RESETTNG DEVICE FOR REGISTERS

Filed Nov. 21, 1933

Sven Aamot & Arnt E. Olsen

INVENTORS

BY Victor J. Evans & Co.

MIS ATTORNEYS
This invention relates to registers of the numbered wheel type, and its general object is to provide a resetting device therefor that is capable of resetting the numbered wheels almost instantly regardless of the counting position thereof, with the result it will overcome the long and tedious task necessary in manipulating the resetting devices now in general use.

Another object of the invention is to provide a resetting device that can be used with any type of numbered wheel registers such as odometers, printing press numbering machines, etc., and regardless of the number of wheels employed, they are reset simultaneously and held accordingly until counting is resumed.

A further object of the invention is to provide a resetting device that will not under any circumstances interfere with the counting movement of the numbered wheels, and when actuated will reset them with very little effort on the part of the operator.

Another object of the invention is to provide a resetting device that will allow for free reverse movement of the driving shaft of the register, but will prevent retrograde movement of the numbered wheels, the latter remaining stationary until the forward movement of the shaft is resumed, with the result reverse movement of the shaft will not interfere with the counting action of the wheels.

A still further object of the invention is to provide a resetting device that is simple in construction, compact in its association with the register, inexpensive to manufacture, and extremely efficient in operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing our invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Fig. 1 is a perspective view showing a register constructed in accordance with the present invention with our resetting device forming a part thereof;

Fig. 2 is a sectional view taken approximately on line 1—2 of Fig. 3, looking in the direction of the arrows;

Fig. 3 is a sectional view taken approximately on line 3—3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is an enlarged fragmentary view with parts in section;

Fig. 5 is a sectional view taken approximately on line 5—5 of Fig. 4, looking in the direction of the arrows;

Fig. 6 is a sectional view taken approximately on line 6—6 of Fig. 4, looking in the direction of the arrows;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 2, looking in the direction of the arrows;

Fig. 8 is a sectional view taken approximately on line 8—8 of Fig. 2, looking in the direction of the arrows; and

Fig. 9 is a view illustrating the relation of certain parts of our device in perspective.

Referring to the drawing in detail, the reference numeral 1 indicates a casing for the register in the form as shown, and while we have illustrated a register having three numbered wheels, it will, of course, be understood that any number of these wheels may be employed. The casing is provided with the usual sight opening 2 through which may be seen the indicia on the numbered wheels, and a slot 3 is arranged in the casing for the passage of the driving shaft which to 25 gether with the wheels will be later described.

The register includes a base 5 that has the casing secured thereto, as shown in Fig. 1, and secured to and extending at right angles from the base are spaced parallel post members, indicated 30 respectively by the reference numerals 6 and 7.

The post member 7 has journaled therein the driving shaft 8 of the register and which, of course, may be connected with any type of device that has to have a register associated therewith. 35 The driving shaft has longitudinally arranged therein a bore, and formed on an enlarged inner portion of the shaft 8 is a disc member 9 having a plurality of openings 10 arranged circumferentially therein and in close proximity to each other, as clearly shown in Fig. 8.

The bore of the driving shaft 8 has one end of the register shaft 11 journaled therein, while the opposite end of the shaft 11 is journaled in the post member 6, the latter being hollow and having 45 arranged therein a rack gear 12 which is keyed to the shaft 11 for rotation therewith between the flat inner walls of the post member 6, as best shown in Fig. 4.

It will be noted that in the form as shown the 60 shaft 11 is provided with a longitudinally arranged groove 13 that extends into the hollow portion of the post 6 and receives the key of the gear 12.

Cooperating with the rack gear 12 is a rack bar 55.
14 that is mounted for movement with respect to the post member 6, and is guided thereby through the instrumentality of a flange 15 that is received in a groove 16 arranged longitudinally of the rack bar, as best shown in Fig. 7.

Mounted on or otherwise secured to the rack bar 14 and extending laterally therefrom is a finger 17 which has secured thereto one end of a coil spring 18, while the opposite end is fixed to an apertured ear 19 secured to the base 5. It will be apparent that the coil spring 18 urges the rack bar inwardly and holds it accordingly. The rack bar extends through an opening in the casing 4 and has secured to its outer end a knob 20 so that it can be conveniently operated.

Mounted for free rotation upon the shaft 11 is a plurality of wheels 21 having arranged on their peripheries indicia to show through the sight opening 2, and in the form as shown these indicia are numbers ranging from zero to nine. Each wheel 21 is provided with an annular recess 22 arranged in the periphery at one side thereof to provide a runway for a spring finger 23, the latter having a rolled free end, as shown in Fig. 5.

These fingers are formed with or otherwise secured to a pawl member 24 that is pivoted to a shaft 25 which has its ends fixed in ears 26 extending from the post members 6 and 7, as best shown in Fig. 2.

An arm 27 is included in the pawl member, and has secured thereto one of the ends of a coil spring 28, while its opposite end is fixed to the post member 7 so that the spring fingers will be urged into the recesses of lugs 29 that are formed on the reduced sides of the wheels 21, as best shown in Fig. 9, in order to retard movement of these wheels, for a purpose which will be later apparent. Of course, the lugs 28 are provided for an additional purpose, namely, for rotating one numbered wheel from the other through the medium of the usual cog wheels 30, some of the teeth of which are arranged in the path of the lugs 28, as will be apparent.

The remaining teeth of the cog wheels 30 are in mesh with the teeth of gears 31 which are freely rotatable upon the shaft 11, and a gear 31 is provided for two of the wheels 21 in the form of the device as shown, while the disc member 9 is provided for the remaining wheel.

The gears 31 and the disc member 9 are disposed in contacting engagement with their wheels, as best shown in Fig. 4, and it will be noted that each of the gears 31 has arranged therein a plurality of openings 32 disposed in a row concentric with the axis thereof, as best shown in Fig. 9.

In the reduced sides of each of the wheels 21 is an arcuate recess 33, and each recess has mounted therein a leaf spring 34, one end of which is fixed in the recess, while its opposite end is outwardly flared, as at 35.

Each leaf spring has secured thereto and extending laterally and inwardly therefrom a pin 36 which is mounted for movement in a transverse bore 37 arranged through its wheel, as best shown in Fig. 9, and these pins 36 are tapered toward their free ends and are of sufficient length to engage any one of the openings 32 of the gears 31 and, of course, the pin 36 of the right hand wheel, as shown in Fig. 4, has its free end received in any one of the openings 10 of the disc member 9.

A cam disc 38 is provided for each wheel 21, and these cam discs are keyed to the shaft 11. It will be noted from Fig. 9 that each cam disc is provided with a recessed periphery, and one cam face 39 is curved in a direction opposite from its companion cam face 40, for a purpose which will be presently described.

The cam discs are disposed in close association with respect to their wheels 21, as shown in Fig. 4, and while the wheels, as well as their gears 31, are freely rotatable upon the shaft 11, the cam discs rotate with the shaft.

In the operation of our device the rack bar is pulled outwardly against the action of the coil spring 18, and as the rack bar meshes with the rack gear 12, the register shaft 11 will be rotated. Such rotation carries the cam disc 38 to a position whereby the cam faces 39 thereof engage the outwardly flared free ends of the leaf springs 34 to move the pins 36 out of the openings of the gears 31 and disc member 9 so that the wheels will be released from the gears and disc member and rotated upon the shaft 11 to reset the wheels, whereby the zero of each wheel will be aligned with the zeros of adjacent wheels to show through the sight opening, as indicated in Fig. 1.

When the rack bar is returned to its normal position through the instrumentality of the coil 2 spring 18, it will be apparent that the cam faces 40 will contact the outwardly flared ends of the leaf springs 34 and move the lugs into their recesses for disposing the pins 36 within one of the openings of the gears 31 and the disc member, so that the wheels will again have connection with the shaft to begin the counting action.

In the event that the driving shaft should be rotated in a reverse direction, the leaf spring of the wheel of the disc member 9 will engage the cam face 39 and release the disc member from its wheel, with the result the wheels will not be reversed.

From the above description and disclosure of the drawing, it will be obvious that we have provided a resetting device for registers of the num bered wheel type, and these wheels can be reset almost instantly with very little effort on the part of the operator.

It is thought from the foregoing description that the advantages and novel features of our invention will be readily apparent.

We desire it to be understood that we may make changes in the construction, connection and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What we claim is:
1. In an odometer, a supporting structure, a shaft mounted for rotation upon the supporting structure, a plurality of number wheels loosely mounted in spaced relation on the shaft and arranged to be rotated to zero positions, an actuating shaft having a head lying adjacent one of said number wheels, a gear associated with each of the other of said number wheels and loosely mounted upon said first-named shaft, said gears and said head having a plurality of openings arranged concentrically about said first-named shaft and each of said number wheels having an opening therethrough arranged to align with one opening in its respective gear and said head, a yieldable abutment connected with each of the number wheels and having a pin connected therewith and extending through the opening in its respective number wheel for projection into one of the openings in its respective gear and said head, to latch the number wheels with their respective gears and said head, a cam associated with each number wheel and keyed to said first-named 7
2,020,225

shaft, to engage the abutment associated with that wheel upon rotation of said first-named shaft in a given direction for moving its associated pin out of latching relation with its respective gear or said head, said cams and said abutments co-operating to rotate the number wheels to their zero positions upon further rotation of the first-named shaft in said given direction, and means for rotating said first-named shaft in said given direction.

2. An odometer comprising a supporting structure, a shaft mounted for rotation upon the supporting structure, a plurality of number wheels loosely mounted in spaced relation on the shaft and arranged to be rotated to a common zero position, an actuating shaft having a disc lying adjacent one of said number wheels, a gear lying against each of the other of said number wheels and loosely mounted upon said first-named shaft, said gears and said disc having a plurality of openings arranged concentrically about said first-named shaft and each of said number wheels having an opening therethrough arranged to align with one opening in its respective gear in said disc, each of said number wheels having a small recess in one side, a spring arranged within each of said recesses and having one end anchored to its respective number wheel and the other end projecting slightly beyond the side of the number wheel, a latch pin carried by each spring and projecting through the opening in its respective gear for projecting into one of the openings in its respective gear or said disc, a cam associated with each number wheel and keyed to said first-named shaft, said cams passing between the projecting ends of said springs and their respective number wheels when said first-named shaft is rotated in a given direction for moving the pins out of latching relation with said gears and the disc, said cams co-operating with said springs to rotate the number wheels to their common zero position upon further rotation of the first-named shaft in said given direction, a pinion mounted upon said first-named shaft, and a rack arranged in mesh with said pinion and shiftably carried by said supporting structure for rotating said first-named shaft in said given direction.

3. An odometer comprising a supporting structure, a shaft mounted for rotation upon the supporting structure, a plurality of number wheels loosely mounted in spaced relation on the shaft and arranged to be rotated to a common zero position, an actuating shaft having a disc lying adjacent one of said number wheels, a gear lying against each of the other of said number wheels and loosely mounted upon said first-named shaft, said gears and said disc having a plurality of openings arranged concentrically about said first-named shaft and each of said number wheels having an opening therethrough arranged to align with one opening in its respective gear in said disc, each of said number wheels having a small recess in one side, a spring arranged within each of said recesses and having one end anchored to its respective number wheel and the other end projecting slightly beyond the side of the number wheel, a latch pin carried by each spring and projecting through the opening in its respective gear for projecting into one of the openings in its respective gear or said disc, a cam associated with each number wheel and keyed to said first-named shaft, said cams passing between the projecting ends of said springs and their respective number wheels when said first-named shaft is rotated in a given direction for moving the pins out of latching relation with said gears and the disc, said cams co-operating with said springs to rotate the number wheels to their common zero position upon further rotation of the first-named shaft in said given direction, a pinion mounted upon said first-named shaft, and a rack arranged in mesh with said pinion and shiftably carried by said supporting structure for rotating said first-named shaft in said given direction, said cams lying adjacent their respective number wheels and said disc.

SVE AAMOT.

ARNT E. OLSEN.