

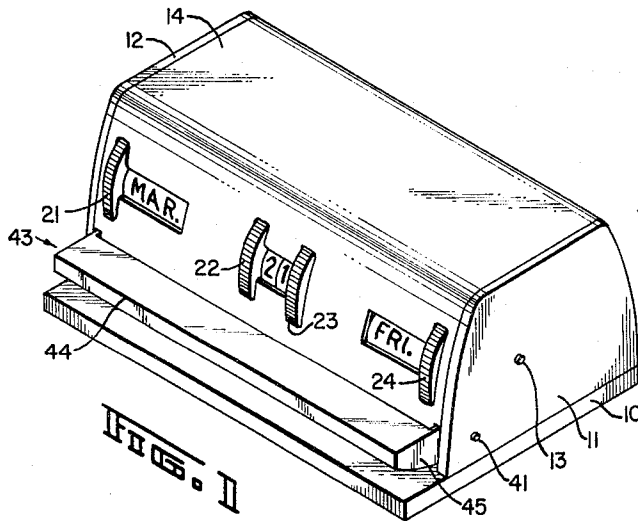
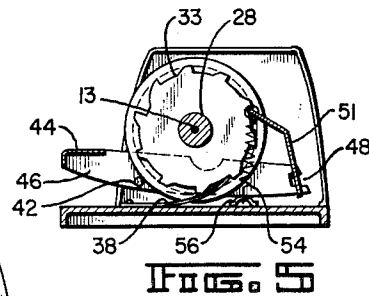
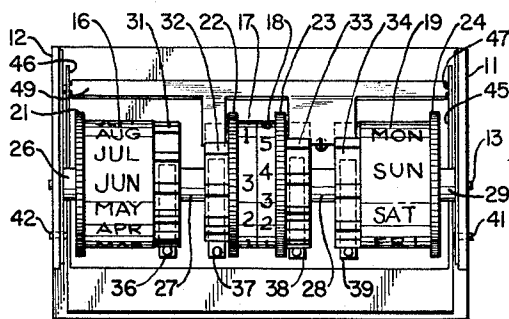
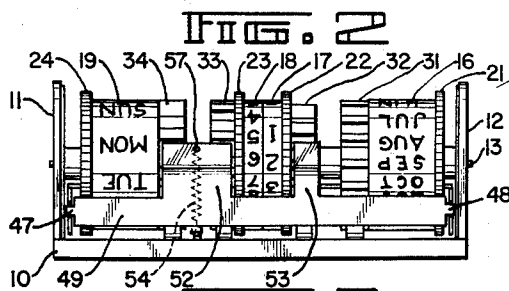
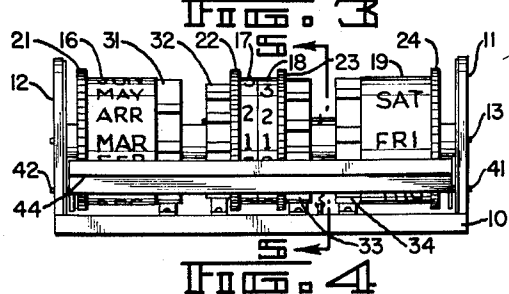
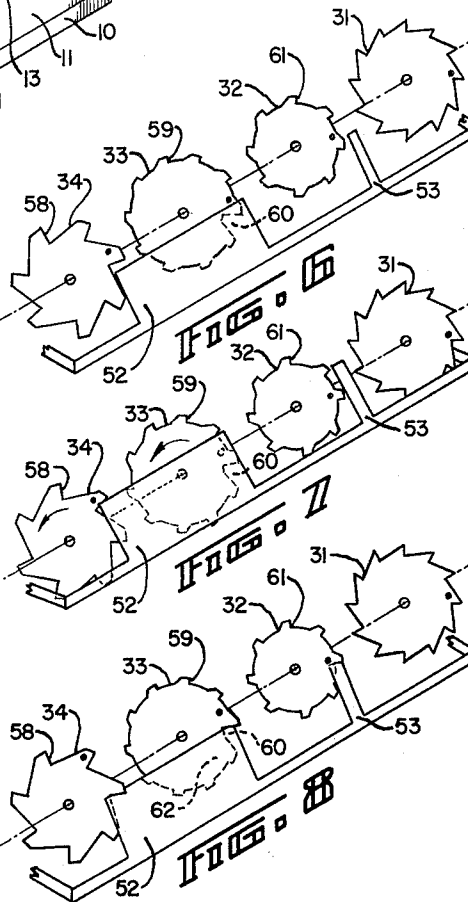
Dec. 15, 1959

J. M. BOSLAND

2,916,837

MECHANISM FOR CHANGING DATES FOR DESK CALENDAR

Filed June 23, 1958



INVENTOR.

JAMES M. BOSLAND

BY

Darby & Darby

ATTORNEYS.

1

2,916,837

MECHANISM FOR CHANGING DATES FOR DESK CALENDAR

James M. Bosland, Packanack Lake, N.J., assignor to
Ketcham & McDougall, Inc., Roseland, N.J., a corpo-
ration of New Jersey

Application June 23, 1958, Serial No. 743,851

4 Claims. (Cl. 40—114)

The present invention relates in general to mechanical-type desk calendars and more particularly to an improved apparatus for changing the date and the day of the week on a desk calendar.

Desk calendars have long been used as a readily accessible source for determining the correct date. The most convenient type of desk calendar shows only a single date with the day of the week often added. The feature of having only a single date visible is much more desirable than having a full month shown, since the correct date can be ascertained at a glance. In mechanical desk calendars, as contrasted with appointment-type desk calendars, the date is changed through some mechanical operation such as knobs, handles, weights or rotation. While there are a variety of mechanical type calendars on the market today, a disadvantage common to most is that a separate operation is required to change each date character or information legend. These separate manual operations must be performed every day to keep the calendar up-to-date for obtaining the full benefit of its information. Often either due to neglect, press of work, or forgetfulness, all of the changing operations are not performed daily and the calendar becomes inaccurate, thus losing much of its desirability as a convenience, as well as becoming a source of possible serious errors due to relying on wrong dates.

Accordingly it is an object of the present invention to provide an improved mechanism for advancing a desk calendar wherein the date of the month and the day of the week are simultaneously advanced with one simple operation.

Another object of the invention is to provide a positively acting mechanism for changing the dates of a desk calendar in single increments actuated by a single movement.

A further object of the invention is to provide changing the dates of the week and the date in one operation and yet allowing individual selective changing operations if desired.

Still another object is to provide a mechanism changing the dates for a calendar unit that accomplishes all of the above but yet is durable, foolproof in operation and inexpensive to produce.

Other objects and features of the invention will be apparent when the following description is considered, in connection with the annexed drawings, in which

Figure 1 is a perspective view of a desk calendar unit constructed according to the present invention;

Figure 2 is a plan view of the calendar with the cover removed;

Figure 3 is a rear elevation view of the calendar with the cover removed;

Figure 4 is a front elevation view of the calendar with the cover removed;

Figure 5 is a section taken along the line 5—5 of Figure 4 showing the actuating pawl in the rest position;

Figure 6 is a schematic view of the ratchet wheels

2

and actuating pawl showing the pawl just prior to an actuating stroke;

Figure 7 is similar to Figure 6 showing the actuating pawl at the end of an actuating stroke; and

5 Figure 8 is similar to Figure 6 showing the actuating just prior to movement of the "tens" wheel.

Referring now to the drawing, the desk calendar unit has a substantially rectangular base 10, preferably provided with flocking or other soft material on its underside so as not to mar or scratch the desk surface upon which it rests. Attached at opposite sides of base 10 are two vertically disposed parallel walls or arms 11 and 12 that support a shaft 13 in a friction fit so that the shaft 13 is nonrotatable. An outside cover 14 having an inverted, substantially U-shaped cross section is fastened in place between arms 11 and 12.

The calendar unit has four information wheels, 16, 17, 18 and 19, individually rotatably mounted on shaft 13 and having legends or characters engraved around their peripheries. Wheel 16 shows the months of the year, wheel 17 has two successive sequences of "a blank space, 1, 2, 3", wheel 18 has the characters 0 through 9 and wheel 19 has the days of the week. Outer cover 14 has a series of openings in its front face registering with the characters on wheels 16, 17, 18 and 19 respectively, so that when viewed the wheels disclose the month, date of the month and day of the week, as illustratively shown in Figure 1: March 21, Fri.

Attached to wheels 16, 17, 18 and 19 respectively are hand wheels 21, 22, 23 and 24 which preferably have knurled or roughened peripheral edges. These hand wheels are larger in diameter than their respective information wheels and project through enlarged segments of the openings provided in outer cover 14 as shown in Figure 1. These hand wheels allow individual hand rotation of their respective information wheels. Since the month wheel 16 is indexed only once a month, it may conveniently be set by hand at the end of a month by manually rotating the attached hand wheel 21, when a change of month is desired. To prevent relative axial movement of information wheels 16, 17, 18 and 19 along shaft 13, spacers 26, 27, 28 and 29 are placed along shaft 13 adjacent the wheels respectively, except between abutting wheels 17 and 18. Each of the information wheels 16, 17, 18 and 19 has secured thereto an associated ratchet wheel 31, 32, 33 and 34, respectively, each ratchet wheel being similarly rotatably mounted on shaft 13 (see Fig. 4).

Secured to the upper surface of base 10 directly below ratchet wheels 31, 32, 33 and 34, are left springs 36, 37, 38 and 39 respectively. Each leaf spring has an upwardly turned outer end as shown by spring 38, in Fig. 5. The upwardly turned end of each spring is normally urged into contact with the ratchet teeth of its cooperating ratchet wheel to hold the ratchet wheels firmly in position to avoid accidental rotation. The turned up end of each spring, together with the radially asymmetric cut of each tooth, allows rotation of its cooperative ratchet wheel in one direction only.

An actuating rocker assembly or frame 43 is pivoted at its arms 45 and 46 on pins 41 and 42 with respect to walls 11 and 12, respectively. Arms 45 and 46 carry a front actuating bar 44, which may be integral therewith, and a rear pawl bar 51 having base 49 secured in notches 47 and 48.

Extending from the base portion 49 of pawl 51 are two fingers 52 and 53. Broad finger 52 spans and simultaneously engages ratchet wheels 33 and 34 and narrow finger 53 engages ratchet wheel 32. A small coiled spring 54 in tension, has one end anchored to the upper surface of the base 10 at 56 and the other end attached to a small hole 57 in the broad finger 52 for urging the

fingers 52 and 53 of actuating pawl 51 downwardly against their respective ratchet wheels.

The operation of the device is as follows:

A downward movement of actuating bar 44 pivots the rocker assembly 43 about pins 41 and 42 thus causing the ends of arms 45 and 46 to move upwardly or counter-clockwise as viewed in Fig. 5. Actuating pawl 51, coupled to arms 45 and 46, similarly moves counter-clockwise causing its actuating pawl fingers 52 and 53 to be rotated radially inwardly. Fingers 52 and 53 engage their associated ratchet wheels 34, 33 and 32 and index them in a manner now to be described.

Information wheel 19 has the days of the week distributed equally about its outer periphery at seven positions. Its associated ratchet wheel 34 is provided with seven corresponding teeth 58 equally spaced around the periphery. At every downward movement of bar 44, finger 52 of pawl 51 engages a tooth 58 of ratchet wheel 34 to properly index days wheel 19, from one position to the next, i.e., one-seventh of a revolution. The leading edge of tooth 58 cooperating with pawl finger 52 for indexing ratchet wheel 34 is substantially radially cut.

The digit number wheel 18 is inscribed with ten numerals 0 through 9 equally spaced around its periphery. This wheel must also be indexed at every actuation of bar 44. Ratchet wheel 33 associated with digit number wheel 18 has ten notches equally spaced about its periphery corresponding to the ten characters on wheel 18. Of these ten notches on ratchet wheel 33 nine are shallow notches indicated at 59 and one is a deep notch 60. The edges of the notches cooperating with pawl finger 52 for indexing are substantially radially cut. For indexing ratchet wheels 33 and 34 simultaneously, finger 52 of pawl 51 overlaps both ratchet wheels. Ratchet wheels 33 and 34 are so relatively oriented axially on shaft 13 that upon actuation of bar 44 the pawl finger 52 will engage a tooth 58 and an edge of a notch 59 of ratchet wheels 34 and 33 respectively so as to index both simultaneously.

Considering now the operation of the tens number wheel 17, it is desired that it rotate once for every ten movements of the digit and the day of the week wheels. That is, tens wheel 17 remains stationary for nine advancements of wheels 18 and 19 and on the tenth advancement, all three wheels advance. Since there is, at most, only 31 days in a month, the numeral "three" is the highest number required on the tens wheel. The legend of tens wheel 17 is provided with a blank space (for units 1 through 9) and then the characters "1, 2, 3". The legend then repeats this sequence, so as to make eight index positions in all on the outer periphery of wheel 17.

The ratchet wheel 32, associated with tens wheels 17, is provided with a series of eight teeth 61 equally spaced around its periphery. The leading edges of teeth 61 cooperate with the pawl finger 53 for proper indexing and hence are substantially radially cut. The size of the ratchet wheel 32 is chosen in relation to the size of the ratchet wheel 33, as limited by the shallow notches 59, so that ratchet wheel 32 will not be engaged upon actuation of the pawl 51 for indexing of the digits 1 through 9. Of course, wheel 32 may be larger if the actuating end of pawl finger 53 is positioned further from shaft 13. As seen in Figure 6, the positions of the elements are shown just prior to a normal digit actuation, such as would occur for indexing 1 through 9 of the digit numbers. As shown in Figure 6, finger 52 engages shallow notch 59 of ratchet wheel 33. The bottom of the shallow notch 59 acts as an arrester for finger 52 so that further radially inward movement of pawl 51 is prevented. In this condition pawl finger 52 is radially within the outer tip of tooth 58 of ratchet wheel 34 but pawl finger 53 is radially outside the tip of tooth 61 of ratchet wheel 32. In response to a downward movement of bar 44, actuator pawl 51 will move in a counter-

clockwise direction, as shown by the arrow in Figure 7, and pawl finger 52 will engage tooth 58 and the edge of notch 59 of ratchet wheels 34 and 33 respectively, whereas pawl finger 53 overrides and does not engage tooth 61 and hence does not index ratchet wheel 32. Although the drawing illustrates one way of achieving the cooperating relationship between pawls 52 and ratchet wheels 33 and 34 it may otherwise be achieved as by changing the contour of the upper edge of the pawl finger 52, so that same radial relationship need not in all instances be maintained between the days ratchet wheel and the units ratchet wheel. For example, if ratchet wheel 33 is made somewhat smaller than ratchet wheel 34, the righthand upper edge (as seen in Fig. 6) of pawl finger 52 may be bent inwardly toward shaft 13, so that broad pawl finger 52 will normally engage units ratchet wheel 33 while its left-hand edge may still be maintained slightly out of contact with the days ratchet wheel 34.

The ratchet wheel 33 is so relatively oriented on shaft 13 that when numeral 9 on wheel 18 is exposed to view through its opening in outer cover 14, pawl finger 52 is received in deep notch 60 in ratchet wheel 33 allowing further radial inward movement of pawl 51. With pawl finger 52 in deep notch 60 of ratchet wheel 33, pawl finger 53 extends radially inwardly towards shaft 13 a sufficient distance to permit finger 53 to engage tooth 61 on the tens number ratchet wheel 32, so that counter-clockwise movement of the actuating pawl 51 as shown in Fig. 7 will index ratchet wheel 32 simultaneously as ratchet wheels 33 and 34.

Upon release of bar 44, actuating pawl 51 will return to its normal position as shown in Fig. 5 due to the action of spring 55. Leaf springs 36, 37, 38 and 39 prevent any movement of their respective wheels during this return stroke.

The present arrangement has the advantage that the same movement of bar 44 causes the proper respective indexing of the three wheels 17, 18 and 19, even though wheel 17 moves once every ten days.

In the specific embodiment shown the month wheel is manually indexed at the end of the month, and the tens number wheel is manually reset at this same date. Also if the month happens to be February or has 31 days, the digit number may be manually set to start off the new month correctly. These relatively infrequent manual operations do not detract from the greater convenience of changing the days date positively and easily during the remaining days of the month.

Although ratchet wheels 33 and 34 have a different number of teeth on their respective peripheries the actuation of bar 44 will index the ratchet wheels simultaneously. Ratchet wheel 34 by only having 7 teeth on its periphery must rotate through a greater arc than ratchet wheel 33 having ten teeth on its periphery. This is accomplished by providing an actuating movement of pawl 51 substantially equal to the angular rotation of ratchet wheel 34 for one indexing movement. This is accomplished by having bar 44 positioned at a height from base 10, such that when actuated, the lever action of the assembly or frame 43 limits the upward travel of pawl fingers 52 and 53. The ratchet wheels 33 and 34 are so relatively oriented on shaft 13 that pawl finger 52 engages a tooth 58 on ratchet wheel 34 before it engages an edge of a notch on ratchet wheel 33, thus rotating ratchet wheel 34 through a slightly greater arc than ratchet wheel 33 in an indexing movement of actuating pawl 51.

Obviously the invention may be used for other indexing, tabulating and counting operations with different legends as in tallying machines, scorekeepers, etc.

Although the present invention has been described with respect to a specific embodiment thereof, it is understood that this is not to be considered as limiting the invention as set forth in the appended claims.

What is claimed is:

1. A calendar comprising a base, a pair of vertically oriented, substantially parallel arms attached to opposite ends of said base, a stationary shaft supported by said arms, first, second and third wheels rotatably mounted on said shaft, said first wheel having seven index positions equally spaced around the periphery thereof, each of said index positions indicating a different day of the week, said second wheel having ten index positions equally spaced around the periphery thereof having characters zero through nine arranged thereon, said third wheel having eight index positions equally spaced around the periphery thereof having a blank space and the characters one through three thereon, said sequence repeated twice, first, second and third ratchet wheels rotatably mounted on said shaft and secured respectively to said first, second and third wheels, a substantially U shaped bracket pivotally mounted on said upright arms, said legs of U shaped bracket being transverse to said shaft, pawl means rotatably mounted on the legs of said U shaped bracket, spring means urging said pawl means radially inward toward said wheels for keeping said pawl in positive contact with said ratchet wheels, said pawl having first and second fingers projecting from an arm which arm is substantially parallel to said shaft, said fingers disposed substantially transverse to said ratchet wheels, said first finger positioned to engage said first and second ratchet wheels simultaneously, said second finger positioned to selectively engage said third ratchet wheel, said first ratchet wheel having seven teeth equally spaced around the periphery thereof adapted to be engaged by said first finger, said second ratchet wheel having nine shallow notches and one deep notch adapted to be engaged by said first finger, said first and second ratchet wheels relatively positioned on said shaft so that the first ratchet wheel is engaged by said first finger before said second ratchet wheel, whereby said first and second ratchet wheels advance one index position upon each actuation of said pawl, said third ratchet wheel having eight equally spaced teeth around the periphery thereof adapted to be selectively engaged by said third finger upon said first finger being received in said deep notch, whereby said third ratchet wheel advances one index position for every ten index positions advanced by said first and second ratchet wheels and resilient means to maintain each of said wheels in its respective reading position.

2. A calendar for simultaneously advancing the day of the month and the day of the week having a base with vertically oriented upright arms attached thereto, having a mechanism for advancing the day of the month and day of the week with one actuating force, said mechanism comprising: a stationary shaft supported by said upright arms, first, second and third wheels rotatably mounted on said shaft, said first wheel having seven index positions equally spaced around the periphery thereof having the days of the week thereon, said second wheel having ten index positions equally spaced around the periphery thereof having the characters zero through nine thereon, said third wheel having eight index positions equally spaced around the periphery thereof having successive sequences of a blank space than the characters one through three thereon, first, second and third ratchet wheels rotatably mounted on said shaft and secured respectively to said first, second and third wheels, a lever arm pivotally mounted between its ends on said upright arms, actuating means for pivoting said lever arm, pawl means rotatably coupled to said lever arm, spring means urging said pawl

means radially inward towards said shaft, said first ratchet wheel having seven teeth for keeping said pawl in positive contact with said ratchet wheels equally spaced around the periphery thereof, said second ratchet wheel having ten notches equally spaced around the periphery thereof, said notches comprising nine shallow notches and one deep notch, said first and second ratchet wheels adapted to be engaged by said pawl means whereby said first and second ratchet wheels advance one index position upon each actuation of said lever arm, said third ratchet wheel having eight teeth equally spaced around the periphery thereof adapted to be selectively engaged by said pawl means upon said pawl means being received in said deep notch of said second ratchet wheel, whereby said third wheel advances one index position for each ten index positions of said first and second wheels.

3. A device for simultaneously advancing the date of the month and the day of the week of a desk calendar, comprising: a shaft passing through said calendar unit, first, second and third wheels rotatably mounted on said shaft, said first wheel having seven index positions equally spaced around the periphery thereof, said second wheel having ten index positions equally spaced around the periphery thereof, said third wheel having eight index positions equally spaced around the periphery thereof, first, second and third ratchet wheels rotatably mounted on said shaft and secured respectively to said first, second and third wheels, a cooperating pawl having first and second fingers adapted to be periodically actuated, said first ratchet wheel having seven teeth equally spaced around the periphery thereof, said second ratchet wheel having nine shallow notches and one deep notch around the periphery thereof, said first and second ratchet wheels adapted to be selectively engaged by said first finger whereby said first and second ratchet wheels advance one index position upon each actuation of said pawl, said third ratchet wheel having eight teeth equally spaced around the periphery thereof adapted to be selectively engaged by said second finger only upon said first finger being received in said deep notch of said second ratchet wheel whereby said third ratchet wheel periodically advances one index position upon each of ten successive actuations of said pawl.

4. In a device of the character described, a shaft, an indicia wheel assembly mounted on said shaft, said assembly comprising: first, second and third indicia wheels mounted to rotate independently on said shaft and each wheel having a plurality of positions; first, second and third notched ratchet wheels secured respectively to said first, second, and third indicia wheels, each having the number of notches thereon correspond to the number of positions of its respective indicia wheel; a pawl adapted to be periodically actuated, said pawl having first and second fingers disposed transverse to said ratchet wheels, said first finger adapted to selectively engage said first and second ratchet wheels; said second finger adapted to actuate said third ratchet wheel; means for indexing said first and second indicia wheels; one position upon each actuation of said pawl, and means comprising a deep notch for indexing said third ratchet wheel periodically upon a predetermined number of said actuations of said pawl.

References Cited in the file of this patent

UNITED STATES PATENTS

1,801,714	Bevilacqua	Apr. 21, 1931
2,770,902	Schmidt	Nov. 20, 1956