

Sept. 6, 1932.

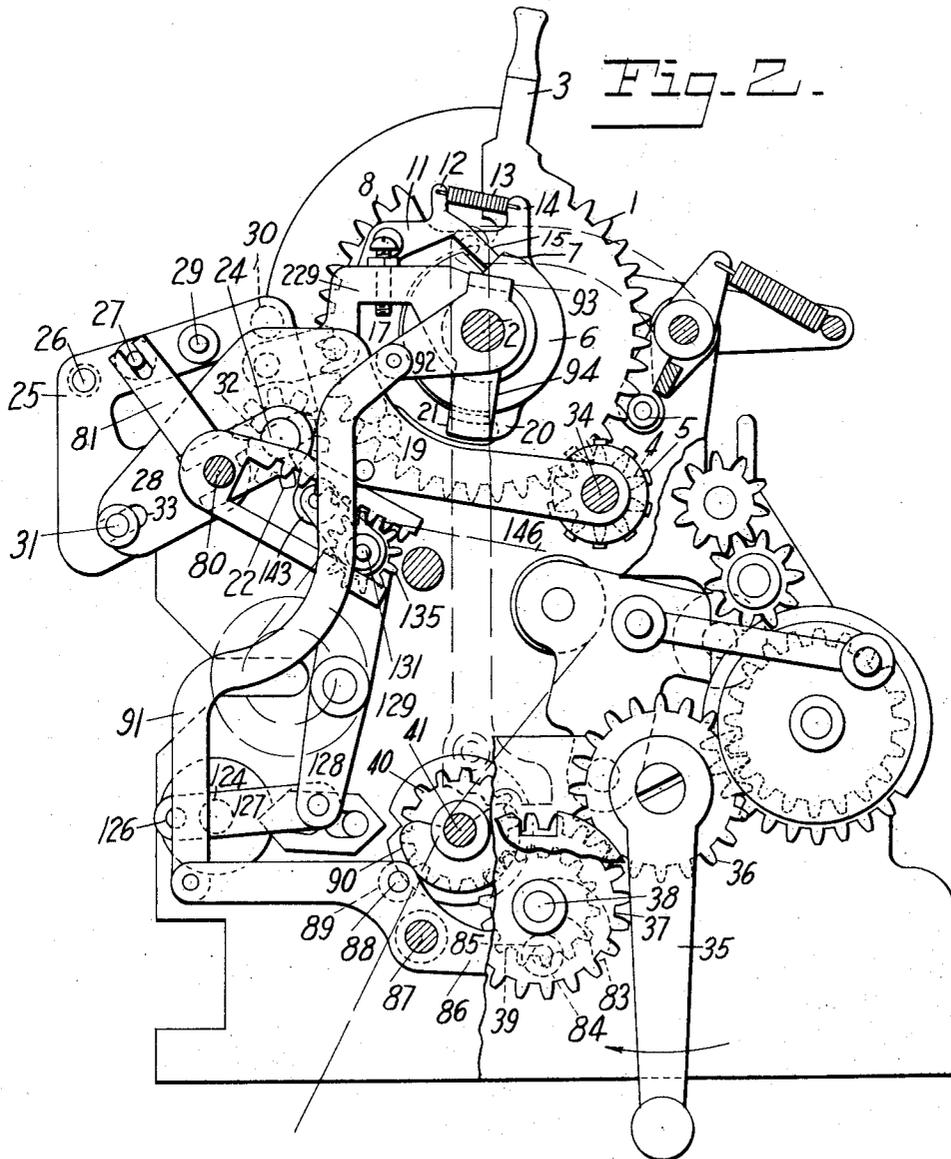
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1,876,118

TOTALIZER AND PRINTING MEANS THEREFOR

Filed Dec. 8, 1927

4 Sheets-Sheet 2



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4 Sheets-Sheet 3

Fig. 1.

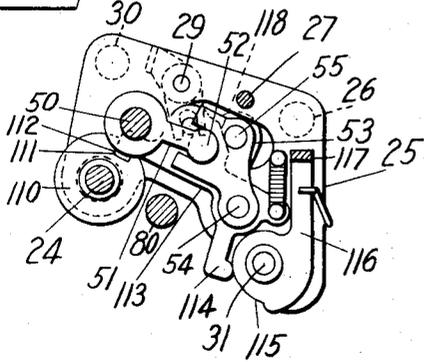


Fig. 2.

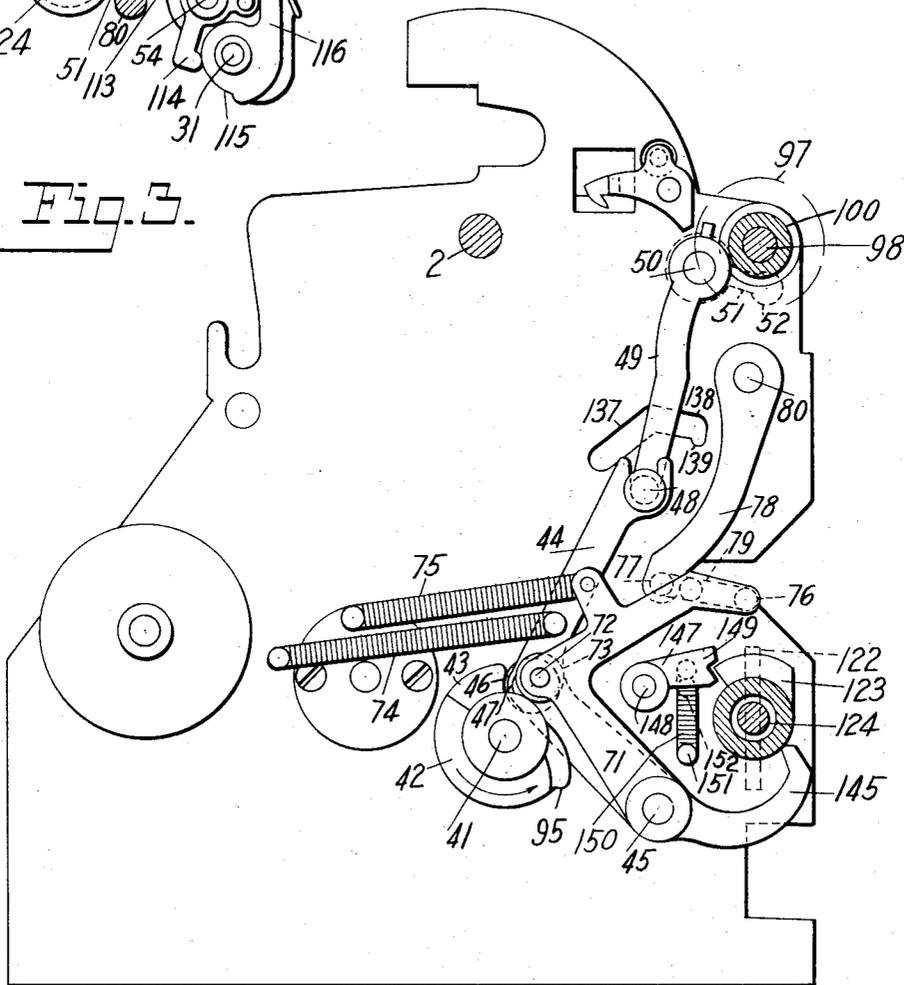
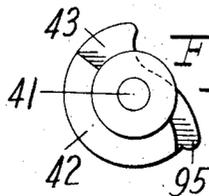


Fig. 3.



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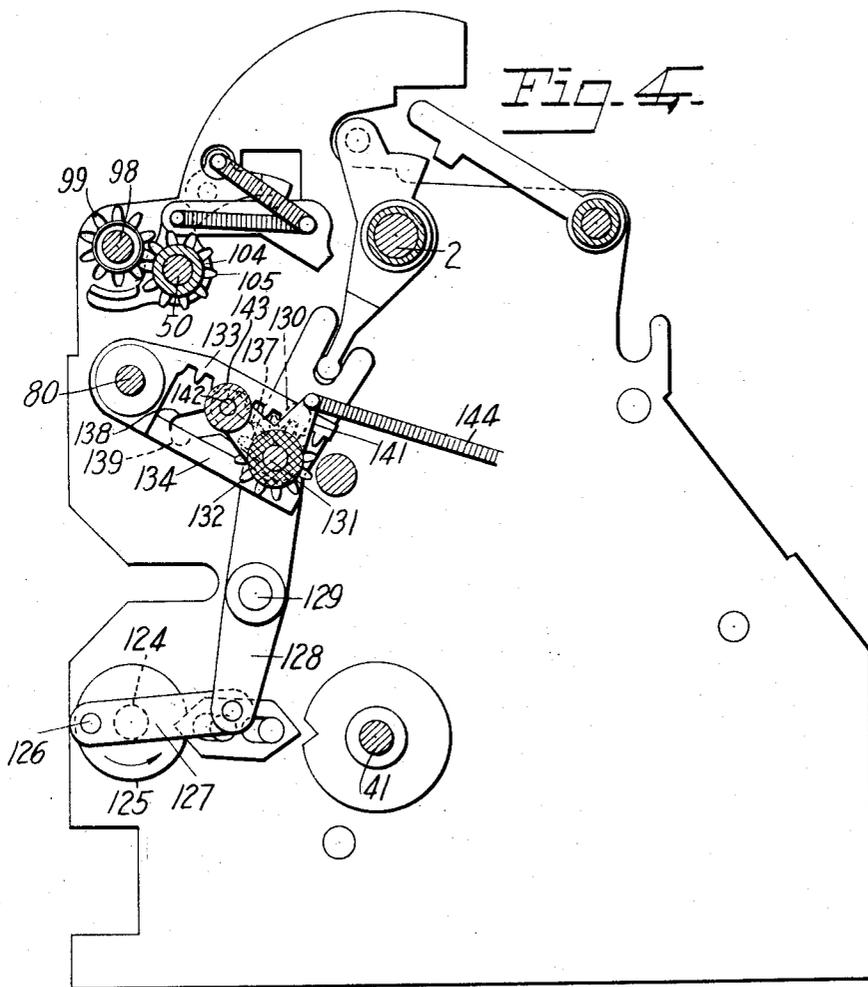
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4 Sheets-Sheet 4



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TOTALIZER AND PRINTING MEANS THEREFOR

Application filed December 8, 1927. Serial No. 238,662.

This invention relates to totalizers. One of the objects of the invention is to provide a totalizer wherein the operation known as "carrying" will be performed by positive means other than transfer wheels. When transfer wheels are employed there is considerable strain imposed upon the numeral wheels of low denomination caused by the necessity of such wheels operating one or a large number of transfer wheels and the numeral wheels to which they are connected. For instance, if the numeral wheels register 99,999 and the number "1" is added thereto, it is necessary for the units numeral wheel to operate four transfer wheels and four numeral wheels which imposes a great strain on the units wheel. In the improved construction shown in this application there is no such strain for there are no transfer wheels.

Another object of the invention is to provide novel actuating means for the numeral wheels of the totalizer, which actuating means is made in two relatively movable parts so that by moving one of the parts to any given position the other part is moved therewith, but when the numeral wheel of the totalizer is brought into mesh with one of the relatively movable parts of the setting means that part may be moved relative to the other part thereof and thereby actuate the numeral wheels of the totalizer. This is highly desirable in case manually operable levers are employed to set up a given money transaction or other numerical notation. In such instances, it is preferable to leave such levers in the position in which they are placed when the totalizer is being actuated.

Another object of the invention is to provide a totalizer movable into and out of engagement with the setting means therefor so that the position of the setting means may be changed without interfering with the totalizer.

Another object of the invention is to provide an improved printing mechanism whereby an impression from the numeral wheels of the totalizer may be recorded on paper.

Other objects and advantages of the invention will appear in the detailed specification.

Referring to the drawings—

Fig. 1 is a top plan view.

Fig. 2 is a right side elevational view with the parts partly broken away.

Fig. 3 is a left side elevational view.

Fig. 4 is an elevation of the inside of the left side frame of the machine.

Fig. 5 is a sectional view on the line 5—5 of Fig. 1, the parts being in their normal position.

Fig. 6 is a sectional view of the totalizer, the parts being in the position in which they would be immediately after the machine has commenced its operation.

Fig. 7 is a view similar to Fig. 6 but showing the parts in the position in which they would be after the carrying pawl had been tripped but before it had actually carried.

Fig. 8 is a detail view of the left side of the totalizer locking means and the pawl controlling means, and

Fig. 9 is a detail view of the cams on the operating shaft.

Referring more in detail to the drawings—

Gears 1 are rotatably mounted on a shaft 2. A lever 176 is mounted on a shaft 177 and carries a pin 178 which is pressed against the teeth of the gear 1 by means of a spring 179. There is, of course, one such lever for each such gear. These gears and mechanism carried thereby are exact duplicates and a description of one will suffice for all. Each of the gears 1 is actuated by a manual lever 3. The gears are operatively connected with visual indicating means such as shown in the application of Albert S. Wheelbarger 236,094, filed November 28, 1927, and also mesh with pinions 4 secured to type printing wheels 5. Each of the said gears has secured thereto a disk 6 having a notch 7 therein. The disk 6 is spaced a slight distance from the gear 1 as is clearly shown in Fig. 1 and a segmental gear 8 is rotatably mounted on the hub 9 connecting the gear 1 and disk 6. The segmental gear 8 carries a pin 10 on which is mounted a bell crank lever 11. The bell crank lever 11 is provided with a lug 12 to which is secured a spring 13 which is also secured to a lug 14 carried by the segmental gear 8. The lever 11 has an arm 15 which

normally lies in the notch 7 but may ride on the periphery of the disk 6. The other end of the lever 11 is provided with an inwardly extending lug 16. The segmental gear 8 is provided with an arcuate channel 17 adjacent the lug 16, which channel terminates in a wall 18. The gear 1 is provided with a similar channel forming a continuation of the channel 17. The gear 1 is provided with a pin 19 which engages the lowermost end of the segmental gear 8. The segmental gear 8 is also provided with a lug 20 which engages a totalizer actuating bar 21 when the parts are in home position, at which time the bar 21 is held immovable as will be hereinafter described. It will, of course, be understood that there is only one totalizer actuating bar 21 whereas there are a number of the units composing the setting means described above. The lever 3 is the setting means for the parts described above. The position in which the lever 3 is shown in Fig. 5 is what would be zero position. If it is desired to register "1," one of the units levers 3 would be moved one notch of the gear 1 in a counter-clockwise direction, and so on for the other numerals which it might be desired to register. It will, of course, be understood that there is a units lever 3, a tens lever 3 and so on for as many digits as it might be desirable to register in the machine in one operation. If one of the levers 3 is moved so as to indicate a "9" which would be as far as it could be moved in a counter-clockwise direction, and if this lever was then thrown violently back to the position shown in Fig. 5, the lever 3 would be stopped by reaching the end of the slot in which it travels, which slot is clearly shown in the above referred to copending application. There would, however, be a tendency for the segmental gear 8 to continue its motion but this is prevented by the lug 20 engaging the bar 21 thereby positively stopping the motion of the gear 8.

The totalizer numeral wheels 22 are provided with printing characters 23. These wheels are mounted on a shaft 24, which shaft is journaled in frame members 25. The frame members 25 are secured together by cross bars 26, 30 and 31. A shaft 27 also extends between the three frame members 25. The shaft 24 and cross bar 31 extend into grooves 32 and 33 respectively in stationary frame members 28 which are supported by the arms 229 and the shaft 34 on which the printing wheels 5 are mounted. The said grooves 32 and 33 extend in the same direction as is clearly shown in Fig. 2 so as to guide the frame members 25 to cause the totalizer numeral wheels 22 to engage the segmental gears 8 as will be hereinafter described.

The totalizer wheels are moved into and out of engagement with the segmental gears 8 by the following means: The crank handle

35 is operatively connected with the gear 36 which meshes with a gear 37 on a shaft 38, which shaft carries a second gear 39 which meshes with a gear 40 on a shaft 41. The shaft 41 is provided with two cams 42 and 43. As soon as the crank handle is rotated the shaft 41 carrying the cams 42 and 43 is rotated in the direction of the arrow shown in Fig. 3. The lever 44 is pivoted on a pin 45 and is urged to the left as viewed in Fig. 3 by means of a spring 74, and carries a roller 46 on a pin 47. 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 the bell crank lever 53 pivoted on the 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 provided with a pin 59 on which is pivoted a dog 60. There are as many carrying arms as there are numeral wheels 22 except that there is no carrying arm operated by the wheel of highest denomination. The upper end of each of the dogs 60 is connected to its carrying arm 58 by means of a spring 61. The further end of each of the carrying arms 58 is provided with a notch 62 and a lug 63. When one of the carrying arms 58 is in the position shown in Fig. 5 its notch 62 engages the numeral wheel 22 with which it is associated and locks it against rotation in a counter-clockwise direction but when it is in the position shown in Figs. 6 and 7 the numeral wheels are free to rotate in the anti-clockwise direction. A holding pawl 64 is pivoted on a shaft 65, there being one such pawl for each numeral wheel. The nose of the pawl 64 is held against the numeral wheels 22 by means of a spring 66 connected to a cross bar 82. A tripping pawl 67 is pivoted on the arm 29, there being one such tripping pawl for each numeral wheel. Each of the tripping pawls 67 is provided with a notch 68 and is normally urged into the position shown in Fig. 5 by means of a spring 69 which connects a lug 70 on the tripping pawl to the upper end of the carrying arm 58.

The cam 42 actuates a bell crank lever 71 pivoted on the pin 45. The lever 71 carries a pin 72 on which is mounted a roller 73 which engages the cam 42. The lever 71 is urged to the left as viewed in Fig. 3 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.

The object of the above construction is to cause the totalizer to move into and out of operative engagement with the segmental gears 8.

The shaft 38 is provided with a cam 83 which engages a roller 84 mounted on a pin 85 carried by the bell crank lever 86 pivoted on a rod 87 which is mounted in the frame work of the machine. The lever 86 carries a pin 88 on which is mounted a roller 89 which engages a cam 90 secured to the shaft 41. The cams 83 and 90 are on opposite sides of the fulcrum of the lever 86 and are so positioned that as the crank handle 35 rotates the cam 90 holds the lever 86 in the position shown in Fig. 2, for the roller 89 is riding on the periphery of the cam, which cam extends for slightly more than 180°. As the roller 89 passes off the periphery of the cam, the cam 83 engages the roller 84, rocking the right end of the lever downwardly, immediately after the cam 90 has passed beyond the roller 89. As the crank 35 completes its rotation the cam 83 passes beyond the roller 84 and the roller 89 is again engaged by the cam 90 which shifts the lever 86 into its initial position which is shown in Fig. 2. The lever 86 is, therefore, rocked up and down on the last part of the rotation of the crank handle 35 and as it moves up and down it carries a link 91 connected therewith which link is also connected to a crank arm 92, which crank arm is rotatably mounted on the shaft 2 and is an integral part of a cross piece 93 which continues as a downwardly extending arm 94 which is the means whereby the totalizer actuating bar 21 is actuated. Preferably, the parts 92, 93, 94 and 21 are made of one piece of metal. As viewed in Fig. 2 this piece would extend upwardly and rearwardly, being the part 92, inwardly at right angles to the part 92 forming the part 93, downwardly and forwardly at right angles to the part 93 forming the part 94, and inwardly at right angles to the part 94 forming the part 21. The totalizer actuating bar 21, therefore, makes no movement until the crank handle 35 has completed about one-half of its revolution. The cam 83 now engages the roller 84 and the cam 90 disengages the roller 89 so that the link 91 is moved upwardly and the totalizer actuating bar 21 moves in a clockwise direction as viewed in Figs. 2 and 5. The totalizer actuating bar moves throughout the length of the channel 17 and engages the wall 18 of the segmental gear 8. As the gear 8 is thus moved upwardly the arm 15 of the lever 11 is cammed out of the notch 7, bringing the lug 16 of the said lever beneath the totalizer actuating bar 21. As the totalizer actuating bar 21 continues its movement in a clockwise direction the segmental gear 8

is moved upwardly while the arm 15 rides on the periphery of the disk 6. When the cam 83 has passed beyond the roller 84 and the roller 89 is engaged by the cam 90, the link 91 is moved downwardly moving the totalizer actuating bar 21 in an anti-clockwise direction. Since the lug 16 engages the under side of the totalizer actuating bar 21 the segmental gear 8 is moved therewith until the arm 15 reaches the notch 7, at which time the spring 13 causes the arm 15 to move into the notch 7 and thereby disengage the lug 16 from the totalizer actuating bar 21. This occurs just as the lower end of the segmental gear 8 strikes the pin 19 stopping the segmental gear 8 in the correct position relative to the gear 1.

All of the above action has occurred in timed sequence to the operation of the cams 42 and 43. It will be remembered that the lever 86 was not moved at all during the first half of the revolution of the crank handle 35. However, as soon as the crank handle commences its rotation the cam 43 engages the lever 44, moving the upper end thereof to the right as viewed in Fig. 3. The cam 43 carries a lobe 95 which extends a short distance beyond the outer periphery of the body of the cam 43. This lobe 95 moves the lever 44 the maximum distance in a clockwise direction thereby moving the arm 49 and shaft 50, rotating the arm 51 in an anti-clockwise direction as viewed in Fig. 8 which moves the arm 56 in a clockwise direction, raising the holding member 57 (Figs. 5, 6 and 7). The holding member 57 engages all of the carrying arms 58, raising them until the lugs 63 engage the notches 68 in the pawls 67, at which time the lower ends of the pawls 67 are in the path of rotation of the lugs 96 (Fig. 6) which are so positioned on the sides of the numeral wheels 22 that they will engage the pawls 67 as soon as the numeral wheels 22 pass beyond the position in which they would print the numeral "9". It will, of course, be understood that there is one such lug on each numeral wheel. As the lobe 95 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 Fig. 3, which partially lowers the holding member 57 into the position shown in Fig. 6. If any one of the lugs 96 should now engage its tripping pawl 67 it would move the pawl to the left disengaging the lug 63 from the notch 68 and the spring 69 would pull the carrying arm 58 downwardly until it abutted against the holding member 57 as is shown in Fig. 7.

The cam 42 now engages the roller 73, moving the lever 71 to the right as viewed in Fig. 3, so that the spring 79 moves the lever 78 in an anti-clockwise direction rotating the shaft 80 and causing the crank arms 81 to move the

totalizer frame and the parts carried thereby to the right as viewed in Fig. 2, so that the numeral wheels 22 of the totalizer are caused to mesh with the segmental gears 8, the cross bar 31 and shaft 24 sliding in the grooves 33 and 32 respectively. This motion has been completed when the crank handle has made about one-third of a revolution. The printing from the printing wheels 5 now takes place but a description of this operation is not necessary for it forms no part of this invention. About the time the crank handle has made one-half of a revolution the cam 83 rocks the totalizer actuating bar 21 so as to cause the segmental gears 8 to be moved upwardly while they are in mesh with the respective totalizer numeral wheels 22. The extent of this movement is governed altogether by how far the segmental gears 8 have been moved by the levers 3. If any one of these levers has been moved one notch the bar 21 will move the said gear upwardly one notch. If one of the levers 3 has moved its segmental gear 8 downwardly any other number of notches corresponding to numerals the bar 21 will move the segmental gear 8 upwardly a like number of notches corresponding to numerals. When any one of the levers 3 is moved downwardly or in an anti-clockwise direction as viewed in Fig. 5, the numeral wheels 22 are not in engagement with the segmental gears 8, but before the bar 21 moves the segmental gears 8 upwardly in a reverse direction and for the same number of numerals that the levers 3 have moved them downwardly, the segmental gears 8 are in engagement with the numeral wheels 22. It is, therefore, obvious that if it is desired to add "99" to the number previously registered the units and tens levers 3 would be moved in an anti-clockwise direction for 9 spaces. This causes no rotation of the wheels 22 for the gears 8 are not in engagement therewith. The wheels 22 are now brought into mesh with the segmental gears 8 and the bar 21 moves those gears which have previously been moved downwardly, upwardly to their initial position. In the case just recited it would cause the units and tens segmental gears 8 to be moved upwardly 9 numerals and would, therefore, add "9" to each of the units and tens numeral wheels 22 of the totalizer.

When the crank handle 35 reaches approximately its 290° position the cam 42 passes beyond the roller 73 and the spring 75 actuates the levers 71 and 78 so as to actuate the crank arms 81 and move the totalizer frame with the parts carried thereby to the left as viewed in Fig. 5, so as to disengage the numeral wheels 22 from the segmental gears 8. As the crank handle 35 completes its rotation the roller 46 passes beyond the cam 43 and the spring 74 moves the lever 44 and arm 49 to the left as viewed in Fig. 3 thereby lower-

ing the holding member 57 into the position shown in Fig. 5. It will be remembered that those numeral wheels which have passed beyond a "9" when being rotated have tripped the pawl 67 so that the only thing supporting the carrying arms 58 is the holding member 57. As before stated this holding member 57 is lowered all the way, or into the position shown in Fig. 5, immediately prior to the completion of the rotation of the crank handle 57 so that the dog 60 engages between the teeth of the next numeral wheel of higher denomination, moving it one notch, which operation is ordinarily known in arithmetic as "carrying". In the addition of two numerals there could never be a greater number carried than "1" so it will never be necessary to rotate any one of the numeral wheels more than one tooth to effect the carrying operation. As any one of the carrying arms 58 descend into the position shown in Fig. 5 the notch 62 engages the adjacent tooth of the numeral wheel 22 and locks it against rotation in an anti-clockwise direction while the holding pawl 64 locks it against rotation in the opposite direction.

The resetting means for the totalizer is as follows: A knurled thumb knob 97 is secured to a shaft 98 which carries a gear 99. This shaft is slidably journaled in the frame of the machine and in a collar 100 carried by one of the side-walls, which collar is provided with a tongue 101 which normally fits into a groove 102 in the shank of the thumb knob 97. The shaft 98 is normally held in the position shown in Fig. 1 by means of a spring 103 interposed between the sidewall of the machine and the gear 99. A collar 104 is rotatably mounted on the shaft 50 which collar carries gears 105 and 106. When the thumb knob 97 is pulled inwardly against the tension of the spring 103 the gear 99 is caused to mesh with the gear 105. By now rotating the knob 97, the gear 106 is caused to rotate and to thereby rotate the gear 207 on the totalizer shaft 24. The totalizer shaft 24 is provided with a series of pawls 107 pushed outwardly by means of springs 108. The outer ends of these pawls 107 are the same shape as notches 109 in the numeral wheels 22. If, therefore, the shaft 24 is rotated in an anti-clockwise direction as viewed in Fig. 5 the pawls will engage the notches 109 which notches are so positioned relative to the numerals on the wheels that when the knob 97 has completed its rotation the numeral wheels will be reset to zero.

It is not possible, however, to rotate the shaft 24 and the numeral wheels 22 unless the carrying arms 58 have been raised so as to disengage the notches 62 from engagement with the numeral wheels. It is, furthermore, desirable to prevent the rotation of the shaft 24 until the carrying arms have been so disengaged for otherwise a person

might damage the numerals on the numeral wheels. A disk 110 is, therefore, securely attached to the shaft 24, which disk is provided with a notch 111 which receives a lug 112 carried by the lever 113 which lever is pivoted on the shaft 54 and has a downwardly extending arm 114 which is engaged by a cam 115 on a lever 116 pivoted on the cross bar 31. The lever 116 is provided with a laterally extending arm 117 which extends behind the shaft 98 as is clearly shown in Fig. 1. In order to release the arm 117 and lever 116 it is necessary to pull outwardly on the thumb knob 97 so as to move the shaft 98 beyond the arm 117. The arm 117 can then be pulled outwardly rotating the lever 116 and cam 115, which engages the arm 114 raising the lug 112 out of the notch 111 of the disk 110. The lever 113 is also provided with a cam surface 118 which engages the pin 55 thereby raising the holding member 57 and disengaging the carrying arm from the numeral wheels. The thumb knob 97 may now be rotated so as to reset the numeral wheels 22 to zero.

It would sometimes be desirable to know the number of times that this resetting operation has taken place. This is accomplished by securing a geneva gear 119 to the shaft 24. This geneva gear meshes with a geneva transfer pinion 120 which drives the units wheel 121 of the consecutive counter which spaces each time the shaft 22 is rotated a complete revolution which is each time the counter is reset. In like manner, the wheels of higher denomination of the consecutive counter are connected to the units wheel 121.

A thumb knob 122 is secured to a cam 123 and to a shaft 124 which carries a disk 125. The disk 125 is provided with a wrist pin 126 which is connected to a pitman 127 which operates a lever 128 pivoted on a pin 129. The lever 128 is provided with a slot 130 which receives a shaft 131 which carries gears 132 and 135. These gears are closely adjacent the opposite sides of the frame of the machine. The gear 132 meshes with a rack 133 which rack is pivoted on the shaft 80 and is provided with a rail 134 which rests against the under side of the shaft 131 and holds the rack 133 in engagement with the gear 132. A similar rack and rail are provided for the gear 135. A platen 136 is mounted on the shaft 131 which platen takes an impression from the type on the wheels 22. The shaft 131 extends through slots 137 and 138 in the two sidewalls of the machine. The shape of these slots is clearly shown in Figs. 3 and 4. As the lever 128 moves in an anti-clockwise direction as viewed in Fig. 4 the shaft 131 and platen 136 would be caused to move upwardly and forwardly, downwardly and forwardly and would then drop downwardly into the lobe 139 which terminates each of the slots 137 and 138. Ro-

tatably mounted on the shaft 131 are ball crank levers 140 and 141 which carry a shaft 142 on which is mounted an inking roller 143. The inking roller is normally held in a raised position by means of a spring 144.

The operation of the printing mechanism is as follows: As the knob 122 is rotated in a clockwise direction as viewed in Fig. 3, the disk 125 is rotated in an anti-clockwise direction as viewed in Fig. 4 moving the lower end of the lever 128 to the right while the cam 123 engages the arm 145 of the lever 71, raising the totalizer in the same manner as the cam 42 raises the same. The shaft 131 travels in the slots 137 and 138 so that the roller 143 engages the type on the numeral wheels 22 and inks the same but the type are raised above the platen 136 so that on this forward motion the strip of paper 146 (Fig. 2) receives no impression. When the thumb knob 122 has been rotated so that the cam 123 passes beyond the arm 145 the spring 75 lowers the totalizer in the same way as it did when the cam 42 had passed beyond the roller 73. The shaft 131 is now resting in the lobe 139 and the type have already been inked. The lever 128 now commences its movement in a clock-wise direction as viewed in Fig. 4, moving the platen 136 against the type wheels 22 so that an impression from the type wheels is made on the paper. The type are again inked as the roller passes for the second time beneath the type wheels.

In order to prevent the turning of the thumb knob 122 in an incorrect direction a locking pawl 147 is pivoted on a shaft 148. This locking pawl is provided with a pin 149 to which is secured a spring 150 connected to a pin 151 carried by the frame. The frame also carries a pin 152 which limits the downward movement of the pawl 147 and holds the same in the path of movement of the cam 123 so that it cannot be rotated in an anti-clockwise direction as viewed in Fig. 3.

Obviously, many changes may be made in the specific construction shown by way of example herein without departing from the spirit of this invention. We, therefore, desire to claim the same broadly in whatsoever form it may be embodied which may fairly fall within the scope of the appended claims.

We claim—

1. In a machine of the type described, a resetting shaft, a plurality of totalizer wheels mounted thereon, carrying arms for said totalizer wheels, locking means to hold said shaft against rotation, locking means whereby said carrying arms lock said wheels against rotation, and means whereby both of said locking means are rendered inoperative.

2. In a machine of the type described, a resetting shaft, a plurality of totalizer wheels mounted thereon, carrying arms for said totalizer wheels, means to lock said shaft against rotation, means whereby said carry-

ing arms lock said wheels against rotation after the carrying operation is completed, and cam means to release the means to lock the shaft and to raise the carrying arms out of locking engagement with the totalizer wheels.

3. In a machine, a setting gear, a disk having a notch carried thereby, a totalizer, an actuating gear therefor, a lever carried by said actuating gear, means normally holding one end of said lever in said notch so that when said setting gear is actuated said actuating gear will be initially set thereby.

4. In a machine, a setting gear, a disk having a notch carried thereby, a totalizer, an actuating gear therefor, a lever carried by said actuating gear, means normally holding one end of said lever in said notch so that when said setting gear is actuated said actuating gear will be initially set thereby and means whereby said actuating gear may be actuated independently of said setting gear.

5. In a machine, a setting gear, a disk having a notch carried thereby, a totalizer, an actuating gear therefor, a lever carried by said actuating gear, means normally holding one end of said lever in said notch so that when said setting gear is actuated said actuating gear will be initially set thereby and means whereby said actuating gear may be actuated while said setting gear is held stationary.

6. In a machine, a setting gear, a disk having a notch carried thereby, a totalizer, an actuating gear therefor, a lever carried by said actuating gear, means normally holding one end of said lever in said notch so that when said setting gear is actuated said actuating gear will be initially set thereby and means whereby said lever is cammed out of said notch and said actuating gear is actuated independently of said setting gear.

7. In a machine, a gear, a lever carried thereby, a totalizer actuated by said gear, an actuating bar for said gear and means whereby said lever is actuated so as to lock said bar to said gear during that movement of said gear when it is adding on said totalizer.

8. In a machine, a gear, a lever carried thereby, a lug on said lever, a totalizer actuated by said gear, an actuating bar for said gear and means whereby said lever is actuated so as to engage said lug with said bar and thereby lock said bar to said gear during that movement of said gear when it is adding on said totalizer.

9. In a machine, a gear, means whereby said gear is initially set, a lever carried by said gear, a totalizer actuated by said gear, an actuating bar for said gear and means whereby said lever is actuated so as to lock said bar to said gear during that movement of said gear when it is adding on said totalizer.

10. In a machine, a gear provided with an arcuate slot, a lever carried by said gear, a totalizer actuated by said gear, an actuating bar adapted to move through said arcuate slot so as to pick up said gear and give it a movement to add on said totalizer, and means whereby said lever is actuated so as to lock said bar to said gear during the additive movement.

11. In a machine, a setting gear, a disk secured to said gear and provided with a cam notch in the periphery thereof, a segmental gear provided with an arcuate channel, means carried by said segmental gear and co-acting with the notch in said disk whereby the movement of the setting gear when being set is transmitted to said segmental gear, an actuating bar so positioned as to move through said channel when said bar is actuated to engage one end of said channel and upon continued movement of said bar to actuate said segmental gear.

12. In a machine, a setting gear provided with an arcuate channel, a disk secured to said gear and provided with a cam notch in the periphery thereof, a segmental gear having an arcuate channel communicating with the arcuate channel in the setting gear, means carried by said segmental gear and co-acting with the notch in said disk whereby the movement of the setting gear when being set is transmitted to said segmental gear, an actuating bar adapted to move through said channels when said bar is actuated and after engagement with said channel gear to actuate the same.

13. In a machine, a setting gear, a disk secured to said gear and provided with a cam notch in the periphery thereof, a segmental gear provided with an arcuate channel, means carried by said segmental gear and co-acting with the notch in said disk whereby the movement of the setting gear when being set is transmitted to said segmental gear, an actuating bar so positioned as to move through said channel when said bar is actuated to engage one end of said channel and upon continued movement of said bar to actuate said segmental gear and means to prevent the setting gear being moved beyond its zero position.

14. In a machine, a setting gear, a disk secured to said gear and provided with a cam notch in the periphery thereof, a segmental gear provided with an arcuate channel, means carried by said segmental gear and co-acting with the notch in said disk whereby the movement of the setting gear when being set is transmitted to said segmental gear, an actuating bar so positioned as to move through said channel when said bar is actuated to engage one end of said channel and upon continued movement of said bar to actuate said segmental gear and means to prevent said

segmental gear from being overthrown beyond its zero position.

15. In a machine, a setting gear, a disk secured to said gear and provided with a cam notch in the periphery thereof, a segmental gear provided with an arcuate channel, means carried by said segmental gear and co-acting with the notch in said disk whereby the movement of the setting gear when being set is transmitted to said segmental gear, an actuating bar so positioned as to move through said channel when said bar is actuated to engage one end of said channel and upon continued movement of said bar to actuate said segmental gear and means to prevent said setting gear and said segmental gear from being moved beyond their zero positions.

16. In a machine, a setting gear and an actuating gear provided with communicating concentric channels, an actuating bar adapted to oscillate in said channels to actuate said actuating gear and means to hold said setting gear stationary while said actuating gear is being actuated by said bar.

17. In a machine, a gear, means whereby said gear is initially set, a cam operatively connected to said gear and provided with a cam notch in the periphery thereof, an actuating gear, a lever carried thereby having one end normally seated in said notch, yieldable means pressing the aforesaid end of said lever into engagement with said disk or notch so that when said setting gear is set said actuating gear will move therewith, means to actuate said actuating gear independently of said setting gear, the aforesaid end of said lever coming out of said notch and moving over the periphery of said disk when said actuating gear is moved independently of said setting gear.

In testimony whereof we affix our signatures.

ALBERT S. WHEELBARGER.
GROVER C. COIL.