Feb. 12, 1935. H. F. SADGEBURY 1,991,260

RESETTING MEANS FOR A TOTALIZER

Filed July 17, 1931 2 Sheets-Sheet 1

Fig. 1.

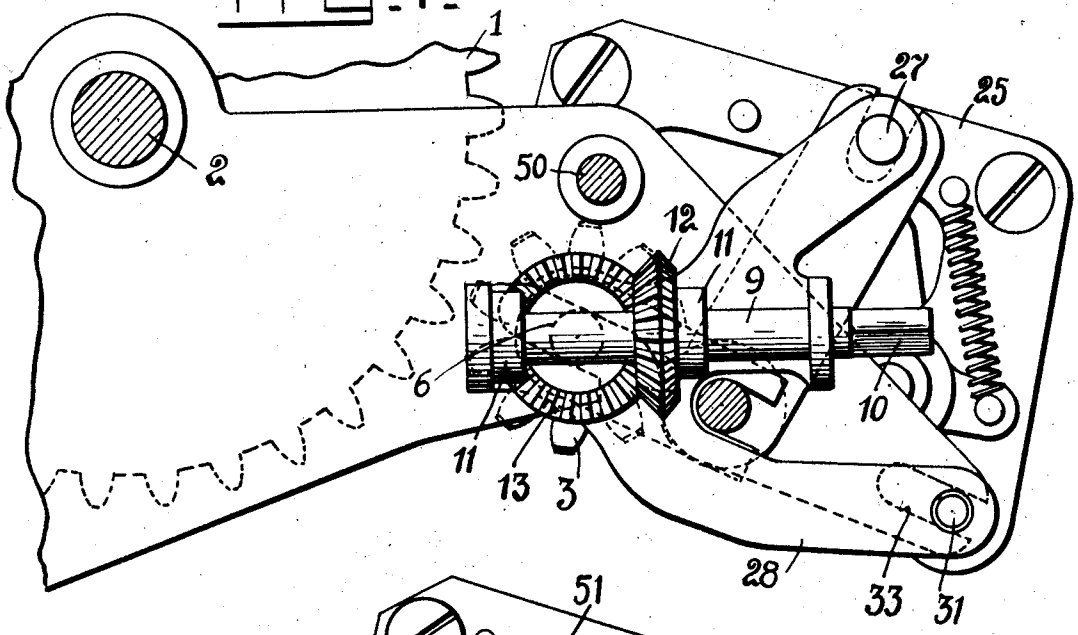

Fig. 2.

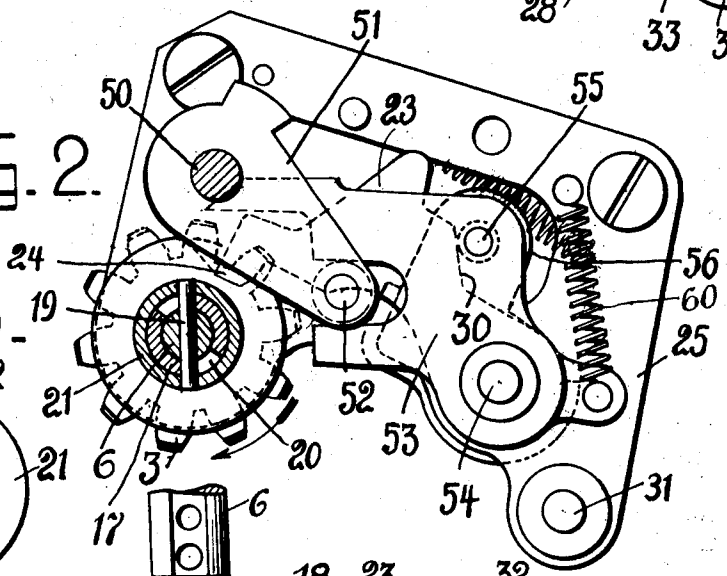

Fig. 5.

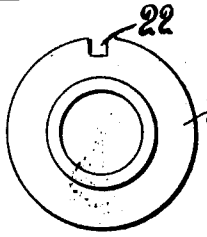

Fig. 3.

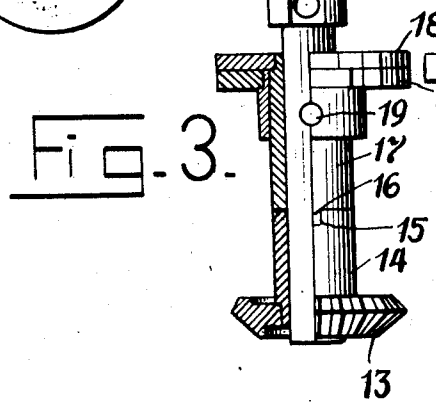

Fig. 4.

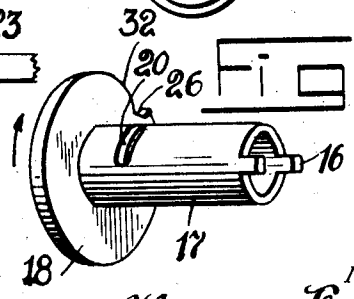

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Fig. 6.

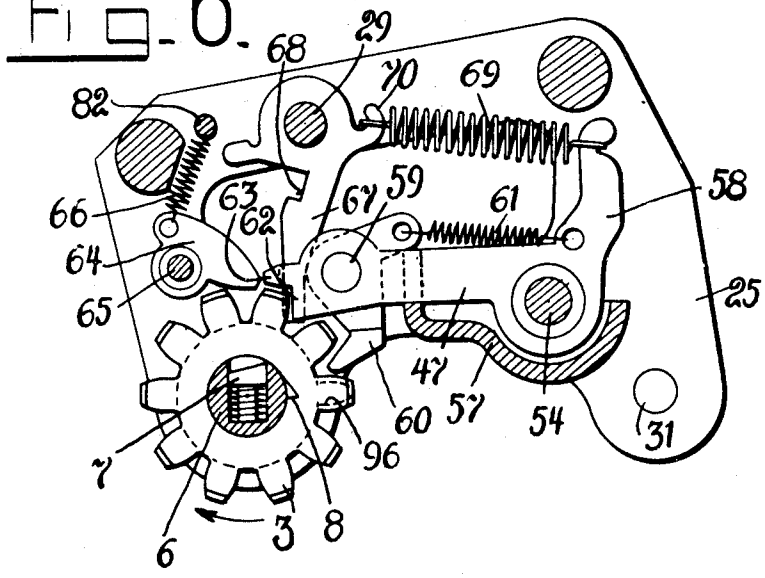
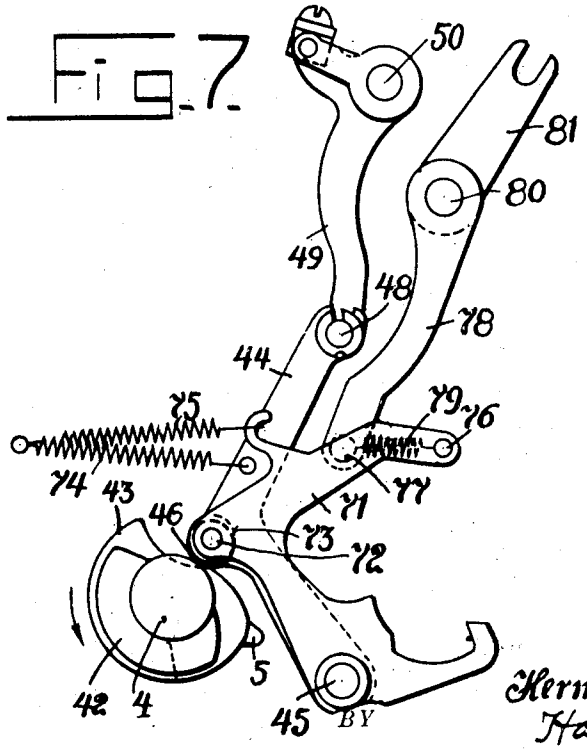


Fig. 7.



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RESETTING MEANS FOR A TOTALIZER

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Application July 17, 1931, Serial No. 551,507

8 Claims. (Cl. 235—130)

This invention relates to a resetting means for a totalizer. In certain totalizers, such as that shown in the application of Albert S. Wheelbarger and Grover C. Coil, Serial No. 238,662, filed December 8, 1927, the totalizer cannot be reset unless the lever on which the transfer pawl is mounted is moved out of locking engagement with the totalizer wheels. This usually requires a lever or some other mechanism to be actuated to disengage the said lever from the totalizer wheels and for the totalizer shaft to be thereafter rotated. The object of this invention is to provide a single rotatable means whereby both of these results may be accomplished.

In the drawings:

Figure 1 is a side elevational view of the totalizer and the resetting mechanism therefor.

Figure 2 is an elevational view, partly in cross section, of the left side of the totalizer locking means and the pawl controlling means.

Figure 3 is a plan view, partly in cross section, of the controlling cam locking disk and the actuating means therefor.

Figure 4 is a perspective view of one of the controlling cams and the sleeve on which it is mounted.

Figure 5 is a side elevational view of the locking disk.

Figure 6 is an elevational view through the totalizer, partly in cross section, looking towards the right, and

Figure 7 is an elevational view of the controlling mechanism for the totalizer.

In the said application the differential gears 1 are rotatably mounted on a shaft 2 and the totalizer pinions 3 are moved into engagement with the differential gears on the adding operation and are disengaged therefrom on the return movement of the differential gears. This is accomplished by the rotation of a shaft 4 which is the main driving shaft of the machine on which are mounted two cams 42 and 43 which are rotated in the direction of the arrow (Figure 7). The lever 44 is pivoted on a pin 45 and is urged to the left, as viewed in Figure 7, by means of a spring 74 having its other end secured to the frame of the machine, which lever is provided with a roller 46. The upper end of the lever 44 is bifurcated and receives a pin 48 carried by a crank arm 49 securely mounted on a shaft 50 which shaft carries a crank arm 51 which carries a pin 52 received in a bifurcation in the end of a bell crank lever 53 pivoted on a shaft 54. The lever 53 carries a pin 55 which is received by an arm 56 rotatably mounted on the shaft 54. The arm 56 is an integral part of a holding member 57. A plurality of carrying arms 58 are rotatably mounted on the shaft 54, each of which carrying arms is but an extension of a carrying lever 47 which is provided with a pin 59 on which is pivoted a carrying dog 60. There are, of course, as many carrying levers as there are totalizer pinions 3 except that there is no carrying lever operated by the totalizer pinion of highest denomination. The upper end of each of the dogs 60 is connected to the carrying arm 58 by means of a spring 61. The inner end of the carrying lever 47 is provided with a notch 62 and a laterally extending lug 63. When one of the carrying levers 47 is in the position shown in Figure 6, its notch 62 engages the totalizer pinion 3 with which it is associated and locks it against rotation in a clockwise direction as viewed in Figure 6, but when the member 57 is elevated, raising the carrying lever 47, the said totalizer pinion will be free to rotate in a clockwise direction as viewed in Figure 6. An anti-rotation pawl 64 is pivoted on a shaft 65, there being one such pawl for each totalizer pinion. The nose of the pawl 64 is held against the totalizer pinion 3 by means of a spring 66 connected to a cross bar 82. A tripping pawl 67 is pivoted on a cross bar 29, there being one such tripping pawl for each totalizer pinion. Each of the tripping pawls 67 is provided with a notch 68 and is normally urged into the position shown in Figure 6 by means of a spring 69 which connects a lug 70 on the tripping pawl to the upper end of the carrying arm 58.

As soon as the shaft 4 commences its rotation, the cam 43 engages the roller 46 on the lever 44 moving the upper end thereof to the right as viewed in Figure 7. The cam 43 carries a lobe 5 which extends a short distance beyond the outer periphery of the cam 43. This lobe 5 moves the lever 44 the maximum distance in a clockwise direction as viewed in Figure 7, thereby moving the arm 49 and shaft 50, rotating the arm 51 (Figure 2) in an anti-clockwise direction as viewed in Figure 2, which moves the arm 56 in a clockwise direction as viewed in the said figure, raising the holding member 57. The holding member 57 underlies and engages all of the carrying levers 47 raising them until the laterally extending lug 63 engages the notches 68 in the pawl 67, at which time the lower ends of the pawl 67 are in the path of rotation of a long tooth or lug 96, which is the

carrying tooth. The carrying teeth are so positioned on the sides of the totalizer pinions 3 that they will engage the pawls 67 as soon as the totalizer pinions 3 pass beyond the position in which they would be when set to represent the numeral nine. It will, of course, be understood that there is one such carrying tooth on each totalizer pinion. As the lobe 5 passes beyond the roller 46, the roller rides on the periphery of the cam 43 and the spring 74 moves the lever 44 slightly to the left as viewed in Figure 7, which partially lowers the holding member 57 in a position such that its left hand end, as viewed in Figure 6, will be slightly below the carrying levers 47. If any one of the carrying teeth 96 should not engage its tripping pawl 67, it would move the pawl to the right as viewed in Figure 6 disengaging the laterally extending lug 63 from the notch 68 and the spring 69 would pull the carrying lever 47 downwardly until it was stopped by the holding member 57. When the shaft 4 has practically completed its revolution the roller 46 will roll off the cam 43 and the spring 74 will move the lever 44 to the left as viewed in Figure 7 and lower the holding member 57 to the position shown in Figure 6 so that the carrying dog 60 will engage the totalizer pinion of next higher order and rotate it one notch.

The cam 42 engages a roller 73 rotatably mounted on a pin 72 carried by a bell crank lever 71 which is pivoted on the shaft 45. The lever 71 is urged to the left, as viewed in Figure 7, by means of a spring 75. This lever carries a pin 76 at its outermost upper end, which pin is connected to a pin 77 on a crank lever 78 by means of a spring 79. The crank lever 78 is secured to a shaft 80, which shaft carries a plurality of crank arms 81 which are bifurcated at their upper ends and receive the shaft 27 carried by the frame members 25. It will be noted that the roller 73 does not engage the cam 42 until some little time after the cam 43 has engaged the roller 46. The object of this construction is to give the cam 43 sufficient time to elevate the carrying levers 47 and for the spring 69 to move the holding member 57 slightly downwardly after the roller 46 has passed the lobe 5 and for the cam 42 to then engage the roller 73 and rock the crank arms 81 inwardly or counterclockwise as viewed in Figures 7 and 1 so as to move the totalizer frame to the left as viewed in Figure 1 so as to engage the totalizer pinions with the differential gears 1, this movement being permitted by the slots 33 in the fixed frame 28, which slots engage the guide shaft 31. At approximately 180 degrees thereafter the cam 42 passes beyond the roller 73 and the spring 75 moves the totalizer frame and totalizer pinions to the right as viewed in Figure 1 so that the subtracting movement of the differential gears 1 will not be imparted to the totalizer pinions.

With the parts in the position shown in Figure 6 it is obvious that if I attempted to rotate the resetting shaft 6 on which the totalizer pinions are mounted in a clockwise direction so that the spring pressed resetting pawl 7 would engage the resetting notch 8, the totalizer pinion could not be moved because one of the teeth would be in engagement with the notch 62 which would lock it against such movement. It is, therefore, necessary to elevate the carrying lever 47 so as to disengage it from locking engagement with its totalizer pinion. I provide a key actuated shaft 9 with a square end 10 which is adapted to receive a resetting key of conventional design. This shaft is mounted in bearings 11 carried by the frame 28 and the shaft is provided with a bevelled gear 12 which meshes with a bevelled gear 13 mounted on a sleeve 14 provided with a groove 15 which receives a tongue 16 on a sleeve 17 which carries a cam 18. The sleeves 14 and 17 are loosely mounted on the resetting shaft 6, which shaft carries a pin 19 which extends through slots 20 in the sleeve 17. The shaft 6 has secured thereto a locking disk 21 provided with a notch 22. A pawl 23 actuated by a spring 60 is provided with a pawl nose 24 which normally extends within the notch 22 and into the deepest part of the cam 18 as at the point 26. The pawl is mounted on the shaft 54 and is provided with a cam surface 30 which engages the pin 55, which, it will be remembered, is attached to the arm 56 connected to the holding member 57.

When the operator engages the square end 10 of the key actuated shaft 9 with the key and rotates the key, he thereby rotates the bevelled gears 12 and 13, sleeves 14 and 16 and cam 18 and the nose 24 of the pawl 23 rides upwardly from the point 26, which is the lowest portion of the cam 18, up on the periphery of the cam, the said cam rotating in the direction of the arrow shown in Figure 4. This elevates the pawl and by means of the cam surface 30 and pin 55, the holding member 57 is elevated, which raises the carrying lever 47 out of engagement with the totalizer wheels. This motion of the sleeve 17 is not imparted to the resetting shaft 6 until the pin 19 reaches the end of the slot 20, and thereafter the resetting shaft 6 rotates with the sleeve 17 and the resetting pawl 7 engages the resetting notch 8 of each totalizer wheel, rotating them to their zero position. Just after they pass their nine position, the nose 24 of the pawl 23 reaches the notch 22 of the locking disk 21 and is forced into said notch by spring pressure, striking the cam 18 at approximately the point 32 on the inclined or acting surface of the cam, rotating the sleeve 17 in a direction reverse to the arrow shown in Figure 4, so that the pin 19 will again lie in the right hand end of the slot 20, which permits the holding member 57 to drop into the position shown in Figure 6 and allows the carrying dog 60 to descend into the position shown in the said Figure 6. This would, of course, tend to rotate the wheels to perform a carrying operation but this tendency is completely off-set by the fact that the pawl 7 is going to complete the rotation of the totalizer pinions one step further anyhow so that all of the totalizer pinions would be set to zero.

In my construction it is, therefore, not necessary to provide any lever or other means to elevate the holding member 57 and carrying lever 47, but the entire resetting operation is performed by simply rotating the shaft 9.

I realize that various changes may be made in the specific form of the invention as shown and described herein and I, therefore, wish to reserve the right to make such changes as may fairly fall within the scope of the appended claims.

Having now described my invention, I claim:

1. In combination with totalizer wheels and a locking means therefor, a resetting shaft, a rotatable means loosely mounted on said resetting shaft and having a pin and slot connection therewith, and means whereby when said rotat-

able means is rotated said locking means is rendered inoperative and said totalizer wheels are reset.

2. In combination with totalizer wheels and a locking means therefor, a resetting shaft, a rotatable means loosely mounted on said resetting shaft and having a pin and slot connection therewith, a cam on said rotatable means, and means whereby when said cam is rotated said locking means is rendered inoperative by said cam and said totalizer wheels are reset.

3. In combination with totalizer wheels and a locking means therefor, a resetting shaft, a rotatable means loosely mounted on said resetting shaft, a cam secured to said rotatable means, said rotatable means being provided with a slot therein, a pin connected to said shaft and extending through said slot, means whereby said rotatable means and cam are rotated to release said locking means, the pin and slot being so arranged that after the locking means is released the end of the slot engages said pin and rotates said shaft, and means whereby said wheels are reset by the rotation of said shaft.

4. In combination with totalizer wheels and a locking means therefor, a resetting shaft, a sleeve loosely mounted on said resetting shaft, said sleeve having a slot therein, a cam secured to said sleeve, a pin connected to said shaft and extending through said slot, means whereby said sleeve and cam are rotated to release said locking means, the pin and slot being so arranged that after the locking means is released the end of the slot engages said pin and rotates said shaft, and means whereby said wheels are reset by the rotation of said shaft.

5. In combination with totalizer wheels and a locking lever therefor, a resetting shaft, a sleeve loosely mounted on said resetting shaft, means whereby said sleeve is rotated, means controlled by said sleeve whereby said locking lever is released when said sleeve is rotated, means whereby when said sleeve has been rotated a predetermined distance the said sleeve will rotate said resetting shaft, and means controlled by said resetting shaft whereby when the said shaft is rotated said totalizer wheels will be reset.

6. In combination with totalizer wheels, a locking means therefor, a resetting shaft, means whereby said shaft is normally held against rotation, a rotatable sleeve having a pin and slot connection with said resetting shaft, a cam carried by said sleeve, means controlled by said cam whereby said locking means is rendered inoperative when said sleeve is rotated and whereby said first mentioned means is likewise rendered inoperative, said pin and slot connection serving as a means to rotate the resetting shaft after the sleeve has rotated a predetermined distance, and means whereby said totalizer wheels are reset when said shaft is rotated.

7. In combination with totalizer wheels, a locking lever for each of said totalizer wheels, a resetting shaft, a cam loosely mounted on said resetting shaft, means whereby said cam is rotated, means whereby said resetting shaft rotates with said cam after said cam has rotated a predetermined distance, means controlled by said cam while it is rotating the said predetermined distance to unlock said locking means, and means whereby said totalizer wheels are reset when said resetting shaft is rotated.

8. In combination with totalizer wheels, a locking lever for each of said totalizer wheels, a resetting shaft on which said totalizer wheels are rotatably mounted, a sleeve loosely mounted on said shaft and having a pin and slot connection therewith, a cam carried by said sleeve, a locking disk carried by said shaft, a pawl overlying both said cam and locking disk, said cam serving as a means to remove said pawl from locking engagement with the said locking disk and to release all of said levers from locking engagement with the totalizer wheels during the initial rotation of the said cam, said pin and slot connection serving as a means to rotate said shaft by said sleeve after the said sleeve has rotated a predetermined distance, and means controlled by said shaft whereby when said shaft is rotated said totalizer wheels will be reset to zero.

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