

[54] **DISPENSING APPARATUS FOR ROLLED MATERIALS**

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[52] U.S. Cl. **226/110, 226/134, 225/23, 312/38**

[51] Int. Cl. **B65h 17/42**

[58] Field of Search..... **226/110, 134; 312/38; 242/55.3; 225/23**

[56] **References Cited**

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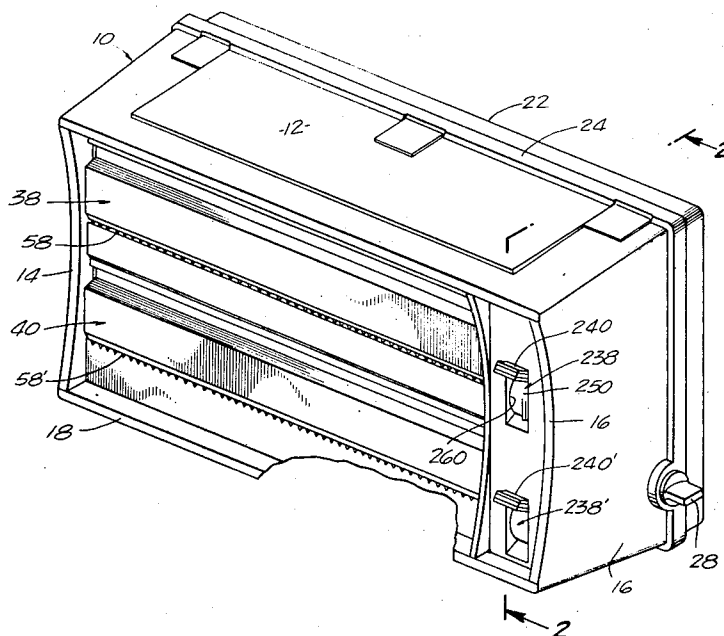
Primary Examiner—Allen N. Knowles

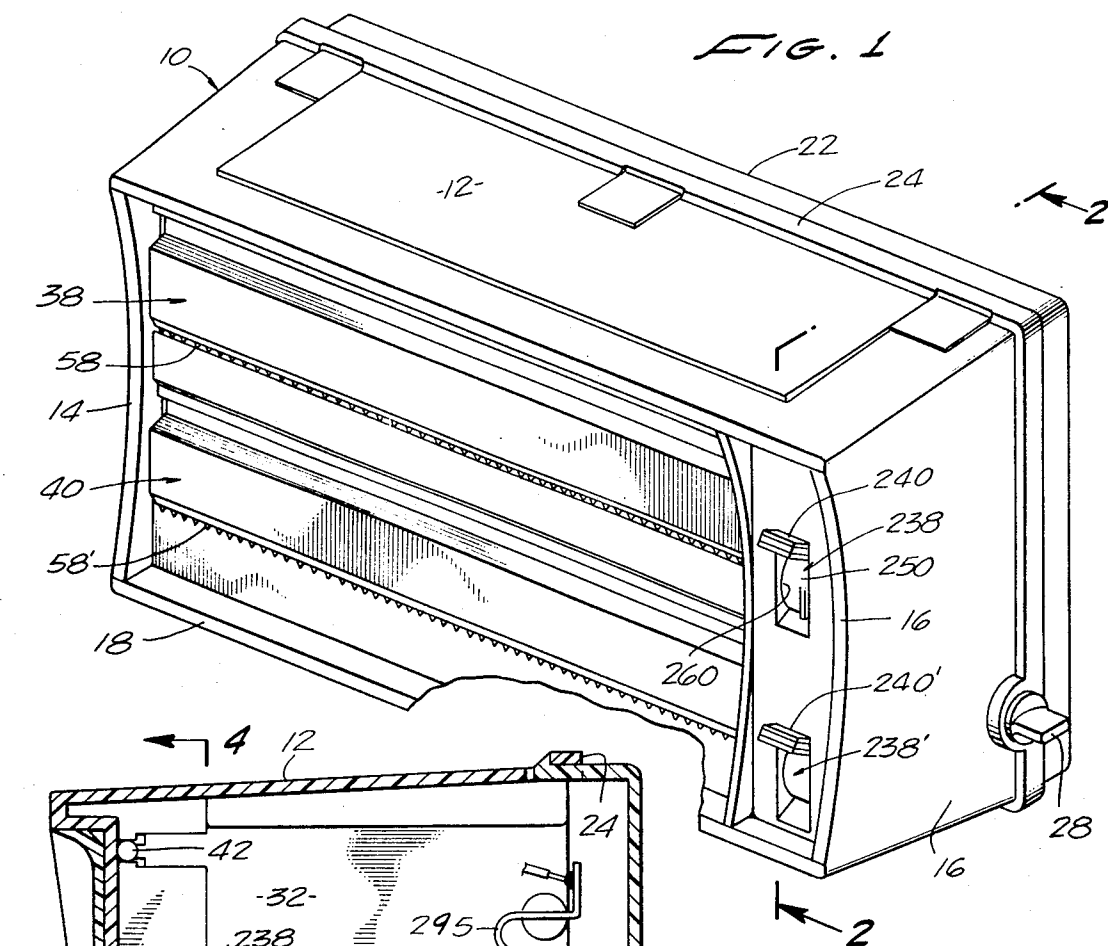
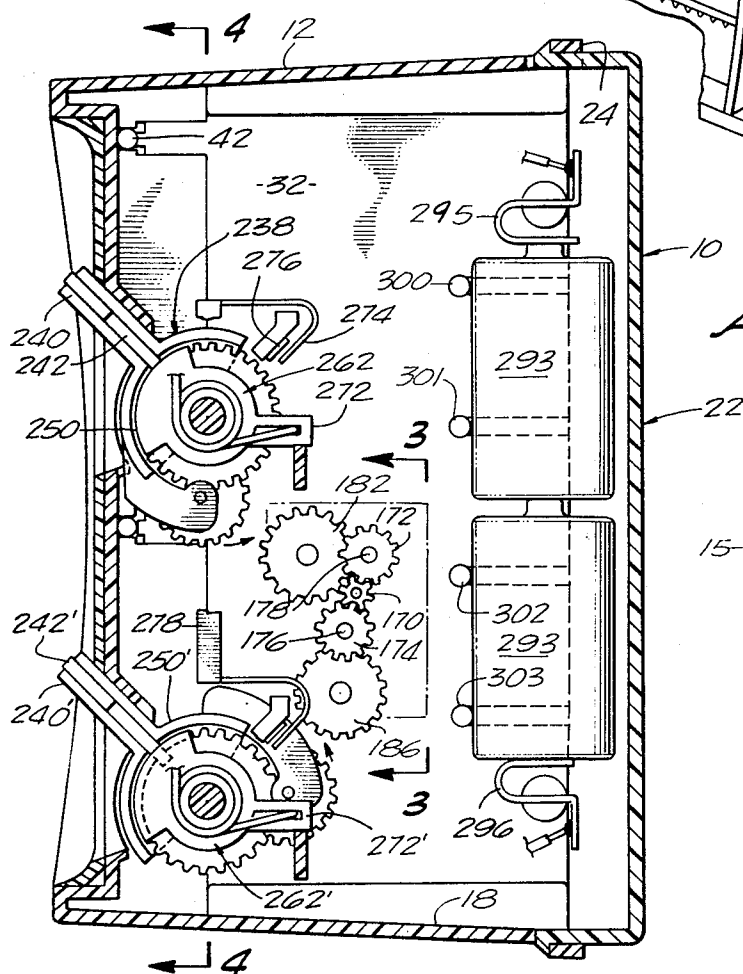
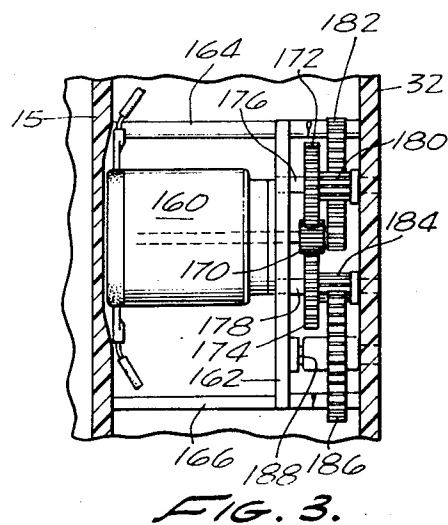
Attorney—Albert M. Herzig and Edward C. Walsh

[57] **ABSTRACT**

A dual, power driven dispenser for dispensing rolled material such as paper. Two power driven rolls are provided, each being operable by a manual control which also opens one of two dispensing doors for the web or strip of paper which is being dispensed. The web is torn off after the door closes. A single drive motor is provided for operating both the power driven rollers through two separate gear trains. Each gear train is brought into driving engagement with the motor when its respective roller is to be driven. Each manual handle embodies an adjustable key member and a mechanism to make possible manual operation without driving either power driven roller.

8 Claims, 13 Drawing Figures





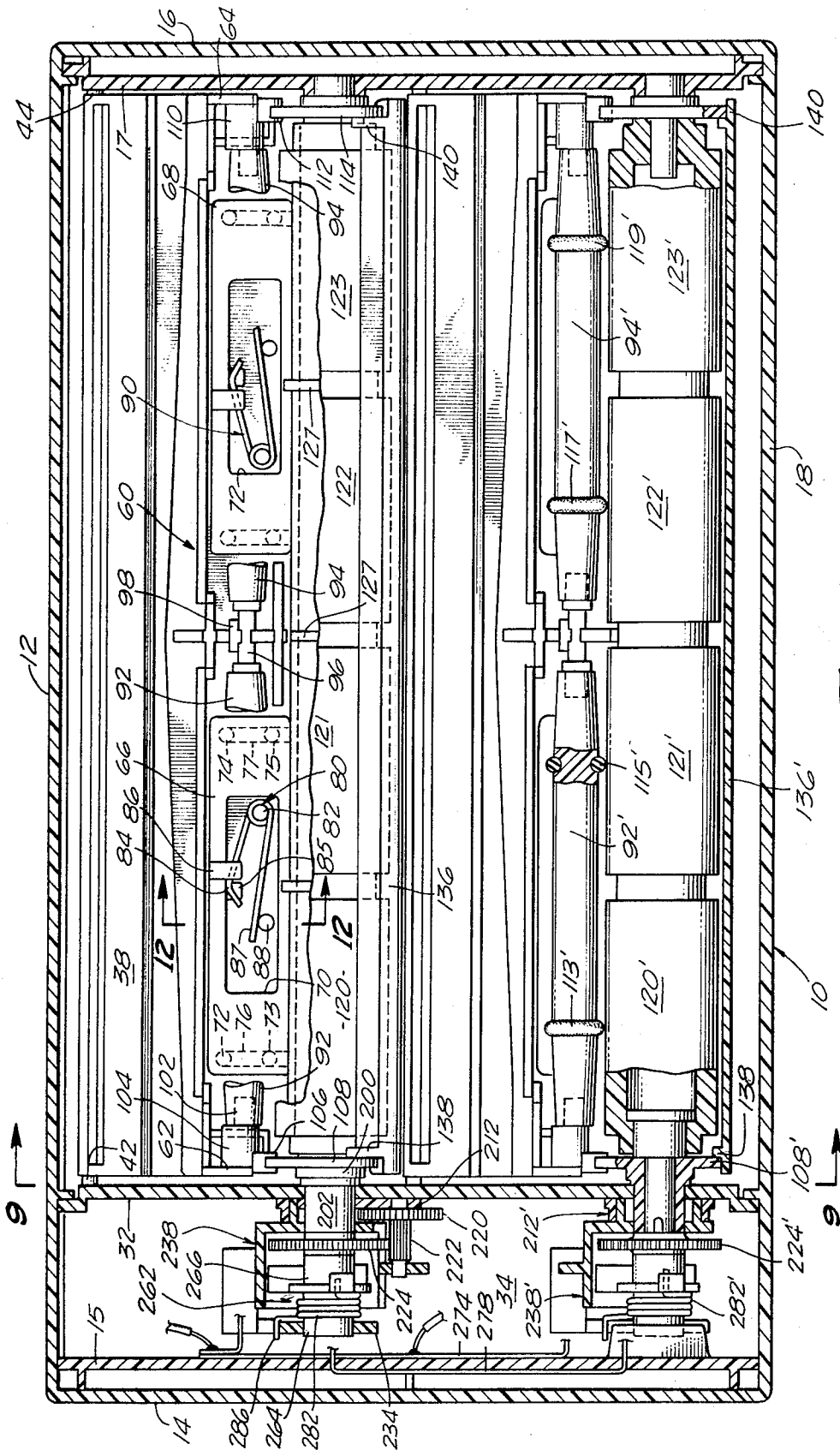


FIG. 4.

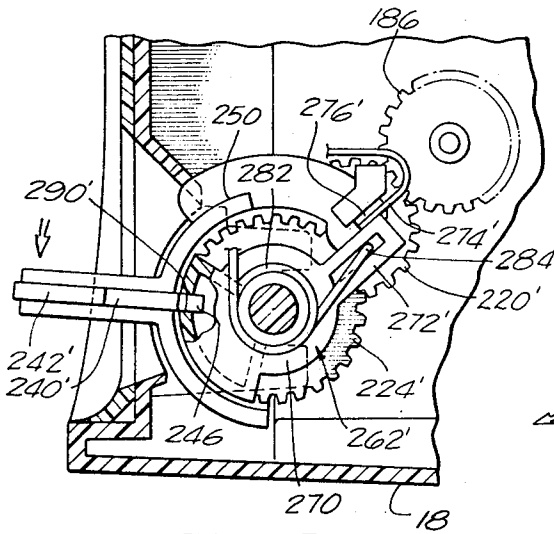


FIG. 5.

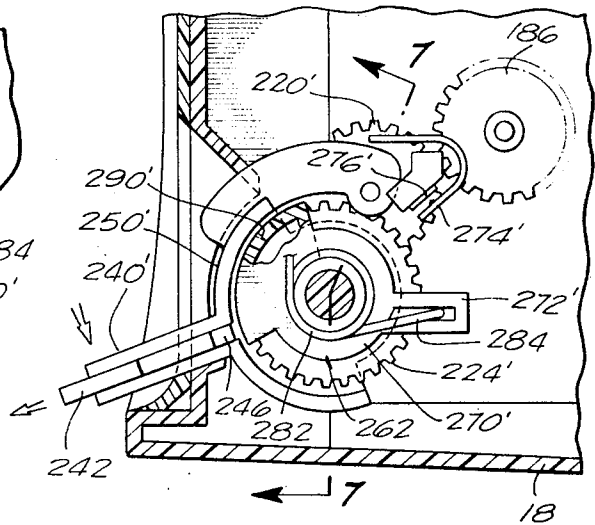


FIG. 6.

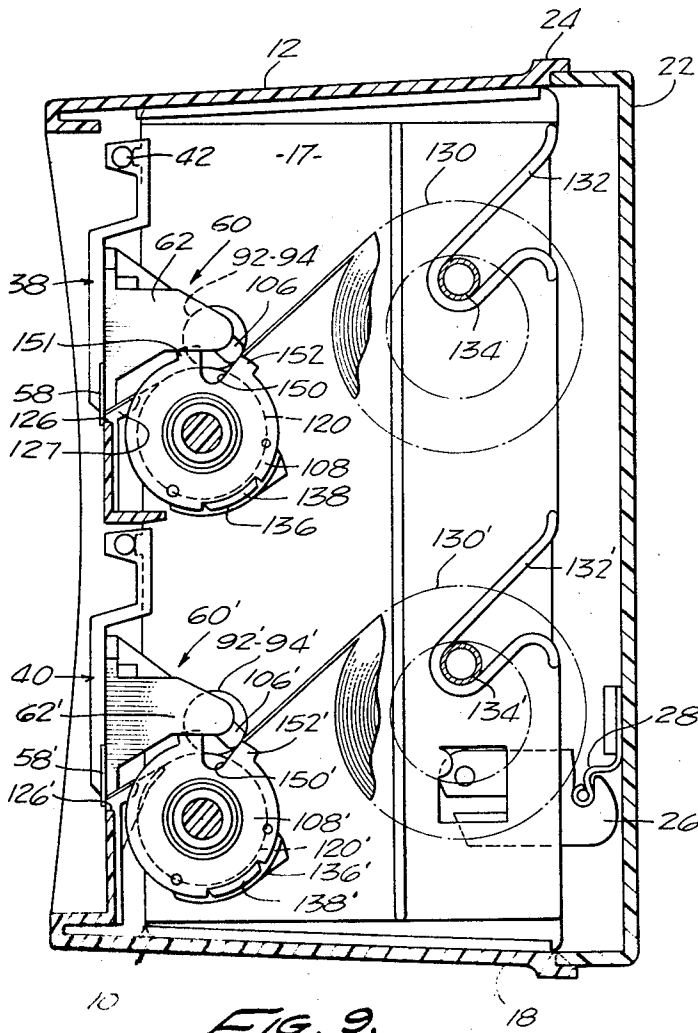


FIG. 9.

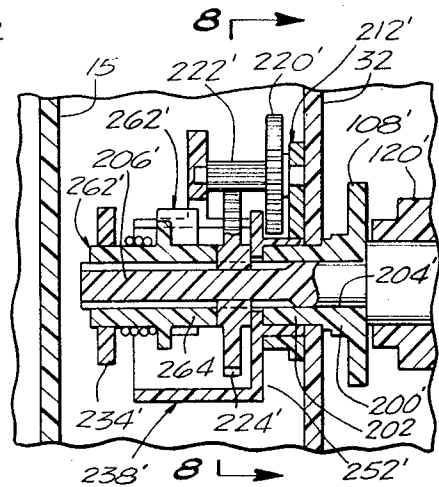


FIG. 7.

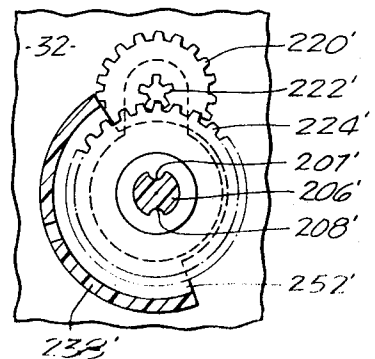
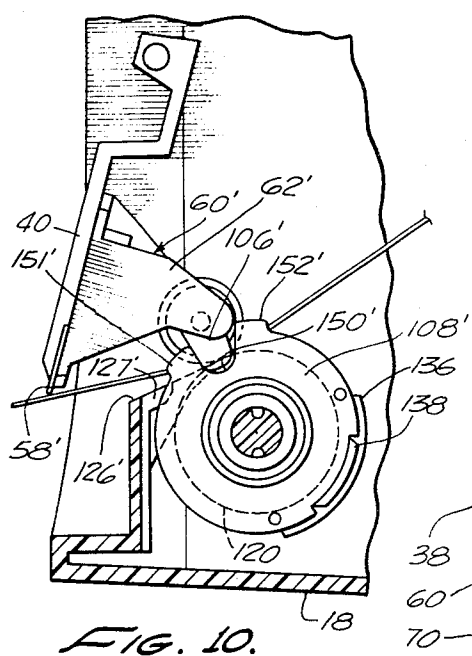
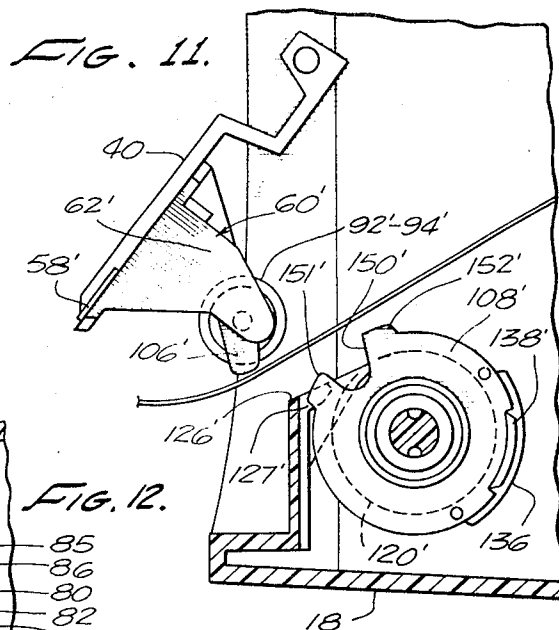
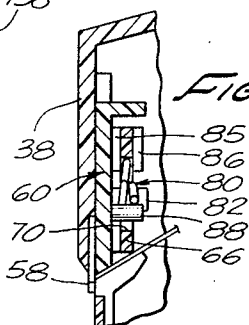
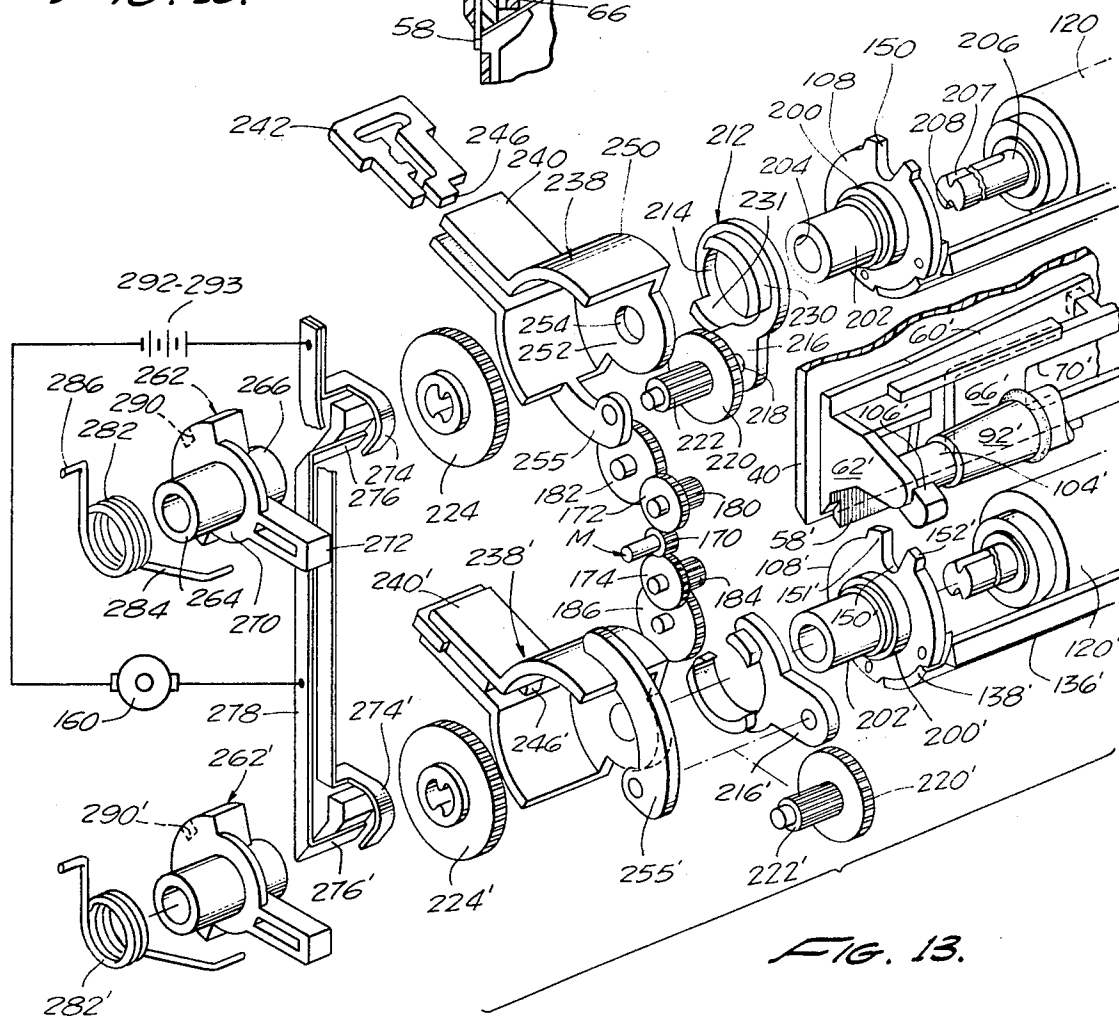


FIG. 8.



DISPENSING APPARATUS FOR ROLLED MATERIALS

SUMMARY OF THE INVENTION

The invention relates to power operated dispensing apparatus, particularly for rolled material such as plastic wrap or film, metallic foil, waxed paper, and the like.

The invention is an improvement with respect to the dispenser of U.S. Pat. No. 3,384,280. The herein invention is a dual paper dispenser having within it dual assemblies of power driven rollers, idler rollers, and manual operating means whereby material can be dispensed from either of two different supplies of rolled material in the apparatus through separate dispensing openings or doors.

In addition to the fact that the dispenser is a dual machine, an important characteristic of it is that it has only a single electric drive motor and gear train mechanisms whereby the motor can drive either of the two power driven rollers under manual control. Each gear train is brought into meshing driving engagement with the electric motor when paper is to be dispensed from its respective supply roll. A manual control handle is provided for each of the dual assemblies, whereby either assembly is caused to dispense a web of material from its supply roll. Manual handles control the opening of the dispensing doors and the energization of the driving motor and the drive of drive rollers. Associated with each manual handle is an adjustable key member which can be positioned for manual operation of its respective dispensing assembly.

The primary object of the invention is to achieve and realize a dual dispenser of this type wherein the web of material can be selectively dispensed from either of two supply rolls. The supply rolls are of course easily replaceable. With two assemblies, the probability of both rolls being exhausted at the same time is very markedly reduced. Additionally, it is possible to have supply rolls of two different materials in the cabinet or housing of the apparatus.

A further object of the invention is to make is possible to be able to drive both of the drive rollers in a unit from a single electric motor and to provide simplified mechanism so that individual drive rollers can be brought in to driving connection with the electric motor under manual control when it is desired to dispense from that particular assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and additional advantages of the invention will become apparent from the following detailed description and annexed drawings, wherein:

FIG. 1 is a perspective view of a preferred, exemplary form of the invention;

FIG. 2 is a sectional view taken along the line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken along the line 4—4 of FIG. 2;

FIG. 5 is a partial view similar to the lower part of FIG. 2 showing the manual operating handle in a closed switch position;

FIG. 6 is a partial sectional view, similar to that of FIG. 5 showing the manual operating handle and its key in position for manual operation;

FIG. 7 is a sectional view taken along line 7—7 of FIG. 6;

FIG. 8 is a sectional view taken along the line 8—8 of FIG. 7;

FIG. 9 is a sectional view taken along the line 9—9 of FIG. 4;

FIG. 10 is a partial sectional view like a part of FIG. 9 showing one of the dispensing doors in open position under power drive;

FIG. 11 is a partial sectional view, similar to that of FIG. 10 showing one of the doors in manually opened position;

FIG. 12 is a sectional view taken along the line 12—12 of FIG. 4; and

FIG. 13 is an exploded perspective view illustrating the relationship of the parts in the two dual assemblies.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1, the preferred exemplary form of the invention embodies a rectilinear cabinet as shown which may be made of a suitable material such as plastic, the cabinet as a whole being designated at 10. It has a top wall 12, exterior end walls 14 and 16, the front edges which are concave as shown, and a bottom wall 18. The cabinet has a removable flanged back cover 22 which is engageable with a continuous peripheral flange 24 at the back of the cabinet as may be seen in FIG. 9. The back can be removably held in position by way of a pair of pivoted hooks, one of which is shown at 26 in FIG. 9. The hook is engageable with spring latch member 28. The hook latch member 26 can be moved about its pivot to unhook or unlatch by knob 28 at the lower part of the back of the cabinet as may be seen in FIG. 1. The knob at the other end is similar.

At one end of the cabinet, there is provided a motor chamber. The end walls of the cabinet are double. The inner wall are designated at 15 and 17 in FIG. 4. Numeral 32 designates a partition wall spaced from the inner wall 15. The motor chamber 34 is between these two walls.

At the front of the cabinet are two pivoted or hinged dispensing doors 38 and 40 having a cross sectional configuration as may be seen in FIG. 9, which will be described more in detail presently. The door 38 has extending trunion members at its ends as designated at 42 and 44, which are journaled in the side wall 17 and partition wall 32 (see FIG. 4).

The Dual Drive Roller and Idler Roller Assemblies

These two assemblies in the dual machine are alike. Therefore, only one need be described in detail. The door 38 and its associated stripper and protector bar and idler roller will be described in detail. These details are best seen in FIGS. 1, 4, 9, 12, and 13, the latter figure being an exploded perspective view which shows one corner of the door 40 which is like the door 38. At the lower edge of the door 38 is the serrated knife edge 58 as may be seen in FIGS. 1, 9, and 12, it being designated at 58' for the door 40. Movably supported on the inside of the door is the stripper and protector bar assembly which carries the idler roller as will be described. This assembly comprises the frame member as designated by numeral 60 which has a flat surface which is flush against the inside of door 38 as may be seen in FIG. 12. This member 60 has right angle end extensions or arms 62 and 64 which support the idler

roller, as will be described. See FIG. 4. Flush against the inside surface of frame member 60 are support and guide members 66 and 68 which allow the frame member 60 which is the stripper and protector bar, and the idler roller to move relative to the serrated knife edge at the bottom of the door to go into and out of stripper position, as will be described. Member 66 has a rectangular central opening 70 and member 68 has a similar rectangular opening 72. Member 66 is secured to the inside of frame member 60 by posts as shown at 72, 73, 74 and 75 with the frame member between the door and member 66. There are slots 76 77 in frame member 60 so as to allow it to slide up and down on posts 72—72 relative to the door and member 66. Member 68 is secured to the inside of the door in the same relationship. Numeral 80 designates a bow spring having a part wrapped around a post 82 on the inside of frame member 60 and having one end 84 pressing against the upper surface of rectangular opening 70 between lugs 85 and 86. The other extending end of the spring 87 bears against post 88 on the inside of frame member 60.

Another bow spring 90 is similarly positioned and oriented so that the bow springs normally urge the stripper bar 60 downwardly to a position opposite the inside of the teeth or serrations on knife edge 58, unless the frame 60 is urged upwardly as will be described.

The idler roller carried by door 38 is in two parts 92 and 94 connected at the middle by a stem or shaft 96. Numeral 98 designates an integral yoke formed on the inside of frame 60 and between the legs of which the shaft or stem 96 is journaled. The end of roller part 92 as may be seen in FIG. 4 is journaled on a stem 102 extending from a fitting 104 which is attached to the arm 62. Fitting 104 has a projection or extension as designated at 106 which forms a cam follower for a door cam 108 which will be referred to again presently. The opposite end of the other roller part 94 is similarly journaled and similarly mounted from arm 64 extending from frame 60. The fitting at that end is designated at 110 and it has a similar cam follower or projection 112 cooperable with a similar door cam 114. (Corresponding parts with respect to door 40 are identified by similar reference characters primed.) Rubber tires are provided on the idler rollers positioned in annular grooves as may be seen at 113', 115', 117', and 119' in FIG. 4.

The drive roller is an elongated roller, preferably made up of cylindrical sections which may be made of plastic material as designated at 120, 121, 122, and 123. The outside surfaces of the roller sections are preferably ribbed or serrated axially to assist in driving the web of paper or other material. The lip or edge at the bottom of the door opening in the cabinet is designated at 126 in FIG. 9. Extending inwardly from this lip are small fingers 127 which extend into the spaces between the sections of the drive roller to assist in guiding the web out through the door opening.

The mounting of the drive roller can be best understood from FIG. 4 and the exploded view of FIG. 13 which shows the details of the drive roller associated with the other door 40.

FIG. 9 shows two rolls of material as designated at 130 and 130'. As will be observed, the web from roll 130 passes between idler roller 92-94 and the driven roller. Formed in the rear edge of inner end wall 17 are angular slots 132 and 132' adapted to receive rods 134

and 134' on which the rolls of rolled material are held as shown. Thus, it is very easy to load the machine by putting in fresh rolls simply by removing the back cover and mounting the rolls as shown.

Positioned between door cams 108 and 114 is an arcuate spacer member 136 having an extending part 138 at one end secured to the cam 108. At the other end of spacer 136 is an arm or extension 140 secured to cam 114. In cam 108, there is a peripheral notch 150 as may be seen in FIG. 9 with radial extensions or projections 151 and 152 adjacent to the notch. The manner in which door cams 108 and 114 cooperate with the idler roller and the door will be described presently in connection with the operating positions of the manual actuating handles and with particular reference to FIGS. 5, 6, 9, and 11.

Motor Drive and Manual Control

The details of these assemblies are best seen in FIGS. 2, 3, 4, 7, 8, and 13. The motor is designated at 160 in FIG. 3. It is at a level between the two drive rollers and rearward of them as may be seen. It is between inner wall 15 and a support plate 162 supported by posts as shown at 164 and 166. On the shaft of the motor is gear 170 which meshes with gears 172 and 174 on shafts 176 and 178, respectively. On shaft 176 is a smaller gear 180 which meshes with a larger gear 182 on a shaft parallel to shaft 176. On shaft 178 is a smaller gear 184 meshing with a larger gear 186 on a shaft 188 between plate 162 and partition wall 32. As will be described, for driving the upper drive roller, a gear is brought into clutching engagement with gear 182; and for driving the lower drive roller, a gear is brought into clutching or driving connection with gear 186. The gears as just described may be seen on the perspective view of FIG. 13.

As may be seen in FIG. 13, cam 108 has a hub 200 and an extending shaft part 202 having a bore 204 adapted to be received on the extending shaft 206 of the upper drive roller. Shaft 206 is axially slotted on opposite sides as designated at 207 and 208. Shaft part or hub 202 is journaled in partition wall 32 as shown. Numeral 212 designates a gear arm having an opening 214 so that it can journal on hub 200 and an extending arm part 216 carrying shaft 218 on which is gear 220 and smaller gear 222 which meshes with gear 224 that fits onto shaft 206. Gear arm 212 has an arcuate lug or spacer flange on one side as shown. It has another lug 231 which is engaged by a radial surface on member 238 (as will be described) so that torque is applied to shaft 218 at two points to cause it to planetate, as will be described. The end of shaft 206 journals in support member 234 as may be seen in FIG. 4.

Numeral 238 designates a manual control actuator having a radially extending divided or split actuating handle 240 which receives a control key 242 having a configuration as shown in FIG. 13 including the radial extending projection 246. This key is adapted to be slid inwardly and outwardly radially in handle 240 as will be described. The control actuator has partial arcuate surface 250 and a radial part 252 having a center opening 254 so that it can journal on the shaft 206. These parts are shown assembled in FIG. 4. Control handle 240 may be seen in FIG. 1 extending out through slot 260 in the front of the cabinet. Arcuate surface 250 on control actuator 238 is just inside slot 260. Manual actuator 238 has an extending arcuate arm 255 in the end of

which is journaled shaft 218 carrying gears 220 and 222.

In the assembly, gear 224 is on shaft 206 within arcuate surface 250 adjacent to radial surface 252.

Numerals 262 designates another cam member having a hub 264 which journals on shaft 206. It has a hub part 266 which in the assembled condition is within arcuate surface 250 of manual controller 238. The body of cam member 262 is semi-circular as shown having a semicircular radial disc part 270 having an extending arm 272 which is engageable with flexible electrical contact 274 for bringing it into contact with member 276 which is joined by contact 278 to another similar contact member 276' associated with the other of the dual assemblies. On hub 264 is a torsion spring 282, one end 284 of which attaches to extending arm 272 and the other end 286 of which is secured to support 234 as may be seen in FIG. 4. The body part of cam member 262 has slot 290 in it. Projection 246 on key 242 is adapted to engage in this slot in order to thereby couple the manual control member 238 and handle 240 to cam 262 for rotating it in order to bring arm 272 into engagement with contact 274 to make contact between this contact and the contact member 276 for energizing motor 160 from the battery or batteries 292-293. The batteries are shown in FIG. 2 positioned between upper and lower spring contact clips 295 and 296 and held in position by the integral side support bracket members 300, 301, 302, and 303.

OPERATION

The operation of the dispenser will be described in terms of the different positions of manual control handle 240 as shown in FIGS. 2, 5, and 6. To illustrate both power operation and manual operation, key 242 is extended radially as shown in FIG. 6. The operation will be described further in terms of door position as illustrated in FIGS. 9, 10, and 11.

In FIGS. 2 and 9, the control handles are in the upper positions and the doors are closed. FIGS. 5, 6, 10, and 11 illustrate operation of the lower of the dual assemblies. FIG. 5 shows handle 240' rotated in a counterclockwise direction. Key 242' is in and the handle rotates cam 262' so that arm 272' closes contacts 274' and 276' to energize the motor. Gear 220' is rotated in a planetary manner about the center of gear 224'. The gear 220' comes into engagement with gear 186 being driven by the motor. Thus, gear 224' is driven and the lower drive roller is driven so as to drive and dispense the web of material outwardly as illustrated in FIG. 10.

In FIG. 10, the door has opened. Cam 108', which is driven with the drive roller, has moved from the position of FIG. 9 to that of FIG. 10. In the position of FIG. 9, cam follower 106' is in a position as shown relative to the notch 150' and cam 108' and this causes cam follower 106' and the lower idler roller and the entire frame 60' to be lifted so that the lower edge of frame 60' is lifted upwardly with respect to the serrated or toothed edge of knife blade 58' adjacent lip 126'. In the FIG. 10 position, cam follower 106' has entered the notch 150' allowing the idler roller and frame 60' to move downwardly relative to door 40 so that the lower edge of frame 60' strips any accumulation from knife edge 58' and forms a protective guard. On release of the handle from the position of FIG. 5, it is returned to the position of FIG. 2 by torsion spring 282'. This

opens the contacts and de-energizes the motor. Gear 220' and 186 are brought out of engagement.

Either of the doors may be manually opened by its respective manual actuator without driving a driving roller. This is illustrated in FIGS. 6, 7, 8, and 11. In this operation, the key, such as key 242' in FIG. 6 is retracted radially so that its extending projection 246' would not engage in notch 290' in cam 262'. This handle 240' is rotated into a position as shown in FIG. 6. Cam 262' is not rotated and its related contacts are not closed and the motor is not energized. Manual controller 238' is nevertheless rotated as before in a counterclockwise direction in a greater angular amount as illustrated in FIG. 6 so that gear 220' is orbited in planetary fashion past gear 186, as shown.

In this operation as before, door cam 108' is rotated as illustrated in FIG. 11 to a position in which cam follower 106' can disengage entirely from notch 150'. The idler roller and the drive roller separate from contact as shown, and the door can freely swing outwardly as illustrated. From this position, the door can be manually closed, if desired.

From the foregoing, those skilled in the art will fully understand the nature and construction of the dispenser and the manner in which it is operated. It is to be understood that the operation in response to either of the manual actuating handles 240 and 240' is the same with the following exceptions. It will be observed from FIGS. 5 and 6 that gear 220' is caused to planetate or orbit in a counterclockwise direction looking at these figures in order to come into engagement with gear 186. Similarly, upper handle 240 is rotated in a counterclockwise direction to bring gear 220 into mesh with gear 182. The two assemblies are alike except with respect to manual actuator 238 which has its arm 255 on its lower side. Arm 255' is on the upper side of actuator 238'. Gear arms 212 and 212' are similarly angularly displaced from each other.

The foregoing disclosure is representative of a preferred form of the invention and is to be interpreted in an illustrative rather than a limiting sense, the invention to be accorded and full scope of the claims appended hereto.

What is claimed is:

1. Apparatus for dispensing a roll of sheet material comprising: a housing adapted to contain rolls of sheet material to be dispensed; the housing having dispensing doors and rotatably mounted drive rolls adjacent the doors; power means selectively driving the drive rolls; and manually operable means for selectively opening a door and causing an individual drive roll to operate to dispense paper from the open door, said power means comprising a single electric motor and selective drive means responsive to the manual operating means for causing only said individual drive roll to be operated when its respective operating handle is actuated.

2. Apparatus as in claim 1, wherein said selective means includes means operable by operating handles to energize said motor and to bring about driving engagement between the motor and the respective drive roller.

3. Apparatus as in claim 1, wherein said selective means comprises gear transmissions comprising moving gears movable by the operating handles into positions to produce driving engagement between said motor and the respective drive roller.

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4. Apparatus as in claim 3, wherein said gear transmission comprise planetary gears movable by said handles about axes whereby to be brought into engagement with gears driven by said motor for driving said drive rollers.

5. Apparatus as in claim 2, wherein the apparatus includes an idler roll associated with each drive roll, the idler rolls being carried by dispensing doors, the sheet material being dispensed between idler rolls and drive rolls.

6. Apparatus for dispensing a roll of sheet material comprising: a housing adapted to contain plural rolls of sheet material to be dispensed, the housing having dispensing doors and rotatably mounted drive rolls adjacent the doors; power means for driving the drive rolls;

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manually operable means for opening individual dispensing doors and causing individual drive rolls to operate to dispense paper from an open door; and means within the housing to support rolls of sheet material to be dispensed and to cause the material to pass from the rolls in contact with the drive rolls.

7. Apparatus as in claim 6, wherein said housing has rear closure means adapted to be opened for loading rolls of sheet material to be dispensed into the housing.

8. Apparatus as in claim 7, including power means comprising a single electric motor and selective drive means for causing an individual drive roll to be operated by said motor for dispensing paper from the housing.

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