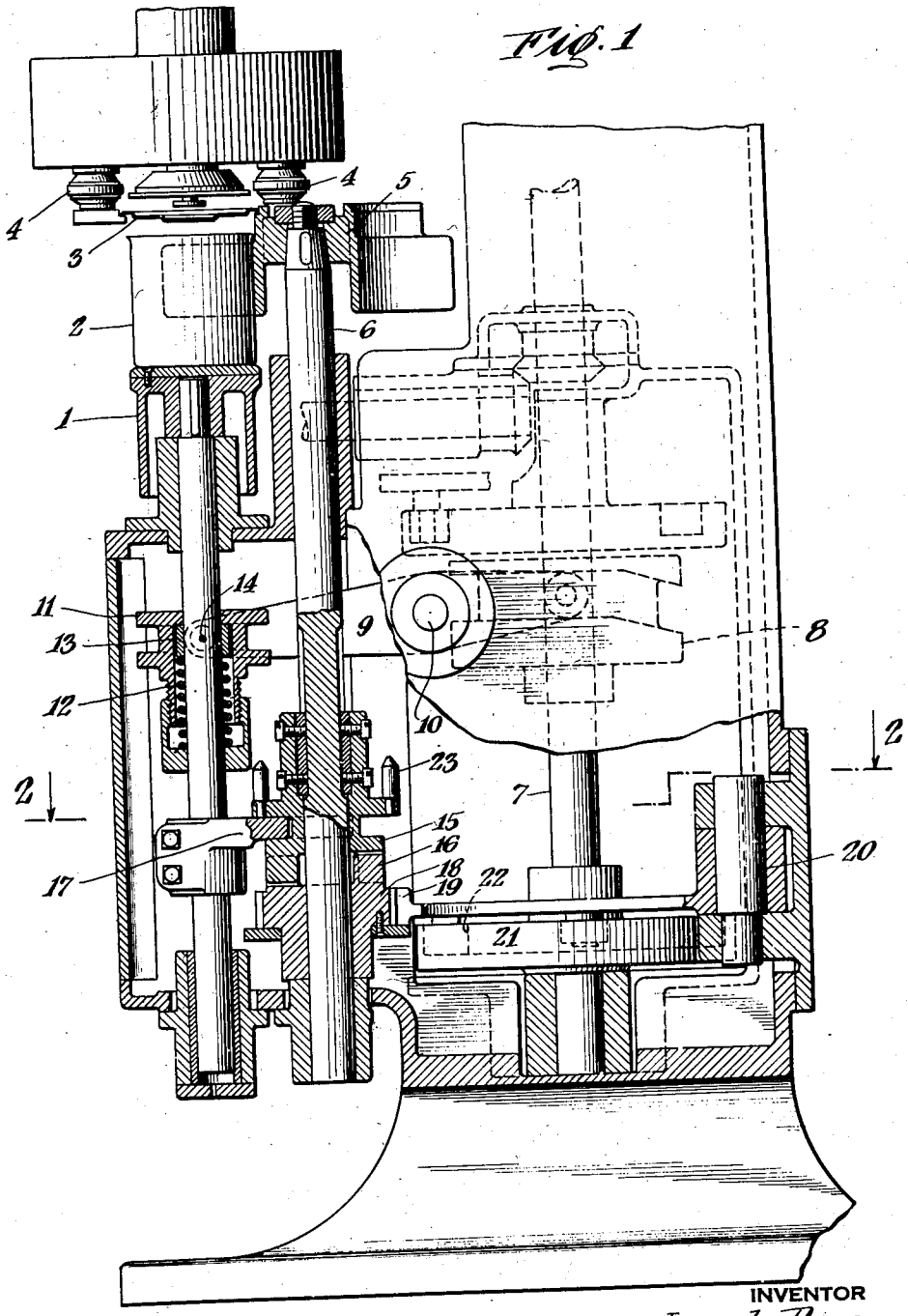
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DIAL FEED MECHANISM

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Fig. 1




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Fig. 2

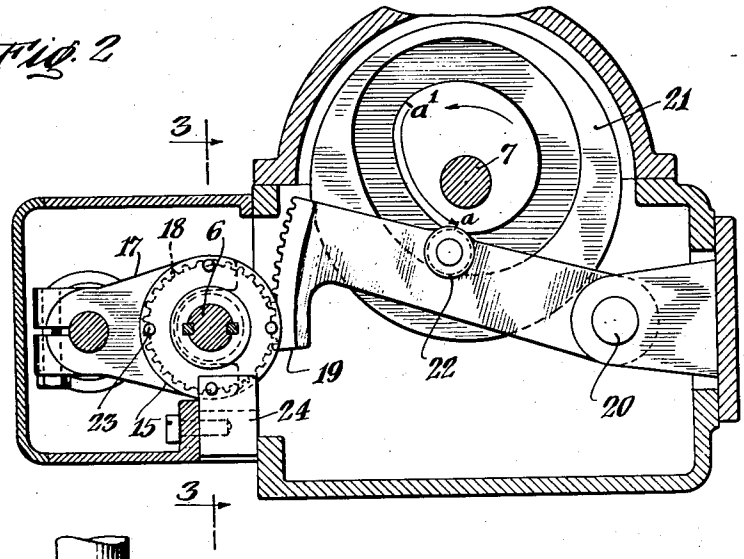
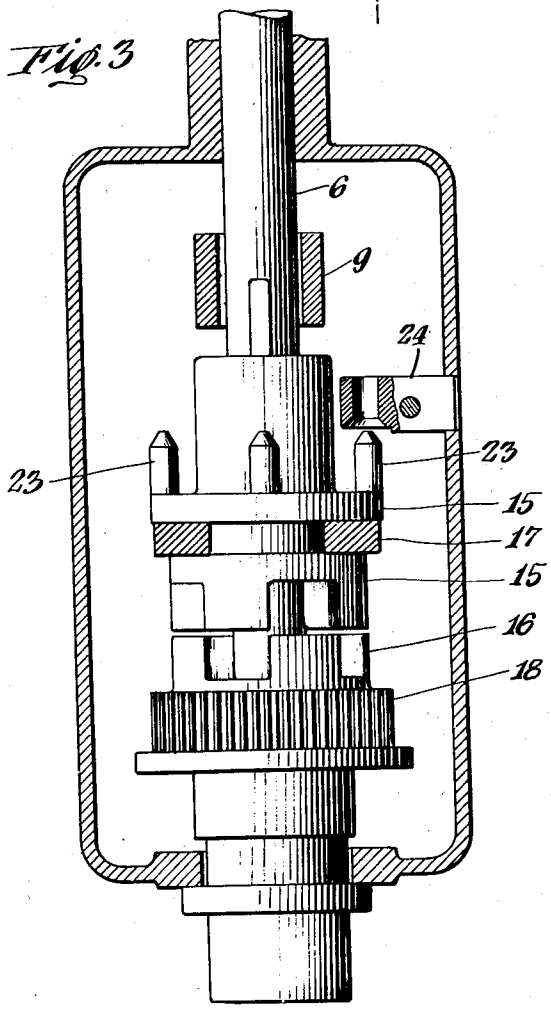



Fig. 3




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# UNITED STATES PATENT OFFICE

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## DIAL FEED MECHANISM

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Application December 23, 1931, Serial No. 582,752

8 Claims. (Cl. 113—115)

This invention relates to machines of the character that employ an intermittently rotatable dial feed to move a body, such as a container, into and out of position, and has for its main object and feature the production of a compact and effective dial feed capable of use in high-speed machines.

In the accompanying drawings the invention is disclosed in a concrete and preferred form in which:

Fig. 1 is a side view of a machine, partly in elevation and partly in section, embodying the invention;

Fig. 2 is a horizontal sectional view substantially on the plane of line 2—2 of Fig. 1; and

Fig. 3 is a vertical sectional view substantially on the plane of line 3—3 of Fig. 2;

1 indicates a reciprocatory pedestal to receive a body, such as container 2, so that a cover 3 may be seamed to said body by seaming rollers 4 in a well understood manner. 5 indicates a dial feed, the wings of which move the containers from a suitable conveyor (not shown) to the pedestal and, after the seaming operation has been completed, off the pedestal. 6 is a dial feed shaft which is turned intermittently a fraction of a revolution to effect the discharge and feed of the containers. 7 is a cam shaft, making here one revolution to each reciprocation of the pedestal, and this shaft carries a cam 8 that actuates cam lever 9, pivoted at 10, and thereby effects up and down movement of the pedestal by the forked end of said lever engaging yoke 11 having a spring 12 that engages collar 13 pinned at 14 to the pedestal. At the lower end of the dial feed shaft is a clutch composed of two members 15 and 16, and carried by the pedestal is a clutch-controlling member 17 that engages a yoke on member 15 so that when the pedestal has risen to a certain level the clutch members become disengaged, and conversely when the pedestal has been moved downward to another level the clutch members engage. Clutch member 15 is fast on the dial feed shaft and member 16 is loose thereon. Carried by member 16 is a gear or pinion 18 that meshes with a gear sector 19 pivoted at 20 and oscillated by means of cam 21 and cam roll 22. Carried by clutch member 15 is a plurality of pins 23 that successively engage a socket 24. Fin 23 engages socket 24 after the clutch members have become disengaged and thus serves as an alining means after each quarter turn of the dial feed shaft.

After the seaming operation has been completed, the pedestal descends and thereby disengages pin 23 from socket 24 and causes engagement of the two clutch members. Thereupon the dial feed shaft begins to turn and continues to turn during the further descent of the pedestal and also during the upward ascent of the pedestal until the clutch members become disengaged, after which a pin 23 again enters socket 24. During this period a container has been removed from the pedestal by one wing of the dial feed and another has been positioned thereon by another wing of the dial feed. It will be observed that gear sector 19 oscillates pinion 18, and it will be understood that when the gear sector moves the pinion in one direction the clutch members are engaged so that a partial turn is given to the dial feed shaft, whereas, when the gear sector moves the pinion in the reverse direction the members of the clutch are disengaged so that said pinion and clutch member 16 turn idly on the dial feed shaft.

It will be apparent that the above-described construction forms a very compact device, and one that can be very accurately timed with but slight trouble. The construction has, however, other advantages which will appear from what follows. It has been customary in the prior art to employ a Geneva stop-motion to effect intermittent turning of the dial feed shaft. The Geneva stop-motion is effective only during approximately 135 degrees of a revolution, and as this is a relatively small part of the working cycle it is necessary to move the container relatively fast. By the above construction however, the limitations of the Geneva stop-motion are avoided because cam 21 can be, and is, so shaped that a part of its revolution much greater than 135 degrees can be utilized for the purpose of effecting the quarter turn of the dial feed shaft and hence the container can be moved more slowly without sacrificing the speed of the machine. Furthermore, cam 21 is so shaped that a gradually accelerated and gradually decelerated movement is imparted to the container so that there is very little danger of spilling the contents of the container even at high speeds. In the cam as shown a comparatively small part (from $a$ to $a^1$) is devoted to the return movement of the sector which can obviously be made as quickly as desired and a relatively great portion is devoted to that movement which causes the dial feed shaft to turn. There is, of course, a dwell at two points in the cam (adjacent $a$ and $a^1$) but even with these dwells a part of a revolution substantially in excess of 135 degrees can be used for turning

the dial feed shaft; in fact about 180 degrees may be so used.

I claim:

1. In a machine of the character set forth, a dial feed shaft, and means to intermittently impart a fraction of a revolution to said dial shaft including: two clutch members, one a driver and the other a driven member, means to intermittently rotate the driver clutch member, and means to bring said clutch members together and apart.

2. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, and means to intermittently impart a fraction of a revolution to said dial shaft including: two clutch members, means to intermittently rotate one of said clutch members, and means to bring said clutch members apart when the pedestal has risen to a certain level and to bring them together when the pedestal has descended to another level.

3. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, and means to intermittently impart a fraction of a revolution to said dial shaft including: two clutch members, means to intermittently rotate one of said clutch members, and means controlled by the rise and fall of the pedestal to bring said clutch members apart and together.

4. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, and means controlled by the rise and fall of the pedestal to control the movement of the dial shaft.

5. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, a cam shaft, a clutch controlling the dial shaft, connections from the cam shaft to reciprocate the pedestal, connections from the pedestal to bring the members of the clutch together and apart, and connection from the cam shaft to turn one of the members of the clutch.

6. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, a cam shaft, a clutch controlling the dial shaft, connections from the cam shaft to reciprocate the pedestal, connections from the pedestal to bring the members of the clutch together and apart, a gear connected to one of the members of the clutch, a gear sector to oscillate the gear, and a cam on the cam shaft to oscillate the sector.

7. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft to move the body on and off the pedestal, and oscillatory means having an active stroke in one direction of greater duration than its idle return stroke in the other direction to intermittently turn the dial feed shaft a part of a revolution in one direction only.

8. In a machine of the character set forth, a reciprocatory pedestal to receive a body, a dial feed shaft, means carried by the dial feed shaft that turns intermittently a part of a revolution in one direction only, a rotating member making one revolution to each intermittent turn of the dial feed shaft, and means to effect the intermittent turn of the dial feed shaft from said rotating member during such part of the revolution of the latter as is substantially in excess of 135 degrees.

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