Nov. 23, 1926. **1,607,703**

W. P. SKINNER ET AL

PERPETUAL CALENDAR

Original Filed June 11, 1921 2 Sheets-Sheet 1

Fig. 1

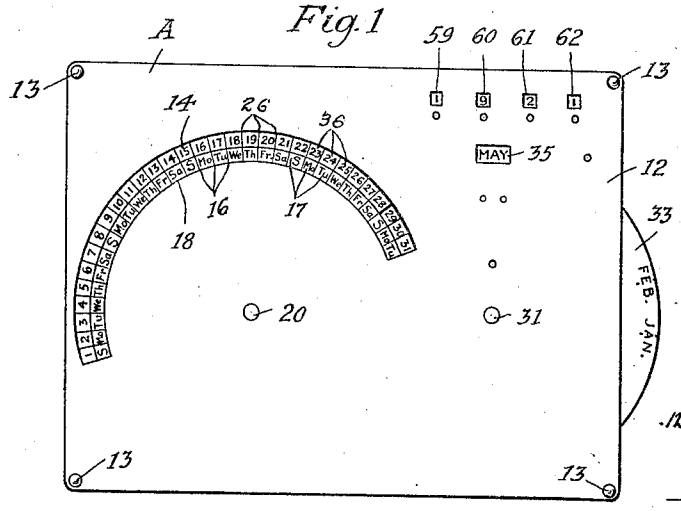


Fig. 2

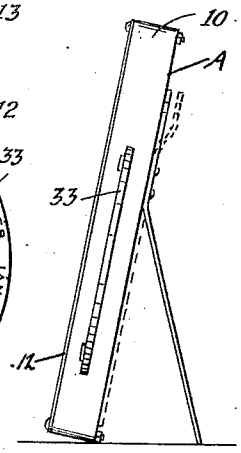


Fig. 5

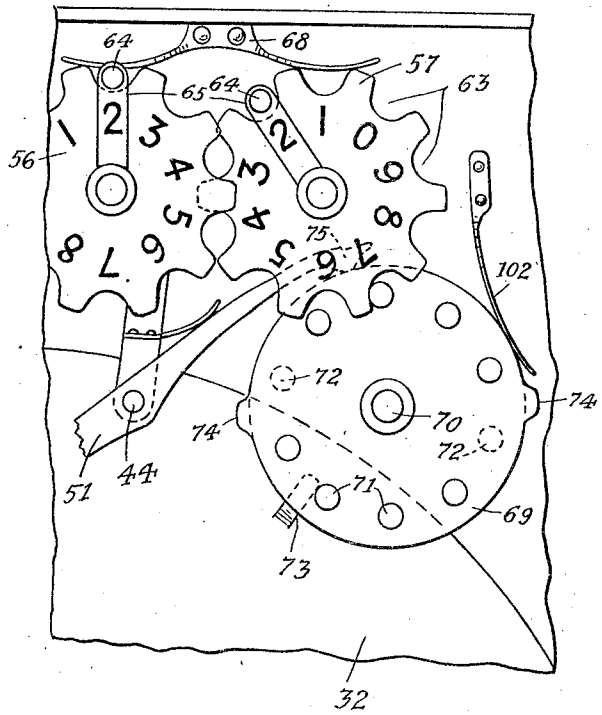
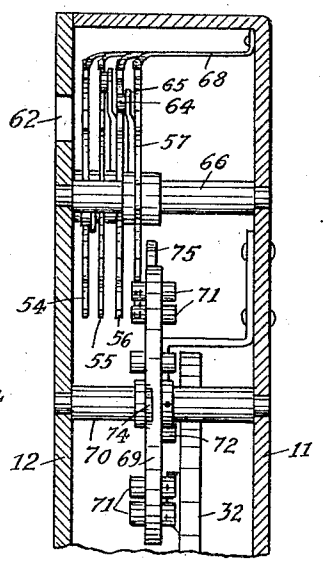


Fig. 6



Inventors
William P. Skinner
Wallie C. Mangel
By: Howard Fische
their Attorney.

Nov. 23, 1926. 1,607,703

W. P. SKINNER ET AL

PERPETUAL CALENDAR

Original Filed June 11, 1921 2 Sheets-Sheet 2

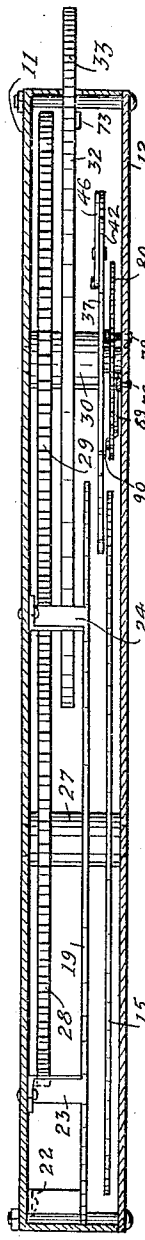


Fig. 4

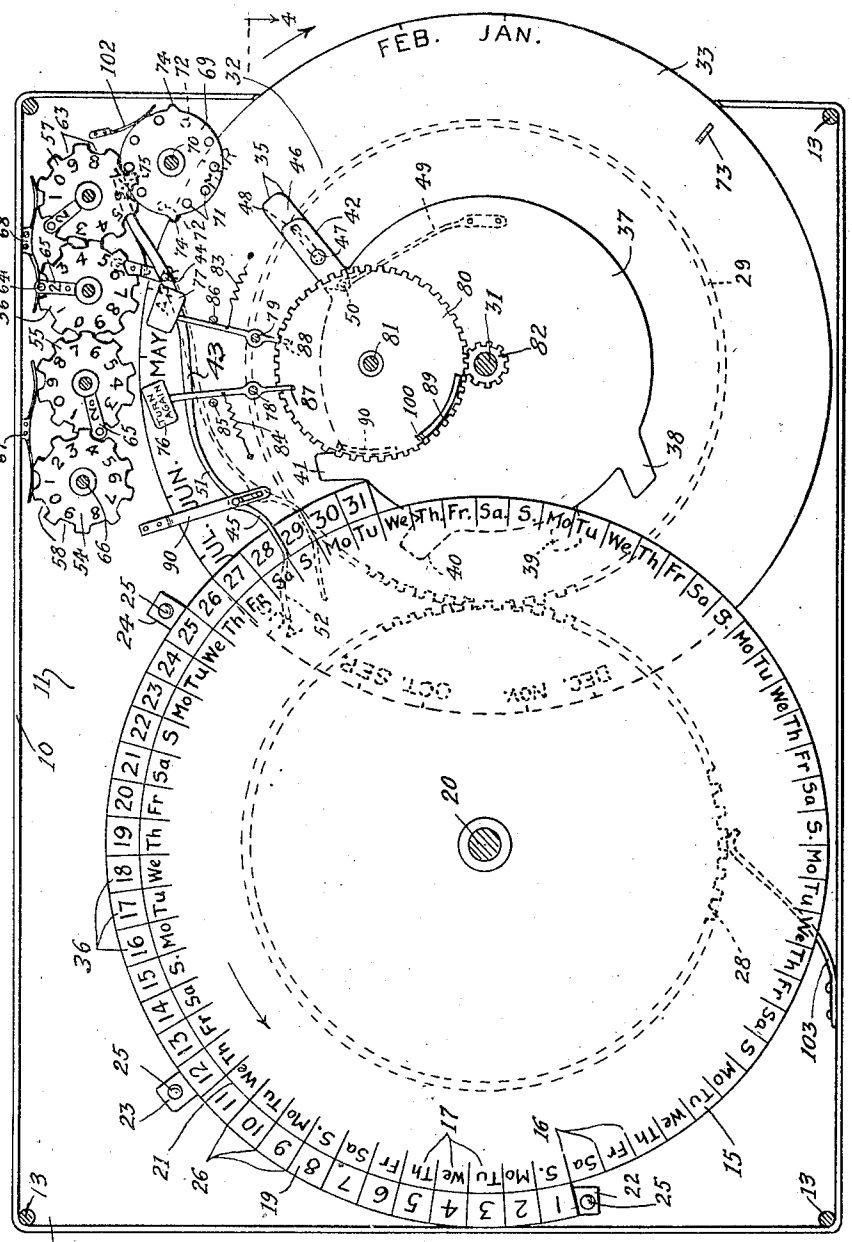


Fig. 3

Inventors:
William P. Skinner
Wallie C. Mangel
By: Howard Fisher
their Attorney.

Patented Nov. 23, 1926. 1,607,703

UNITED STATES PATENT OFFICE.

WILLIAM P. SKINNER AND WALLIE C. MANGEL, OF FAIRFAX, MINNESOTA.

PERPETUAL CALENDAR.

Application filed June 11, 1921, Serial No. 476,729. Renewed October 14, 1926.

Our invention relates to perpetual calendars and has for its object to provide a calendar having means for indicating the days, dates, months and years, which calendar may be set for any particular month and year so that the same will automatically indicate the true relation between the days and dates corresponding to any particular month and year.

Another object of the invention is to provide a fixed member having the dates marked thereon and a movable member having a number of weeks positioned on the same with days adapted to be oppositely positioned relative to the dates on the fixed member.

Another object is to provide means for automatically obscuring the 29th, 30th and 31st dates of the calendar when months having twenty-eight and thirty days are displayed.

Another object is to provide means whereby the relative positioning of the days and the dates is advanced one day at the end of each year.

A still further object of the invention is to provide means for indicating independently each of the digits of a year with means automatically terminating the movement of the digits on the occurrence of leap-year so that further movement of the operating parts of the invention will cause the relative positioning of the days and dates to be advanced as required in leap-year.

Another and more specific object of the invention resides in providing means for automatically closing the month indicating space on the calendar when the device is being operated to correct the calendar for leap-year.

The full objects and advantages of our invention will appear in connection with the detailed description thereof and are particularly pointed out in the claims.

In the drawings, illustrating the application of our invention in one form:—

Fig. 1 is a front elevational view of our invention.

Fig. 2 is a side elevational view of the device shown in Figure 1.

Fig. 3 is a view similar to Figure 1 drawn to a larger scale with certain parts of the device removed to show the construction of the same within.

Fig. 4 is a plan sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is an enlarged detail view of some of the parts shown in Figure 3.

Fig. 6 is a side view of the parts shown in Figure 5.

Our invention as best shown in Figure 1 comprises an exterior casing A which contains all of the operating parts of the invention. This casing comprises a perimetric frame member 10 which has attached to it a back 11 and a front 12 by means of bolts 13 extending through the corners of the same. The front 12 is formed with an arcuate slot 14 extending completely through the same, which slot is positioned to expose a portion of the periphery of a disk 15 positioned within the casing A and journaled to the back 11 and the front 12 by means of a shaft 20 passing therethrough. The face of the disk 15 adjacent the periphery of the same is divided into sixty-three spaces as indicated at 16, which spaces are successively marked with days of the week as indicated at 17 thus providing nine consecutive weeks arranged successively around the periphery of the wheel. Slot 14 is of such a size that the lower edge 18 thereof falls below the demarkation on the face of disk 15 so that the letters 17 indicating the days of the week become visible through said slot. Within casing A is mounted an arcuate member 19 which is positioned with its face somewhat back of the face of the disk 15 leaving a space 34 between the same and which has its edge 21 circumferentially positioned around the periphery of disk 15. This member is attached to the inside of back 11 by means of three lugs 22, 23, and 24 which have screws 25 passing through the same screwed into the back 11 as indicated in Figure 3. The face of the member 12 is divided into thirty-one divisions 26 which correspond to the divisions 16 of the disk 15 so that when the disk 15 is properly positioned in relation to member 19 the various divisions on the two members register opposite one another as clearly shown in Figure 3. The divisions 26 are numbered from the left to the right, from one to thirty-one inclusive, at 36 which represent the numbers of the days in a month. It can hence be clearly comprehended that when the disk 15 is properly positioned relative

to member 19 that the correspondence between the days of the week and the numbers of days of the month is such that the data displayed provide a calendar indicating correctly the day of the week on which any particular date in the month falls or vice versa. It can further be seen that inasmuch as the days of the week arranged on disk 15 are consecutive that by properly positioning any particular date of the month relative to the required day of the week that all of the other dates and days for that month will be correspondingly correct. In order to properly shift the disk 15 so that the proper relation between the days of the week and the dates of the month exist we provide means which will now be explained in detail.

The device for operating disk 15 can best be seen in Figures 3 and 4. Disk 15 previously referred to has attached to it a hub 27 which carries a spur gear 28 rigidly mounted thereon and adapted to travel in unison with the said disk 15. For holding the disk from movement after the same has been properly set we employ a spring 103 attached to casing A which engages the teeth of the gear 28 as clearly indicated in Figure 3. Gear 28 is provided with sixty-three teeth and meshes with a corresponding spur gear 29 provided with a hub 30 which is rotatably mounted on a shaft 31 extending through and journaled in the front 12 and back 11 of casing A. The hub 30 has attached to it a disk 32 similar to the disk 15 which is of such a size that the edge of the same as indicated at 33 projects outwardly beyond the casing A so that the same may be manipulated by the fingers to cause the same to rotate and turn the disk 15. A small rectangular opening 35 formed in the front 12 of casing A is adapted to successively expose portions of the disk 32 at the top of the same as clearly shown in Figure 1. The disk 32 is provided along its front face near the circumference with demarkations indicating the various months of the year. The demarkations for January are so arranged that on January of some particular year the first date of the month indicated on member 19 comes opposite the correct day of the week 17 indicated on the disk 15. All of the other months on the disk 32 are then arranged on the same so that the space between them corresponds to the number of days in the week between corresponding dates of each month so that when the disk 32 is turned to indicate the various months through the opening 35 in the front 12 the days indicated at 17 are shifted so as to bring the same in proper relation to the dates 36 on the member 19. This may be made clear by a concrete example. January 1, 1921, comes on Saturday. The first of February comes on Tuesday in 1921, which is three days in the week after the first of January. The space between January and February as shown in Figure 3 corresponds to three days so that when the disk 32 is rotated from January to February the disk 15 moves three spaces relative to the member 19 so that the first of the month which originally was on Saturday registers opposite Tuesday. In a corresponding manner all of the other months are so arranged that when the disk 32 is rotated the disk 15 is advanced to bring the correct day of the week opposite the correct dates in the month. It will be noted from Figure 3 that the space between January and December is very large in comparison with the space between any of the other months. This is due to the fact that the arcuate member 19 only extends around a portion of the periphery of disk 15. Had the disk 15 been formed with five weeks instead of nine, members 19 would extend thirty-one thirty-fifths around said disk thereby reducing the number of weeks on the disk 15 and corresponding distance between January and December on the disk 32. However, applicants find by placing more weeks on disk 15 that the numeral indicated on member 19 are more easily read and the device is hence simpler and more efficient to use. It can, however, be comprehended that the number of weeks used on disk 15 does in no way affect the operation of the device as long as the whole number of weeks is employed.

The use of the device is obvious. Disk 32 is rotated by the portion 33 thereof protruding beyond casing A until any particular month appears in the opening 35. By means of the gears 29 and 28 disk 15 is correspondingly rotated bringing the corresponding days of the week opposite the numerals indicated at 36 so that when any month appears in opening 35 the dates and corresponding days of the week will be indicated through the arcuate opening 14.

To cause the calendar to properly operate for the succeeding number of years we form the gear wheel 29 with sixty-four teeth which mesh with the sixty-three teeth of the gear wheel 28. It can hence be seen that when disk 32 is given one complete revolution due to the gear ratio disk 15 is given one and one-sixty-third of a revolution. Since there are sixty-three divisions 16 on this disk the same is advanced one space relative to member 19 so that if the first of January, 1921, came on Saturday, the first of January, 1922, would then come on Sunday. In this manner the device may be consecutively rotated progressively or retrogressively to continually show the proper relation between the days of the week and dates of the month. Although the device may be constructed so that the disk 22 may be rotated in either direction we have shown the same as rotat-

ing in a clock-wise direction in the drawings causing the disk 15 to rotate in a counter-clockwise direction.

In order to inform the user of the calendar the number of days in any particular month we provide a device clearly indicated in Figures 3 and 4. This device comprises a body member 37 which is securely fastened to the hub 30 of disk 32. This member has attached to it a number of outwardly projecting cover members 38, 39, 40, 41 and 42 which are so positioned that when the appropriate month is visible in the opening 31 of casing A that one of these cover members is adapted to cover the last numerals on the member 19 so as to make only the appropriate number of dates corresponding to the particular month visible through the opening 14. These cover members and the body member 37 are positioned within the space 34 between member 19 and disk 15, so that the same do not cover any portion of the days of the week displayed on said member 15 within the opening 14. It will be noted that the cover members 38, 39, 40 and 41 which correspond to April, June, September and November are of such a size as to cover only the thirty-first day indicated on member 19 while the cover member 42 which corresponds to February is of a length sufficient to cover both the numerals 30 and 31. To take care of leap-year we provide a finger 46 which is slidably mounted on the end of cover member 42 by means of a rivet 47 and a slot 48 passing through said finger. This finger is normally held in its extended position by means of a spring 49 which is secured to the body member 27 at one end and which is pivoted to the end of the finger 46 at 50 at its other end. When finger 46 is in its extended position the cover member 42 and said fingers are adapted to jointly cover the numerals 29, 30 and 31 while when finger 46 is forced inwardly cover member 42 is only adapted to cover numerals 30 and 31. This device is rendered operable by means of a swinging arm 43 which is pivoted at 44 to the casing A, and is guided by a guide member 90 secured to said casing. This arm is provided with a thin portion at 45 which crosses the face of the member 19 lying within the space 34 between said member and the disk 15, which portion is adapted to take either of two positions shown in full and dotted lines in Figure 3, which positions overlie the division lines as clearly shown in said figure. Adjacent portion 45 of arm 43 the same is formed with two cam surfaces 51 and 52 which spiral away from the axis 31 of disk 32. The extreme end of finger 46 which is formed rounded at 35 is adapted to engage either of cam surfaces 51 and 52 when said arm 43 is depressed as shown in dotted lines in Figure 3, at which time said finger 46 is forced inwardly against the action of spring 49 to cover only the numerals 30 and 31 on member 19. In this manner the numeral 29 is covered at the month of February for all years excepting leap-year when the arm 43 is brought to its position, shown in dotted lines, by a device which will be later explained, at which time said finger 46 is inwardly depressed and numeral 49 exposed as required. It can hence be clearly comprehended that the device is adapted to actually show the exact number of days in any month for any year whatsoever.

For indicating the respective years we provide four dials 54, 55, 56, and 57 which are each provided with ten digits ranging from one to naught as indicated at 58, any one of which digits can be exposed through four openings 59, 60, 61 and 62 in the front 12 of casing A. As dials 54, 55, 56, and 57 are rotated the same may be made to show a succession of digits indicating any desired year on the front of the calendar. Each of the dials 54, 55, 56, and 57 is provided with a plurality of notches or indentations 63 along the periphery of the same which are adapted to be successively engaged by a pin 64 secured to an arm 65 mounted on the rear of each of said dials. As each of said dials is rotated and the pin 64 comes in engagement with one of the grooves 63 the said dial is given a turn equal to a tenth of a revolution so that a new digit is brought into view through the various openings 59, 60, 61 and 62 in the casing A. Indentations 63 are so designed that when the said dials make a tenth of a revolution the pins 64 will be free from the indentation 63 so that said dials may make nine-tenths of a revolution without affecting the movement of the adjacent dials. All of these dials are secured to shafts 66 which extend through and are journaled in the rear 11 and front 12 of casing A and are further provided with springs 67 and 68 which hold the same from unintentional movement after the said dials have been properly set by the actuating mechanism therefor.

The device for operating the dials 54, 55, 56, and 57 comprises a wheel 69 mounted on a shaft 70 which is journaled in a manner similar to shaft 66. This shaft is provided with a number of pins 71 which extend completely through this wheel on both sides. In addition to this said wheel is formed with a pair of pins 72 positioned diametrically opposite each other which project on the rear face of the said wheel 69 and which lie flush on the front face thereof. These pins in conjunction with the pins 71 form a series of equally spaced circumferentially positoned members on the rear side of the device and a similar number of equally spaced circumferentially positioned mem-

bers on the other side, two of which are missing. A single gear tooth 73 attached to the disk 32 is adapted to engage pins 71 and 72 on the rearward side of wheel 69 to give said wheel a step by step rotation, each movement being one-tenth of a revolution, said wheel remaining stationary, the same as the dials 54 and 55, when the tooth 73 has passed by said wheel. A spring 102 holds wheel 69 from movement after tooth 73 has passed the same. The teeth 71 on the front face of the wheel 69 are adapted to fit into notches 63 on dial 57 and to successively give said dial a step by step rotation as said wheel is rotated by means of the disk 32. Pins 71 are so positioned that as soon as they have given dial 57 a tenth of a revolution the last operating pin is free from the dial. With this construction dial 57 is given four successive step by step movements while either of the sets of pins 71 engage a corresponding notch 63. As soon as the blank space opposite either of the pins 72 occur dial 57 remains stationary for one-tenth of a revolution of the wheel 69. This has the effect of holding the year stationary while disk 32 is rotated one complete revolution. The reason for this construction is to advance disk 15 one day every fourth year, namely on leap-year to take care of the extra day which occurs in February in this year. The use of the device necessitates one complete additional turn of the disk 32 for leap-year which properly advances the days of the weeks indicated on the disk 15 one day for that particular year.

For operating the arm 43 previously referred to we provide a lug 74 which is formed on the periphery of the wheel 69 which lug is adapted to engage a cam surface 75 formed on the extreme end of said arm 43. This lug 74 is adapted to raise arm 43 and to bring the portion 45 from the position shown in full lines to that shown in dotted lines as soon as leap year occurs thereby causing the cover finger 46 to be depressed permitting the showing of the twenty-ninth day of February during leap-year. Inasmuch as the wheel 69 is automatically operated by the disk 32 the correct showing of the respective dates in the month is rendered automatic.

To render the device fool proof during leap-year we provide a pair of flags 76 and 77 which are pivoted at 78 and 79 to the front 12 of casing A. These flags are adapted to cover the months written on the disk 32 as would otherwise have been exposed through the opening 35 and to display in said opening the words "turn again" or some other information which would instruct the operator to give the disk 32 the additional revolution necessary to bring out the proper relation of the days of the week and the dates of the month for leap-year. These flags are arranged to be operated as follows. A gear wheel 80 is rotatably mounted on a spindle 81 secured to the front 12 of casing A. Gear 80 is adapted to mesh with a pinion 82 which is secured to shaft 31 and is operated thereby. The ratio of the speeds of the gears is 1:5 so that a particular point on gear 80 passes the same flags 76 and 77 once every four years or on leap-year. Flags 76 and 77 are normally held away from opening 35 by means of two coil springs 83 and 84 secured thereto and to the front of casing A which springs draw said flanges against two stops 85 and 86 mounted on the underside of the front 12. In addition to this the said flags are provided with two depending arms 87 and 88 of which arm 87 is adapted to lie in front and arm 88 to the rear of the upper portion of gear 80. Gear 80 has attached to it two cam members 89 and 90 positioned on opposite sides thereof and are adapted to engage the depending arms 87 and 88 of flags 76 and 77 to cause said flags to swing in front of the opening 35 when required. The design and positioning of cams 89 and 90 is such that when disk 32 is rotated from January to February during leap-year that the cam member 89 engages the arm 87 and draws flags 76 in front of opening 35. The user then reads the instructions to turn again and continues to rotate the disk 32 until the flag disappears. The device is so arranged as to cause this to occur immediately before February on the second showing of the same. In this manner the proper relation between the days of the week and the dates of the month can in nowise be erroneously indicated since while making the extra revolution of disk 32 the months are covered and no showing is had. Flag 77 and cam member 90 operate in the same manner so as to effect the closure of the opening 35 when the device is rotated backwardly to secure a past date. To permit of the turning of gear 80 in the opposite direction to that required for operating either of the flags 76 or 77, cams 89 and 90 are formed with inclined surfaces 100 at the opposite end thereof which are adapted to spring the arms 87 and 88 outwardly from the device to permit of said cam traveling under said arms without operating the same.

The advantages of our invention are manifest. A perpetual calendar is provided which is absolutely automatic in the showing of the proper relation of the days, dates and months for any particular year. The calendar takes care of leap-year so that no action on the part of the user is required to correct the same for this particular year. Due to the flag members provided for covering the month opening the calendar cannot show a wrong combination. The device is extremely simple in construction, is easily

operated and is of an attractive appearance so that the same may be placed upon a desk or other piece of furniture to form an ornamental adornment for the same as well as serving in its useful capacity.

In accordance with the patent statutes we have described the principles of operation of our invention together with the apparatus which we now consider to represent the best embodiment thereof, but we wish to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

We claim:—

1. A perpetual calendar comprising a rotatable member, demarkations indicating months on said rotatable member, means for successively displaying said demarkations, means for rendering said display means inoperative, a gear driven by said rotatable member, a second gear meshing with said first gear, and traveling one fifth as fast as said first gear and means connected with said second gear for actuating said means for rendering the display means ineffective.

2. A perpetual calendar comprising a rotatable member, days of the week marked on said member, a fixed member, dates of the month marked on said fixed member and adapted to correspond to said day marks on the rotatable member, a driven gear secured to said rotatable member having a number of teeth equal to the number of day marks thereon, and a driving gear for operating said driven gear having one tooth in excess of the number of teeth on said driven gear.

3. A perpetual calendar comprising a casing, a rotatable member within the casing, demarkations indicating the months of the year on said rotatable member, a window in said casing adapted to successively display said demarkations, a flag for covering said window and means for operating said flag from said rotatable member upon every fifth rotation thereof.

4. A perpetual calendar comprising a casing, a rotatable member within the casing, demarkations indicating the months of the year on said rotatable member, a window in said casing adapted to successively display said demarkations, a flag for covering said window, a lever pivotally supporting said flag on the casing, a gear secured to said rotatable member, a second gear meshing with said first gear and pivoted to said casing, said second gear being adapted to travel one fifth as fast as said first gear and means on said second gear adapted to engage said lever to throw the flag in front of said window.

5. A perpetual calendar comprising a rotatable member, demarkations adjacent the periphery of the said rotatable member, for indicating the days of the week, a fixed member, demarkations on said fixed member lying adjacent the demarkations on said rotatable member representing the dates of the month, a second rotatable member, demarkations on said member indicating the months of the year, a gear secured to said first rotatable member having a number of teeth corresponding to the number of demarkations on the same, a gear on said rotatable member meshing with said first gear having one tooth in excess of the number of teeth on said first gear.

6. A perpetual calendar comprising a movable member, demarkations indicating the months of the year on said member, means for displaying successively said demarkations, means for rendering said display means inoperative and means for driving said last named means actuated by said movable member, said driving means becoming effective after the fourth cycle of operation of said movable member.

7. A perpetual calendar comprising a fixed member having demarkations representing the dates of the month, a rotatable member having the demarkations representing the months of the year, means for successively displaying certain monthly demarkations, a body secured to said rotatable member, arms formed on said body properly positioned in relation to said monthly demarkations adapted to cover certain of said date demarkations to cause the number of days indicated to correspond to the particular month displayed.

8. A perpetual calendar comprising a fixed member having demarkations representing the dates of the month, a rotatable member having the demarkations representing the months of the year, means for successively displaying certain monthly demarkations, a body secured to said rotatable member, arms formed on said body properly positioned in relation to said monthly demarkations adapted to cover certain of said date demarkations to cause the number of days indicated to correspond to the particular month displayed, and a movable member mounted on one of said arms adapted to extend inwardly beyond the same to reduce the length thereof to add an extra day to compensate for leap-year.

9. A perpetual calendar comprising a movable member having demarkations representing the months thereon, means for indicating the years, a rotatable member for operating said year indicating means and means actuated by said rotatable member adapted to successively advance said year indicating means for four cycles of movement of said movable member and to remain ineffective during the movement of said movable member during its fifth cycle and

means actuated by said movable member for indicating the relation of the days of the week and the dates of the month.

10. A perpetual calendar comprising a movable member, demarkations representing months on said movable member, a rotatable member, year indicating means and means on said rotatable member adapted to be successively given a step by step rotation by said movable member for each complete cycle of operation of said movable member and means on said rotatable member for operating said year indicating means adapted to give said year indicating means a number of successive step by step movements one for each of a number of complete cycles of movement of said movable member and to remain ineffective for one cycle of movement of said movable member and means actuated by said movable member for indicating the relation of the days of the week and the dates of the month.

11. A perpetual calendar comprising a rotatable member, demarkations on said rotatable member representing the months of the year, means for indicating the years, a rotatable driving member for operating said indicating means, means on said driving member adapted to be successively operated by said rotatable member for each cycle of movement thereof to give the same a step by step movement and means on said driving member adapted to give said year indicating means a number of step by step movements and to remain ineffective upon said indicating means for a period during one of the step by step movements given to it by said movable member and means actuated by said movable member for indicating the relation of the days of the week and the dates of the month.

12. A perpetual calendar comprising year indicating means including a member adapted to be given a step by step movement, month indicating means, a rotatable member adapted to be periodically driven by said month indicating means, and means on said rotatable member for intermittently operating said year indicating means throughout a portion of the revolution thereof only and means actuated by said movable member for indicating the relation of the days of the week and the dates of the month.

13. A perpetual calendar comprising year indicating means including a movable member adapted to be given a step by step movement, a driving member adapted to be uniformly given a step by step movement and a plurality of engaging members on said driving member adapted to engage and operate said year indicating movable member, some of said engaging members being unequally spaced upon said driving member so as to cause said year indicating means to remain at rest throughout a portion of the movement of said driving member and means actuated by said movable member for indicating the relation of the days of the week and the dates of the month.

14. A perpetual calendar comprising a casing, a rotatable member within the casing, demarkations indicating the months of the year on said rotatable member, a window in said casing adapted to successively display said demarkations, a flag for covering said window, an arm pivoted to said casing, adapted to support said flag, a depending finger formed on said arm, a gear secured to said rotatable member, a second gear pivoted on said casing and adapted to travel one fifth as fast as said first gear, a cam member on said second gear adapted to engage said finger to cause the flag to be projected in front of said window.

15. A perpetual calendar comprising a rotatable member, a fixed member having demarkations thereon representing the dates of the month, a number of said demarkations being positioned in the path of travel thereof of said rotatable member and others of said demarkations being positioned out of the path of travel thereof, means formed on said rotatable member adapted to cover certain of said first named demarkations as said member is rotated and means operable in conjunction with said rotatable member for indicating the dates of the month, months of the year and the years.

16. A perpetual calendar comprising a rotatable member having demarkations representing the months of the year, a fixed member having demarkations representing the dates of the months, the latter of said demarkations being positioned in proximity to said rotatable member, a body member secured to said rotatable member, arms attached to said body member adapted to cover the latter demarkations on said fixed member as said rotatable member is rotated, an extension slidably mounted on one of said arms, a swinging cam extending across said demarkations and means for operating said cam to permit the extensible member to be depressed upon every fifth revolution of said rotatable member.

17. A perpetual calendar comprising a rotatable member having demarkations representing the months of the year, a fixed member having demarkations representing the dates of the months, the latter of said demarkations being positioned in proximity to said rotatable member, a body member secured to said rotatable member, arms attached to said body member adapted to cover the latter demarkations on said fixed member as said rotatable member is rotated, an extension slidably mounted on one of said arms, a swinging cam extending across said demarkations adapted to be swung into op-

erating position to depress said extensible member by the operation of said year-indicating means in order to indicate each leap year.

18. A perpetual calendar comprising a casing, a rotatable member within the casing, demarkations indicating the months of the year on said rotatable member, a window in said casing adapted to successively display said demarkations, a gear secured to said rotatable member, a second gear pivoted to said casing meshing with said first gear, a pair of arms pivoted to said casing, flags secured to the ends of said arms and adapted to be oscillated in front of said window, a depending finger formed on one of said arms positioned on one side of said second gear, an engaging member formed on one side of said gear adapted to operate said finger to move the flag in front of said window and a second engaging member positioned on the other side of said second gear adapted to engage said other finger in the opposite direction of rotation of said second gear.

19. A perpetual calendar comprising a disk, having the edge thereof divided into 63 spaces, demarkations in said spaces representing the days of the week, said demarkations being successively duplicated nine times, an arcuate fixed member positioned in proximity to the periphery of said disk, said fixed member being divided into spaces corresponding to the spaces in said disk, numerals in said spaces ranging from 1 to 31 inclusive, a second disk having demarkations along the periphery of the same, representing the months of the year and means for driving said first disk from said second disk.

20. A perpetual calendar comprising a rotatable member, a fixed member having demarkations thereon, representing the dates of the month, said demarkations for the later days of the months being substantially arranged in proximity to said rotatable member, arms adapted to cover one or more of said demarkations, as the said rotatable member is rotated, and an extensible finger secured to one of said arms for covering additional demarkations on said first member.

21. A perpetual calendar comprising a rotatable member, days of the week marked on said member, a fixed member, dates of the month marked on said fixed member and adapted to correspond to said day marks on the rotatable member, a driven gear secured to said rotatable member having a number of teeth equal to the number of day marks thereon arranged continuously about the periphery thereof and a driving gear having one tooth in excess of the number of teeth on said driven gear for operating the same, said teeth being arranged continuously about the periphery thereof, month indicating means connected with said driving gear and year indicating means operated from said month indicating means.

In testimony whereof we affix our signatures.

WILLIAM P. SKINNER.
WALLIE C. MANGEL.