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RATCHET MECHANISM

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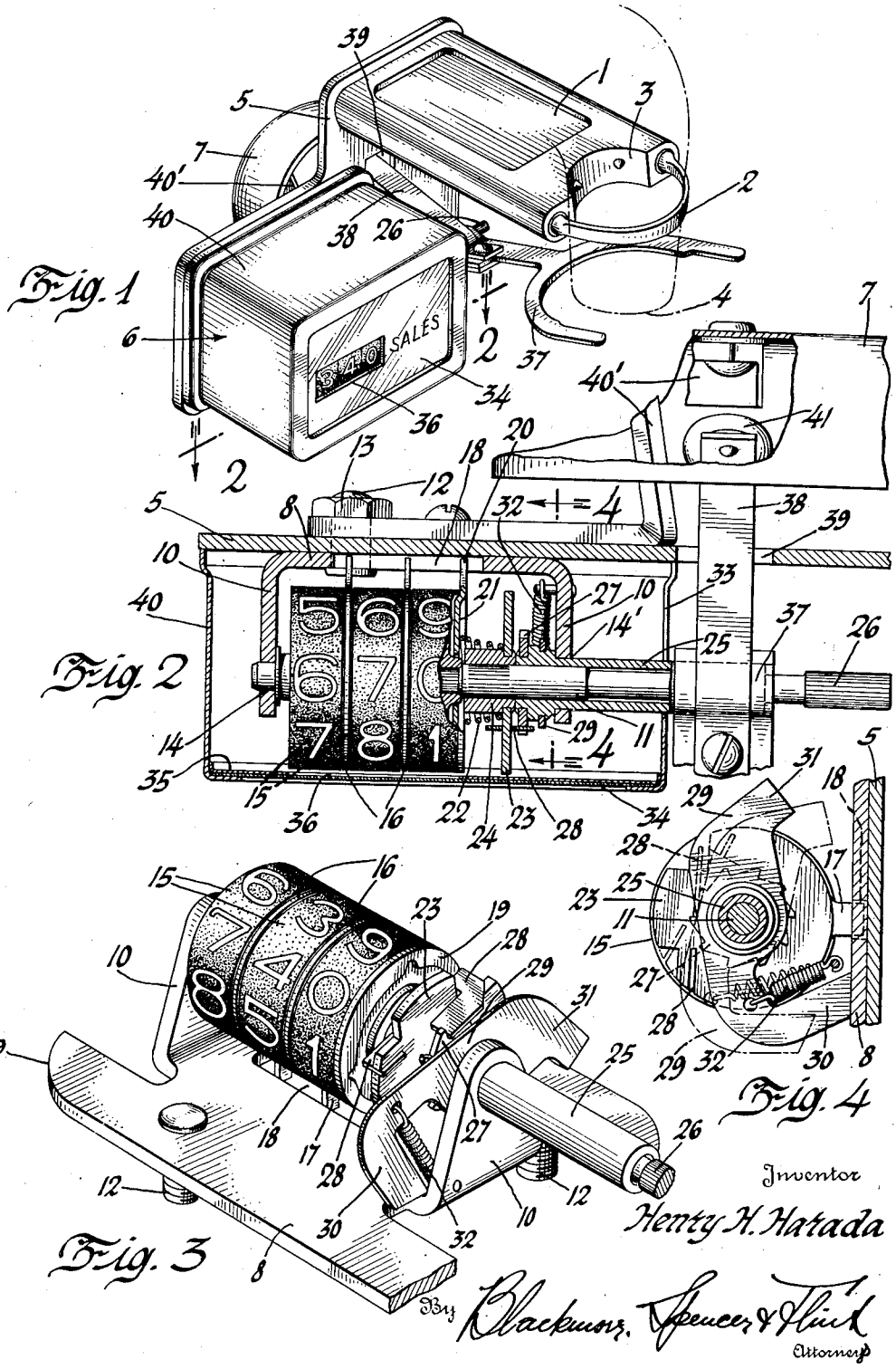


Fig. 1

Fig. 2

Fig. 3

Fig. 4

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RATCHET MECHANISM

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4 Claims. (Cl. 74—142)

This invention relates to a counting mechanism and more particularly to a counting mechanism to be used in conjunction with a beverage dispensing tap.

An object of my invention is to provide a counting mechanism, which will count the number of glasses of a beverage drawn from a tap.

A further object is to provide a ratchet mechanism to be used with a conventional set of number wheels forming the counting mechanism.

With these and other objects in view, my invention resides in the construction as described in the specification, claimed in the claims and illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the counting mechanism secured to a beverage tap.

Figure 2 is a sectional view through the counting register on the line 2—2 of Figure 1.

Figure 3 is a perspective view of the counter mechanism with the casing removed.

Figure 4 is a sectional view on the line 4—4 of Figure 2.

A bracket 1 has the semi-circular portion 2 of a U-bolt projecting from one end thereof. This end also has a semi-circular opening 3 therein which completes a circle with the U-bolt bight. This opening is adapted to receive the tap 4 of a beverage keg or dispensing device. Secured to the opposite end of the bracket is an L-shaped plate 5, the long horizontal arm of which carries the counting mechanism designated generally at 6. To the rear face of this arm is secured a bell 7 by a suitable angled bracket 40'.

The counting mechanism is supported by a base plate 8 which is roughly rectangular with the corners rounded as at 9. In each end the material is slotted and bent up at right angles to the plate 8 to form two triangular supports 10, which have openings 14 and 14' therein, for the central shaft 11. Suitable bolts 12 are provided which project through the base plate, the angle bracket and the L-shaped plate to secure the three together with nuts 13.

Referring now particularly to Figure 2, the left end of the shaft is carried directly in the opening 14. Three conventional number wheels 15 with conventional transfer pinion carriers 16 such as shown in Patents 1,692,489 to Dinsmore or 1,909,740 to Zubaty are supported on the shaft, the farthest number wheel to the right being non-rotatably secured to the shaft and the remaining two rotating freely thereon. The pinion carriers 16 have projections 17 which extend into a slot 18 in the base to prevent them from turning.

Just to the right of the fixed number wheel is a circular plate 19 which covers the face of the wheel and has a projection 20 which also extends into the slot 18 to prevent its turning. This plate has a dished portion 21 which fits in the face of the wheel. A spring 22 presses against the plate 19 to keep it in contact with the last wheel. The opposite end of the spring rests against pawl retainer 23 which is rigidly secured to the bushing 24 press fitted on shaft 11.

A long cylindrical sleeve 25 is rotatably mounted on the right end of the shaft as seen in Figure 2, and extends to within a short distance of the end thereof. The end of the shaft which projects from the sleeve is chamfered as at 26 to allow gripping with the fingers to turn it. The sleeve forms a bearing member for the shaft through the opening 14' in the support 10. To the inner end of the sleeve is fixedly secured a ratchet wheel 27 which contacts the pawl 23 carried by the pawl retainer 23. Also fixed to the sleeve adjacent the ratchet is a U-shaped rocker member 29. The shaft projects through the approximate middle of the bight of the member, the two legs 30 and 31 projecting downwardly toward the base to act as stops. A tension spring 32 is secured to the bight just above the leg 30 and has its opposite end secured to the support 10, which tends to rotate the member in a counter-clockwise direction as viewed from the right hand end of the shaft. Since the U-shaped member is fixed to the sleeve, this is also biased in the same direction. This action, therefore, holds the leg 30 in contact with the base under normal at rest condition of the mechanism as shown in the full line position in Figure 4. When the sleeve is turned to operate the device, as will be described in detail at a later point, the U-shaped member will assume the dotted line position as shown on this view.

A casing 40 fits over the whole assembly having a frictional engagement with the base to secure it in place. A slot 33 is formed in one end of the casing to allow the passage of the shaft and sleeve. A translucent sheet 34 of isinglass or the like is secured in the front of the casing, which has a rectangular opening therein. Behind the isinglass is an opaque sheet 35 of cardboard or a similar material which has an opening 36 therein which lies over the number wheels so that a set of these members will be visible.

With the counter in position on the L-shaped plate, the sleeve and shaft extend under the bracket 1. To the sleeve are secured by suitable clamping means a Y-shaped yoke 37 and a striker

arm 38. The Y-shaped member is adapted to underly the circular opening formed by the semicircular opening and the U-bolt bight. The striker arm projects through an opening 39 in the plate and has a clapper 41 secured to the end which may strike the bell 7 when moved.

The operation of the device will now be briefly set forth. The assembly is mounted on a beverage tap as shown. When a glass is applied to the tap the rim of the glass will carry the Y-shaped yoke up and turn the sleeve 25. This will cause the striker to move to strike the bell and give an audible signal. This turning of the sleeve turns the rocker member 29 clockwise further tensioning the spring 32 and also rotating the ratchet 27. The tooth of the ratchet that is in contact with the pawl will push the latter as the ratchet rotates, which will turn the pawl retainer 23 clockwise. Since this member is rigidly secured to the shaft, this will turn the shaft through a specified angle which will cause the first number wheel to move up one figure since it is rigidly connected thereto. When the glass is removed from the tap, the sleeve rotates in the reverse direction until the leg 30 of the rocker member contacts the base. Spring 32 aids in this returning movement. This will rotate the ratchet back to its original position. The shaft and the pawl retainer will, however, not be rotated back due to the fact that the spring 22 holds the plate 21 against the side of the first number wheel with sufficient friction to overcome the friction between the pawl and ratchet so the pawl will drop into the next tooth on the ratchet and the first wheel remains stationary. On succeeding actuations, the first wheel will move one unit, and of course eventually the second and third wheels will be moved through the conventional pinion carriers.

Therefore, it will be seen that I have provided a ratchet mechanism for operating a counter which is easy to manufacture, efficient and inexpensive.

I claim:

1. A mechanism comprising a base, a shaft rotatably mounted on said base, wheels mounted on the shaft, a sleeve rotatably mounted on the shaft, a rocker arm and ratchet secured to the sleeve, a pawl carried by a pawl retainer mounted on the shaft, a plate fixed with respect to the base adjacent the first wheel and a spring between the plate and pawl retainer surrounding the shaft, to prevent the wheel and shaft from moving back upon the return of the sleeve during reciprocating rotary motion.

2. A mechanism comprising a base, a shaft rotatably mounted on said base, a sleeve rotatably mounted on the shaft, a ratchet secured to the sleeve, pawl means contacting the ratchet carried by the shaft, means non-rotatably secured to the base and friction means bearing against the pawl means and the non-rotatable means to keep the shaft from turning in one direction upon reciprocating rotary movement of the sleeve drive.

3. A mechanism comprising, a base, a shaft rotatably mounted on the base, a plurality of means mounted on the shaft, a portion thereof being rotatable on the shaft and the remainder fixed thereto, a reciprocable sleeve encircling one end of the shaft and being loosely supported thereon, a rocker arm rigidly secured to the sleeve and limiting the rotary movement thereof by contact with the base in both directions, spring means between the arm and base to bias the sleeve in one direction, ratchet means carried by the sleeve, and pawl means carried by the shaft whereby reciprocation of the sleeve causes rotation of the shaft and means carried thereby.

4. A mechanism comprising, a base, a shaft rotatably mounted on the base, a plurality of means mounted on the shaft, a portion thereof being rotatable on the shaft and the remainder fixed thereto, a reciprocable sleeve encircling one end of the shaft and being loosely supported thereon, a rocker arm rigidly secured to the sleeve and limiting the rotary movement thereof by contact with the base in both directions, a spring means between the arm and base to bias the sleeve in one direction, ratchet means carried by the sleeve, cooperating pawl means carried by the shaft, a nonrotatable plate adjacent the fixed means and spring means concentric with the shaft between the pawl means and the plate to prevent movement of the shaft in one direction by friction during reciprocation of the sleeve.

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