive members for engagement with the driving surface of one of said drive members when the supporting means is in a record receiving position for operating said drive member and for engagement with the driving surface of the other of said drive member when the supporting means is in a record dispensing position for operating said other drive member;

d. a normally disabled second drive means engaging said supporting means for rotating said supporting means between a record receiving and a record dispensing position when enabled;

e. and means for sensing the position of a record member on said supporting means when in a record receiving position, said sensing means adapted to acutate said second drive means upon sensing the positioning of a record member on the supporting means by said drive members whereby upon rotation of said supporting means by said second drive means between a record receiving and a record dispensing position, said drive members are disengaged from said first drive means.

2. The rotating mechanism of claim **1** in which said supporting means includes

a. a rotatably mounted platform;

b. a pair of spaced apart guide members mounted on said platform for supporting a record member therebetween;

c. and said drive members are positioned between said guide members to engage a record member positioned on one of the guide members to move the record member onto both guide members when the platform is in record receiving position.

3. The rotating mechanism of claim **2** in which

a. said drive members comprise drive rolls rotatably mounted on an axis perpendicular to said platform, said drive rolls each having a portion of its peripheral edge in a common circumferential plane;

b. and said first drive means comprises a stationary drive roll having a portion of its peripheral edge in said common circumferential plane whereby said stationary drive roll will engage one of said drive rolls when the platform is in a record receiving and a record dispensing position.

4. The rotating mechanism of claim **3** in which the drive rolls and the stationary drive roll are rotatably mounted in the same plane when the platform is in a record receiving and a record dispensing position whereby upon rotation of said platform, the stationary roll will be disengaged from said drive rolls.

5. The rotating mechanism of claim **3** in which said stationary drive roll is continuously operated to operate said drive rolls when the platform is in a record receiving and a record dispensing position whereby a record member positioned between said drive rolls will be transported when the platform is in both of said positions.

6. The rotating mechanism of claim **1** in which said first drive means including a constantly operating drive member; and said normally disabled second drive means includes a clutch member positioned adjacent said constantly operating drive member and engaging said second drive means, said clutch member operated by said sensing means to couple said constantly operating drive member to said second drive means whereby said supporting means is rotated.

7. The rotating mechanism of claim **6** in which said sensing means include

a. an electromagnetically operated actuator member engaging said clutch member, said actuator member effective for operating said clutch member when moved to an energized position;

b. position determining means for sensing a predetermined position of a record member in said supporting means, said determining means energizing said

actuator member upon sensing a record member in said position for operating said clutch member;

c. and said second drive means includes limiting means for positioning said actuator member in a non-energized position after movement of said supporting means through a predetermined position for disabling said clutch member.

8. The rotating mechanism of claim **7** in which

a. said clutch member includes a resilient operating arm normally orientated towards a position actuating said clutch member;

b. resilient means engaging said actuated member for normally urging said actuator member to a non-energized position whereby said actuator member engages and positions said operating arm in a non-actuating position;

c. and said limiting means includes a cam member positioned adjacent said actuator member and rotated by said second drive means, said cam member engaging said actuator member to position said member in a non-energized position under the urging of said resilient means after the actuator member has been moved to an energized position whereby the supporting means will be moved through a predetermined distance.

9. The rotating mechanism of claim **8** in which said predetermined distance is 180° rotation of said supporting means.

10. In a mechanism for transporting and rotating a record member between a record receiving and a record dispensing position comprising

a. a rotatably mounted support means for supporting a record member positioned thereon, said support means adapted for rotation between a record receiving and a record dispensing position wherein the support means will be orientated in the same record movement direction in both positions;

b. a pair of equal diameter pinch rolls rotatably mounted on said support means for transporting, when driven, a record member positioned therebetween onto said support means;

c. a first drive means positioned adjacent said support means to engage and drive one of said pinch rolls when the support means is in a record receiving or a record dispensing position;

d. a second drive means engaging said support means for rotating said support means between a record receiving and a record dispensing position when operated;

e. and sensing means for operating said second drive means upon sensing the positioning of a record member on said support means by said pinch rolls when the support means is in a record receiving position whereby said support means is rotated by said second drive means thereby disabling the driving of said pinch rolls by said first drive means between the record receiving and the record dispensing position of the support means.

11. The rotating mechanism of claim **10** in which said support means comprises

a. a rotatably mounted platform member;

b. a pair of spaced apart guide members mounted on said platform for supporting a record member therebetween;

c. and said pinch rolls are positioned between said guide members to engage a record member positioned on one of the guide members to transport the record member onto both guide members when the platform is in a record receiving position.

12. The rotating mechanism of claim **10** in which said first drive means comprises a stationary drive roll mounted in the same plane as that of the axis of rotation of the pinch rolls when the support means is in a record receiving and a record dispensing position whereby upon rotation of said support means from either of these positions, said pinch rolls will be disengaged from said stationary drive roll.

13. The rotating mechanism of claim **12** in which said stationary drive roll is continuously operated to drive said pinch rolls when the platform is in a record receiving and a record dispensing position whereby a record member will be transported when the platform is in both of said positions.

14. The mechanism of claim **10** which includes

a. a constantly operating drive means;

b. said second drive means include a normally disabled clutch member mounted adjacent said constantly operating drive means for coupling said second drive means to said constantly operating drive means when enabled;

c. and an actuating member engaging said clutch member and operated by said sensing means upon sensing the positioning of a record member on said support means to enable said clutch member whereby said support means is rotated by said constantly operating drive means.

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