(No Model.)

# L. PALMERSTEN.

## CALENDAR.

No. 429,949. Patented June 10, 1890.

Fig. 1.

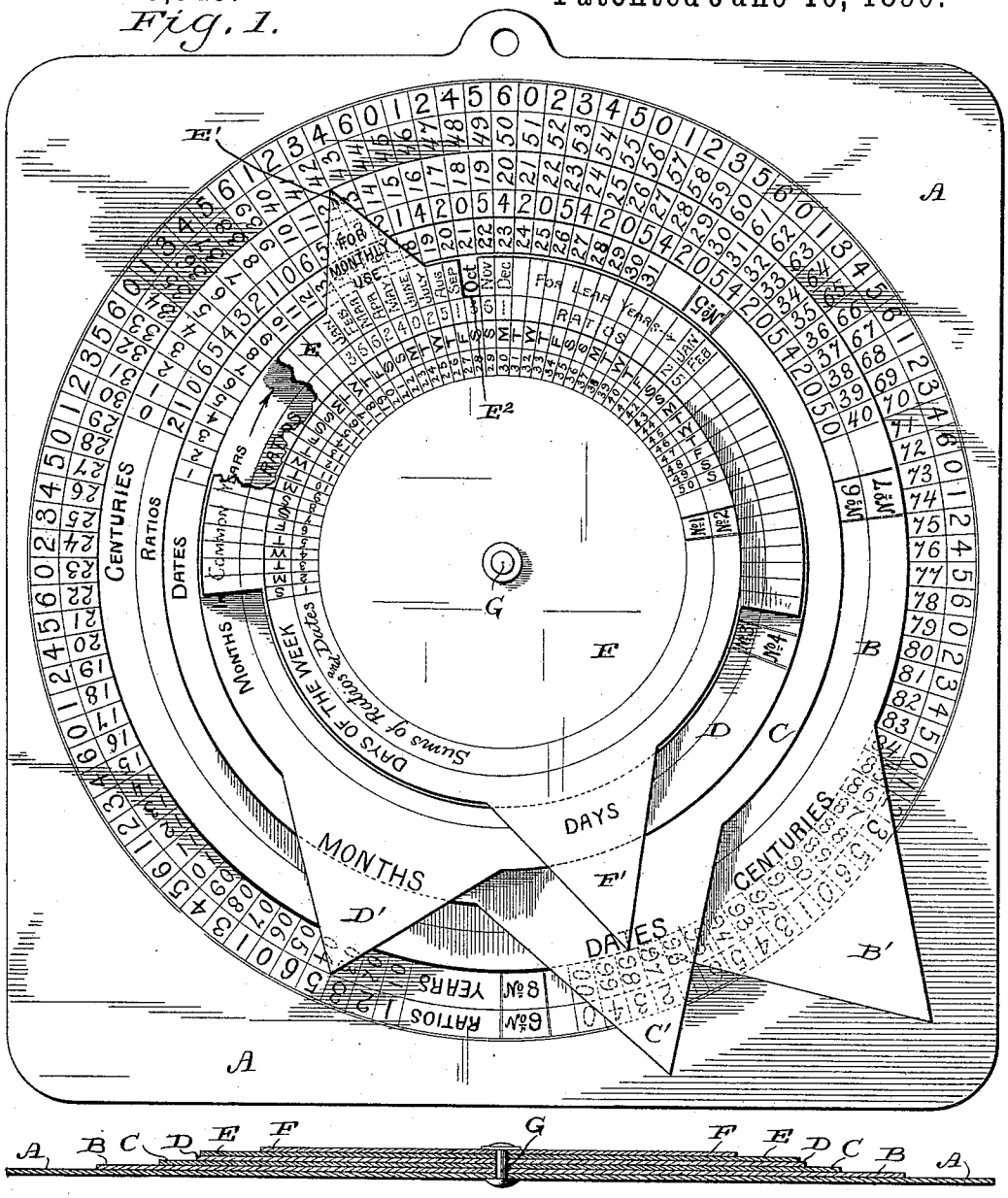






Fig. 2.

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# UNITED STATES PATENT OFFICE.

LOUIS PALMERSTEN, OF MILWAUKEE, WISCONSIN.

## CALENDAR.

SPECIFICATION forming part of Letters Patent No. 429,949, dated June 10, 1890.

Application filed September 20, 1888. Serial No. 285,847. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS PALMERSTEN, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Calendars; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to calendars, and will be fully described hereinafter.

In the drawings, Figure 1 is a plan view of my device, partly broken away to better illustrate the construction; and Fig. 2 is a central transverse section.

Primarily my device consists of a series of cards or plates arranged one upon the other and constantly diminishing in diameter from the lower to the upper plate, centrally united by a rivet or pivot-pin, which permits them to turn freely, but held tightly enough to prevent accidental displacement.

The objects of my device are, first, to provide a calendar for ascertaining the day of the week for any desired date from January 1 of the year A. D. 1 to January 1 of the year A. D. 4000, and, secondly, to combine therewith a calendar adapted to be set for current monthly use.

A is the bottom card or plate, and this is provided with two circles marked, respectively, No. 8 and No. 9, the latter being the outer circle. Circle No. 8 is the circle of the years, and runs from "0 1" to "0 0," embracing a hundred divisions, corresponding to the two right-hand figures of a century of years. Circle No. 9 I designate as that of the "ratios" of the years, and comprises, also, a hundred divisions, corresponding to the divisions in circle No. 8, each division containing the proper digit or cipher for the arithmetical calculation to be afterward described.

Resting upon plate A is plate B, circular in form, save that it may be provided with a tag or extension B′, as shown, for convenience in turning, said tag being shown as integral with the plate or card B, though it is obvious that any other form of tag or attachment may be applied to the several rotating plates for this purpose. Plate B has also two circles, (marked No. 6 and No. 7,) both being marked off in divisions spaced so as to register with any of the division-lines of the circles Nos. 8 and 9 of plate A. The outer circle No. 7 is the circle of the centuries, and the divisions thereof are numbered consecutively from 0 to 40, while the inner circle No. 6 is that of the ratios of the centuries, and the divisions thereof contain the proper digits or ciphers for the before-named arithmetical calculation.

Plate C, of a diameter just equal to the inner circle of plate B, rests on said plate B, and is provided with but one circle No. 5, called the "circle of the dates," which circle is spaced to register with the division-lines of circle No. 6, there being thirty-one divisions marked off and numbered consecutively from 1 to 31, to include all the days of the longest month. Plate C is provided with an integral projecting tag C′ or other turning device.

Plate D rests on plate C, its diameter being just within the inner line of the circle on the latter, and is called the "month-plate." It is marked with two circles, No. 3 and No. 4, which are marked across with division-lines registering with those on circle No. 5. The outer circle No. 4 is called the "circle of the months," and the first twelve divisions are marked with the names of the months from January to December, in regular order, (and preceding these I have marked on this circle No. 4 the words "Months in Common Years," to avoid mistakes.) Then follow eleven blank divisions, (marked "For Leap-Years,") and then the next two divisions are marked "January" and "February." Circle No. 3 of this plate D contains and is called the circle of the ratios of the months, and in the described fourteen divisions, in line with the divisions in circle No. 4 containing the names of the months, are the proper digits or ciphers for the arithmetical calculation hereinbefore referred to. Plate D has a tag D′ or other turning device.

Plate E is that denominated "for monthly use," and is interposed between plate D and the upper plate F, which latter has two circles, Nos. 1 and 2, while the plate E has half of its periphery cut away to practically correspond to the diameter of the said smaller upper plate F, and the other half of its periphery extends to about the same circumferential line as that of the plate D below it,

and this part of the plate E has division-lines registering with those of circle No. 5, plate C. One of these division-spaces is cut away, as shown at $E^2$, so that when properly turned the name of a month may be thereby exposed, and the said plate E has a tag or projection E′ or other turning device. As stated, the upper plate F has two circles, the outer one No. 2 being the circle of the days of the week and having fifty divisions marked off by lines which register with the lines of the circles of the other plates, and contain the names (or initials) of the days of the week from Sunday to Saturday, and then, beginning with Sunday, the same repeated, so that the fiftieth and last space is for Sunday also, while the inner circle No. 1 is that of the sum of the ratios and dates, and is similarly divided off in line with the divisions in circle No. 2, and the divisions in circle No. 1 are numbered consecutively from 1 to 50, inclusive. This plate F has also a projecting tag or turning device F′, and all the plates, as stated, are held together with sufficient friction by the pivot-pin G, suitably upset, or provided with washers, heads, or nuts to keep all compactly together.

I will first describe the manner of using my device in the necessary calculation for ascertaining any day of the week for a given date, and for illustration take the date October 21, 1848. The "century-plate" B is turned until the division 18 in circle No. 7 is in line with division 48 in circle No. 8 of plate A. Then plate C is turned until division 21 in its circle No. 5 is in line with the foregoing-named divisions. Then turn plate D until the month "October" in circle No. 4 is also in line. Plate E should then be turned so that its cut-away portion will expose all of the months and ratios on circles 3 and 4; but as this plate E is shown otherwise turned for another purpose in Fig. 1 the words, digits, and ciphers concealed thereby, as well as those concealed by the turning-tags B′, C′, D′, E′, and F′ of the various plates, have been shown in dotted lines. Then add the sum of the ratios in circles Nos. 9, 6, and 3, which are in line with the divisions containing the date October 21, 1848, in circles Nos. 4, 5, 7, and 8, to the day of the month in circle No. 5. In this instance the respective ratios are found to be 4, 0, and 3, making 7, which added to the date number 21 make 28. Then, having found this sum, turn plate F until the division bearing this number in circle No. 1 is in line with the aforenamed divisions of the said date, and in circle No. 2, also in line therewith, will be found the name (or initial) of the day of the week, which in this instance will be found to be Saturday. If the date wanted happens to fall in either January or February of a leap-year, then in turning plate D care must be exercised to use the division "January" or "February" at the right of the eleven blank divisions in circle No. 4, and it must be borne in mind that by the correction of the calender known as "new style," and in use at the present time, every year exactly divisible by 4 is a leap-year except the centennial years, which are common years unless divisible by 400 without remainder.

The hereinbefore-named plate E is for convenience in setting the calendar into a calendar for any month desired. Having ascertained the day of the week of the first day of said month by the process hereinbefore named, turn plate E until the opening $E^2$ permits only the name of said month (in circle No. 4 of plate D) to be exposed, (in line of course with the date 1 in the first division of circle No. 5, plate C,) and thereby all the other matter (months, figures, and ciphers) on circles Nos. 3 and 4 will be concealed. Then turn plate F until the first division which contains the thus-discovered week-day name or initial will be in line therewith, and you have the calendar for that particular month. Of course if it is for the current year no particular attention need be paid to plates A and B; but if they have been properly turned in the first place, as described, in order to find what day of the week said month began with, their circles Nos. 7 and 8 will show the year-date in line with the month in circle No. 4 and the day 1 of said month in circle No. 5, which is useful in case the monthly calendar was desired for any other than the current year, so as to show that the calendar had not been accidentally or purposely turned by any one since its adjustment.

My calendar will be operative for all other purposes than the monthly arrangement just described, even if plate E is omitted; but is much more convenient and useful when said plate is combined therewith, as stated. Of course it will be understood that in circle No. 4 in place of the names of the months I may substitute their numbers 1 to 12, and in circle No. 2 I may substitute consecutive series of 1 to 7 for the names of the days, Sunday to Saturday, if desired, this being a matter of convenience or preference, and desirable for such calendars as are to be used in certain communities, such as societies of "Friends" or "Quakers," who substitute numbers for the ordinary names of the days of the week and month.

I have shown the bottom plate A as of generally rectangular form, so as to afford space for title of calendar, directions, &c.; but this plate may be circular, with the reading-matter in the center of plate F or on the back of the bottom plate.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a calendar, a base-plate having two annular spaces drawn thereon, with one hundred subdivisions drawn radially across the said two annular spaces, the subdivisions in one circle or annular space numbered from 01 to 00, corresponding to the two right-hand fig-

ures in a century of years, and the corresponding spaces in the other circle or annular space each containing a digit or cipher, in combination with a superimposed circular plate of lesser diameter, also provided with two circles or annular spaces, with forty-one subdivisions marked off radially across said circles, so as to register with the radial divisions on the base-card, the subdivisions in one of said circles being numbered consecutively from 0 to 40, and the corresponding spaces in the other circle or annular space each containing a digit or cipher, another superimposed circular plate of lesser diameter than the foregoing, provided with a single circumferential circle or annular space having thirty-one radial subdivisions marked off registering with the before-named radial subdivisions on the lower plates and numbered from 1 to 31, another superimposed plate of lesser diameter than the foregoing, provided with two circumferential circles or annular spaces marked across with radial division-lines registering with the before-named radial division-lines, twelve of the subdivisions thus formed in one circle being marked with the names of the months in regular order, followed by eleven blank subdivisions, succeeded by two marked with the names of the first two months, and the fourteen subdivisions in the other circle on this plate corresponding to the marked divisions just named, each containing a number or digit, and another superimposed plate of lesser diameter than the foregoing, also provided with two circumferential circles or annular spaces similarly marked across with registering radial division-lines into fifty subdivisions, those in one circle containing the names, initials, or numbers of the days of the week regularly repeated and those in the other circle numbered from 1 to 50, all of said plates being centrally and pivotally united to each other, substantially as set forth.

2. In a calendar, the combination of a series of plates centrally united to a bottom plate to turn one upon the other independently, said plates being of different diameters, with their exposed portions provided with series of figures, numbers, or other marks for reference and calculation, and having projecting tags or analogous turning devices, substantially as set forth.

3. In a calendar, the combination of a series of circular plates centrally united to a bottom plate to turn one upon the other, the plates above the bottom plate being of diminishing diameters, with a plate interposed between two of said plates, half of this interposed plate being of practically the same diameter or circumferential extension of the plate below it, while its other half corresponds in size and extent to that of the plate above it, the larger portion being provided with a slot or opening in its circumference, and all the circular plates having projecting tags or analogous turning devices, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

LOUIS PALMERSTEN.

Witnesses:
H. G. UNDERWOOD,
N. E. OLIPHANT.