Feb. 26, 1963 F. HEIL 3,078,791

SELECTOR FOR POSTAGE METERS

Filed March 21, 1962 3 Sheets-Sheet 1

FIG. 2

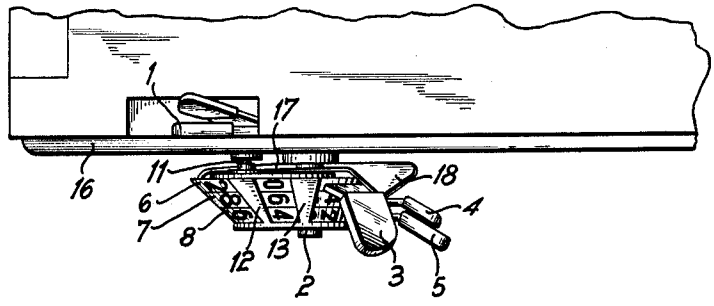


FIG. 1

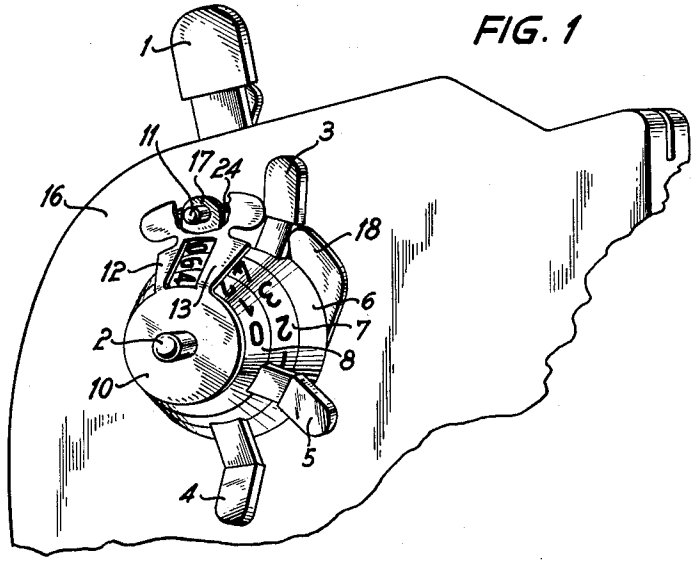
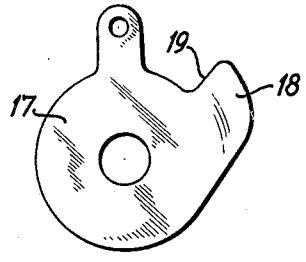


FIG. 3



INVENTOR:

Friedrich Heil

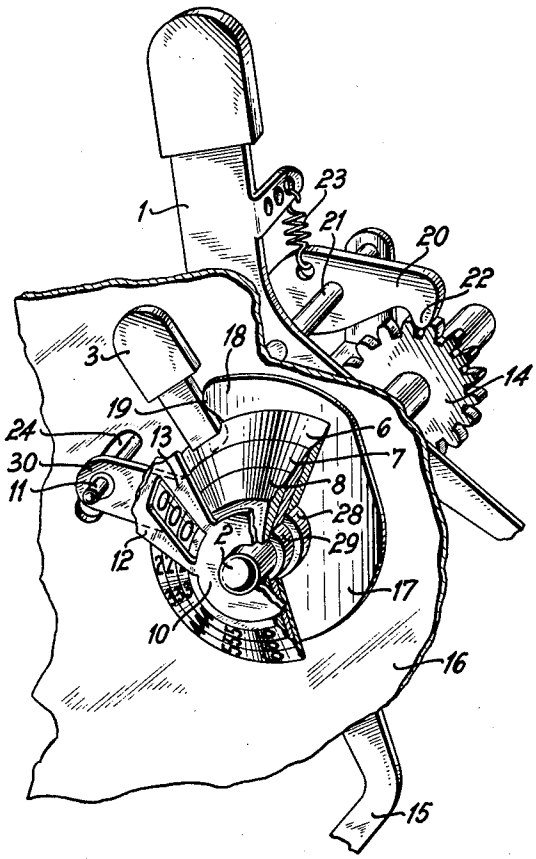
by Marvin Lahyn Atty.

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FIG. 4



INVENTOR:

Friedrich Heil

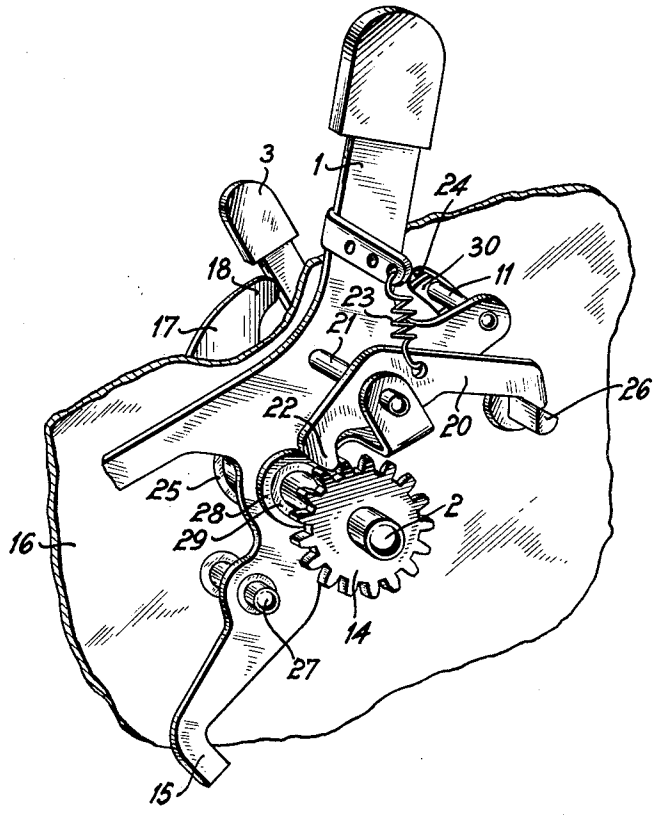
by Hyman Salzman Atty.

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SELECTOR FOR POSTAGE METERS

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FIG. 5



INVENTOR :

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by Hermann Sahm Atty.

United States Patent Office 3,078,791 Patented Feb. 26, 1963

3,078,791

SELECTOR FOR POSTAGE METERS

Friedrich Heil, Frankfurt am Main, Germany, assignor to Telefonbau und Normalzeit G.m.b.H., Frankfurt am Main, Germany

Filed Mar. 21, 1962, Ser. No. 181,339
3 Claims. (Cl. 101—110)

This invention is concerned with apparatus for printing monetary amounts, and more particularly with postage meters.

It is a general object of this invention to provide improved postage meters, or improved selector means for such meters, reducing the risk of making an error in the process of selecting a predetermined monetary amount.

It is an other object of this invention to provide improved selector means for postage meters of the kind disclosed in United States Patent 2,187,456 to Erich Komusin, January 16, 1940, Printing Apparatus, and in United States Patent 3,002,686 to Friedrich Heil and Horst Springer, October 3, 1961, Postage Meters.

The use of postage meters involves the risk of making an error when selecting a predetermined monetary amount. If, due to an error, the monetary amount selected and printed upon a letter, or other mail, is too high, this may result in complications and, if the particular letter, or other mail, is being posted, any excess amount printed thereon is a total loss to the user of the postage meter.

It is, therefore, another object of this invention to provide postage meters having means tending to protect users thereof against erroneous overpayments and consequent monetary losses.

Another object of this invention is to provide novel and useful interlocks for the highest digit selecting means of postage meters.

Other objects and advantages of the invention will, in part, be obvious and in part appear hereinafter.

For a more complete understanding of the invention reference may be had to the following detailed description thereof taken in connection with the accompanying drawings, in which:

FIG. 1 is an isometric front view of a mechanism embodying the invention;

FIG. 2 is a top-plan view of the structure shown in FIG. 1;

FIG. 3 is a front view of an element or single part of the structure of FIGS. 1 and 2;

FIG. 4 is an isometric view of the same structure as shown in FIG. 1 its constituent parts being shown in another position than that shown in FIG. 1, and some of its constituent parts being broken away to expose other parts thereof, and

FIG. 5 is an isometric view of the structure illustrated in FIG. 4 seen from the rear of that structure rather than from the front thereof.

Referring now to the drawings, numeral 1 has been applied to indicate a bell-crank-shaped coupling lever mounted on a pivot pin 27 (see FIG. 5) and pivotable about that pin. One of the arms of lever 1 support three pivotable number discs 6, 7, 8, each being provided with a manually operable selector element or selector lever 3, 4, 5. Disc 8 controls the lowest digit to be selected and is mounted on a shaft 2. Discs 6 and 7 control higher digits to be selected and are supported by hollow shafts 28 and 29 clearly shown in FIG. 4. In FIG. 5 hollow shafts 28, 29 are broken away, thus illustrating but a portion thereof. Selector lever 3 forms an integral part of number disc 6 and may be used to pivot number disc 6 about shaft 2. Lever 4 forms an integral part of number disc 7 and may be used to operate or turn the latter, and lever 5 forms an integral part of number disc 8 and

may be used in the same fashion as levers 3 and 4. Parts 3, 6 control the printing device of the meter for the highest digit, parts 4, 7 control the printing device of the meter for the intermediate digit, and parts 5, 8 control the printing device of the meter for the lowest digit. These printing devices of which each comprises a pivotable printing or type wheel forming part of a printing cylinder have not been shown in the drawing. Such devices are well known in the art and are disclosed more in detail in the aforementioned United States Patent 3,002,686 to which reference may be had in regard to this detail. The hollow shafts 28, 29 of units 3, 6 and 4, 7 are mounted on shaft 2 directly supporting unit 5, 8. Each shaft 2, 28, 29 supports a spur gear for transmitting the pivotal motions of units 3, 6; 4, 7 and 5, 8 to the respective digit printing device or type wheel located inside housing 16 of the postage meter. FIGS. 4 and 5 show the spur gear 14 mounted on shaft 2 operated by parts 5, 8. The spur gears operated by parts 3, 6 and 4, 7 have been omitted in FIGS. 4 and 5. Parts 5, 8 and 14 control, or adjust, the type wheel (not shown) for printing the lowest digit of the monetary amounts to be printed by the postage meter. This adjustment can be effected when coupling lever 1 is in one of the two limit positions thereof in which limit position spur gear 14 meshes with another gear operating the aforementioned type wheel for printing the lowest digit of the monetary amounts to be printed. FIG. 4 shows coupling lever 1 when in the particular limit position wherein spur gear 14 is in mesh with its cooperating type wheel positioning gear. In that limit position of coupling lever 1 spur gear 14 then operating as a ratchet is yieldingly engaged by nose 22 of pawl 20 pivotally mounted on shaft 21 supported by coupling lever 1. Nose 22 of pawl 20 engages spur gear 14 under the bias of helical spring 23 of which one end is attached to coupling lever 23 and the other end is attached to pawl 20. Thus pawl 20 maintains spur gear 14 in the particular angular position into which it has been moved by operating parts 5, 8 while it is in engagement with its cooperating type wheel adjusting gear. FIG. 5 shows lever 1 in its other limit position. As shown in FIG. 5 the upper end of spring 23 engages a perforation in a bracket integral with lever 1. This bracket is provided with two additional perforations intended to receive the upper ends of the springs (not shown) of which each biases pawls corresponding to pawl 20 and associated with the selector mechanisms 4, 7 and 3, 6 for the two higher digits in the same fashion as pawl 20 is associated with selector mechanism 5, 8.

Shaft 2 further supports a disc 10 having two arms 12, 13 projecting radially outwardly over the numbered areas of number discs 6, 7, 8. The spacing of arms 12, 13 is such that but one single number on number discs 6, 7, 8 is exposed to view. In other words, arms 12, 13 define a window equal in width to one of the numbers of the three digits which may be selected. This window is arranged in such a way that it always shows the selected number of each digit. In the particular position of the parts of the device shown in FIG. 1 the lowest digit number appearing in the window defined by arms 12 and 13 is "4," the intermediate digit number appearing in that window is "6" and the highest digit number appearing in that window is "0." The part formed by arms 12, 13 has a right edge—as seen in FIGS. 1 and 4—which forms an abutment for selector levers 3, 4 and 5 when they are in their left limit positions, or zero positions.

The device illustrated in the drawings is predicated on the decadic number system. Consequently the values selected by pivoting lever 5 and number disc 8 are one-tenth of the corresponding numbers selected by pivoting lever 4 and number disc 7. In a similar fashion the values selected by pivoting lever 3 and number disc 6

are ten times as high as the corresponding numbers selected by pivoting lever 4 and number disc 7.

As shown in FIGS. 4 and 5 lever 1 includes a projection 15 forming an integral part thereof. Projection 15 is intended to control the aforementioned type wheels of the printing mechanism or printing cylinder which have not been illustrated in the drawing. As long as lever 1 is in the left limit position thereof, the type wheels of the printing cylinder are locked out and inoperative. If and when lever 1 is pivoted about shaft 27 to its right limit position, projection 15 makes the lock-out mechanism for the aforementioned type wheels ineffective.

Since lever 1 is pivoted at 27, shaft 2 performs a circular motion when the former is turned around its pivot 27. Housing 16 is provided with an aperture 25 for the passage of shaft 2 as well as hollow shafts 28, 29 mounted on shaft 2.

Reference numeral 26 has been applied to indicate an abutment mounted inside of housing 16 and adapted to cooperatively engage latching pawl 20. As long as lever 1 is the limit position shown in FIG. 4, latching pawl 20 rests yieldingly upon gear 14, not precluding rotation of the latter. Therefore, in that position of lever 1 gear 14 can be adjusted by turning parts 5, 8. In the position of lever 1 shown in FIG. 4 the gears (not shown) corresponding to gear 14, and intended to be operated by parts 4, 7 and 3, 6, respectively, are yieldingly engaged by their latching pawls (not shown), corresponding to latching pawl 20 and, therefore, these gears can then be adjusted by turning parts 4, 7 and 3, 6, respectively. When lever 1 is turned from its limit position shown in FIG. 4 to its limit position shown in FIG. 5 one end of latching pawl 20 engages abutment 26 and this causes positive engagement between the opposite end of latching pawl 20 and gear 14, thus precluding the latter from being operated by parts 5, 8. In a similar fashion parts 4, 7 and 3, 6 are locked in position when lever 1 is in the limit position thereof shown in FIG. 5.

Lever 1 is normally held in the two aforementioned limit positions thereof by resilient means not shown in the drawings. Reference numeral 1' has been applied in FIGS. 1 and 2 to indicate a control lever for these resilient means. By operating control lever 1' the aforementioned resilient means are rendered ineffective, thus allowing lever 1 to be shifted between the two limit positions thereof.

Further mounted on shaft 2 is an interlocking member 17 which is more or less cam-shaped, as shown in FIG. 3. Interlocking member 17 is interposed between the outer wall of housing 16 and number disc 6. Interlocking member 17 has a first radial arm 30 having a perforation which receives pin 11 integral with coupling lever 1 and which projects through a slot 24 in housing 16 from the inside to the outside thereof (FIGS. 1 and 4). Thus the position of interlocking member 17 is fixed at two points thereof, i.e. where shaft 2 and where pin 11 project through member 17, and thus member 17 cannot perform any rotary or pivotal motion about shaft 2. Interlocking member 17 is provided with a second arm or finger 18 having a radial edge 19. Edge 19 and a portion of finger 18 immediately adjacent edge 19 project forwardly out of the general plane defined by disc-shaped member 17 and by housing 16. Edge 19 forms an abut- of its left limit position, or zero position. Thus lever 3 and precluding the latter from being pivoted in clockwise direction (as seen in FIGS. 1 and 4) about shaft 2 out of its left limit position, or zero position. Thus lever 3 is normally interlocked in its left limit position, or zero position. This precludes accidental pivotal movement of parts 3 and 6 while adjusting parts 4, 7 and 5, 8, respectively. If and when it is desired to pivot lever 3 in clockwise direction to adjust the highest digit parts of the system, finger 18—which is relatively resilient—is pressed backward in the direction of shaft 2, thus moving radial edge 19 temporarily out of the path of motion of

selector lever 3. This makes edge 19 ineffective as an interlock or interlocking means. The above operation of finger 18 can readily be performed with the thumb of the right hand, whereupon lever 3 may be pivoted clockwise with the forefinger of the right hand. Upon return of selector lever 3 to the left limit position, or zero position, thereof abutment edge 19 of finger 18 snaps axially outwardly to the initial position shown in FIG. 1, thus again interlocking selector lever 3.

Abutment disc or interlocking member 17, may be made of a suitable sufficiently resilient plastic or of stainless steel. It is preferable to impart a slight bend to part 17 causing the same when mounted on shaft 2 to exert a slight resilient foreward pressure on number disc 6 and a slight resilient rear pressure on the boundary wall of housing 16.

It will be understood that I have illustrated and described herein a preferred embodiment only of my invention, and that various alterations may be made in the details thereof without departing from the spirit and scope of my invention as defined in the appended claims.

I claim as my invention:

1. In an apparatus for printing monetary amounts the combination of

a plurality of rotatable number discs each adapted to select one of a series of numbers and each adapted to control printing means for different digits, said plurality of number discs including a selector disc for the highest digit,

means for shifting said plurality of number discs to a first limit position and to a second limit position, said second limit position being adapted to establish operative control by said plurality of number discs over said printing means,

a plurality of manually operable selector elements each adapted to cause rotation of one of said plurality of number discs and each forming an integral part of one of said plurality of number discs,

an interlocking means operative in said second limit position of said plurality of number discs, normally interlocking said highest digit selector disc and one of said plurality of selector elements forming an integral part of said highest digit selector disc in the zero position thereof to preclude unintentional joint rotation of said highest digit selector disc and another of said plurality of number discs and selector means,

and manually operable means for rendering said interlocking means ineffective to allow upon operation of said manually operable means joint rotation of said highest digit selector disc and of another of said plurality of number discs.

2. In an apparatus for printing monetary amounts the combination of

a plurality of provotable number discs each adapted to select one of a series of numbers and each adapted to control printing means for different digits, said plurality of number discs including one number disc adapted to select numbers having the highest digit,

a plurality of manually operable selector elements each adapted to cause rotation of one of said plurality of number discs and each forming an integral part of one of said plurality of number discs,

a resilient abutment normally arranged in the path of the rotary motion of and interlocking said one number disc and one of said plurality of selector elements forming an integral part of said one number disc in the zero position thereof, and said abutment being adapted to be manually elastically deformed and moved out of said path of rotary motion and to thereby become ineffective as an interlocking means.

3. In an apparatus for printing monetary amounts the combination of

a shaft,

a plurality of number discs coaxially mounted upon and

rotatable about said shaft each adapted to select one of a series of numbers and to control printing means for different digits, said plurality of number discs including one number disc adapted to select numbers having the highest digit,

a plurality of manually operable selector levers each projecting from one of said plurality of number discs and each forming an integral part of one of said plurality of number discs,

a pin arranged parallel to said shaft,

and an abutment disc mounted on said shaft and precluded by said pin from rotating about said shaft, said disc having a resilient finger normally arranged in the path of the rotary motion of and interlocking said one number disc and one of said plurality of

selector levers forming an integral part of said one number disc in the zero position thereof and said finger being adapted to be bent by manual pressure exerted in the general direction of said shaft out of said path of rotary motion and to thereby become ineffective as an interlocking means.

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3,002,686	Heil et al.	Oct. 3, 1961

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,078,791 February 26, 1963

Friedrich Heil

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 64, for "of its left limit position, or zero position. Thus lever 3" read -- ment normally engaging the right side of selector lever 3 --; column 4, line 55, for "provotable" read -- pivotable --.

Signed and sealed this 10th day of December 1963.

(SEAL)
Attest:
ERNEST W. SWIDER

Attesting Officer

EDWIN L. REYNOLDS

Acting Commissioner of Patents

UNITED STATES PATENT OFFICE

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