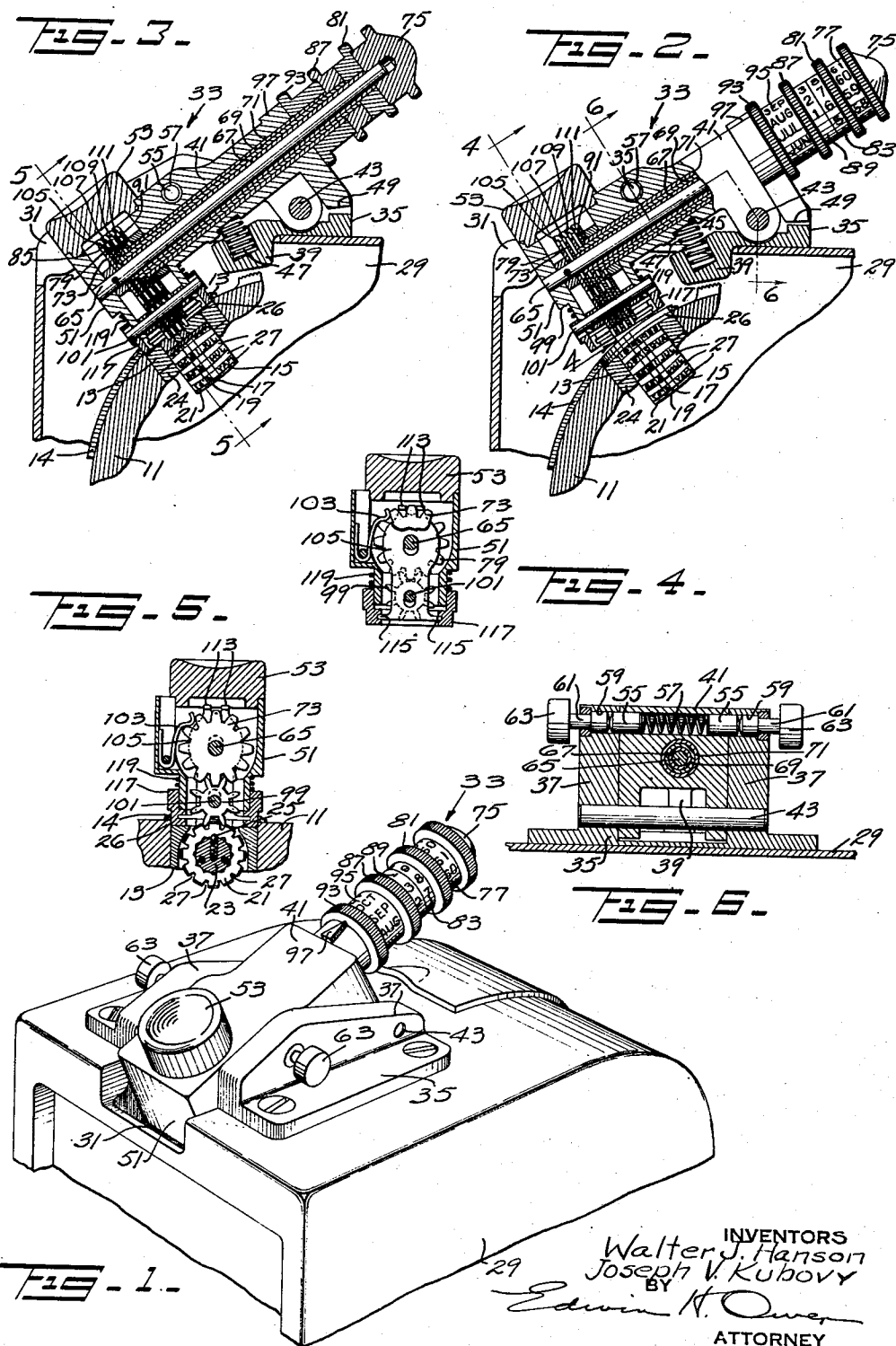


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DATE WHEEL SETTING DEVICE

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1 Claim. (Cl. 101—110)

This invention relates to postage meters and particularly to the setting of the date printing wheels thereof.

Postage meters presently in use comprise a movable printing member, usually in the form of a rotatable drum, which prints the postage indicia and value and also the town and date on a tape or on pieces of mail while being fed through the machine adjacent the printing member. The type for inscribing the date is carried on movable type wheels mounted in one portion of the drum and capable of being set to the desired date. Rotation of the drum operates register means which indicate the amount of postage used.

In order to prevent the wiping of fraudulent impressions which would neither rotate the drum nor alter the register reading, the drum is housed in an enclosure which is so arranged that it can not be removed by unauthorized persons. To permit the drum to print, and to provide for setting of the date wheels, restricted apertures have been formed in the housing. They are carefully dimensioned and located with respect to the rest position of the drum so that printing access thereto, except by the approved method of rotating the drum is effectively barred. It is through one of these apertures, located opposite the date wheels when the drum is in rest position, that setting of the date wheels has been effected heretofore. This operation has been normally carried out using a stylus to project into the opening and move the date wheels to the new date setting. There is, of course, little light within the housing and it is difficult, as a rule, to determine whether or not the date setting has been properly made.

The object of the present invention, therefore, is to provide for the setting the date wheels of a postage meter printing member by remote control from without the housing, and to avoid the need for inspection of the date wheels themselves to determine what setting has been made.

A feature of the present invention is the provision of date wheel setting means which includes natural reading indicators showing at any time what date setting has been made on the wheels. This is accomplished by connecting the indicators directly with the wheel setting mechanism, moving the latter into and out of engagement with the date wheels, and arranging the wheel setting means for automatic locking when out of date wheel setting position and so that it may be released for movement only when shifted to date wheel setting position.

Another feature of the invention is the provision of date wheel setting means which can be applied to existing postage meter equipment without substantial alteration thereof.

Still another feature of the invention is the provision of date wheel setting means which is mounted in the usual setting aperture in the printing drum housing and which is movable in said aperture into and out of contact with the printing drum.

A further feature of the invention is the provision of locking means for the date wheel setting means so arranged as to prevent unintentional contact of the setting

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means with the printing drum. Inadvertent damaging contact of the setting means with the drum while the latter is rotating is thus effectively prevented.

For purposes of illustration and explanation the invention is shown in detail in its preferred form in the accompanying drawings, wherein:

Fig. 1 is a perspective view of the upper portion of the printing drum casing of a postage meter showing the date wheel setting means mounted thereon.

Fig. 2 is a partial section through the device of Fig. 1 showing the date registering elements in full, and the date wheel setting means in retracted position.

Fig. 3 is a fragmentary section somewhat similar to Fig. 2, but showing the date registering elements also in section, and the date wheel setting means in operative position.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

Fig. 5 is a section taken on line 5—5 of Fig. 3.

Fig. 6 is a section taken approximately on line 6—6 of Fig. 2.

The postage meter in connection with which the present invention is illustrated includes a rotary printing drum 11, a portion of which appears in Figs. 2 and 3. This drum is rotated through one revolution each time an impression is required. The printing portions thereof are inked and impressed against the work during this operation. When the rotation has been completed the drum 11 is compelled to return to the position of rest shown in Figs. 2 and 3.

The printing drum 11 carries on its surface a number of printing areas such as those for postal indicia, value, town and date. The date portion of the printing area is usually surrounded by the town die 13 and the postal indicia die 14, and is provided by type wheels known as date wheels movably mounted in the printing drum to provide for printing different dates as required. As shown in the accompanying drawing, these date wheels comprise a month wheel 15, two number wheels 17 and 19 for making up the day, and a year wheel 21. The wheels 15, 17, 19 and 21 are mounted face-to-face for rotation on a shaft 23. The shaft 23 is mounted in a carriage member 24 which is radially slidable in the drum 11 as is the town die 13 also. Suitable means are provided for retracting and projecting the carriage 24 and town die 13 either individually or simultaneously so as to withdraw their printing surfaces from printing position or to return them thereto at the will of the operator. One exemplary form of such a retracting and projecting arrangement is disclosed in the patent to J. W. Ogden, No. 2,179,269, which issued November 7, 1939 and to which reference may be had for a detailed illustration and description. Also mounted on the carriage 24, preferably on shaft 23 within the date wheels, are suitable detent devices 25 (see Fig. 5), one for each of the wheels 15, 17, 19 and 21. The detent devices 25 are provided in order to preserve the setting of each of the wheels while an adjacent wheel is being set, or during the printing operation. The carriage 24 and town die 13 are illustrated in retracted, non-printing position in Figs. 2 and 3 of the drawing and thus form a temporary recess 26 in the printing drum surface, the purpose of which will be described hereinafter. It will be understood, of course, that when printing of the date and town are desired, carriage 24 and die 13 will be projected radially until the surface of the type on the date wheels and on town die 13 lies in the same cylindrical surface as the printing surface of postal indicia die 14.

Flutes 27 are normally formed on each of the wheels 15, 17, 19, and 21 between the printing portions thereof so that the wheels may be readily engaged by a stylus or the like to rotate them to the desired date setting.

Surrounding the printing drum 11 is a housing 29 which is designed to defeat the taking of impressions from the

printing drum, except by the approved procedure in which the drum is rotated through its normal cycle and operates the metering mechanism of the postage meter in a known manner. The housing 29 has an aperture 31 arranged to permit access to the date wheels 15, 17, 19 and 21 when the drum 11 is at rest position, which is the position illustrated in Figs. 2 and 3 of the drawings. It is through the aperture 31 that a stylus is normally inserted to engage the flutes 27 and rotate the wheels 15, 17, 19 and 21 when setting the date. Because of the small size of the type on the date wheels, the reversed position of the characters which normally prevails, and the low light intensity within the housing, it is often difficult to determine when a proper setting has been made with the structure as described so far.

This invention provides remote control means for setting the date wheels from the exterior of the housing 29. This means is indicated generally by the reference character 33 in Figs. 1 to 3 and includes a bracket 35 mounted on housing 29 adjacent the aperture 31. The bracket 35 includes side members 37 and a central spring perch 39. The supporting body 41 is pivotally mounted on the bracket 35 by means of shaft 43 extending between side members 37 and has a spring receiving recess 45 on its underside. A compression spring 47 having one end in the recess 45 and the other engaged by the spring perch 39 urges the supporting body outwardly of the aperture 31. A stop 49 is provided on the body and cooperates with a portion of bracket 35 to prevent excessive swinging of the body 41 about shaft 43. The body 41 is provided with a hollow enlargement or head 51 which includes on its upper surface a thumb button 53 by which the body may be pushed into the housing 29 against the force of spring 47.

The outermost position, which the body 41 is ordinarily intended to assume, is that of Fig. 2 with stop 49 just short of striking the adjacent portion of bracket 35. The body is normally locked in this outer position by latch pins 55. These pins are carried by the body 41 and urged apart by spring 57 (Fig. 6). In projected position they extend into locking openings 59 in the side members 37 of bracket 35. Also slidable in openings 59 are release plungers 61 having outwardly extending finger buttons 63. The plungers 61 are so dimensioned that when they are in full inward position the locking pins will be released from openings 59, and the body 41 can be swung inwardly of the aperture 31 by pressure on the button 53. From the foregoing description it can be seen that the head 51 is normally held away from the printing drum 11 by spring 47, and can be brought into contact with it only by performing an unlocking operation which requires the simultaneous actuation of a plurality of finger members followed by a manual pressing of the head inwardly. This substantially insures that the head 51 will not be inadvertently engaged with the drum 11 while the latter is rotating.

Extending longitudinally within the body 41 is a central rotatable drive shaft 65 upon which are rotatably mounted three telescoped drive sleeves 67, 69 and 71. The shaft 65 is drivingly connected near one end to a year drive gear 73 and at the other end to a year control knob 75 having year designating indicia 77 thereon. Sleeve 67 is drivingly connected to a units digit drive gear 79 and a units setting knob 81 having indicia 83 thereon. To sleeve 69 is connected tens gear 85 and knob 87 having indicia 89. The outermost sleeve 71 is drivingly connected to a month drive gear 91 and a month setting knob 93 having appropriate indicia 95 thereon. As seen in Fig. 3, the drive gears 73, 79, 85 and 91 form a cluster within the head 51 while the setting knobs 75, 81, 87 and 93 are arranged in a similar but reversed array at the opposite exterior end of the body 41. An index marker 97 is formed on the upper surface of body 41 for determining the proper peripheral setting for the knobs 75, 81, 87, and 93 to indicate a certain date.

Four identical transfer pinions 99 are rotatably mounted on a shaft 101 fixed in the head 51. Each of the pinions lines up with one of the drive gears 73, 79, 85 or 91, and is for the purpose of transferring the drive gear rotation to one of the date wheels 15, 17, 19 or 21. The teeth of the pinions 99 are accordingly designed to mesh appropriately both with the teeth of gears 73, 79, 85 and 91, and with the flutes 27 of the date wheels.

A series of spring detents 103 (only one of which appears in the drawings) is provided, one for engagement with each of the drive gears 73, 79, 85 and 91 to cause the same to snap from one setting to the next without any substantial tendency to remain at an intermediate position.

To permit rotation of the printing drum 11 for a postage printing operation, the head 51 and pinions 99 are removed from engagement with the date wheels 15, 17, 19 and 21. To insure that the same date reading will be maintained, and that the indicia 95, 89, 83, 77 will accurately reflect the date setting on wheels 15, 17, 19 and 21, the gears 73, 79, 85 and 91 and their corresponding shaft, sleeves and knobs are automatically locked by means now to be described. A plurality of locking members 105, 107, 109 and 111 are arranged, one adjacent each of the drive gears 73, 79, 85 and 91. The locking members are slidable transversely of the common gear axis and each has at one end, one or more teeth 113 (Figs. 4 and 5) for meshing with the teeth of the corresponding drive gear and locking it against rotation. The other end of each of the locking members has interconnection means such as ears 115 for drivingly connecting the same with an operator 117. The operator 117 is slidable between extended and retracted positions on head 51, and is urged to extended position by a spring 119. It can be seen that when the head 51 is pressed inwardly against the drum 11 the operator 117 will be forced to retracted position against the force of spring 119. This movement frees the gears 73, 79, 85 and 91 from the locking action of teeth 113 permitting a setting of the date wheels to be made. Furthermore, when the head 51 moves away from the drum 11, the operator 117 is allowed to extend again under the influence of spring 119. This action brings teeth 113 again into engagement with the teeth of gears 73, 79, 85 and 91 thus locking knobs 75, 81 and 93 against rotation. Thus the date setting of the knobs remains at the previous setting until a new setting is to be made and the indicia 95, 89, 83 and 77 corresponds at all times with the date set on the printing date wheels 15, 17, 19 and 21. To insure this correspondence absolutely it is preferred to so proportion the parts, in accordance with the showing in the accompanying drawing, that the teeth 113 will lock the gears 73, 79, 85 and 91 before the pinions 99 leave their meshed relation with the date wheel flutes.

The temporary recess 26, previously described, which results from the retraction of the date wheel carriage 24, provides a guide means which receives the inner portion of head 51 when the same is moved towards the drum 11. Specifically, the operator 117, which actually forms the innermost extension of head 51, has a free sliding fit in the recess 26, and coacts therewith to guide the pinions 99 into accurate mesh with the flutes 27 of the date wheels.

The device of the invention is operated in accordance with the following description wherein the starting assumption is that the drum 11 is in its normal rest position. When a change in the setting of the date wheels of the postage meter is desired the die 13 and carriage 24 are retracted to form the recess 26. Finger buttons 63 are then engaged, and the plungers 61 forced towards each other to release latch pins 55. While this pressure is being held, the thumb button 53 is depressed to bring pinions 99 into mesh with the flutes 27 of date wheels 15, 17, 19 and 21. This action also retracts operator 117 and unlocks gears 73, 79, 85 and 91. At this point in the operation pressure may be removed from the finger buttons 63 while the thumb button is still depressed to

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hold the head 51 inwardly towards the drum 11 against the force of spring 47. Since the gears, shaft and sleeves have all been unlocked, the knobs 93, 87, 81 and 75 may be turned until that portion of their respective indicia 95, 89, 83, 77 which is lined up with the index 97 makes out the desired date to be set. The rotation of the knobs, through shaft 65 and sleeves 67, 69 and 71, gears 73, 79, 85 and 91 and pinions 99 causes a movement of the date wheels 15, 17, 19 and 21 which results in a setting thereof corresponding exactly to the date given by the knob indicia. Thereupon thumb pressure on the button 53 is released allowing the head 51 to be withdrawn from the printing drum 11 by spring 47. Simultaneously the gears, shafts, sleeves and knobs are locked by teeth 113 to preserve the date information provided by the knob indicia and insure that it corresponds to the date wheel setting until the time of the next engagement. As the head 51 is withdrawn by spring 47, the locking pins 55 snap into the openings 59. Thereafter any accidental depression of the thumb button 53 can cause no injury to the parts even though the drum 11 is rotating during a printing operation, so long as the finger buttons 63 are not simultaneously forced towards each other. The die 13 and date wheels 15, 17, 19 and 21 are then returned to a position wherein their printing surfaces are flush with the printing surface of die 14, and the meter is ready for use.

From the foregoing description it can be seen that the invention provides for the setting of date wheels on postage meters in a much simpler and more convenient manner than heretofore. The invention further supplies these advantages in such a way as to be readily attached to existing meters, thus avoiding the necessity for replacement or extensive re-working.

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Having described the invention, what is claimed is:

In a postage meter, a rotatable printing drum having a predetermined rest position; settable date wheels carried by the printing drum and having date printing means thereon; a housing surrounding the printing drum; a date setting means rockably mounted on the housing and having one end extending into the same, the other end of said means being exposed at the exterior of the housing and carrying operating and date indicating devices thereon, said means having its inner end so positioned that rocking movement of said means in one direction will bring the inner end into setting contact with said date wheels when said drum is in rest position, and rocking movement in the other direction will free said inner end from the drum to permit printing rotation thereof; spring means tending to rock said setting means in said other direction; releasable latch means for normally retaining said setting means in a position in which its inner end is free of said drum; and plural movable latch release operators connected to said latch means and effective to release the same only when all operators are simultaneously moved to release position.

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