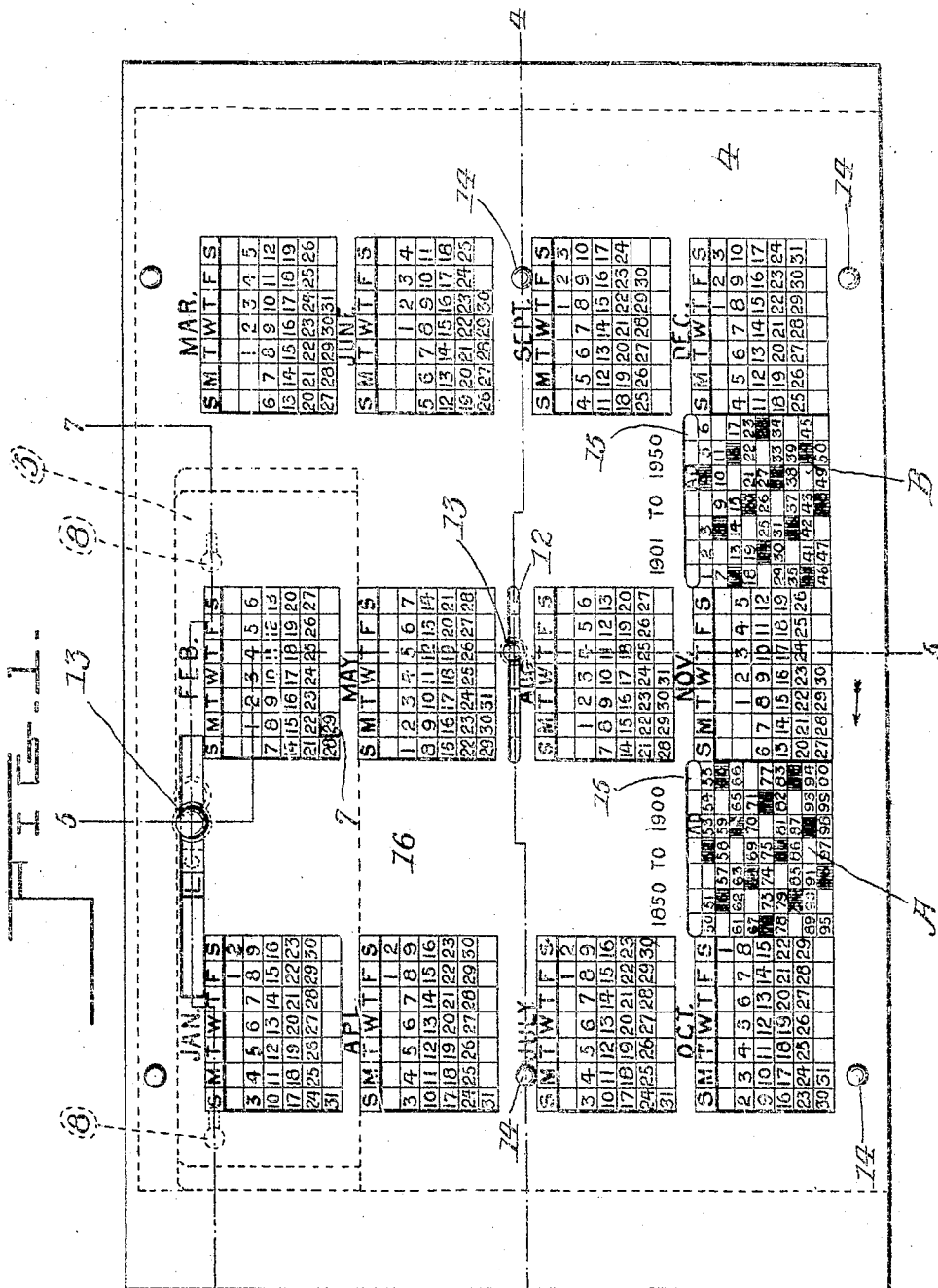


J. BALL & R. E. RITZ.

CALENDAR.

APPLICATION FILED APR. 23, 1904.

4 SHEETS—SHEET 1.



Witnesses:

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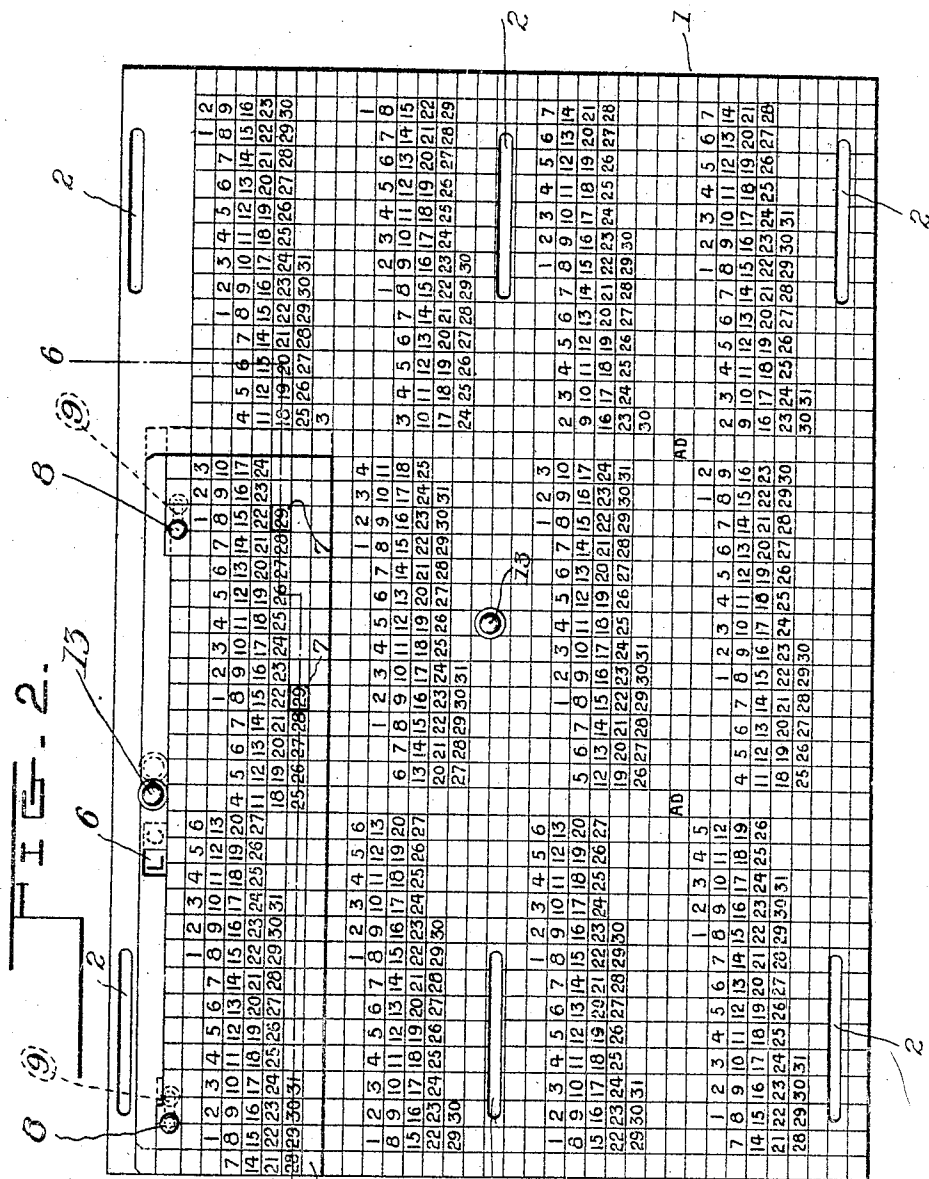
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CALENDAR.

APPLICATION FILED APR. 23, 1904.

4 SHEETS—SHEET 2.



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No. 786,618.

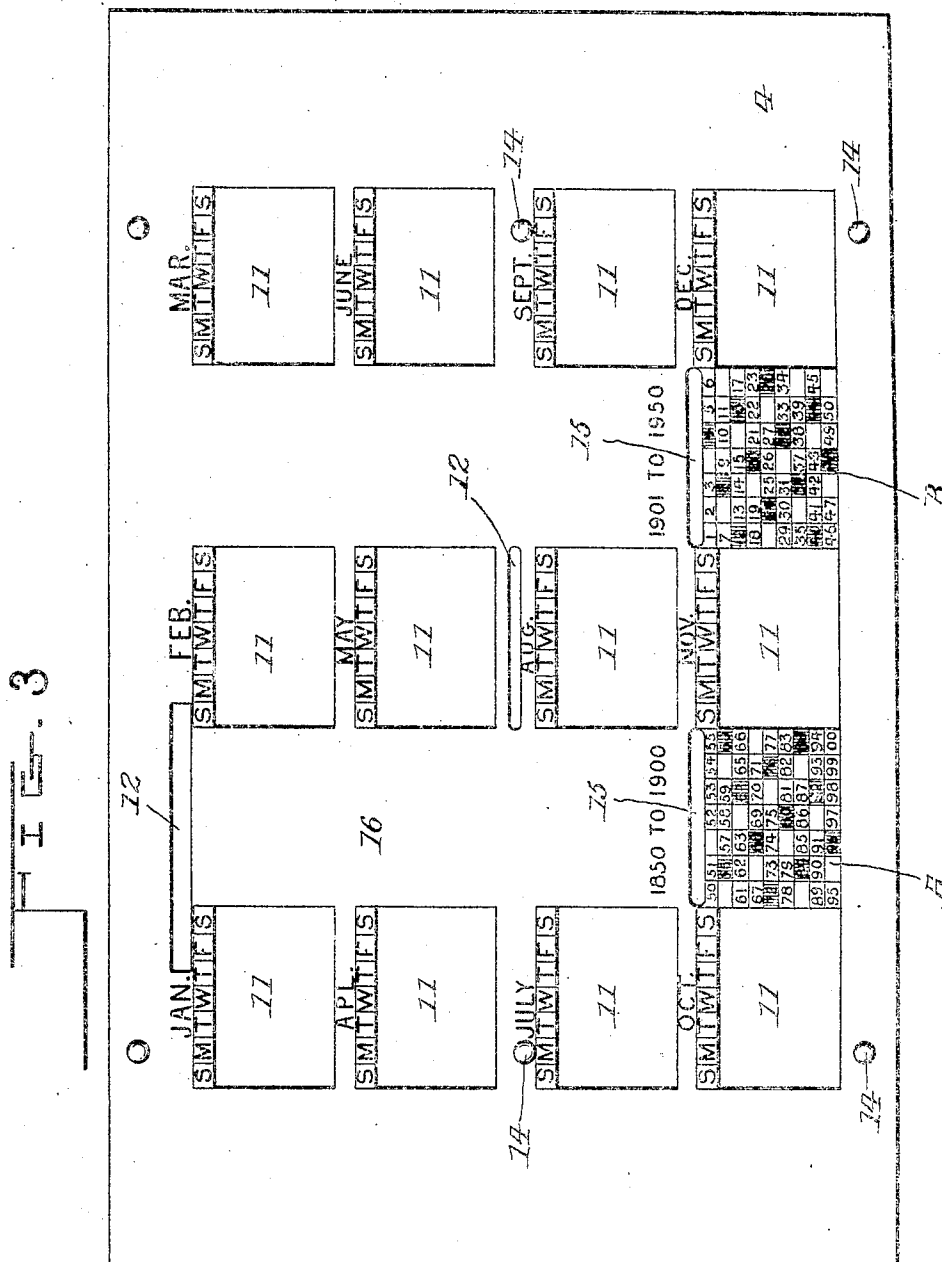
PATENTED APR. 4, 1905.

J. BALL & R. E. RITZ.

CALENDAR.

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4 SHEETS--SHEET 3.



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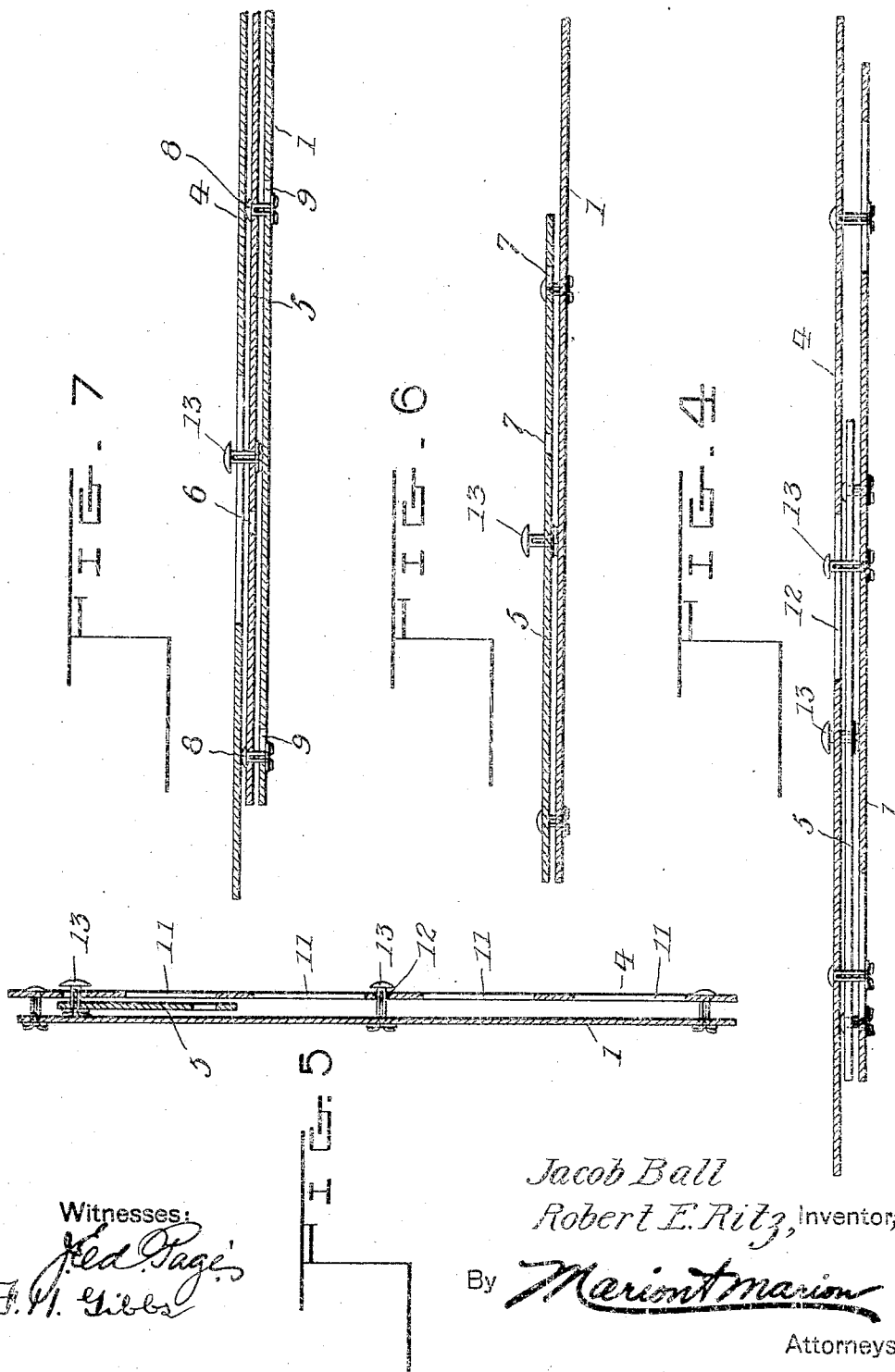
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CALENDAR.

APPLICATION FILED APR. 23, 1904.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

JACOB BALL, OF WATERLOO, AND ROBERT E. RITZ, OF BERLIN, CANADA.

CALENDAR.

SPECIFICATION forming part of Letters Patent No. 786,618, dated April 4, 1905.

Application filed April 23, 1904. Serial No. 204,518.

To all whom it may concern:

Be it known that we, JACOB BALL, a resident of Waterloo, and ROBERT E. RITZ, a resident of Berlin, in the county of Waterloo, Province of Ontario, Canada, subjects of the King of Great Britain, have invented certain new and useful Improvements in Calendars; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in what are commonly known as "perpetual calendars;" and it consists in certain features of novelty in the combination and arrangement of the parts and numerals comprising such calendar whereby a series of relatively fixed and relatively movable numerals may be so combined in one general structure as to provide means whereby such structure is available for use as a calendar for a predetermined period of years as indicated by numerals in year-charts arranged thereupon and made a part of the calendar.

A further feature of our invention is the combination, with elements adapted to produce a calendar available for use during what are herein called "common" years—that is, the years other than leap-years—with movable connections whereby the same general device is adaptable for use in indicating the days of leap-year.

The object of the invention is to produce in a unitary device such a combination of parts provided with fixed and movable digits that the same device may be utilized as a calendar for a considerable period of years to be determined in advance by the limits to which the numerical arrangement is carried out.

In the annexed drawings similar characters of reference indicate like parts in all the views where used, wherein—

Figure 1 is a general face or plan view of a calendar provided with the invention, the calendar disclosed in Fig. 1 representing the current year 1904, together with year-charts, hereinafter described, to render the same available, in conjunction with other features

the period up to and including the year 1950 and also indicating calendars for the years 1850 to 1900, inclusive. Fig. 2 is a face or plan view of what is hereinafter designated as a "base" with a slidable member especially available for use in or during leap-years connected therewith. Fig. 3 is a detached detail view of a movable face-plate adapted to be used in conjunction with the base of Fig. 2, upon which face-plate are shown year-charts. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 1. Fig. 5 is a section taken on line 5 5 of Fig. 1. Fig. 6 is a view taken on line 6 6 of Fig. 2, and Fig. 7 is a section taken on line 7 7 of Fig. 1.

In the subjoined description of our invention certain arbitrarily-selected titles are given to different parts for the sake of clearness and brevity as follows: The base-sheet or major sheet, which is shown in detail in Fig. 2 with a slidable member at the upper left-hand corner thereof, (which member is connected therewith,) is hereinafter termed in the specification and claims the "base," said base comprising the necessary digits for ten months, preferably arranged to exhibit the necessary day-numbers for all the month-sections from March to December, both inclusive, as hereinafter described. The twelve series of numerals shown in full in Fig. 2 and partly exposed in Fig. 1, which numbers serve to indicate the month-days numerically and approximately chronologically as to series of sevens, are hereinafter called "month-charts." The slidable member connected with said base in the exemplification of the invention shown being located at the upper left-hand portion of said base and carrying thereon the necessary digits for the days of two month-sections, as January and February, is called the "slide." The outer or perforated face-plate shown in plan view in Fig. 3, which face-plate has shown thereon the charted arrangement of numerals for the several years for which the calendar is meant to be available and has the sight-openings to disclose the required digits for the several months, is called the "face-plate." The charted arrangement of numerals shown beneath the numerals "1850" to "1900" and be-

neath the numerals "1901" to "1950" are hereinafter called the "year-charts." Without further description or particularity of detail where hereinafter used reference to the names "base," "month-charts," "slide," "face-plate," and "year-chart" or "year-charts" shall be understood to indicate such members as to their general character for the purposes hereinafter described and any equivalent or substituted arrangement of parts for the same several purposes, whether of the identical shape, configuration, or style or whether provided with any other equivalent marks, signs, emblems, or distinguishing data whereby such substituted parts may be adapted for the purpose and operated in the manner hereinafter specified.

Referring now particularly to Fig. 2, which shows the base and slide before referred to, the base comprises the member 1, having the slots 2, four of such slots being shown, through which slots are projected studs or buttons 14, which connect the face-plate 4 with the base and render such face-plate slidable over the base for the purpose hereinafter specified. Printed upon the base 1 are a series of month-charts, which month-charts are as follows, taking merely, for example, the chart which is located at the lower right-hand corner of the base, as disclosed in Fig. 2, for a specimen. This chart comprises six lines, three of which are partially filled with numerals and are as follows: The top line includes the numerals "1" to "7," both inclusive; the bottom line, the numerals "30" and "31," the line next to the bottom including the numerals "23" to "31," both inclusive; while three full lines, as shown, include the numerals "2" to "14" inclusive, "9" to "21" inclusive, and "16" to "28" inclusive, whereby a sufficient number of such numerals is provided so that when the face-plate 4 is moved to any of the positions within which its limit of movement is circumscribed there will be exposed through the opening in such face-plate, hereinafter referred to, at least thirty-one numbers, which, reading vertically, will be arranged in series of sevens, the said numbers indicating the month-days in regular order, as generally arranged on calendars for the month of December. Each of the months from March to December is provided with a series of numbers, which numbers, as will be noted, are repeated one or more times in each month series, but in each instance the numerals disclosed in each month-chart are arranged vertically in series of seven, like the exemplification for the month of December, corresponding to the ordinary calendar arrangement of figures, so as to bring such numbers under the ordinary abbreviations indicating the days of the week. As will be manifest, the month-charts are not facsimiles, and it will be evident why such charts are not facsimiles when it is considered for what purpose

the device is to be used and the exigencies which will arise during the manipulation thereof in the course of years for the purpose of exposing properly the numbers of the days of each month for any particular year to which the index hereinafter referred to may be set.

Connected with the base 1 is a slide 5, which is shown in full lines in Fig. 2 to the best advantage, and for that reason reference is made to that figure. This slide, as shown, has represented upon its face two month-charts—that is, the charts for the months of January and February—which, like the other month-charts referred to, include a sufficient number and arrangement of digits so that said charts are adaptable for use for the same length of time as the ten other month-charts before referred to. The distinguishing feature of the slide is particularly its availability for use not only during what are known as "common years," but also to render the calendar available for use during the leap-years. To render the slide available for leap-years' it is provided with the opening 6, (shown near the upper portion thereof,) which, as disclosed in Fig. 2, is rectangular in form and as there located is adapted to disclose the letter "L," which is provided upon the base 1, upon which said slide 5 is movable, thus indicating that a leap-year arrangement of the months of January and February is provided for. In addition to the opening 6 a plurality of openings 7 are provided in the slide 5, through which openings, as disclosed in Fig. 2, are discernible the numerals "29," which are provided upon the said base 1. The slide 5 is connected with the base 1 by suitable securing means, as the buttons 8, which are adapted to grip the slide to the base 1 and travel in longitudinally-disposed slots 9, (shown in dotted lines in said Fig. 2,) so as to cover when desired the numerals "29" and shift the position of the month-charts for January and February to render them available for use during the common years, which are indicated by the letter "C," (shown in dotted lines in juxtaposition to the letter "L,") which letter "C" when the slide is shifted to the dotted position shown in Fig. 2 will be disclosed and indicate that the slide portion is arranged for use during a common year.

Referring now to Fig. 3 for a detailed description of the face-plate, it will be noted that the face-plate 4 is provided with a plurality of rectangular openings 11, twelve in number, corresponding to the number of months in a year, and above such openings 11 appear the usual abbreviations "Jan." to "Dec.," both inclusive, to indicate the particular month adapted to be disclosed by the openings 11 in said face-plate 4, and in addition to said month-abbreviations the usual symbolic letters "S" to "S," inclusive, are used to designate the days of the weeks for each month. Within the face-

plate 4 are also provided slots 12, two of such slots being shown, through which slots project studs or buttons 13, as shown in Fig. 1, which are available for the purpose of holding said face-plate 4 in position slidably upon the base 1, so that the openings 11 in said face-plate may be shifted longitudinally of the projection of said slots 12 for the purpose of exposing different series, including portions of each month-chart, before referred to, such exposure exhibiting only the required numerals of each month-chart for any particular month of a given year and the size and configuration of such openings 11 being such as to expose only the proper numbers available to be utilized during any predetermined year. In addition to the buttons 13 other buttons 14, four in number, being disclosed in Fig. 1, are provided for the purpose of holding the face-plate slidably engaged with said base and with the slots 2, before referred to, in such base, whereby a more perfect connection of the base and face-plate is provided.

Year-charts.—The year-charts (designated by the letters A and B and best shown in Figs. 1 and 3) comprise series of numbers in blocks of four, followed by a blank space where permissible, though, as disclosed, the year-chart intended to be available for calendar purposes from 1850 to 1900 commences with "50" and "51," followed by a blank space, after which appear the numerals "52," "53," "54," and "55" on the top line of such chart, followed by a blank space on the next lower line with numerals "56" to "59," inclusive, with blank space, and the numeral "60." In the line including the numbers "50" to "55," inclusive, but one blank space appears. In the line including the numbers "56" to "60," inclusive, two blank spaces appear. In the next line six numbers and one blank space appear. In the following line five numbers and two blank spaces appear, &c. It will be noted that the numerals commencing with "52," including each fourth year thereafter, are shaded for the purpose of indicating that such years are leap-years, and on the occurrence of such years the leap-year shift should be applied to the slide 5 to render the calendar available for use to correctly indicate the proper arrangement of days and numbers for the months of January and February, though for other months the shift need not be made. Correspondingly the year-chart B, which includes "1901" to "1950," both inclusive, is divided into parallel lines comprising the numbers serially arranged in blocks of four followed by a blank space, with each fourth number shaded, commencing with "4" and ending with "48" in the disclosure of Fig. 1. It will be noted that in the period from 1850 to 1900 the numbers commence with "50" and end with the two ciphers, the "19" being understood, while in the year-chart B the numbers "19" are omitted, such chart beginning with

the number "1" and ending with the number "50." As shown in Fig. 1, as before suggested, the calendar is arranged for the present or current year, which is a leap-year. Hence the slide 5 is shifted, as shown in the full lines in Fig. 2, so as to disclose the numerals "29" through the orifices 7 in said slide and also the letter "L" through the orifice 6 therein. It will also be noted that in the slot 15 appear the letters "A. D." above both charts A and B, which letters are intended as an index or gage to determine the degree of shift which shall be imparted to the face-plate in moving it over the base 1. If it is intended to render the calendar available for use in the year 1905, the face-plate shall be shifted, as indicated by the arrow in Fig. 1, to bring the numeral "5" under the letters "A. D.," whereupon, as will be evident, the first numeral disclosed on the January month-chart would be "1," which would indicate that the year 1905 commenced on Saturday, said numeral "1" being the first numeral on the upper line of the month series for the month of January. However, the year 1905 does not commence on Saturday, and it will be evident that the slide 5 should be shifted to the right one notch, so as to disclose the letter "C" through the orifice 6, whereupon the numeral "1" on the upper line will disappear beneath the face 16 of the face-plate, and the first number exposed in the opening for January will be "1" on the second line of that month series, thus exposing for the month of January, 1905, four complete rows of sevens, commencing with "1" and ending with "28," and also the numerals "29," "30," and "31" on the bottom row of that series, and the other month-days will be arranged in regular order, so as to render the calendar available for use during the year 1905, which is a common year, the shifting of the slide 5 having covered the numerals "29," and following the numeral "28," exposed through the face-plate, will appear the opening 7 on the lowest line, beneath which will be a blank space on the base. If the calendar is to be used for some other year—as, for example, 1910, which is not a leap-year—the slide 5 remains in the same position as when in use for 1905, the face-plate is shifted to bring the numeral "10" below the indicating-letters "A. D.," and the first day of 1910 will be Saturday, January 1, followed by the usual numbers in series of seven for that and the succeeding months, reading vertically of the numbers exposed through the said openings 11.

While we have shown in the accompanying drawings the preferred form of our invention, it will be understood that we do not limit ourselves to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of invention, and we therefore reserve the right to make all such modifica-

tions as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a calendar, a base provided with a series of ten month-charts, and a plurality of numerals "29," a movable slide with two month-charts and having perforations adapted to register with said numerals "29," a face-plate provided with openings of predetermined areas, and with the name of a month and of the days of a week adjacent each of said openings, and with a year-chart on said face-plate, and said base having an indicating means adapted to register with different numerals comprising said year-chart.

2. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a slide movably secured to the base and provided with two month-charts and having perforations adapted to register with said numerals "29," a face-plate provided with openings, with the name of the months and the days of the week adjacent thereto, there being a year-chart on said face-plate, and there being an indicating means on said base adapted to register with different numerals comprising said year-chart.

3. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a movable slide with two month-charts and provided with perforations adapted to register with said numerals "29," a face-plate provided with openings of predetermined areas and with the name of a month and the days of the week adjacent each of said openings, there being year-charts provided with slots adjacent thereto and there being indicating characters on said base adapted to register through the slots with different numerals comprising the year-charts.

4. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a movable slide with two month-charts and provided with perforations adapted to slide with the two month-charts and register with said numerals "29," a face-plate provided with openings of predetermined areas and with the name of a month and the days of the week adjacent each of said openings, there being year-charts provided with

slots adjacent thereto, and there being indicating characters on said base, comprising the letters "A. D.," and registering with the numerals comprising the year-charts.

5. A calendar, comprising a sheet carrying indicating - numbers for the months from March to December and the numeral "29" printed on the same sheet, there being numerals for the months of January and February superposed upon a slidable sheet connected with the base-sheet, the slidable sheet being provided with a perforation adapted to expose the numeral "29."

6. A calendar, comprising an upper sheet provided with openings, there being characters disposed over the openings to indicate months and days, a sheet slidably disposed beneath the first sheet, there being numerals thereon registering with said openings for the months from March to December, there being a numeral "29" thereon registering with the opening for February, a slidable sheet having thereon the numerals for January and February, disposed below the openings in the top sheet and provided with an opening registering with the numeral "29," said intermediate sheet being slidably secured to the bottom sheet and also movable therewith.

7. A calendar, comprising an upper sheet provided with openings, there being characters disposed over the openings to indicate months and days, a sheet slidably disposed beneath the first sheet, there being numerals thereon registering with the openings for the months from March to December, there being a numeral "29" thereon, a slidable sheet registering with the openings for January and February and provided with the numerals therefor and an opening registering with the numeral "29," said intermediate sheet being slidably secured to the bottom sheet and also movable therewith, there being year-charts provided with slots adjacent thereto and there being indicating characters registering with the numerals of the year-charts.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

JACOB BALL.
ROBERT E. RITZ.

Witnesses:

GEO. RALLFLEISCH,
LORNE MACARTNEY.