Nov. 15, 1960 R. A. LANCASTER 2,959,903

ARTICLE PACKING DEVICE

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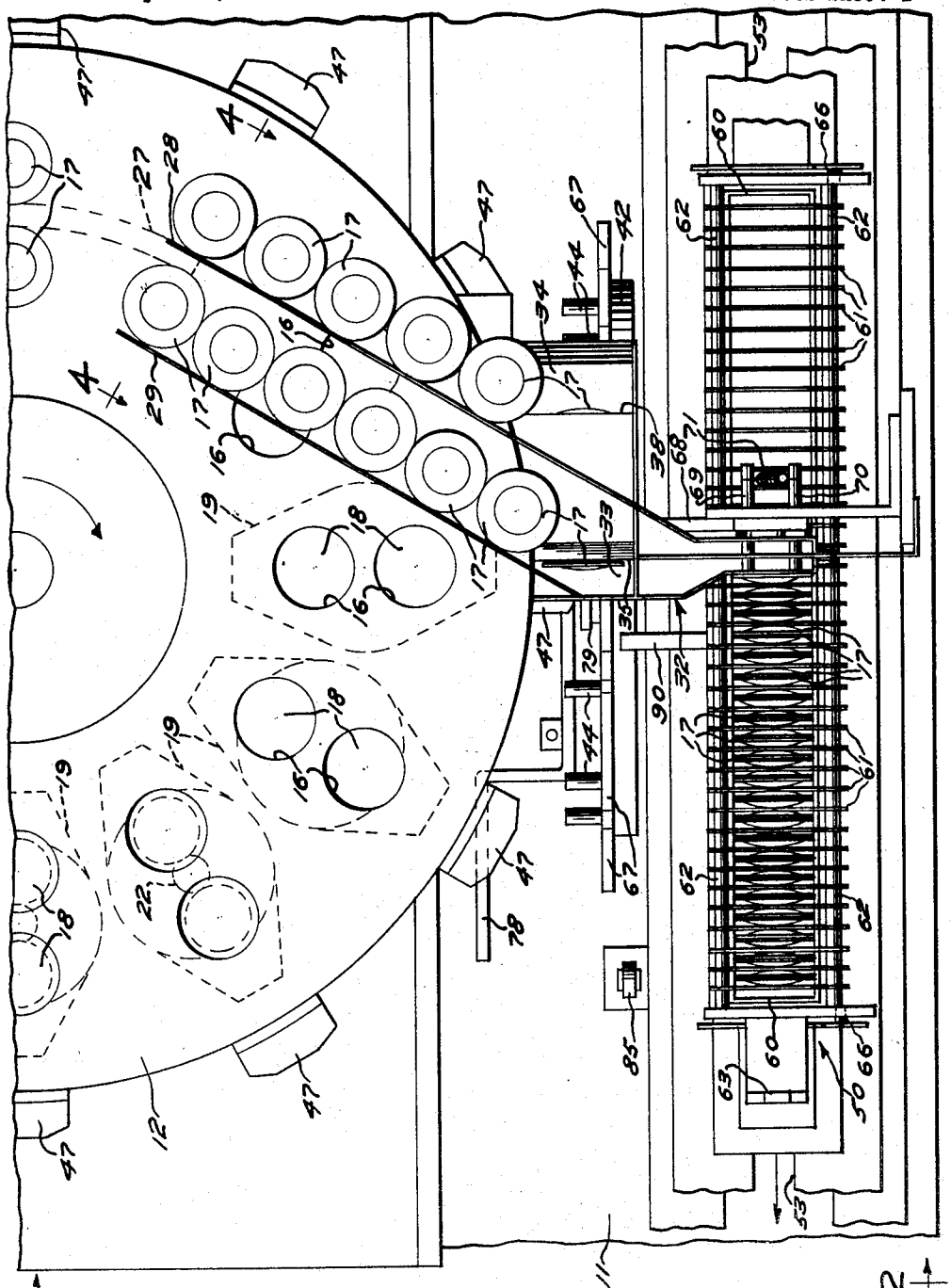


FIG. 1

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FIG. 2

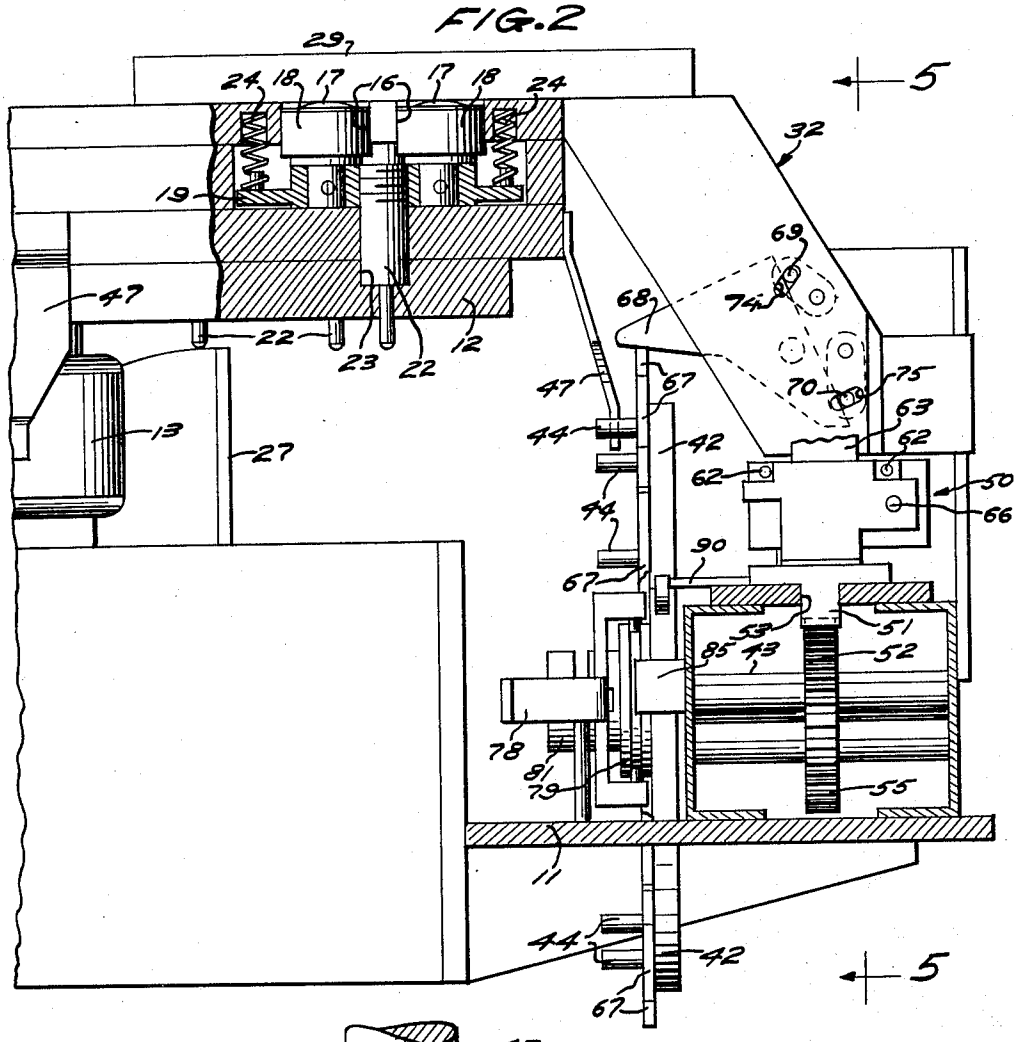


FIG. 3

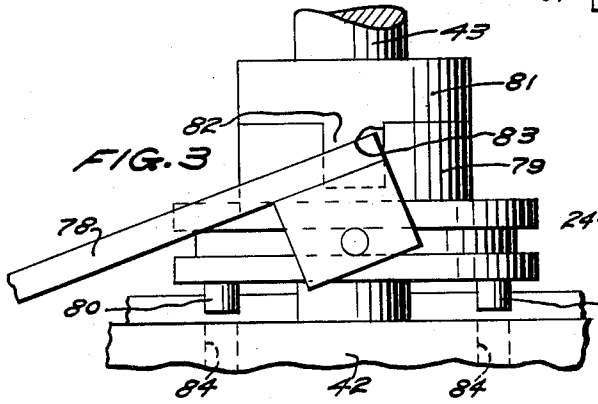
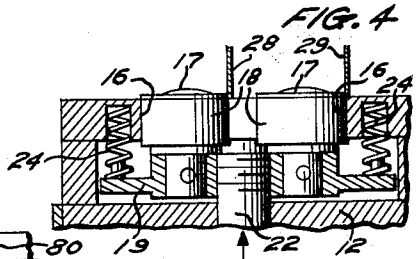


FIG. 4



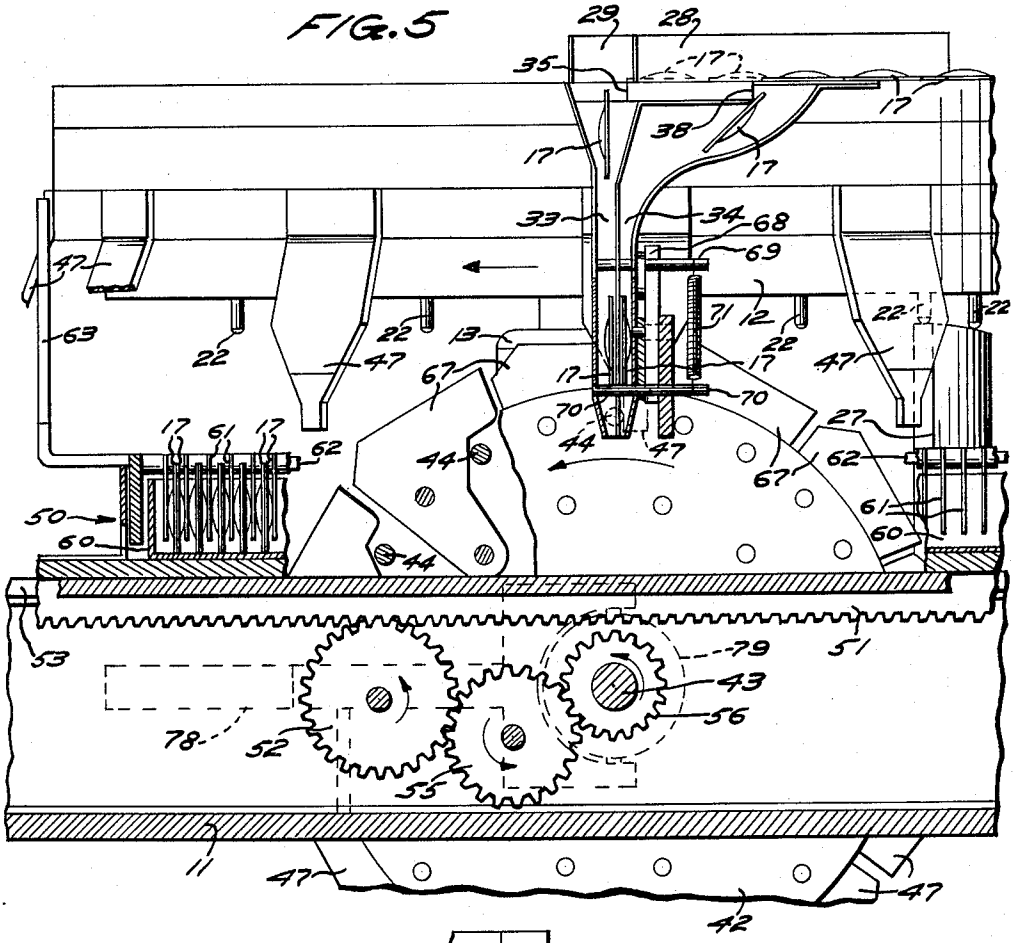
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FIG. 5



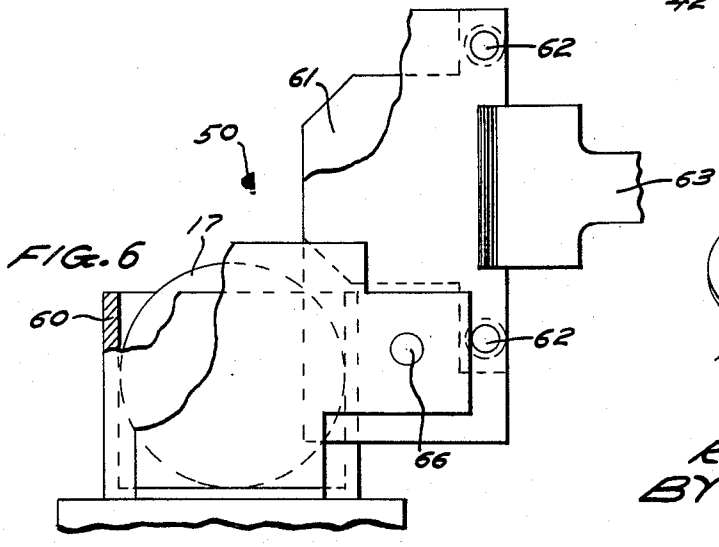


FIG. 6

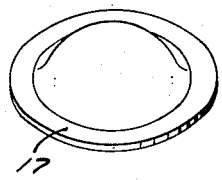


FIG. 7

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2,959,903

ARTICLE PACKING DEVICE

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2 Claims. (Cl. 53—246)

This invention relates to article packing devices and more particularly to devices for automatically positioning articles in a plurality of compartments of a container.

One of the objects of this invention is to provide a device for packing articles in a container.

Another object of this invention is to provide a device for positioning flat circular elements face to face in compartments of an elongated container.

A further object of this invention is to provide a device wherein telephone transmitter grids are fed from a rotating table, through a chute, and into compartments in an intermittently advanced container.

With these and other objects in mind, the present invention contemplates a rotating table positioned adjacent to a chute which leads to a compartmented container. A stop mechanism positioned in the chute is intermittently actuated in timed relationship with intermittent movements of the container whereby the transmitter grids are dropped into the compartments of the container.

Other objects and advantages of the invention will become apparent by reference to the following detailed description and the accompanying drawings illustrating a preferred embodiment of the invention, in which

Fig. 1 is a fragmentary plan view of a device embodying the principles of the invention and showing the manner in which transmitter grids are cammed off of a table;

Fig. 2 is a fragmentary front view of the device with a portion broken away to illustrate the configurations of elements supporting the transmitter grids in the rotating table;

Fig. 3 is an enlarged fragmentary view of the lever operated clutch;

Fig. 4 is a fragmentary sectional view taken on line 4—4 of Fig. 1, illustrating the manner in which the transmitter grids are deflected from the rotating table;

Fig. 5 is a fragmentary front view of the device showing the configuration of the cams that operate the stop mechanism in the chute;

Fig. 6 is an enlarged fragmentary view showing the construction of that portion of the device which is pivotable into the container for forming compartments therein; and

Fig. 7 is an enlarged perspective view of a telephone transmitter grid which is to be packaged by the device of the present invention.

Referring now in detail to the drawings, a base **11** is shown supporting a rotatably mounted table **12** adapted to be driven at a uniform speed by a motor **13**. The table **12** is provided with a plurality of pairs of cylindrical recesses **16** for receiving telephone transmitter grids **17** which are to be packaged by the device. Each of the pairs of recesses **16** has slidably mounted therein a pair of cylindrical members **18** secured to a bracket **19** which is in turn threadably attached to a pin **22** extending downward through a recess **23** in the table **12**. Compression springs **24** engage the ends of the bracket **19** to normally urge the bracket **19** and the members **18** downward.

A cam **27** mounted on the base **11** engages the lowermost portions of the pins **22** to force the elements **18** upward against the compression of the springs **24** for pushing the grids out of the recesses **16**. The cam **27** extends in a circular path and is of a uniformly increasing height. The pins **22** ride along the upper surface of the cam **27**.

A pair of deflecting elements **28** and **29** extend at an angle across the table **12** for engaging the grids **17** and deflecting them off the table **12** and into a chute **32** having passages **33** and **34**. The grids **17** dropping into the passage **33** pass over an edge **35** and are turned into a vertical plane. The grids **17** dropping into the passage **34** pass over an edge **38** and are turned into a vertical plane, the grids dropping into the passages **33** and **34** in facing relationship.

A wheel **42** rotatably mounted on a shaft **43** mounted rotatably on the base **11** is provided with a plurality of projecting pins **44** which are engaged by projections **47** on the rotating table **12** to cause the wheel **42** to be intermittently moved as the table **12** is continuously rotated.

A supporting framework, indicated generally by the numeral **50**, is slidably mounted on the base **11** and is provided with a rack **51** extending through a slot **53** (Figs. 1, 2 and 5) in the base **11** and meshing with a gear **52** which is driven through gears **55** and **56** as the wheel **42** is intermittently moved, the gear **56** being secured to the shaft **43**. In this manner the supporting framework **50** is intermittently advanced as the table **12** is rotated.

The supporting framework **50** carries a replaceable container **60** into which the transmitter grids **17** are to be packed. A plurality of elements **61** secured at spaced intervals to rods **62** are pivotably supported on the framework **50** by pins **66** and enter the container **50** to serve as compartments therein. A handle **63** is provided for pivoting the elements **61** about the pivot pins **66** to move the elements **61** into and out of the container **60**. Fig. 6 illustrates the positions of the various parts when the elements **61** are pivoted out of the container **60**.

The wheel **42** is provided with a plurality of camming members **67** which engage a stop **68** secured to pins **69** and **70** extending through the passages **33** and **34** and slots **74** and **75** (Fig. 2) in the chute **32**. A tension spring **71** (Fig. 1) normally urges the stop **68** to the position illustrated in Fig. 2. The stop **68** is provided for insuring that the transmitter grids **17** drop into the container **60** only when the framework **50** is stationary.

In order to manually move the framework **50** and the container **60**, a lever **78** may be moved to disengage a clutch segment **79** of a conventional type from the wheel **42**. A portion **81** secured to the shaft **43** is provided with a projection **82** slidably positioned in a slot **83** in the segment **79** for connecting the segment to the shaft **43**. The segment **79** is provided with pins **80** (Fig. 3) adapted to enter apertures **84** in the wheel **42** so as to cause the intermittently advanced wheel **42** to advance the framework **50** in intermittent steps in timed relationship with the wheel.

A limit switch **85** is connected to the motor **13** and is opened by a bar **90** (Fig. 2) when the framework **50** reaches its extreme or loaded position to thereby stop the table **12** until the container **60** can be removed and replaced. A foot switch (not shown) is opened and held open by an operator as the container **60** is replaced and as the framework **50** is manually returned to the starting position.

In operating the device to pack transmitter grids **17** in a container **60**, the grids **17** positioned in the recesses **16** in the table **12** are advanced toward the deflecting elements **28** and **29**. As the grids **17** approach the elements **28** and **29**, the pins **22** ride upward on the cam **27** and force the grids **17** out of the recesses **16** and into position to be deflected from the table **12** by the elements **28** and **29**.

As the grids 17 leave the table 12, through the urging of succeeding grids, those grids deflected by the element 28 drop over the edge 38 and those deflected by the element 29 drop over the edge 35. In falling over the edges 38 and 35, the pairs of grids 17 drop into the chute 32 in a facing relationship and are then stopped by the pin 69. As the table 12 continues to rotate, a projection 47 on the table 12 engages a pin 44 on the wheel 42 and rotates the wheel, whereupon the stop 68 is moved by one of the camming members 67 to permit the grids 17 held by the pin 69 to drop into engagement with the pin 70. When the stop 68 clears the camming member 67, these grids will drop into the container 60 between two adjacent elements 61.

The framework 50 and the container 60 are then advanced in the manner described above by the rack 51 and the pinion 52 to move the container a distance equal to the distance between the elements 61 before the next pair of grids 17 drop thereinto.

The above-described procedure is automatically repeated until the bar 90 opens the limit switch 85, the container 60 being completely filled at this time. The operator then opens the foot switch (not shown), operates the handle 63 to pivot the elements 61 out of the container 60 (see Fig. 6), and operates the handle 78 to disengage the shaft 43 from the wheel 42.

The operator then removes the filled container 60, replaces it with an empty container, and operates the handle 53 to pivot the elements 61 into the empty container 60. The framework 50 is then manually returned to starting position, the handle 78 is operated to connect the wheel 42 to the shaft 43, and the foot switch is closed. Upon the closing of the foot switch, the table 12 begins to rotate and the framework is intermittently advanced to fill the container 60 as described above.

It is to be understood that the above-described arrangements are simply illustrative of the application of the principles of this invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. A device for positioning articles in compartments of a container, comprising a base, a chute on the base, movable means for supporting the container beneath the chute, means for feeding articles into the chute, a movable stop attached to the chute for regulating the passage of articles through the chute so as to cause said articles to drop from the chute one at a time, a wheel rotatably mounted on the base, cam means secured to and carried by the wheel for engaging and actuating the stop

to drop the articles from the chute one at a time, means driven by the wheel for moving the support means intermittently so as to sequentially position the compartments of the container beneath the chute, and means for driving the wheel.

2. A device for positioning articles in a container, comprising a base, a movable framework on the base for supporting an elongated container, partitioning means pivotally mounted on the framework and having a plurality of spaced parallel elements for entering the container to define compartments therein, a rotatably mounted table on the base having a plurality of spaced recesses for receiving articles, a plurality of movable members positioned in the recesses for supporting articles therien, said members having pins projecting beneath the table, an elongated cam on the base for engaging the pins to move the members upward for ejecting the articles from the recesses, a chute positioned adjacent to the table, a deflector element mounted on the base and extending across the table for deflecting the articles off the table and into the chute, a pivotally mounted stop having a pair of spaced article-engaging pins projecting through the chute to regulate the passage of articles through the chute and permit the articles to pass through the chute one at a time, a motor for driving the table, said table having a plurality of spaced projections depending therefrom, a shaft rotatably mounted on the base, a wheel rotatably mounted on the shaft and having a plurality of spaced pins adapted to be engaged by the projections of the table for causing the wheel to be intermittently rotated as the table is continuously rotated, a rack secured to the framework, a first gear secured to the shaft, a plurality of other gears interconnecting the first gear and the rack, a clutch mounted on the shaft for connecting the wheel to the rack through the gears so as to cause intermittent movement of the framework, and a plurality of cam elements secured to the wheel for engaging and actuating the stop in timed relationship with the intermittent movement of the framework so as to sequentially position the compartments beneath the chute as the articles drop therefrom.

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