

Nov. 12, 1935.

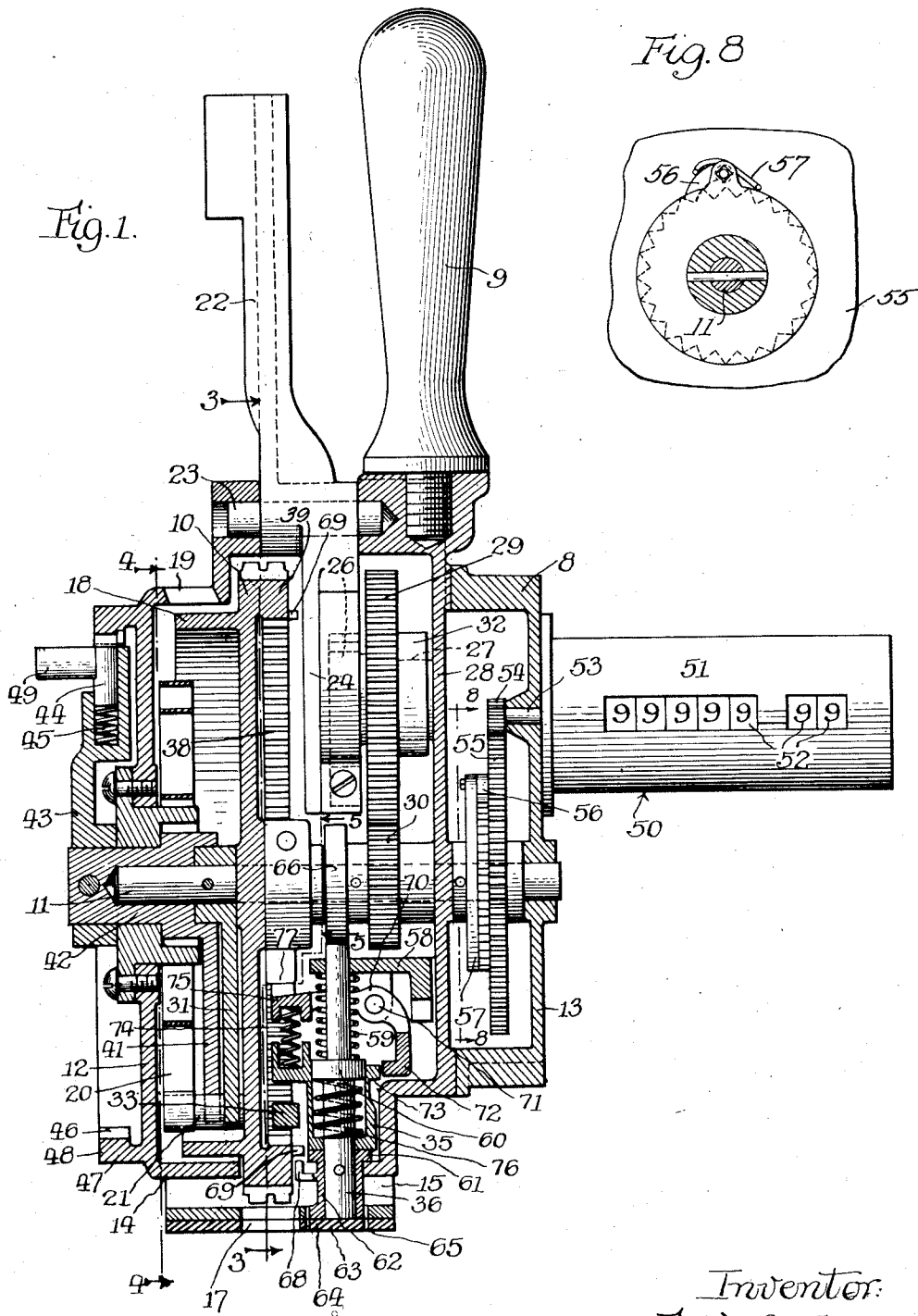
E. W. ANDREWS

2,020,493

POSTAGE METER

Filed Oct. 23, 1930

3 Sheets-Sheet 1



Inventor:
E. W. Andrews,
By *Clint L. Parker* *bar* *son*.
Attys.

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3 Sheets-Sheet 2

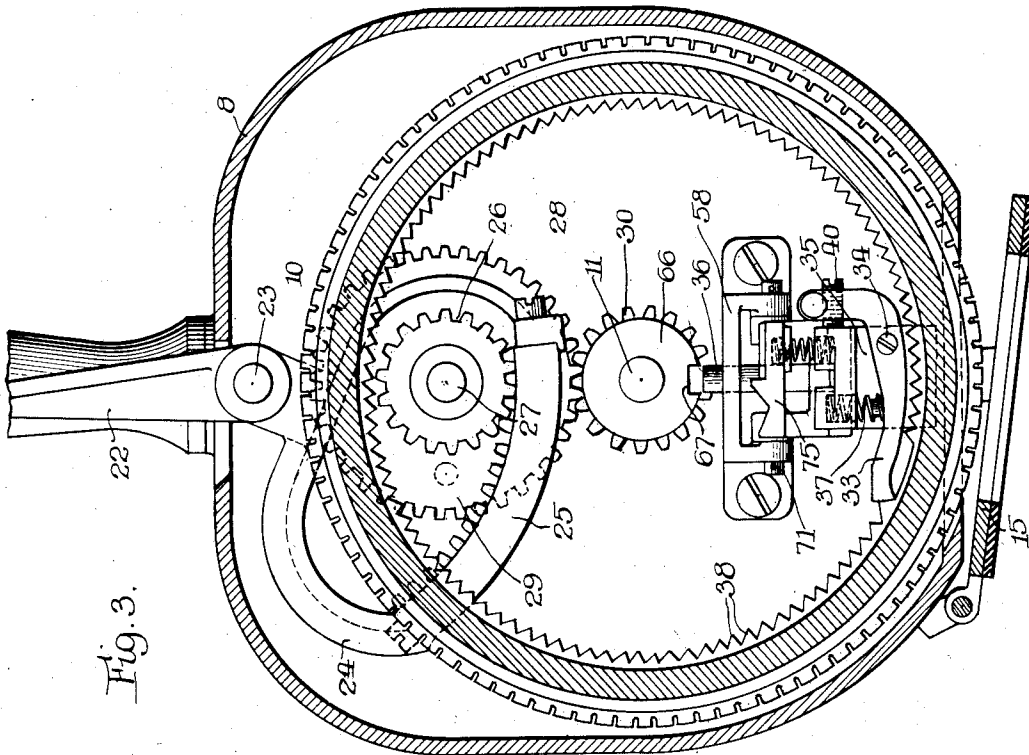


Fig. 3.

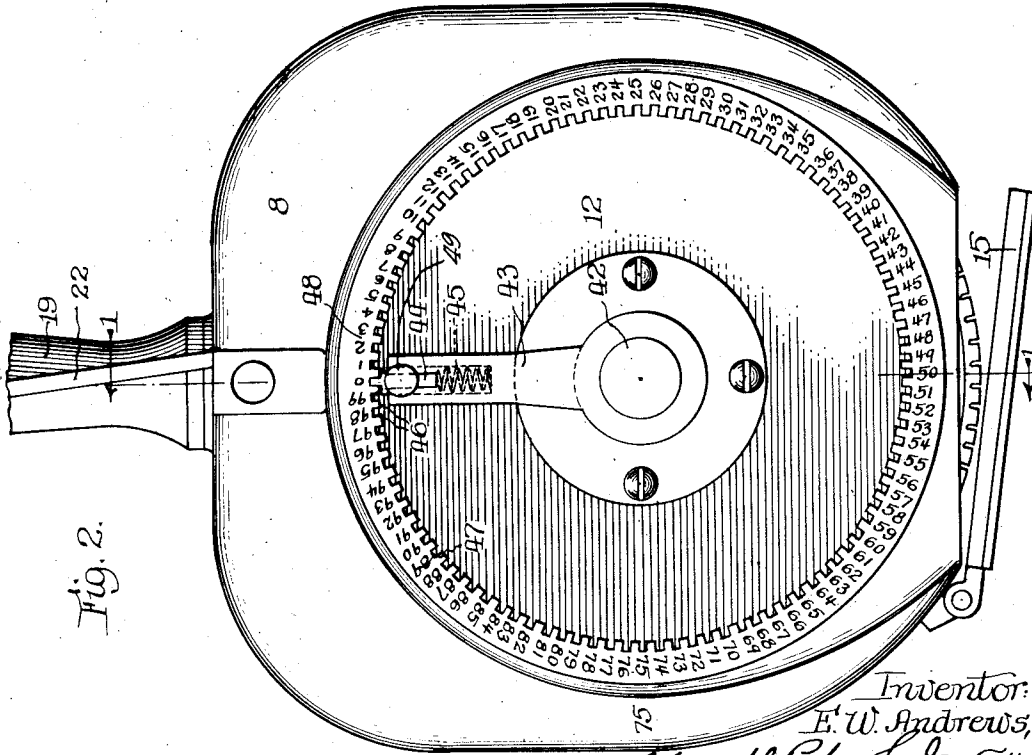


Fig. 2.

Inventor:
E. W. Andrews,
By *Chindall Parker, Esq.* Attys.

UNITED STATES PATENT OFFICE

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POSTAGE METER

Edward W. Andrews, Chicago, Ill.

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16 Claims. (Cl. 101—95)

This invention relates to postage meters for printing on packages numerals representing the amounts of postage required for mailing such packages, at the same time keeping a record of the sum of such amounts.

The general object is to provide a device of the above character constructed to insure against fraud in its use such as might be occasioned if it were possible to print amounts of postage in duplicate upon different packages, or otherwise falsely manipulate the device so as to print an amount without previously and properly registering the same.

This object is carried out in part by arranging for the setting of a movable type-carrier in printing position and simultaneously registering the amount to be printed by movement of an actuating member a corresponding distance away from a neutral or non-printing position, which member must, after each setting, be returned to neutral position before the numeral for which the carrier is set can be printed.

The above object is also attained through the provision of a novel interlock between the type-carrier and the actuating member which requires complete restoration of the type-carrier to zero position following one printing operation before another setting of the type-carrier and printing of a numeral can be effected.

Another object is to provide a novel mechanism for enabling the movable type-carrier to be set and accurately maintained in any one of a relatively large number of different printing positions.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which,

Figure 1 is a vertical sectional view of a postage meter embodying the features of the present invention, the section being taken along the line 1—1 of Fig. 2.

Fig. 2 is an elevational view looking from the left in Fig. 1.

Figs. 3, 4 and 5 are sectional views taken respectively along the lines 3—3, 4—4 and 5—5 of Fig. 1.

Fig. 6 is an under side view of the stamp.

Fig. 7 shows the inking pad to be employed.

Fig. 8 is a sectional view taken along the line 8—8 of Fig. 1.

In the exemplary form shown in the drawings, the invention is embodied in a hand stamp of the portable type, the major operating parts of which are housed within a casing 8 and thereby

rendered inaccessible to the operator. Upstanding from and rigid with the top casing wall is a handle 9 by which the stamp may be lifted bodily and pressed against a package on which a numeral is to be printed.

The type for printing different amounts of postage, preferably numerals from 1 to 99, are uniformly spaced around the periphery of a wheel 10 supported within the casing 8 but free to turn on a horizontal shaft 11 journaled at opposite ends in the end walls 12 and 13 of the casing. The lower segmental portion of the wheel projects through an opening in the base 14 of the casing and is normally rendered inaccessible for numeral printing by a vertically movable plate 15 hinged to the casing for movement toward and away from the under side of the base 14. A spring 16 urges the plate downwardly. As the plate is swung upwardly into the position shown in Fig. 4, the type, which then occupies the lowermost or printing position, is exposed through an opening 17 in the plate and thus allowed to come in contact with the surface on which the postage numeral is to be printed. The type, which at any time is in printing position, may be ascertained from a scale on the external surface of a flange 18 of the type-wheel and visible through a window 19 in the upper casing wall.

The under side of the plate 15 may bear type for printing the date, city of origin, or other matter to be printed along with the postage numeral.

Normally, that is after each printing operation, the type-wheel 10 is urged in a counter-clockwise direction as viewed in Fig. 4 and retained in zero position by a spring 20 spirally wound around the shaft 11 with its inner end anchored to the casing wall 12 and its other end attached to a pin 21 projecting from the type-wheel parallel to the axis thereof. In this position of the type-wheel, there will be a blank type in printing position so that no numeral will be printed in the event that the device is pressed against a package surface.

The extent of movement of the type-wheel in a clockwise direction out of zero position determines which of the numeral type will be brought into printing position. Such movement of the type-wheel is effected by an actuating member having a one-way connection with the type-wheel permitting the member to be returned to neutral or inactive position after setting the wheel and prior to the printing operation. Herein the actuating member is in the form of a lever 22 having trunnions 23 intermediate its ends journaled in the upper casing wall so that the outwardly

projecting end of the lever extends alongside of the handle 9 for convenient manipulation by the operator's hand while grasping the handle 9.

Rigid with the inner end of the lever is a yoke 24 supporting a curved rack bar 25 which meshes with the under side of a pinion 26 on a stud 27 supported by a partition 23 of the casing. The pinion 26 is rigid with a gear 29 which meshes with a gear 28 fast on the shaft 11. On the opposite side of the type wheel 10, the shaft 11 carries a rigid arm 31 which, when the actuating lever is in neutral position, is positioned as shown in Fig. 4 and acts through medium of the pin 21 to provide a stop defining the zero position of the type-wheel. When the lever 22 is moved out of neutral position, the arm 31 carries the pin along with it thereby advancing the type-wheel in a clockwise direction against the action of the spring 20. By reason of the one-way connection between the arm 31 and the pin 21, the lever 22 and the gearing of the type-wheel setting mechanism are free to move reversely to inactive position while the type-wheel remains in advanced or set position. Actual return of the actuating mechanism is caused by a coiled spring 32 acting on the gear 29.

To retain the type-wheel 10 in set position, a latching pawl 33 is pivoted at 34 on the side of a tubular member 35 (Fig. 1) which is guided by a vertical plunger 36 for endwise movement. In the lowermost position of the member 35, the pawl is urged by a spring 37 in a direction to cause its free end to drop in behind shoulders 38 on a flange 39 of the type-wheel as the latter is advanced by actuation of the lever 22. Each shoulder corresponds to one of the type on the wheel so that when any shoulder is blocked by the pawl, the corresponding type will be in printing position. As the member 35 is raised, as will later be described, an adjustable stop 40 limits the downward swing of the latch by the spring 37 so that the latch will be carried out of engagement with the blocked shoulder, thereby permitting restoration of the type-wheel to zero position in so far as the control by the latch 33 is concerned.

The stop 40 is threaded into the upper end of the tail of the pawl 33 and abuts against the tubular member 35 thereby adjustably limiting the counter-clockwise rotation of the pawl by the spring 37 when the pawl is raised bodily by the upward movement of the member 35.

The extent of the movement of the lever 22 to bring the selected type into printing position is determined by the operator in advance of the lever movement. This is accomplished through the medium of an adjustable stop arranged to be set in different positions corresponding to each number which can be printed. In the present instance, this stop is in the form of an arm 41 rigid with a sleeve 42 which constitutes the bearing for one end of the shaft 11 and projects through the casing wall 12. Outside of the casing, the sleeve 42 carries a rigid arm 43 in which is seated a radially movable detent 44 urged outwardly by a spring 45 into notches 46 arranged around the internal periphery of an annular flange 47. The notches are numbered on a scale 48 to correspond to the different type on the wheel 10 and the detent 44 is arranged to be withdrawn by retraction of a handle 49 so that by swinging the arm 43 to the proper notch and releasing the handle, the adjustable stop 41 will be positioned to limit the movement of the lever 22 to a position for bringing the selected type into printing position.

Since the extent of movement of the type-wheel 10 away from zero position determines the numeral to be printed, the sum of such movements represents the total amount of postage received by the postal clerk or required to be paid for any number of packages. To register this sum, a counter in the form of a well known dial counter 50 is employed, being enclosed within a housing 51 which is mounted on and projects outwardly from the casing wall 13. The counter has the usual units, tens, etc. dials 52 visible through windows in the housing and arranged to be driven from a shaft 53. The latter carries a pinion 54 driven by a gear 55 loose on the shaft 11 adjacent the casing wall 13. The gears 54 and 55 are so proportioned that the units dial will be advanced through one revolution for each advance of the type-wheel 10 by ten units. Only the movements of the type-wheel away from zero position are accumulated, this being accomplished through a pawl 56 pivoted on a disk 57 fast on the shaft 11 and engaging ratchet teeth on an annular surface of the gear 55.

Means is provided for preventing printing of the numeral for which the type-wheel is set until the actuating mechanism including the lever 22 has returned to neutral position. This means includes the plunger 36 which extends through the latch-supporting member 35 for movement independent thereof and is guided at its upper end in a bracket 58 projecting from the partition 28. A spring 59 acting between the bracket and a flange 60 on the plunger urges the latter downwardly into a limiting position in which the inner surface of the casing base 14 engages a shoulder 61 on a sleeve 62 which projects through said base and is rigid with the lower end of the plunger. Beneath the casing, the sleeve 62 carries a foot 63 whose lower surface bears letter type to print words such as "parcel post" and also a projection 64 to print an arrow pointing to the proper one of the several type numerals which may be printed in one operation of the stamping device. The foot 63 projects into an opening 65 in the plate 15 so as to come into contact with the package surface. When the plunger 36 projects to the extent permitted by the shoulder 61 on the sleeve 62, the foot 63 is positioned below the periphery of the type wheel 10 and thus prevents contact of the type wheel with the surface to be imprinted unless the plunger 36 is free to move upwardly.

To lock the plunger in such position until the lever 22 has been restored to neutral position, a circular disk 66 is made fast on the shaft 11 and its peripheral surface is formed with a notch 67 positioned to receive the upper end of the plunger and permit the latter to rise when the lever 22 is in neutral position. In all other positions of the lever, the plunger is blocked by the circular surface of the locking disk.

From the foregoing, it will be apparent that when the plunger 36 is raised as the device is depressed against the package surface the shoulder 61 will raise the member 35 and thereby carry the latch 33 out of engagement with the shoulder 38. Therefore, to prevent movement of the type-wheel until the numeral for which it is set has been printed, a pointed lug 68 is formed on the sleeve 62 in position to enter one of a series of peripheral notches 69 on the type-wheel prior to disengagement of the latch 33.

To insure actuation of the counter 50 to register the amounts corresponding to each numeral printed, means is provided for preventing re-

engagement of the latch 33 with the type-wheel until the latter has returned to zero position after a printing operation. This means includes a latch 70 pivoted at 71 on the bracket 58 and having a depending arm 72 arranged to move in behind a shoulder 73 on the member 35 under the action of a spring 74 acting upwardly on a horizontal arm 75 of the latch. When the latch is thus engaged, the member 35 is held in elevated position with the latch 33 out of engaging relation with respect to the shoulders 38. It will be noted that the plunger is free to move downwardly independently of the member 35 as the stamp as a whole is raised from the package surface. Therefore, a spring 76 which is weaker than the spring 59 encircles the plunger below the flange 60 and tends to lower the member 35.

Release of the latch 70 is effected by a cam lug 77 (Figs. 1 and 5) formed on the type-wheel hub in position to engage and depress the horizontal arm 75 of the latch just as the type-wheel reaches zero position.

The device above described operates as follows, assuming, for example, that the numeral 66 is to be printed on the package to be mailed. The operator first swings the setting arm 43 to the notch 46 which is numbered 66 on the scale 48 and allows the detent 44 to enter said notch. The lever 22 is then swung out of neutral position until its motion is arrested by the stop 41 engaging the pin 21, the type-wheel being thereby advanced to bring the numeral 66 into printing position opposite the indicator lug 64 on the foot 63. At the same time the shaft 53 of the counter 50 is moved a distance corresponding to the type-wheel movement which increases the counter reading by 66 units.

Next the operator allows the lever 22 to return to neutral position under the action of the spring 32, the type-wheel being retained in its set position by the latch 33. The counter is unaffected by this return movement by reason of the one-way drive provided by the pawl 56 and cooperating ratchet. The type for the numeral 66 and the other type, carried on the lower surface of the plate 15 and the foot 63, are inked by placing the stamp on a specially constructed pad (Fig. 7) having an upstanding portion 78 which enters the aperture 17 in the plate 15 and thereby inks the type-wheel.

Printing of the numeral on the postal package is then effected simply by pressing the stamp against the package surface. In this operation, the plunger 36 and therefore the foot 63 are allowed to move upwardly by entry of the plunger in the notch 67 of the locking disk and the type-wheel is held in a set position by entry of the lug 68 into a notch 69. As the plate 15 reaches its limiting position (Fig. 4), the type-wheel comes in contact with the package surface thereby printing the numeral 66 in proper position relative to the other matter printed by the plate 15 and the foot 63.

As the stamp is lifted from the package, the spring 59 moves the plunger 36 downwardly withdrawing the locking lug 68 thereby freeing the type wheel for movement back to zero position and also removing the upper end of the plunger from the notch 67 thereby freeing the actuating mechanism.

As the type-wheel approaches zero position, the cam lobe 77 engages the arm 75 withdrawing the latch 70 and permitting the member 35 to be moved downwardly by the spring 76 thereby conditioning the latch 33 for engagement with the

shoulders 38. In the event that an operator, seeking to use the device fraudulently, moves the lever 22 quickly out of neutral position during the interval between the unlocking of the disk 66 and the complete restoration of the type-wheel to zero position, the type-wheel would be caught short of its zero position without having actuated the counter a corresponding amount. But the numeral for which the type-wheel is thus set could not be printed for the following reason. Under these conditions the latch 33 will be held ineffective since the type-wheel has not returned to zero so that the setting of the type-wheel could be maintained by the operator only by continuing to hold the lever 22. With the latter thus out of zero position, the locking disk 66 would prevent the plunger from rising thereby necessitating restoration of the type-wheel to zero and setting of the same in the regular way before another number can be printed.

The printing of numbers in duplicate without proper registration of both is effectually prevented by rendering the plunger inaccessible while the stamp is depressed against the package surface. Thus, the plate 15 encloses the foot 63 so that it would be impossible for the operator to hold the plunger raised following the printing of a numeral. With the aid of a sharp tool inserted between the plate 15 and the package surface, the operator might gain access to the foot 63 but this would necessarily smear the ink on the package thereby indicating an attempt to use the stamp fraudulently.

I claim as my invention:

1. In a device of the character described, a revoluble type-wheel, actuating means for moving said type-wheel varying distances away from zero position, a stop adjustable to a plurality of different positions corresponding to the type on said wheel and acting to limit the movement of said wheel by said actuating means, means for latching the wheel in set position to permit said actuating means to return to inactive position, and means operable as an incident to printing by the selected type to insure the restoration of said wheel to zero position before another numeral can be printed.

2. In a device of the character described, the combination of a casing, a revoluble type-wheel within said casing having a portion of its type-carrying surface exposed, actuating mechanism for rotating said type-wheel away from zero or normal position including a member protruding from said casing for manual operation, an adjustable stop within said casing for determining the extent of movement of said wheel by said member, and means operable from a point exteriorly of said casing for moving said stop into varying positions corresponding to the different type on said wheel.

3. In a device of the character described having a counter-postage printing means comprising a revoluble type-wheel, actuating means for moving said type-wheel varying distances away from zero position, said actuating means operating the counter in each setting of said wheel whereby to accumulate the extent of such movements, a stop adjustable to a plurality of different positions corresponding to the type on said wheel and acting to limit the movement of said wheel by said actuating means, means for latching the wheel in set position to permit said actuating means to return to inactive position, means operable to prevent printing by the selected type until said actuating means has been restored to inac-

tive position, means operable as an incident to the printing operation to release said latching means, and means acting to prevent engagement of said latching means until said wheel has been completely returned to zero position.

4. A portable postage stamping device comprising, in combination, a casing, a type-wheel rotatably mounted therein with a portion of its periphery exposed, an actuator movable through varying distances from a normal zero position to move said type-wheel to one of a plurality of positions to print different numerals, means acting automatically to retain said type-wheel in set position, movement of said actuator away from said zero position also operating a counter, a movable plunger projecting from said casing in position to prevent the exposed surface of said wheel from contacting the surface to be printed, said plunger being movable inwardly as the device is moved toward and into contact with said surface and acting to release said retaining means, said actuator including a part movable transversely of the path of movement of said plunger and acting to limit the inward movement of the plunger while said actuator is out of its normal inactive position, a latch acting automatically to hold said retaining means in released position, and means actuated by said type-wheel to release said latch when the wheel has been returned to its zero position.

5. A device of the character described, combining an enclosing casing, a type-wheel mounted therein with a segmental portion projecting through the casing, an actuator operable from a point exteriorly of the casing having a connection with said wheel acting only in the movement of said actuator away from inactive position to rotate said wheel through varying distances to position different type thereon for printing, means acting automatically to retain said wheel in set position during the return of said actuator to inactive position, a member movably mounted on said casing and normally preventing the exposed portion of said wheel from coming in contact with the surface on which a numeral is to be printed, and means controlled by said actuator and acting to lock said member in normal position when the actuator is in active position and to unlock said member after said actuator has returned to inactive position to permit movement of said member to expose the wheel for printing.

6. In a portable postage stamping device, the combination of a frame, a type carrier mounted thereon, an actuator having a one-way connection with said carrier for moving the same through different distances away from a normal zero position, means for latching said carrier in set position during return of said actuator to inactive position, a member movable in one direction relative to said frame as an incident to the depression of the device against a package surface to print a numeral thereon, said member moving in the opposite direction relative to the frame upon withdrawal of the device, means actuated by said member during movement in said first-mentioned direction to render said latching means ineffectual, and other means rendered active in said first-mentioned movement of said member to retain the setting of said carrier until printing of the selected numeral.

7. In a device of the character described having a counter and a frame, the combination of a type carrier mounted in said frame for movement from a zero position into any one of a plurality of positions to present different type

for printing, a spring tending to return said carrier to its zero position, a latch for holding said carrier set in printing position, means for moving said carrier to a printing position, setting movement of the type-carrier actuating the counter in a manner to accumulate amounts corresponding to successive settings of the carrier, means operated by relative movement between said device and a package on which the setting of said wheel is to be printed to release said latch, and means for maintaining said carrier in its set position until printing upon the package has been completed and thereafter to release the carrier to the action of said spring upon separation of the device and the package.

8. In a device of the character described, a casing, a type-carrier therein, an actuator for advancing said carrier varying distances out of zero position to position different type for printing, said actuator having a connection with said carrier operable to actuate the same only during the movement of the actuator away from inactive position so that the actuator may return to inactive position independently of the carrier, a latch operating automatically to retain said carrier in advanced position, means operable automatically as an incident to the printing of the numeral for which said carrier is set to release said latch, and means also operating as an incident to the printing operation but prior to the release of said latch to retain said carrier in set position until printing has been completed.

9. A device of the character described comprising a frame, a type-carrier movably mounted thereon, an actuator having a one-way connection with the carrier and movable from an inactive position to advance said carrier from zero position to one of a plurality of different printing positions, a latch for retaining said carrier in set position, means operable to prevent printing by the type thus set until said actuator has been returned to said inactive position, means rendered active during the printing operation to release said latch, and means for maintaining said latch in released position until said type-carrier has returned to zero position.

10. In a device of the character described, the combination of a frame, a type-carrier movably mounted thereon, a movable actuator, means operable by said actuator to move said carrier in one direction from a zero position to one of a plurality of printing positions, means arranged to retain said carrier in said position during the return movement of said actuator, and means operable as an incident to the printing of the type for which the carrier is set to release the carrier for return to said zero position.

11. In a device of the character described, having a counter and a type-carrier, an actuating member for moving said carrier varying distances to position different type thereon for printing and for imparting corresponding advancing movements to said counter, the connection between said carrier and member being operative only in the movement of said member away from inactive position so that the member may be restored to inactive position while the carrier remains in set position, and means acting to prevent printing by the selected type until said member has been restored to inactive position.

12. A device of the character described comprising, in combination, a casing, a revoluble type-wheel enclosed in said casing with a portion protruding from said casing, an actuating member operable from a point exteriorly of the casing to

move said type-wheel to set different type for printing, means to retain said wheel in set position thereby relieving said member to return to inactive position, a control member movably mounted on said casing and normally positioned to engage the surface of a package and prevent said type-wheel from contacting said surface, and means within said casing for locking said control member in blocking position until said actuating member has been returned to inactive position and then unlocking the control member to permit movement thereof until said type-wheel contacts the package surface.

13. A device of the character described comprising, in combination, a casing, a type-wheel within said casing with a peripheral portion protruding therefrom, a plate mounted on and movable relative to said casing and having an opening through which the protruding portion of said wheel may be projected to contact the surface of a package, a control member projecting into said casing and through an opening in said plate so as to be rendered inaccessible by the latter when the type-wheel is contacting a package surface, said member being moved into the casing as the device is brought into contact with said surface, a latch within said casing for retaining said type-wheel in set position and arranged to be released upon inward movement of said member, and means rendered operative by inward movement of said member and acting to retain said type-wheel in set position during printing and after the release of said latch, said last mentioned means being rendered ineffectual when said device is withdrawn from the package surface following printing of the selected numeral.

14. A device of the character described comprising, in combination, a casing, a revoluble

type-wheel enclosed in said casing with a portion protruding from said casing, means for moving said type-wheel to set different type for printing, a latch for maintaining the wheel in set position, a type-carrying member mounted on said casing for movement relative thereto to permit said wheel to come into contact with the surface of a package, and means controlled by movement of said member relative to said casing to control the release of said latch and the return of said type-wheel to zero position.

15. A portable stamping device comprising a frame, a type-carrier mounted thereon for movement to any one of a plurality of printing positions, a spring tending to restore said carrier to a normal zero position, means for moving said carrier away from zero position to set the same for printing of a selected type, a latch for holding said carrier in set position, a control member movably mounted on said frame arranged to contact a package as the frame and type-carrier are moved toward the package, said member being thereby moved relative to the frame, and means actuated by said member to release said latch.

16. In a device of the character described having a counter, postage printing means comprising a type-carrier, means by which said carrier may be advanced varying distances away from a normal zero position to register in said counter the amount printed, said amount being determined by such advance of said carrier from zero position, and means including a latching mechanism actuated automatically as an incident to a printing operation enabling a subsequent resetting of the carrier and printing of the same or a different amount only upon registering such amount in said counter.

EDWARD W. ANDREWS.