March 6, 1945. F. J. ROUAN 2,370,919

REGISTER ACTUATOR

Filed June 9, 1942 2 Sheets-Sheet 1

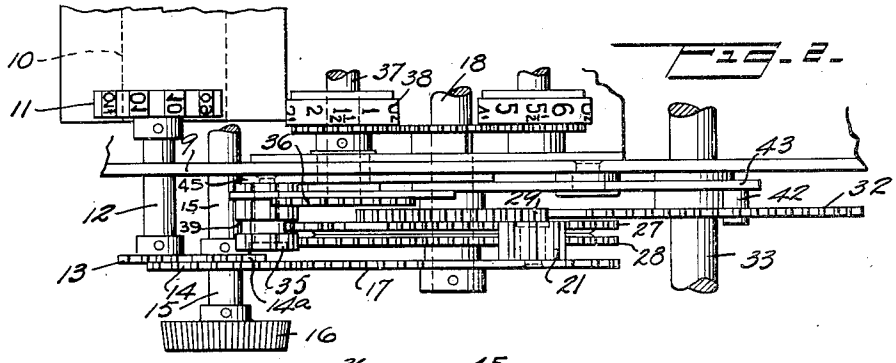


FIG. 2.

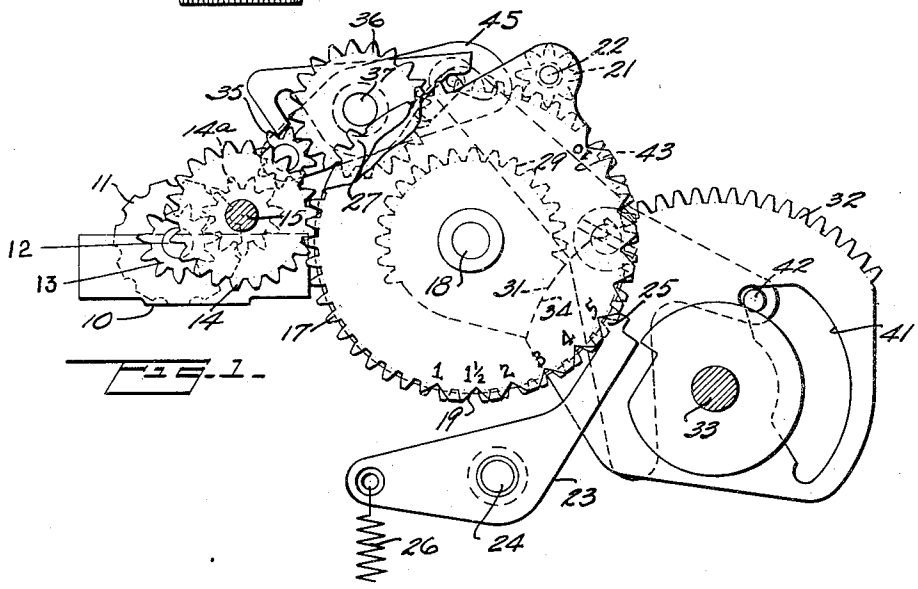


FIG. 1.

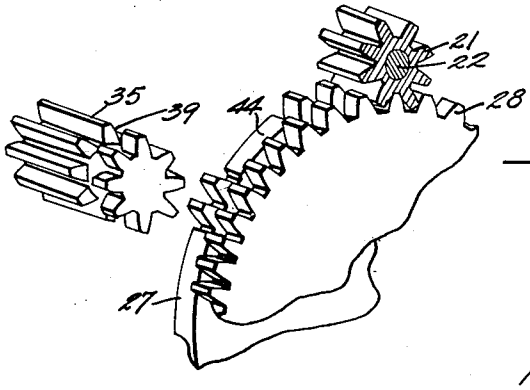


FIG. 3.

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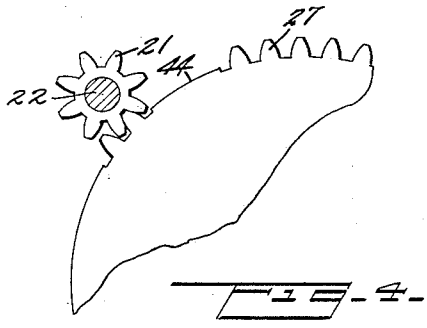


FIG. 4.

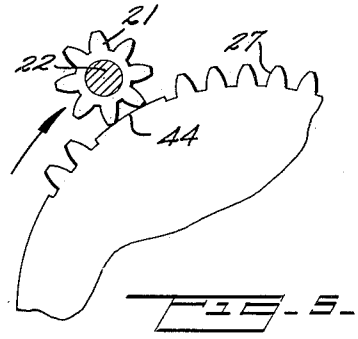


FIG. 5.

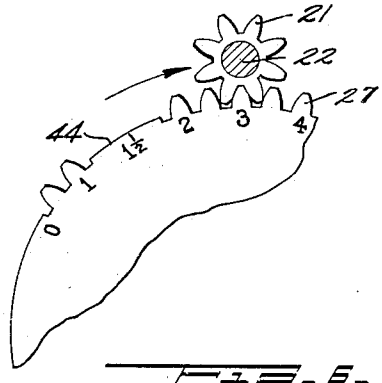


FIG. 6.

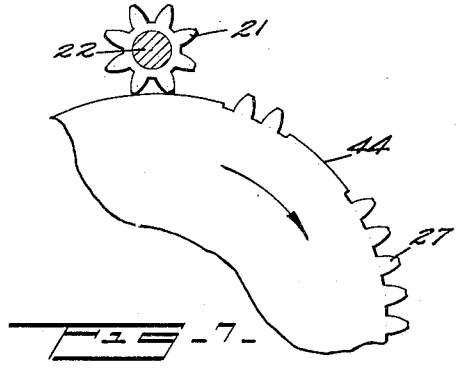


FIG. 7.

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2,370,919

REGISTER ACTUATOR

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Application June 9, 1942, Serial No. 446,327

6 Claims. (Cl. 235—61)

This invention relates to register actuating mechanism and more particularly to mechanism used for registering the value of postage impressions imprinted upon letters and the like by means of a metered mailing machine.

It is the principal object of the invention to provide means whereby a half unit value may be set up in addition to the normal unit value and whereby upon actuating the device the half unit value will be entered into the register wheels of the registering device and may be read directly therefrom.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A preferred embodiment of the invention is illustrated in the accompanying drawings, wherein;

Fig. 1 is a face view of the gearing and other mechanism required for the setting and actuation of the register mechanism;

Fig. 2 is a plan view of Fig. 1;

Fig. 3 is a perspective view on an enlarged scale of a portion of the register actuating mechanism with a value setting toothed member set in the "3" unit value position;

Figs. 4, 5, 6 and 7 are operation views on an enlarged scale, showing: in Fig. 4, the normal home position with the settable toothed member set at the "1" unit value position; in Fig. 5, the settable member set at the "1½" unit value position; in Fig. 6, the settable member set at the "3" unit value position; and in Fig. 7, the drive of the actuator, which effects rotation of the settable member in accordance with the value set up.

In a metered mailing machine, postage stamp impressions are adapted to be printed upon letters in accordance with selected values and the value printed is registered in a registering device or totalizer which forms a part of a metering unit.

In the machine herein disclosed, there is included an indicia die 10 having a value printing wheel 11 adjustably mounted therein. Said printing wheel 11 is carried by a shaft 12, which shaft is supported in a frame 9 and has a gear 13 at one end thereof. A compound gear 14—14a carried by a shaft 15, has one gear 14a in mesh with the gear 13 and is adapted to be manually rotated by means of a knob 16 fixed to said shaft 15. Meshing with said gear 14 is a gear sector 17, which is fixed to a shaft 18 and has a number of detent notches 19 along one edge thereof. A settable pinion 21 is rotatably supported on a stud 22, which stud is fixed to an upwardly projecting portion of the gear sector 17. Associated with the detent notches 19 of the gear sector 17, is a locking detent member 23, pivotally mounted at 24, which has a detent portion 25 normally urged into engagement with one of the notches 19 by a spring 26 to lock the gear sector 17 in any predetermined position.

With the mechanism thus far described, upon rotation of the knob 16, the compound gear 14—14a will be rotated to effect both the setting of the type wheel 11 to the desired value and to effect rotation of the sector 17 and planetary movement of the pinion 21. It is to be noted that with the even spacing of the detent notches 19, the pinion 21 will be adjusted in evenly spaced steps.

Associated with the pinion 21 is an actuator gear 27 and a transmission gear 28, which gears are each freely mounted upon the shaft 18. Fixed to the face of the actuator gear 27 is a segment gear 29 which has a concave Geneva portion 31 provided thereon.

Meshing with the segment gear 29 is an actuator drive gear 32, which is mounted upon a drive shaft 33 and has a Geneva locking surface 34 thereon adapted to engage with the concave Geneva portion 31 of the segment gear 29 when the mechanism is in its home position, as in Fig. 1.

The actuator gear 27 has its teeth arranged to provide for the setting of both whole and half unit values and further to provide for such setting in evenly spaced steps. To accomplish this, two teeth are provided for each unit and an extended space is provided between the teeth of the "1" and "2" cent units to provide for a "1½" cent setting. Referring to Fig. 3, it will be seen that the pinion 21 is adapted to mesh with both the actuator gear 27 and the transmission gear 28.

When setting a value from a lower to a higher value in the printing wheel 11 through the knob 16, rotation of the gear 14, will effect rotation of the gear segment 17 and thereby move the pinion 21 in a clockwise direction along the teeth of the actuator gear 27. The pinion 21 normally has a starting position as shown in Fig. 4, with the pinion engaging the tooth of the

actuator gear representing the value "1" cent, which is the second tooth of the first two teeth of said actuator gear. Assuming now that a setting is to be made to the "1½" cent position, the said pinion will be moved to the extended space between the second and third teeth of the actuator gear, thereby rotating said pinion one tooth and permitting same to come to rest at the half way position in the space, owing to the arrangement of the detent notches 19.

Further setting of said pinion 21 to the position of Fig. 6, will advance the pinion over the "2" cent value tooth and an intermediate value tooth before coming to rest on the "3" cent value tooth. It will be noted that two teeth are provided for each unit, thus rotating the pinion 21 a distance of two teeth for each unit, but in passing from a tooth adjacent the extended tooth space to the next tooth beyond the extended tooth space, the pinion will rotate only the distance of one tooth.

In setting a value for printing, the pinion 21 rotates over the teeth of both the actuator gear 27 and the transmission gear 28, hence there is no motion to the said gear 28.

A cycle of operation is provided by oscillating the drive shaft 33. On the forward oscillation, the gear sector 32 is rotated in a counter-clockwise direction as viewed from Fig. 1, which, after the teeth thereof engage with the gear sector 29, will effect rotation of the sector 29 in a clockwise direction to rotate the actuator gear 27 in a clockwise direction, such as indicated in Fig. 7. Assuming that the setting of the "3" cent value had been made as indicated in Fig. 6, and the power drive cycle was effected, the pinion 21 would be rotated by each of the teeth over which it had been previously set. The three teeth to the right of the one and a half value space would move the pinion through the distance of the three teeth, permitting same to come to the position of Fig. 5, whereupon engagement with the next tooth would effect rotation of the pinion one more tooth upon reaching the position of Fig. 4, thus providing a total of four teeth to this position. Then upon passing over the remaining two teeth of the actuator gear, the pinion 21 is finally rotated the distance of two teeth or a total number of six teeth.

To transmit the selected value during the power cycle to the registering mechanism, a pinion 35 is initially moved at the start of the cycle, from a normal non-engaging position, the position shown in Figs. 1 and 3, into mesh with the transmission gear 28. A gear 36 meshing with the pinion 35 is fixed to a shaft 37, which shaft also has the units register wheel 38 fixed thereto. Hence, the drive of the pinion 21 as effected by the actuator gear 27, will also effect rotation of the transmission gear 28, which in turn will drive the pinion 35 and gear 36 to rotate the units wheel 38. An annular groove 39 in pinion 35 provides clearance for the teeth of the actuator gear 27 when the said pinion 35 meshes with the transmission gear 28.

By means of a cam 41 and other suitable mechanism such as the cam follower 42 on rocker lever 43, and a pinion supporting rocker lever 45, the pinion 35 is adapted to be rocked out of the path of the teeth of the transmission gear 28 at the end of the forward stroke of the actuator drive gear 32. Upon the return stroke of said drive gear 32 therefore, the teeth of the transmission gear 28 will pass beneath the pinion 35.

The general arrangement of the actuator gear 27 and transmission gear 28, with the pinion 21 acting as a coupling member, will be found in Thatcher Patent No. 2,248,257, and hence forms no direct part of the present invention. That part of the device which is important however, is the improvement provided by the arrangement of the teeth of the actuator gear 27 to permit the setting and actuation of a "½" cent unit value, which setting may be effected in evenly spaced steps, and also that the "½" unit value is adapted to be read directly on the units wheel of the register mechanism.

It is to be noted also that the pinion 21 upon passing through the space of the "½" cent value will have two of its teeth in engagement with the edge surface 44 of the actuator gear to obstruct rotation of said pinion while in this position. When, during the setting of the pinion 21, it passes through this "½" cent space, the transmission gear 28 will be rotated, but with the pinion 35 disengaged therefrom, there will be no transmission of the motion of said transmission gear.

Having described the invention, what is claimed is:

1. In register actuating mechanism, a register units wheel having units and half unit symbols thereon, an actuator gear having two teeth for each whole unit value and a space in excess of a normal tooth space following a predetermined pair of teeth for a half unit value, a drive for the actuator gear, gearing connecting the units wheel with the actuator gear including a toothed wheel meshing with the actuator gear teeth and adapted to be rotated a distance equal to two teeth for each whole unit value when driven by each two teeth of the actuator gear and to rotate the distance of one tooth in passing to the half unit tooth space from a tooth adjacent said space, and means for obstructing rotation of the toothed wheel when passing through the half unit space.

2. In register actuating mechanism, a register units wheel having units and half unit symbols thereon, an actuator gear having two teeth for each whole unit value and a space in excess of a normal tooth space following a predetermined pair of teeth for a half unit value, gearing connecting the units wheel with the actuator gear including a toothed wheel meshing with the actuator gear teeth and adapted to be rotated a distance equal to two teeth for each whole unit value when driven by each two teeth of the actuator gear and to rotate the distance of one tooth in passing to the half unit tooth space from a tooth adjacent said space, means whereby the actuator and toothed wheel are pre-settable relative to one another in evenly spaced steps, means to effect a drive of the actuator after setting, and means for obstructing rotation of the toothed wheel when passing through the half unit tooth space.

3. In register actuating mechanism, a register units wheel having units and half unit symbols thereon, an actuator gear having two teeth for each whole unit value and a space equal to three teeth following a predetermined pair of teeth for a half unit value, gearing connecting the units wheel with the actuator gear including a toothed wheel meshing with the actuator gear teeth and adapted to be rotated a distance equal to two teeth for each unit value when driven by each two teeth of the actuator gear and to rotate the distance of one tooth in passing to the half

unit tooth space from a tooth adjacent said space, means whereby the actuator and toothed wheel are pre-settable relative to one another in evenly spaced steps, means to effect a drive of the actuator after setting, and means including the engagement of two teeth of the toothed wheel with the peripheral surface of the actuator gear along the three toothed space for obstructing rotation of the toothed wheel when passing through said space.

4. In register actuating mechanism, a register units wheel having whole and half unit symbols thereon, transmission gearing operatively connected with the units wheel, an actuator gear having teeth spaced in a units and half units order including an extended space between the one and two unit value teeth for a one and one half unit, settable means coupling the actuator gear with the transmission gearing and settable in evenly spaced steps to a predetermined position with relation to the unit teeth or one and one half unit space of the actuator, and cyclically operable means to effect the drive of the actuator gear, whereby any set value including a half unit value is adapted to be transmitted to the units wheel.

5. In an adjustable mechanism for controlling the drive of a register units wheel having half unit value readings thereon; the combination with a toothed actuator, transmission gearing, and a settable pinion associated with the actuator and transmission gearing, whereby rotation of the actuator will effect rotation of the transmission gear and register units wheel; of means including the normal even spacing of the actuator gear teeth whereby setting of the pinion is adapted to be effected therealong in equally spaced steps for the setting of whole digit values, and means including the interruption of the even spacing between pre-determined actuator gear teeth to provide for the setting of a one-half digit value between certain whole digit values, but without altering the equally spaced steps of setting.

6. In mechanism for effecting the drive of a register units wheel through the normal whole unit steps and intermediate half unit steps, transmission gearing operatively connected with the units wheel of the register, an actuator gear having teeth arranged in an order of two teeth for the first unit value, a space greater than a tooth space for the one and one half unit value, a tooth following the space for the second unit value, and each alternate tooth thereafter representing the successive whole units values, a pinion coupling said actuator gear and transmission gearing, means to effect adjustment of the pinion relative to the teeth of the actuator gear in evenly spaced steps, whereby a predetermined number of teeth of the actuator gear will be in operative relation with the pinion, and cyclically operable means to drive the actuator gear, whereby any set value including the one and one half unit value will be transmitted to the units wheel through the transmission gearing.

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