

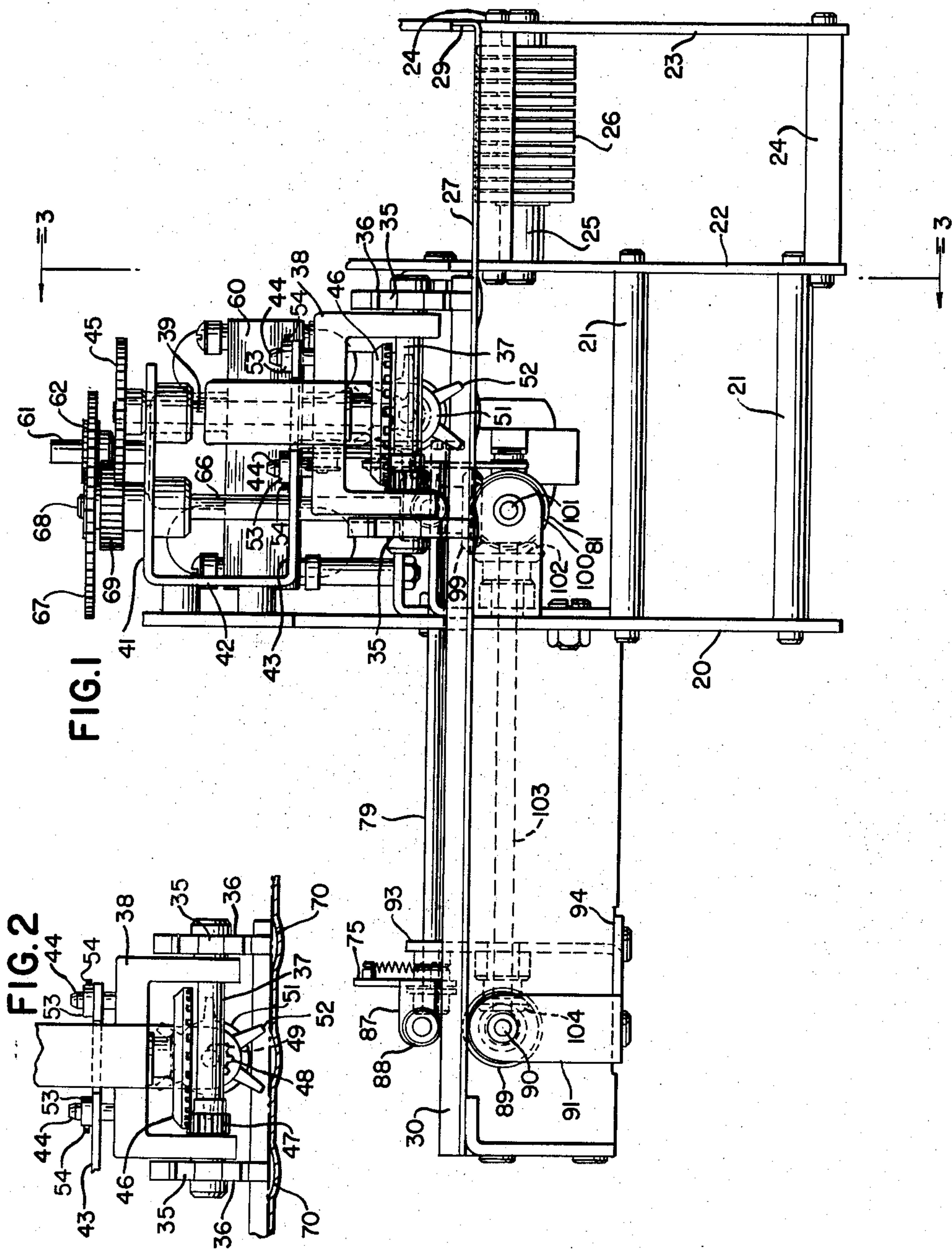
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CHECK ALIGNING MECHANISM

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3 Sheets-Sheet 1



INVENTORS  
PAUL H. WILLIAMS  
ALBERT J. GREEN

BY

*Louis A. Khine*  
*Henry Silbers*

THEIR ATTORNEYS

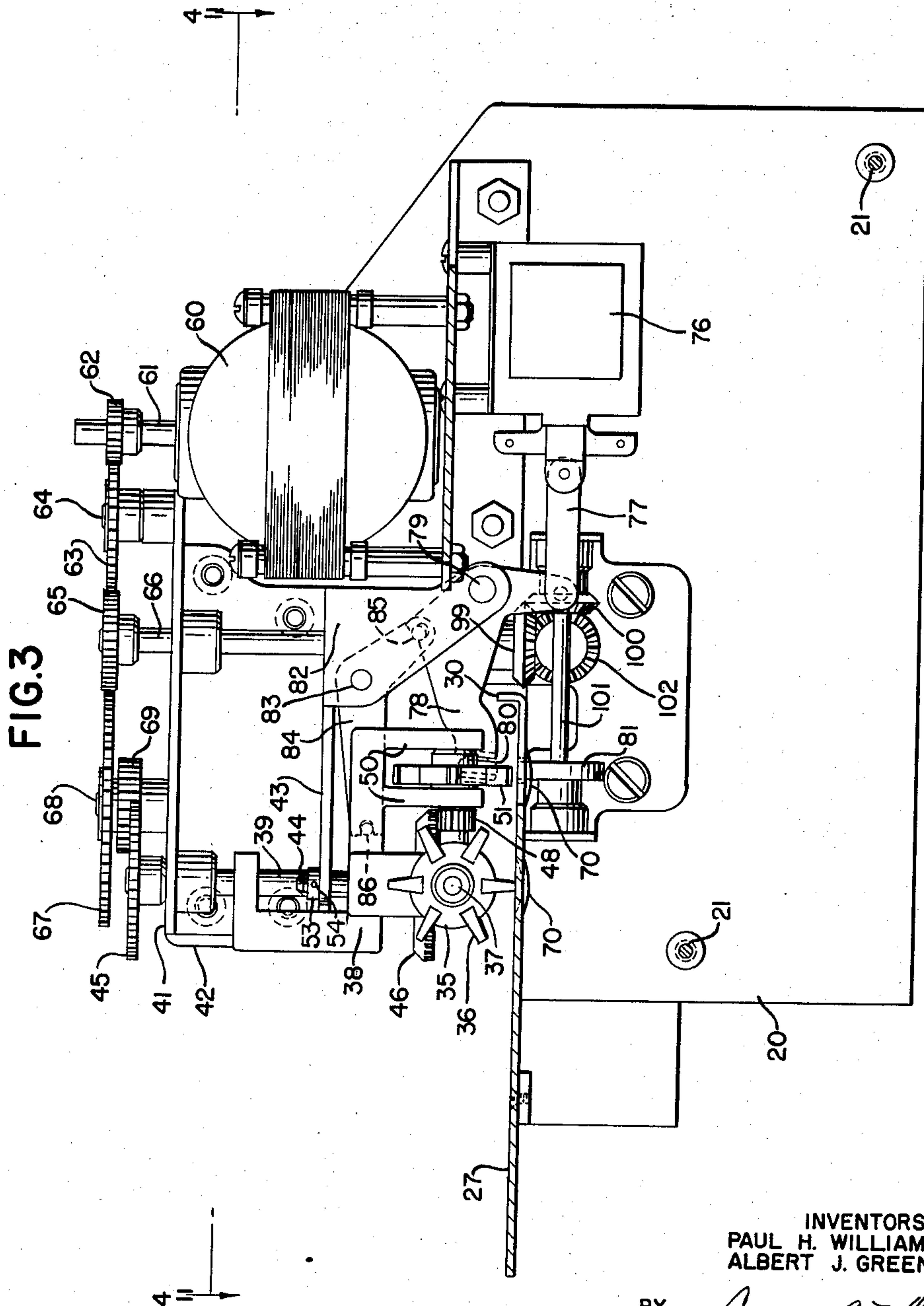
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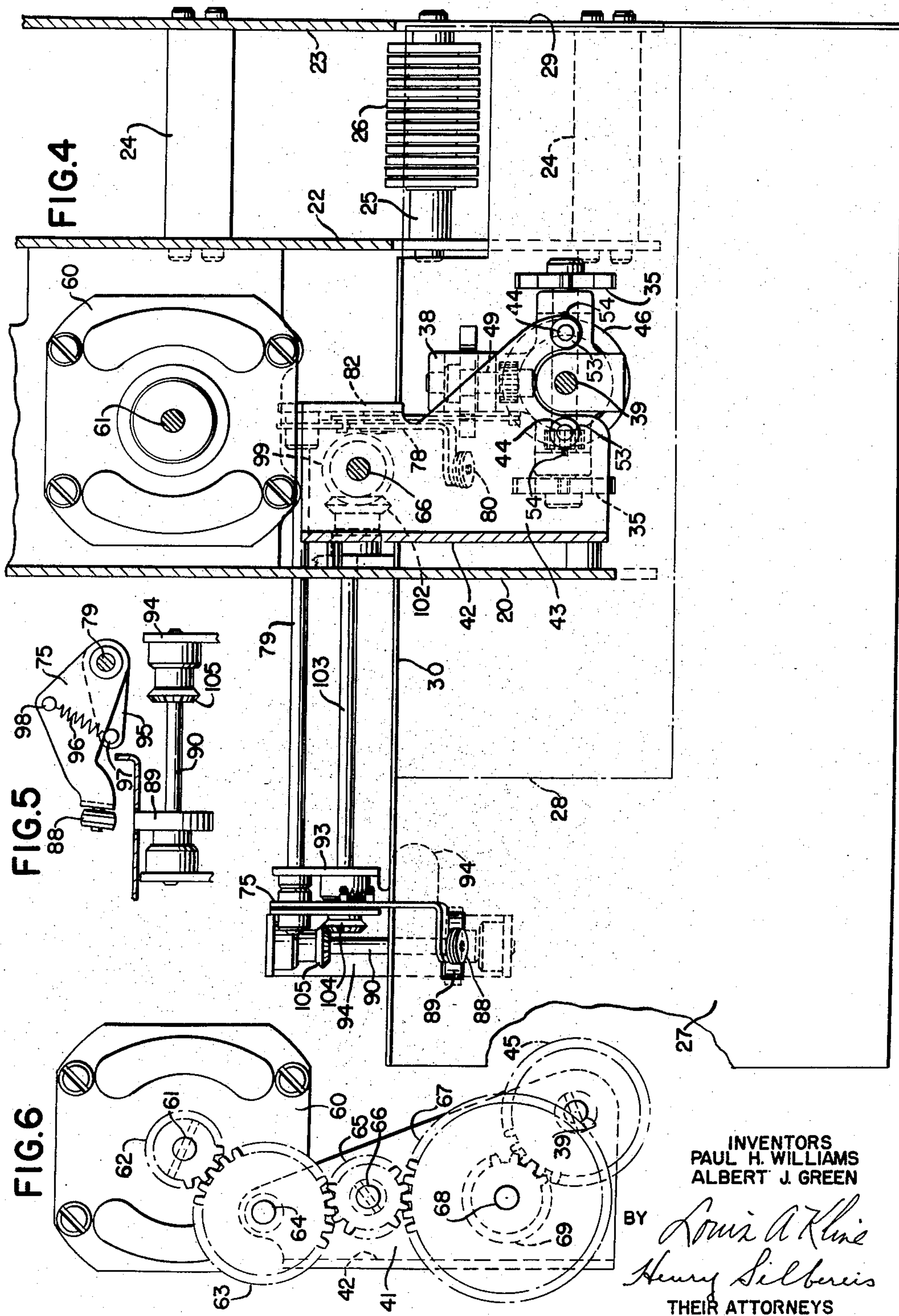


INVENTORS  
PAUL H. WILLIAMS  
ALBERT J. GREEN

BY *Louis A. Kline*  
*Henry Silbereis*  
THEIR ATTORNEYS

**2,953,372**

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## CHECK ALIGNING MECHANISM

Paul H. Williams and Albert J. Green, Dayton, Ohio,  
assignors to The National Cash Register Company,  
Dayton, Ohio, a corporation of Maryland

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7 Claims. (Cl. 271-52)

This invention relates to a novel means for feeding and alining a record material in respect to a printing mechanism when positioned on the printing table at random.

The principal object of the invention is to provide a feeding mechanism which will pick up a piece of record material and feed it in a plurality of directions to properly aline the record material with printing mechanism.

The specific object of the invention is to provide feeding rolls which are so synchronized that one roll will feed the record material in one direction, and the second feeding roll will feed the record material in the direction at right angles to the direction of feed of the first feed rollers, said rollers effective alternately in steps.

Another object of the invention is to provide field rolls having a plurality of protuberances which alternately pick up the record material to feed the record material in different directions whereby the composite movement of the record material will be in a direction toward the printing mechanism.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, a preferred form or embodiment of which is hereinafter described with reference to the drawings which accompany and form a part of this specification.

Of said drawings:

Fig. 1 is a front elevation of the feeding mechanism.

Fig. 2 is a detail view of a part of the mechanism shown in Fig. 1.

Fig. 3 is an end view of the mechanism shown in Fig. 1, looking toward the left Fig. 1.

Fig. 4 is a top plan view of a part of the mechanism shown in Fig. 1.

Fig. 5 is a detail right hand elevational view of a part of the record material ejecting means.

Fig. 6 is a detail top view of the driving mechanism for operating the record material feeding means.

### Detailed description

The mechanism for alining the checks with the printing mechanism is mounted on a main frame 20 supported on rods 21 which are also mounted on a frame 22. The frame 22 is one of a plurality of frames of the printing mechanism of an accounting machine. A frame 23 is connected to the frame 22 by rods 24. Also supported between the frames 22 and 23 is a shaft 25 supporting type of wheels 26 of an accounting machine, the latter being provided with a printing medium for taking impressions from the type wheels.

A slip table 27 is supported on the three frames 20, 22 and 23 and is notched at the upper right hand corner (Fig. 4) to permit the type wheels 26 to project through the table.

A check or other record material 28 is shown in chain lines (Fig. 4) in the position into which it is moved by the novel feeding and alining mechanism. A flange 29 (Fig. 1) on the right hand end of the table 27 provides

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a stop for one end of the record material 28. A flange 30 on the rear edge of the table 27 provides a stop to limit movement of the record material into the machine from front to back. Thus when the record material is in contact with the flanges 29 and 30, it is properly alined in respect to the type wheels 26.

The record material 28 is positioned on the table 27 at random, that is, it is not normally positioned against the stops 29 and 30. All the operator need do is position one area of the check beneath one of a pair of feed rollers 35 (Figs. 1, 2, 3 and 4), each of which is provided with a plurality of hard rubber feeding protuberances 36.

The rollers 35 are secured to a shaft 37 mounted in a sliding frame 38 slidably mounted on a vertical shaft 39. The shaft 39 is mounted in an upper flange 41 of a bracket 42, the latter having a second flange 43, which forms a support for the sliding frame 38, as illustrated in Fig. 4. The flange 43 is provided with two holes, through which studs 44 in the sliding frame 38 project to provide a means to maintain the sliding frame 38 in proper alinement. The vertical position of the shaft 39 is maintained by collars 53 held on studs 44 by set screws 54. This provides a means for adjusting the frame 38 for a purpose presently described.

Mounted on the lower end of the shaft 39 is a gear 46 (see Fig. 2), meshing with a pinion 47 pinned to the shaft 37, to which the rollers 35 are also pinned.

The gear 46 also meshes with pinion 48 (Fig. 3) secured to a short shaft 49 (Figs. 2 and 4) supported in arms 50 formed on the sliding frame 38. Mounted on the short shaft 49, in a position between the arms 50, is a feed roller 51 having a plurality of hard rubber feeding protuberances 52. The ends of the protuberances 52 and 36 can be adjusted in relation to the record material to obtain the best possible friction and feeding conditions, by adjusting the collars 53 up or down on the studs 44. From the above it is clear that rotation of the shaft 39, through the gear 46 and pinions 47 and 48, rotates the feed rollers 35 and 51. The direction of rotation of the feed rollers 35 is counter-clockwise in Fig. 3, and likewise the direction of rotation of the feed roller 51 is counter-clockwise in Fig. 1.

The protuberances 36 and 52 respectively are located in such position on their respective rollers 35 and 51 that, a protuberances 36 will be in contact with the record material to be fed while the protuberances 52 are disengaged therefrom. As the roller 35 rotates, the protuberances 36, in engagement with the record material, tends to move the record material toward the stop flange 30. As the protuberances 36 of the roller 35 become disengaged from the record material, the protuberances 52 of the roller 51 come in contact with the record material and tend to feed the record material toward the flange 29. Thus the protuberances 36 and 52 alternately engage and feed the record material toward the stops 30 and 29, respectively. Thus it is clear that the protuberances 36 and 52 progressively feed the record material to the proper position in engagement with the flanges 29 and 30, in which position the check is properly alined with the type wheels 26.

The shaft 39 is rotated through a train of gears actuated by the motor 60 (Figs. 1, 3, 4 and 6), which is provided with a constantly rotating armature shaft 61. Secured to the shaft 61 is a pinion 62, which meshes with a pinion 63 rotatably mounted on a stud 64 carried by the flange 41 of the bracket 42. The pinion 63 meshes with a pinion 65, secured to a shaft 66, supported in the flanges 41 and 43 of the bracket 42. The pinion 65 meshes with a gear 67 rotatably mounted on a stud 68 carried by the flange 41 of the bracket 42 and which



has secured thereto a pinion 69 meshing with the before-mentioned gear 45, pinned to the shaft 39.

Normally, the shaft 39 rotates the feed roller 35 counter-clockwise (Fig. 2) to feed the record material into the machine. By reversing the circuit through the motor, in any well known manner, the direction of rotation of the motor is reversed, and therefore the direction of rotation of the feed rollers 35 and 51 is reversed, thus making it possible to feed the record material out of the machine, if desired.

To prevent too much friction between the record material and the table at the point of contact of the protuberances 36 and 52 with the record material, a slight depression 70 is formed in the table opposite each of the paths of movement of said protuberances.

After the record material has been positioned against the stops 29 and 30, the printing mechanism (not shown) prints the data thereon, after which it is ejected from the mechanism. The ejecting mechanism is normally ineffective and remains so as long as the feed rollers 35 and 51 are effective. However, after the record material has had data entered thereon, a means is actuated to render the rollers 35 and 51 ineffective and to render the check ejecting mechanism effective.

The means for rendering the rollers 35 and 51 ineffective and to render the check ejecting mechanism effective comprises a solenoid 76 (Fig. 3), which is energized (by means not shown herein) immediately after the check has had the data printed thereon. Energization of the solenoid 76 actuates an armature 77 thereof, which is connected to a bell crank 78 secured to a shaft 79. The free end of the bell crank 78 is provided with a feed roller 80 (Fig. 3), which is moved into engagement with a companion feed roller 81 when the relay 76 is energized. The shaft 79 is supported by a flange 82 on the frame 42 and is formed at right angles to the flange 43. Also carried by the flange 82 is a stud 83, to which is pivoted a bell crank 84, provided with a stud 85, which projects into a notch of the arm of bell crank 78. The free end of the bell crank 84 is notched to engage a stud 86 on the sliding frame 38.

When the relay 76 is energized at the end of a machine operation, the armature 77 is withdrawn, and the bell crank 78 is rocked to lower the roller 88 into engagement with the roller 81. Simultaneously, the notch engaging the stud 85 rocks the bell crank 84 clockwise to raise the frame 38 and disengage the rollers 35 and 51 from engagement with the record material on the table, and at the same time the rollers 80 and 81 engage the record material on the table 27.

Loosely mounted on the shaft 79 (see Figs. 1 and 5), is an arm 75, which is similar to the bell crank 78 and is provided with a flange 87 supporting a feed roller 88, similar to the feed roller 80 on the arm 78. The roller 88 is flexibly engaged with a feed roller 89, by a spring 96, attached to a stud 98 of the arm 75. The other end of the spring 96 is attached to a stud 97, on an arm 95 secured to the shaft 79. When the shaft 79 is rocked by the energization of the relay 76, the roller 88 is flexibly moved into engagement with a roller 89 carried on a shaft 90 of a bracket 91 carried by the framework of the machine. The shaft 79 is supported in the flange 82 (Figs. 3 and 4) and also in the flange 93 of a bracket 94 carried by the framework of the machine.

When the relay 76 is energized at the end of the machine operation, the armature 77 is drawn, and the shaft 79 is rocked to rock the arms 78 and 86 to lower the respective rollers 80 and 88 into contact with the feed rollers 81 and 89 respectively, thus gripping the check therebetween.

The rollers 81 and 89 are rotated through the shaft 66 (Fig. 3), the lower end of which is provided with a bevel gear 99, meshing with a bevel gear 102 mounted

on a shaft 103. The bevel gear 99 also meshes with a bevel gear 100 on a shaft 101, carrying the feed roller 81.

The shaft 103 is mounted in the frame 20 and in the flange 93 and extends leftwardly (Fig. 4), where a pinion 104 is mounted. The pinion 104 meshes with a pinion 105 on the beforementioned shaft 90.

Thus, when the shaft 66 is rotated by the motor 60, the bevel gear 102 is rotated to rotate the shaft 103 and the pinions 104 and 105 to rotate the gear 89. Also, the bevel gear 100 is rotated to rotate the shaft 101 to rotate the feed roller 81. The rollers 81 and 89 are rotated counter-clockwise, thus feeding the printed record material leftwardly (Fig. 1) out of the machine and into the sorting mechanism, not shown or described herein.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein disclosed, for it is susceptible of embodiment in various other forms.

What is claimed is:

1. In a record-material-positioning mechanism, the combination of two stops arranged at right angles to each other, a table to receive record material, and a plurality of feed rollers each provided with a plurality of feed protuberances acting to feed the record material into engagement with the two stops from any position on the table in which the feed protuberances of two or more of the feed rollers engage the record material, each of the feed protuberances of one of said feed rollers acting alternately in relation to one of the feed protuberances of another of said feed rollers.

2. In a record-material-positioning mechanism, the combination of two stops arranged at right angles to each other, a table to receive record material, and a plurality of feed rollers each provided with a plurality of feed protuberances acting to feed the record material into engagement with the two stops from any position on the table in which the feed protuberances of two or more of the feed rollers engage the record material, the feed protuberances of one of said feed rollers tending to move the record material in one direction and the feed protuberances of another one of said feed rollers tending to move the record material at right angles thereto, with each of the feed protuberances of said one of said feed rollers acting alternately in relation to one of the feed protuberances of said another one of said feed rollers, the feed protuberances of said one of said feed rollers being disengaged from the record material when any feed protuberance of said another one of said feed rollers is in feeding engagement with the record material, the composite movement of the record material by the feed protuberances of both feed rollers being such as to move the record material against both of said stops.

3. In a record-material-positioning mechanism, the combination of two stops arranged at right angles to each other, a table to receive record material, and a plurality of feed rollers each provided with a plurality of feed protuberances acting to feed the record material into engagement with the two stops from any position on the table in which the feed protuberances of two or more of the feed rollers engage the record material, the feed protuberances of one of said feed rollers tending to move the record material in one direction and the feed protuberances of another one of said feed rollers tending to move the record material at right angles thereto, with each of the feed protuberances of said one of said feed rollers acting alternately in relation to one of the feed protuberances of said another one of said feed rollers, the feed protuberances of said one of said feed rollers being disengaged from the record material when any feed protuberance of said another one of said feed rollers is in feeding engagement with the record material, the composite movement of the record material by the protuberances of both feed rollers being such as to move



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the record material against both of said stops, said feed protuberances being arranged to frictionally contact the record material whereby the feed rollers are free to rotate after the record material is arrested by the two stops.

4. In a record-material-positioning mechanism, the combination of two stops arranged at right angles to each other, a table to receive record material, and a plurality of feed rollers each provided with a plurality of feed protuberances acting to feed the record material into engagement with the two stops from any position on the table in which the feed protuberances of two or more of the feed rollers engage the record material, each protuberance of one of said feed rollers tending to move the record material a predetermined extent in one direction and each protuberance of another one of said feed rollers tending to move the record material a predetermined extent at right angles thereto, with each of the feed protuberances of said one of said feed rollers acting alternately in relation to one of the feed protuberances of said another one of said feed rollers, the composite movement of the record material by the feed protuberances of both feed rollers being such as to move the record material against both of said stops, said feed protuberances being spaced on the feed rollers so that when any protuberance of said one feed roller contacts the record material the protuberances of said another feed roller are out of engagement with the record material.

5. In a record-material-positioning mechanism, the combination of two stops arranged at right angles to each other, a table to receive record material, and a plurality of feed rollers each provided with a plurality of feed protuberances acting to feed the record material into engagement with the two stops from any position on the table in which the feed protuberances of two or more of the feed rollers engage the record material, the feed protuberances of one of said feed rollers tending to move the record material in one direction and the feed protuberances of another one of said feed rollers tending to move the record material in another direction at right angles thereto, with each of the feed protuberances of said one of said feed rollers being effective alternately in relation to one of the feed protuberances of said an-

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other one of said feed rollers, and the composite movement of the record material by the feed protuberances of both feed rollers being such as to move the record material against both of said stops, said feed protuberances being spaced on the rollers in relation to each other that the feed protuberances of said one feed roller feed the record material step by step in said one direction and the feed protuberances of said another feed roller frictionally feed the record material step by step in said another direction.

6. In a record-material-feeding mechanism of the class described, the combination of a table to receive record material at random, a first stop to arrest the record material when moving in one position, a second stop located at right angles to the first stop, and feed rollers having feed protuberances effective to move the record material toward each stop, with each of the feed protuberances of one of said feed rollers being effective alternately in relation to one of the feed protuberances of another of said feed rollers.

7. In a record-material-feeding mechanism of the class described, the combination of a table to receive record material at random, a first stop to arrest the record material in one position, a second stop located at right angles to the first stop, and feed rollers having feed protuberances effective to frictionally move the record material toward the stops, with each of the feed protuberances of one of said feed rollers being effective alternately in relation to one of the feed protuberances of another of said feed rollers.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,196,934	Droitcour	Sept. 5, 1916
1,951,901	Cottrell	Mar. 20, 1934
2,376,255	Hunting	May 15, 1945
2,442,839	Carlson	June 8, 1948
2,677,542	Backhouse et al.	May 4, 1954
2,712,936	Backhouse	July 12, 1955
2,857,161	Kist	Oct. 21, 1958

##### FOREIGN PATENTS

502,223	Great Britain	Mar. 14, 1939
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