July 13, 1926. 1,592,215

E. M. McGOWAN

PREPAYMENT METER

Filed Sept. 8, 1922 3 Sheets-Sheet 1

FIG. 1

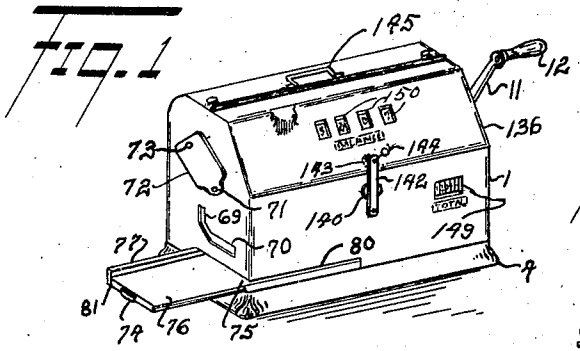


FIG. 1a

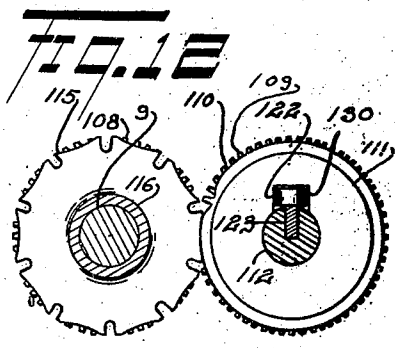
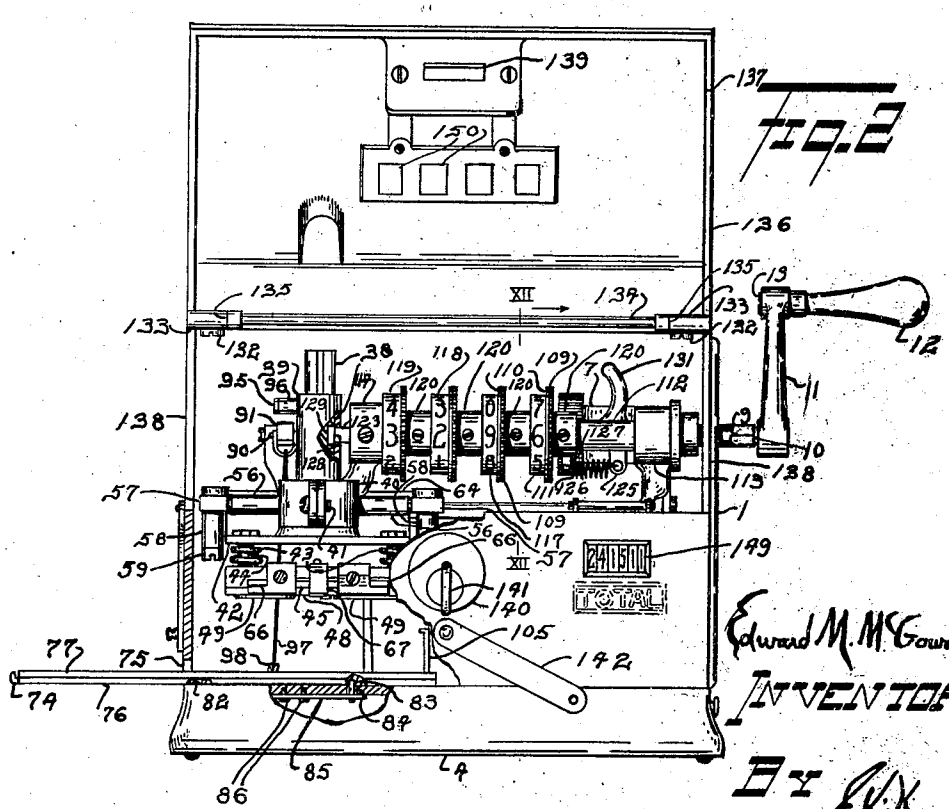


FIG. 2



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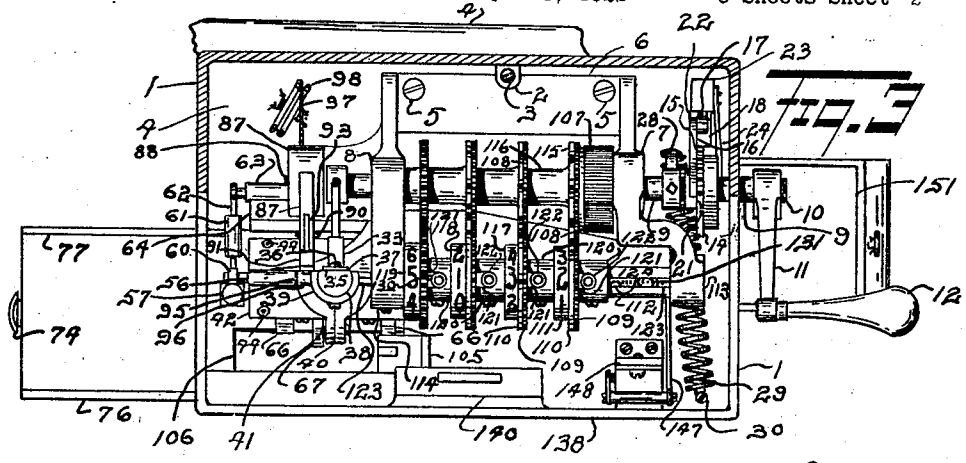


Fig. 3

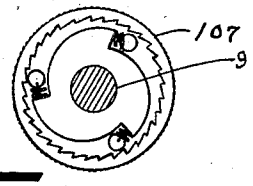


Fig. 4

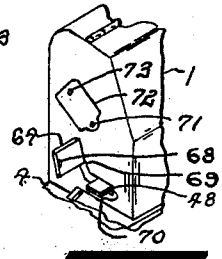


Fig. 5

Fig. 6

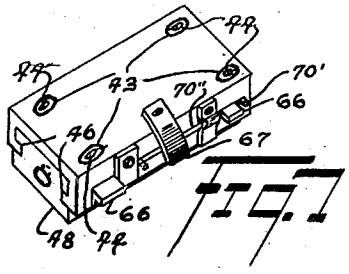


Fig. 7

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FIG. 8

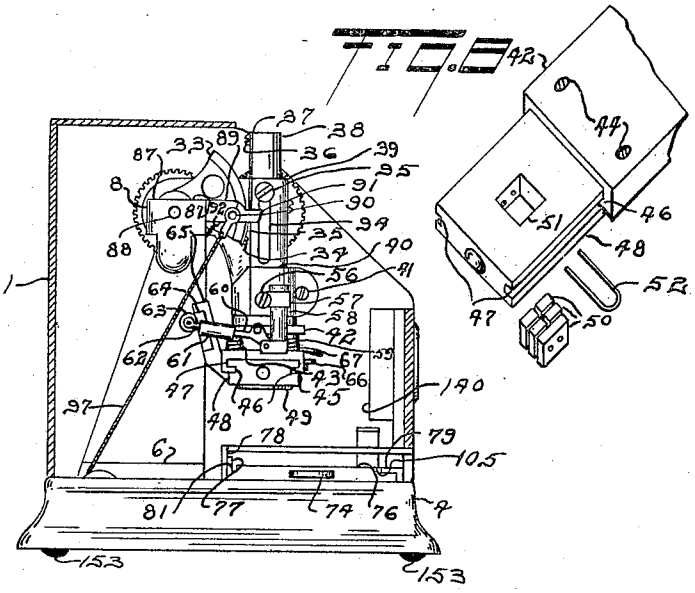


FIG. 9

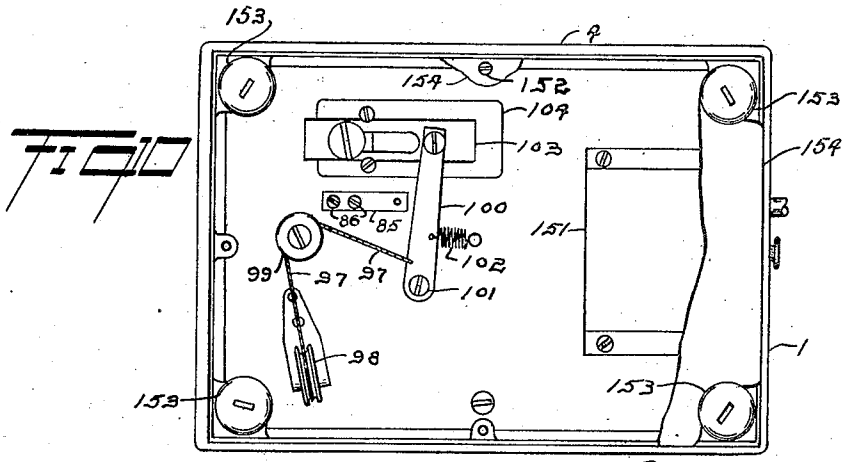


FIG. 10

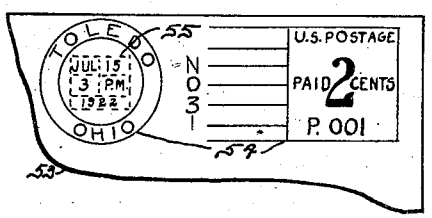


FIG. 11

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Patented July 13, 1926. 1,592,215

UNITED STATES PATENT OFFICE.

EDWARD M. McGOWAN, OF TOLEDO, OHIO, ASSIGNOR TO THE NATIONAL POSTAGE MACHINE CO., OF TOLEDO, OHIO, A CORPORATION OF OHIO.

PREPAYMENT METER.

Application filed September 8, 1922. Serial No. 587,003.

This invention relates to predetermined operation meters of the marking type.

This invention has utility in prepayment postage marking meters.

Referring to the drawings:—

Fig. 1 is a perspective view, showing an embodiment of the invention as a prepayment postage marking meter for letters;

Fig. 2 is an enlarged view of the device of Fig. 1, with the lid open and parts broken away;

Fig. 3 is a plan view of the device of Fig. 2, with parts broken away;

Fig. 4 is a detail view of the one way drive or clutch connection between the main drive shaft and the setting device;

Fig. 5 is a fragmentary perspective view showing the withdrawal of the inker and partial withdrawal of the marker;

Fig. 6 is an end elevation of the actuating end of the device, parts being broken away;

Fig. 7 is a perspective view of the marker mounting;

Fig. 8 is a detail view, in perspective, showing the manner of removal of the date portion of the marker;

Fig. 9 is an end elevation, with parts broken away, of the inking end of the machine, that is, the remote end of the machine from the showing in Fig. 6;

Fig. 10 is a bottom plan view, with parts of the bottom plate removed;

Fig. 11 is a view of an envelope, parts being broken away, showing the marking as effected by the machine of this disclosure; and

Fig. 12 is a partial section on the line XII—XII, Fig. 2.

A main frame or housing 1, is herein shown as having on the inner bottom side thereof an inwardly extending ear 2 (Fig. 3) to be engaged by machine screw 3 extending downwardly to thereby anchor this upstanding housing portion 1 to a base 4. Inside this main housing 1, the base 4 is shown as having connected therewith, machine screws 5 for anchoring therewith a main frame base 6 upstanding to carry bearings 7, 8, for main drive or rock shaft 9 having one end protruding from the housing 1, which protruding end is of key form 10 to carry an arm 11. This arm or crank 11 is shown as having a handle 12 connected by screw 13 to the arm 11 for serving as an actuator for the main drive or rock shaft.

Inside this main housing 1 there is shown as fixedly mounted on this main drive or rock shaft 9, collar portion 14 (Figs. 3, 6) carrying a ratchet portion 15. Fast with this shaft 9 and collar 14 is radially extending arm 16 having a roller 17 which in the rocking of the arm 11, may come against pawl tail portion 18 to unseat out of the ratchet 15, portion 19 of the pawl, fulcrumed on pin 20. Loosely mounted on this main or rock shaft 9 adjacent the ratchet 15, is collar 21 having a radially extending arm 22 providing a bearing for fulcrum 20. This radially extending arm 22 extends outward to block 23 and is anchored against rotation from the shaft 9 by arm 24 extending down for engagement with the main base 6. The pawl 18, 19, adjacent this fulcrum 20 has toothed portion 25 to be engaged by wedge shaped plunger 26 as slidable in the block or guide 23 and normally thrust outward by spring 27 to hold the pawl 18, 19, in thrown position as directed by the roller 17. The handle 12 accordingly must be pulled forward and downward and will not recover as long as the pawl portion 18 rides against the ratchet 15.

Radially extending and fast to this shaft 9 is an additional arm 28 to which is connected tension helical spring 29 extending to anchor 30 with the base 4. Accordingly this spring 29 in each pull down of the actuator arm 11 places this spring 29 under tension so that as the pawl 19 is released from the ratchet 15 and the handle 11 is allowed to recover freely, such handle has its recover effected by this spring 29. There must be first a release of this arm 11 to permit it to move upward. Arm 31 rigid with the shaft 9 carries a roller 32 engaging portion 19 of the pawl 18, 19, on the latter portion of the downward pull of the handle 12, to throw this portion 19 into engagement with the ratchet 15, to preclude partial recover and then again down stroke. Accordingly the handle may have only full recover stroke and this is automatically effected by the spring 29. As the recover stroke is completed, the portion 18 of the pawl is rocked into the ratchet 15 to again be yieldably held by the plunger 25. There is accordingly provided in this simple device a full stroke in either direction for the arm 11 operating this rock shaft 9. This full stroke device is accordingly effected in

that the pull of the handle 12 forward operates the arm 11 and shaft 9 to such an extent that the arm 31 fixed on the shaft 9, not only moves up on the pawl 19 to throw such into the ratchet 15, but in so doing swings the collar 14 such distance around that the pawl 19 is clear of the ratchet 15, and is held in such position by plunger 26 engaging the toothed portion 25 of this pawl. Upon the release of the handle 12, the spring 29 is thus free to rock the arm 11, shaft 9 and collar 14 with ratchet 15 in the recover direction to such extent that arm 16 fast with the shaft 9 brings roller 17 against pawl portion 18 to swing the pawl portion 18 against the ratchet 15 and thus hold the shaft 9 against further recover stroke direction travel. The device is now in position for a repetition of the pull stroke operation. Escapement for this direction of travel is permitted as to the ratchet 15 pulling from under the pawl portion 18. As the roller 17 leaves this pawl portion 18, and thereafter, the roller 32 on the arm 31 may again come into play for rocking the pawl 19 into the ratchet 15 as the pawl portion 18 is thrown clear thereof.

The end of the shaft 9 remote from the handle 11 and held by the housing 1 is shown as carrying an arc face crank 33 (Figs. 3, 9) having on the lower portion thereof, a machine screw 34 anchoring an upwardly extending metal strap 35 connected by a screw 36 to flat side 37 of plunger 38 upwardly and downwardly reciprocable in a guide 39 fixedly carried by split collar 40 adjusted by clamp screw 41. This collar 40 is integral with the main frame 6 and is carried adjacent the bearing 8 and therebelow. This plunger 38 has its lower portion carry rigidly therewith a head 42 from which downwardly extend springs 43 as guided by screws 44 to connect therewith a lower or main head 45 having inwardly extending tongues 46 on the sides thereof to coact with guides or ways 47 in the marking member proper 48 which, on its lower side, has an embossed section 49. Within the area of this embossed section 49 there is independently removable sections 50 which seat in an opening 51, there to be anchored by staple 52. In marking a piece of mail, as envelope 53, the main embossed portion 49 may be the standard imprint portion 54 on the envelope 53 for station, permit number, and meter number, while the removable sections 50 may print the date as outlined by section lines 55 within the portion printing the station or town.

The clamp collar 40 carries diametrically of the plunger 38, trunnion extensions 56 having on the outer ends thereof forwardly extending arm or link portions 57 carrying downwardly directed cylinders 58 carrying brackets 59 having links 60 connected to cylinders 61 provided with pistons 62 extending one to each end of a roller 63 normally held by these extensible sections in engagement with inking pad or inker 64 mounted with a guide 65, carried by marking head 45. In the down travel of the plunger 38, these sets of extension links cause this inking roller 63 to roll down over the inker 64 and the guide 65, across the embossed or marking sections 49, 50, to come into seating relation with spring arms or stops 66, 67, carried by the main head 45. Engagement with slot 68 of the inker 64 may be had by way of opening 69 (Figs. 1, 5) in the housing 1 for withdrawing the ink pad or inker for reinking. This upwardly inclined opening 69 is connected to horizontal opening 70 which latter permits withdrawing the printing head 48 as limited by pin 70′ slidable in slot 70″ (Fig. 7).

The main housing 1 above the openings 69, 70, for access to the printing block, carries a pivot pin 71 for a plate or closure 72 having a handle 73 which may be readily operated to swing this plate 72 in closing the slot 69, 70.

Below this slot 70, there is normally protruding a small handle 74, which may be engaged for withdrawing from opening 75 of the main housing 1, a seat or mail matter guide 76 having along the back or rear side thereof upstanding portion 77 coacting in outward travel from the main housing 1 with guide 78, while the opposing portion of this seat 76 is held by overhang 79. Accordingly, in thrusting an envelope or mail matter through opening 80 continuous with the slot 75 but on the adjacent side of the housing 1 therefrom, this holding way 79, in its action with the guide 76 as to the way 78, is not in place for interference. This guide 76 adjacent the upstanding portion 77 is shown as provided with a groove 81, which will preclude matter entering or interfering with the full placing of the envelope in the seat for marking.

This mail matter guide or seat 76 is shown as having on the under side thereof, a pair of countersunk portions 82, 83, (Fig. 2) which may be engaged by pin 84 as actuated by spring 85 as held in anchored position by screws 86 in plate 4. These countersunk portions 82, 83, are positioned for holding the seat 76 in its limit positions outward and inward of the main housing 1.

A device for automatic discharge of the mail matter after marking is provided herein. Integral with the main frame 6 and extending outward from the bearing 8 is a bracket portion 87 (Figs. 3, 9) carrying a pivot pin 88 for an arm 89 having at its free end a fulcrum pin 90 for a pawl or dog 91, normally held in aligned position with the arm 89 by means of spring 92 holding an after end 93 of this pawl 91 in engagement

with this arm 89. The fixed guide 39 for the plunger 38 is shown as provided with a slot 94 through which may extend a pin 95 for mounting fixed with this plunger 38, a roller 96. In the operation of the shaft 9 for forcing the arm 11 forward and downwardly, the roller 95 strikes the pawl 91 and rocks the pawl against the resistance of the spring 92 and goes therebelow. Upon the release of the crank 11 such is automatically recovered by the action of spring 29 and in this up stroke, the roller 95 bumps against the under side of the pawl 91 and pulls this pawl together with the arm 89 upward. Connected to this fulcrum pin 90 of the arm 89, 91, is a flexible connection or cord 97 about guide rollers 98, 99, (Fig. 10) mounted on the base 4 to connect with lever 100 as mounted by fulcrum pin 101 upon the base 4. This pulling of the lever 101 is against the resistance of spring 102. This lever 100 is connected to slide plate 103 in guide 104 in the base 4. Upstanding from this reciprocable member 103 as actuated by the lever 100, is a finger or stop 105 (Fig. 2) which in the idle or recover action of the handle 11, 12, moves in cut out portion 106 of the guide 76 and thereby in a quick movement discharges or ejects the stamped matter from the housing 1.

A down counter is provided for limiting the number of actuations of the actuator 11 by pre-selecting said number and thus operating therefrom to zero. To this end there is mounted on the operating shaft 9, by means of a one way clutch device, a collar 107 to give an intermittent or step by step forward motion in counter clockwise direction to actuate the gear 108 fast with said collar 107 as the handle 12 is oscillated. This gear 108 is in mesh with gear 109 having fast therewith a one toothed gear 110. Fixed with this gear 109 and the single toothed gear 110, is a unit counter or indicator 111 carried by support 112 parallel to the shaft 9. This support 112 is mounted in bearings 113, 114, extending forwardly from the bearings 7 and 8 of the base 6. The single toothed gear 110 is in mesh with ten tooth star wheel 115 adjacent the gear 108 but relatively independent therefrom. This star wheel 115 is rigid with sleeve 116 and a second gear 108. This second gear 108 is in mesh with a second gear wheel 109 parallel to the first gear 109. This second gear 109 has a second single toothed gear 110 fixed therewith as well as a tens indicator 117 parallel with the indicator 111. In similar manner, consecutively provided between the support 112 and the actuator shaft 9 is successive ten to one speed reduction for hundreds indicator 118 and thousands indicator 119. Spaced between the units, tens, hundreds, thousands indicators, together with their gears 109 are collars 120 fast on the support 112. Each of these collars 120 has a slot or recess 121 which as grouped are aligned for the respective collars. In each of these slots or recesses 121 are disposed rollers 122 anchored with bar 123 guided by the support 112 which has a slot 124 therein. This bar 123 has downwardly projecting arm 125 to which may be connected a helical spring 126, the opposite end of which spring 126 is connected to downwardly extending arm 127 (Fig. 2) fast with collar 120 closest to the bearing or bracket 113. Accordingly, this spring 126 is effective normally to urge the bar 123 away from the bracket 113 and to or through the bracket 114 to have the projecting end of this bar 123 pass through a guide way 128 in the plunger guide 39 to engage recess 129 in the plunger 38 to lock the plunger 38 against reciprocation.

This movement of the bar 123 to effect locking of the plunger can only occur when the zero positions of the indicators of the down counter are all in alignment to receive the respective rollers 122 in recesses 130 (Fig. 12) of the respective counters 111, 117, 118, 119. There is accordingly effected by this bar 123 a simultaneous locking of each of the four or as many counters as may be provided.

In setting this prepayment meter it is only necessary to withdraw this locking bar 123 which is accomplished by pulling to the right upwardly extending arm 131 to overcome the action of the spring 126 and thereby withdraw the end of this lock bar 123 from the plunger 38 as well as from the respective recesses 130 of the counters. This handle 131 is held in this withdrawn position while the knurled roller or collar 107 is shifted one position to thus effect a resetting of the down counter to 9999 and the device is then in position for reoperation through the entire stage of the count for this amount say at two cents for each count, if the machine is to be used for two cent stamped prepayment of United States postage.

With the down counting meter thus set, it is only necessary to close the housing. To this end, there is provided screws 132 for brackets 133 carrying hinge pin 134 therebetween to mount with the brackets 133 eyelets 135 of the closure 136 as a cover for the main housing 1 to have a flange 137 (Fig. 2) on this cover 136 enter the opening 138 of the housing 1 to provide a tight fit against prying loose of this closure 136 of the housing 1. This closure 136 is shown as having latch receiving seat 139 for lock 140 which lock 140 may have bolt throw by means of a key 141 Fig. 2. As supplemental holding or sealing means for this device, there may be provided a link 142 swingable from below the lock 140 to cover

the key hole and come into position against eye 143 of the closure 136, there to be engaged by seal 144 which may be placed thereon by the postmaster or the postal official when the counter reset and prepayment for the postage is made.

The housing as thus locked and closed may be easily transported from place to place by carrying handle 145.

In addition to the down counter or prepayment meter, there is provided a summation or totaling counter. Rigid with the arm 28 as actuated from the main shaft 9 is a supplemental arm 146 having link 147 extending to meter 148 of cyclometer of Veeder type, disposed rigidly in the housing 1 for viewing through window 149. This up-counter operates upward from zero.

A check of the condition of the down counting meter is always available through window 150 of the closure 136. This closure 136 brings the window 150 into such close position that even were the glass to be broken there would not be access for in any wise tampering with the counters or the lock features of the structure. The zero points as viewed through the windows 150 are angularly disposed downwardly from the seat portion as brought into alignment with lock bar 123.

In the base 1 there is provided a drawer 151 which may house additional date type to replace the type sections 50 in opening 51, with the changes of time and date.

This housing as closed is one that may not be open to attack for the assembly screws are all interior of the housing 1 and base 4. Tampering with the ejector does not effect the down counter. However, by means of screws 152 and cushioned leg screws 153, housing plate 154 may conceal the mechanism below the base 4.

What is claimed and it is desired to secure by Letters Patent is:—

1. In a marking device, a housing therefor provided with an opening for the introduction of matter to be marked, a device actuator to effect operation of the device for marking the matter, a counter in the housing operable by the actuator, a lock for the device controlled by the counter, said housing being provided with a closure unit for rendering the device, counter and lock inaccessible for tampering, said unit in open position permitting disconnection of the lock from the marking device and counter, a housing closure lock, a key for the lock, and a seal mountable to shield the lock against key operation of the lock.

2. In a marking device, a housing therefor, an acutator for the device, full stroke mechanism for the actuator embodying a one way rotating shaft, a ratchet carried by said shaft, a holding pawl, and arms movable with the actuator to shift the pawl.

3. In a marking device, a marker carried by the device embodying sections, a housing therefor, a lock for the housing, said housing being provided with an opening through which access may be gained to the marker independently of the lock and means giving access to the marker sections.

4. In a marking device, a marker carried by the device embodying sections, a housing for the marker and sections, a lock for the housing, said housing being provided with an opening so access may be gained to the marker sections, a guide for the partial removal of the marker sections to permit changing of the marker sections, and means for holding the marker sections assembled.

5. In a marking device including an inker, a housing for the device and inker, a counter in the housing, a lock affected by the counter for controlling a determined number of operations for the device, a lock for the housing, and means permitting access to the inker independently of disturbing the housing lock and the counter.

6. In a marking device including a plunger, a housing therefor, a lock for the housing, an actuator for the plunger, a counter, and a lock operated by a determined position of the counter directly to engage the plunger.

7. In a marking device including a plunger, a rock shaft, an arc crank carried by the shaft, a strap between the arc crank and plunger for straight line pull on the plunger, and a full stroke actuator for the rock shaft.

8. In a marking device for independent pieces of matter, a housing therefor, a reciprocating actuator on one stroke effective for operating the device to mark pieces of said matter, and a matter carrying ejector connected to directly engage said marked matter independently of a succeeding piece of matter, said ejector being connected to be operated by the actuator on its return stroke.

9. A marking device embodying a housing provided with an opening for matter to be marked, a seat, and ways permitting partial withdrawing of the seat from the housing to permit said seat to serve as a guide for the matter to be marked.

10. In a marking device embodying up and down counters, an actuator, connections therefrom for operating said counters, said device embodying a plunger, a rock shaft connected to the plunger, and a guide parallel to the rock shaft for mounting the down counter.

11. In a marking device embodying up and down counters, an actuator for the device, connections from the actuator for operating the counters, said device embodying a plunger, a rock shaft connected to the plunger, a guide parallel to the rock shaft for mounting the down counter, and a lock for the plunger carried by the guide.

12. In a marking device embodying up and down counters, an actuator for the device, connections from the actuator for operating the counters, said device embodying a plunger, a rock shaft connected to the plunger, a guide parallel to the rock shaft for mounting the down counter, and a lock for the down counter carried by the guide.

13. In a marking device embodying up and down counters, an actuator for the device, connections from the actuator for operating the counters, said device embodying a plunger, a rock shaft connected to the plunger, a guide to intercept the plunger, said guide being parallel to the rock shaft for mounting the down counter, and a down counter and plunger locking bar carried by the guide.

14. In a marking device including a multi-tumbler down counter, a guide support for the down counter tumblers, said tumblers having zero seats to be brought into alignment, a bar carried by the guide, and means normally actuating the bar to enter said zero seats for locking the counter with the support.

15. In a marking device including a plunger, a multi-tumbler down counter, a guide support for the down counter tumblers, said tumblers having zero seats to be brought into alignment, a bar carried by the guide, and means normally actuating the bar to enter said zero seats for locking the counter with the support and said plunger.

16. A housing and therein a marking device, a down counting meter restricting total operation of the device, an up counter for disclosing the extent of the use of the meter, and a reset for the meter independent of the device operation, said housing in closed position rendering said marking device, counter devices, meter and reset inaccessible.

In witness whereof I affix my signature.

EDWARD M. McGOWAN.