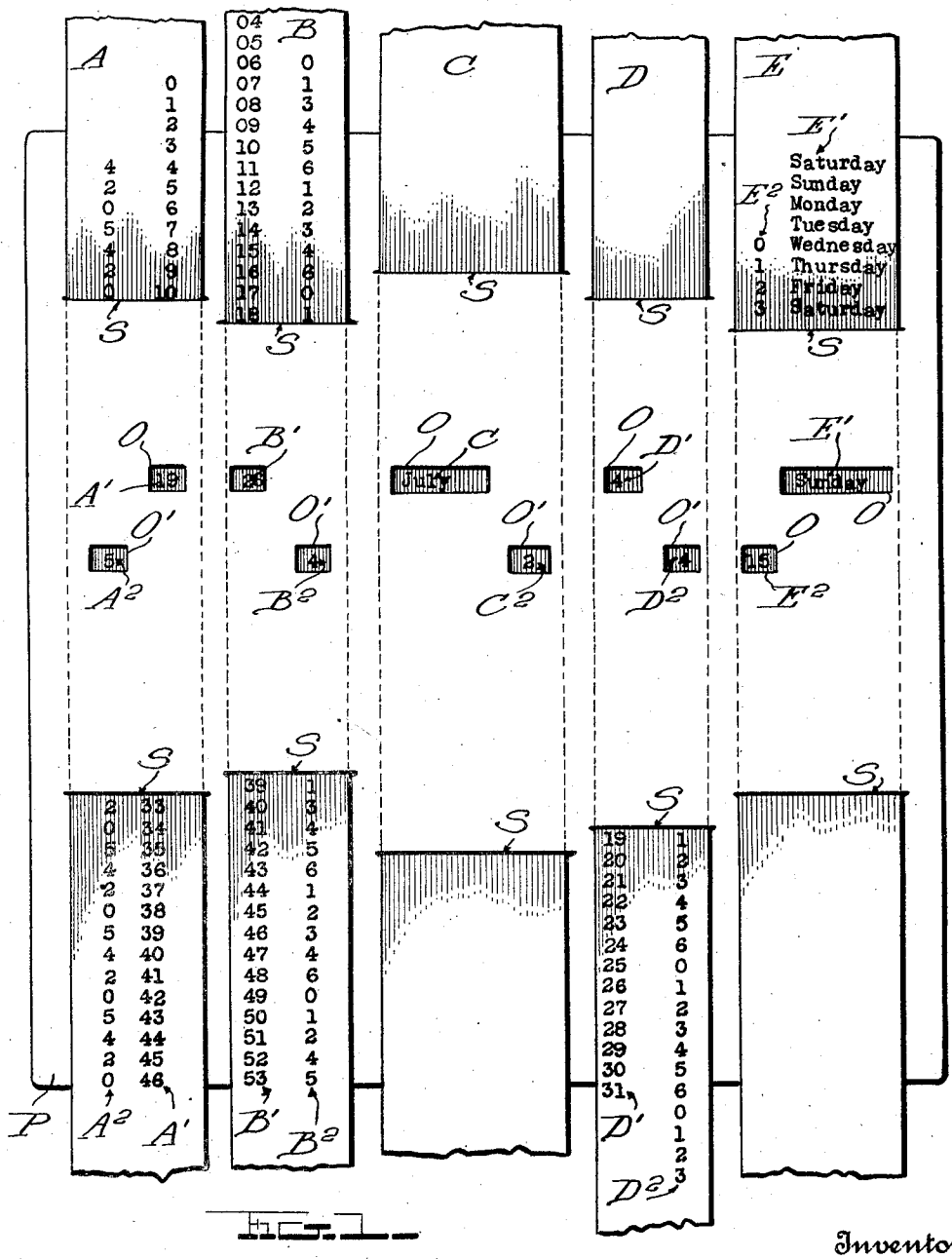
Dec. 21, 1926. 1,611,538

L. P. LANDMAN

PERPETUAL CALENDAR

Filed August 2, 1926 3 Sheets-Sheet 1



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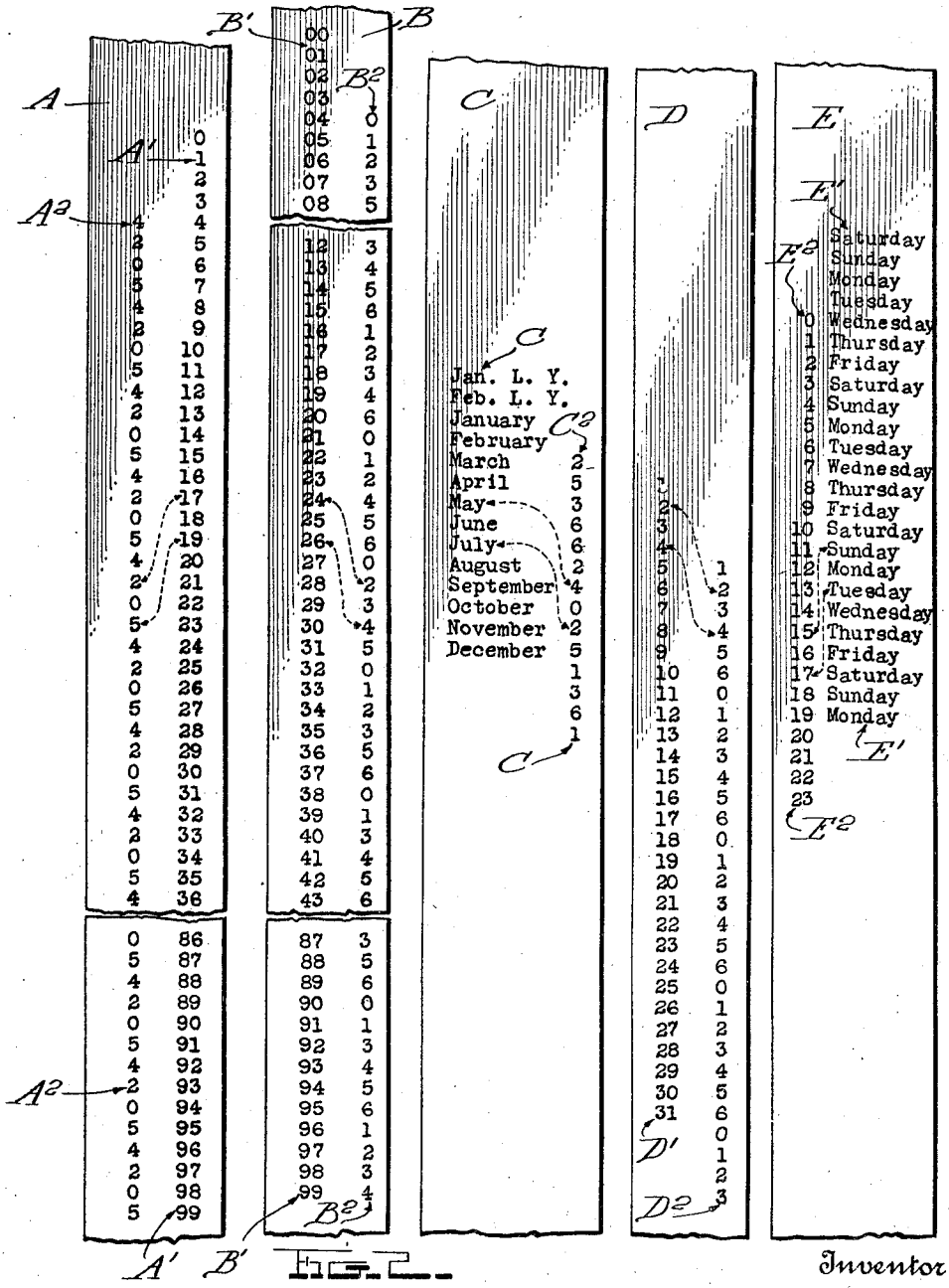
1,611,538

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PERPETUAL CALENDAR

Filed August 2, 1926

3 Sheets-Sheet 2



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PERPETUAL CALENDAR

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3 Sheets-Sheet 3

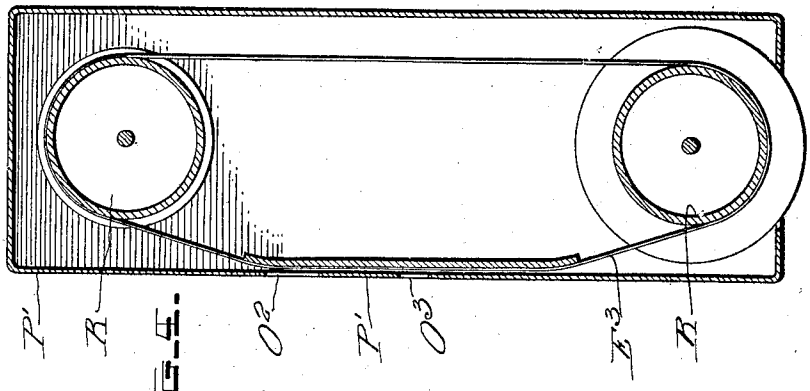


Fig. 5.

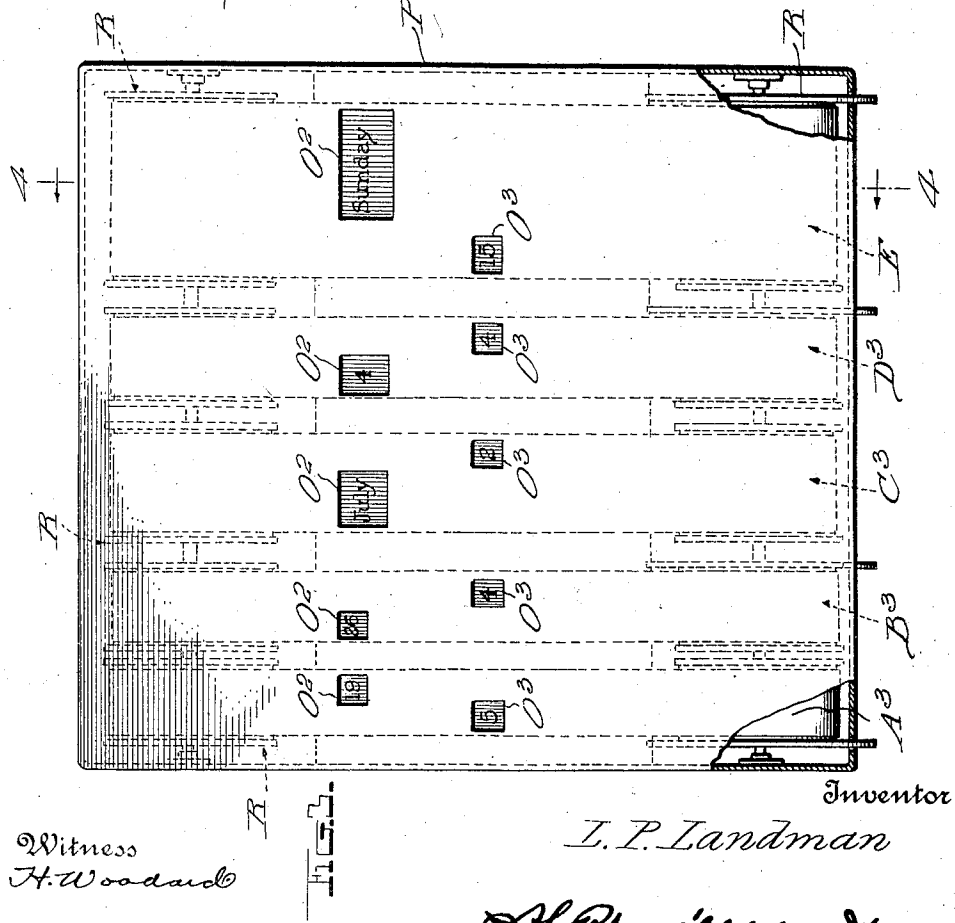


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PERPETUAL CALENDAR.

Application filed August 2, 1926. Serial No. 126,542.

The invention aims to provide a new and improved form of perpetual calendar of the general type embodying a plurality of changeable exhibitors which may be set to represent any selected date and the day of the week on which it fell or will fall, a novel relation of keys being provided determining the setting of one of said exhibitors upon setting of the others by hand, the key for said one of the exhibitors being the result of a mathematical calculation with the other keys exposed to view by said setting of the other exhibitors.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Fig. 1 is a front elevation partly broken away showing one form of the invention.

Fig. 2 is a plan view partly broken away showing the slides which, in Fig. 1 are operatively related with a face plate.

Fig. 3 is a front elevation showing a different form of construction, parts being broken away and in section.

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

The form of construction illustrated in Figs. 1 and 2 will first be specifically described.

A, B, C, D and E designate five slides. The slide A is provided with a column A′ of century numbers; the slide B is provided with a column B′ of century year numbers; the slide C bears a column C′ of month names, including January and February of leap year; the slide D displays a column D′ of month day numbers; and the slide E carries a column E′ of week day names.

The slides A, B, C, D and E are provided with key numbers A^2, B^2, C^2, D^2 and E^2, respectively, one of said key numbers being assigned to each of the century numbers, century year numbers, month names, month day numbers and week day names. The key numbers for the indicia of any column A′, B′, C′, D′ or E′, may either be directly opposite said indicia, or offset therefrom along the length of the slide, and for purposes of clarity, certain of these indicia have been connected with their respective keys, by dotted lines, in Fig. 2.

Principle for selection of the key numbers.

The key numbers are based on the seven days of the week and each day repeating at a regular interval. The first day of the week is Sunday, and the key number 1 is assigned to Sunday. This key is also increased by 7 or multiples of 7. Thus 1—8—15—22 are all key numbers for Sunday.

Monday being the second day of the week has 2 assigned to it for its key number. This is also increased by 7 or multiples of 7. Thus 2—9—16—23 are key numbers for Monday.

Tuesday, Wednesday, Thursday, Friday and Saturday have key numbers 3, 4, 5, 6 and 0 assigned to them respectively. Thus, Saturday's key numbers are 0—7—14—21—28, etc. The lowest key number possible is always used.

Application of the principles of the key numbers to the century years, years of century, months, and the dates of the months.

Wednesday, January 1st, 1800 will be considered as a starting point for conforming the centuries, years of the century, months and month dates to the key numbers assigned to each day of the week.

The month dates are first considered. Key number 1 is assigned to the first; 2 is assigned to the second; 3 is assigned to the third; 4 to the fourth; 5 to the fifth; 6 to the sixth; and 0 to the seventh. This 0 is obtained by using the lowest key number. 0 and 7 are identical. The eighth is assigned key number of 1; and so on to the end.

If January 1, 1800 was Sunday, the key number for the month date would show the correct day of the week. However, Jan. 1, 1800 was Wednesday the fourth day of the week. So correction must be made by bringing the total key numbers to 4.

This correction is made by applying the key numbers to the months; and January is assigned the key number 3. Thus, we have 1 for the key of the month date; and 3 for the key number of the month of January; these totalling 4, the key assigned to Wednesday.

Now as the month dates advance in January; the key numbers for the month dates advance and the days of the week for January are controlled by the key numbers so far assigned.

On January 31, 1800 the month date will show key number 3. The month name slide will also show 3. These total 6 or the key

number assigned to Friday. January 31, 1800 was Friday.

When February began the month dates returned to the first with key number 1. January ending on Friday; February began on Saturday. To obtain the key number for Saturday, February is assigned the key number 6. This corrects the key numbers for February.

Key numbers are assigned to the remaining months in the same manner. The keys for the months and month dates are permanent.

At the end of the year Dec. 31, 1800 is Wednesday. The foregoing key numbers applied to January 1st showed January 1st total key numbers as 4 and 4 is the key number for Wednesday. Now as Dec. 31st was Wednesday key numbers must be corrected to show Jan. 1st, 1801 as Thursday, and a correction of 1 must be made in the key numbers. This is accomplished by now assigning the key numbers to the years of the centuries.

As January 1, 1800 was correct the key number 0 is assigned to 00 for the first year of the century.

The 01, the ending of 1801 is assigned the key number 1. Now for Jan. 1, 1801, we have 1 for the key number of the month date, 3 for the key number of the month; and 1 for the key number of the year of the century. A total of 5 and this is the key number of Thursday. The key numbers are now correct for the year 1801 and the entire year is handled the same as was 1800.

As this occurs at the end of every year, the key numbers are arranged as shown. However every leap year the key numbers for the years of the century are advanced two instead of one to take care of the extra day in leap year. This advance of two also advances January and February two instead of one and as the extra day occurs at the end of February special months with key numbers are arranged for January and February of leap years. These months having one deducted from their regular assigned key numbers. In other words the key numbers for January and February of a leap year are one less than the key numbers of January and February when not a leap year. It has been previously shown that the key number for January was 3, and the key number for February was 6 when not a leap year.

For a leap year, the key number of January is 2, and the key number for February is 5. From this, it will be understood that the key numbers for January and February of leap years are one less than the key numbers assigned to these months when not a leap year.

The keys are now correct for the entire 19th century. (Years 1800–1899.)

On completing the 19th century, slide B has made a complete revolution and start at 00 for the 20th century. It must be noted that the key number for 99 is 4; and that the key number of 00 is 0. As 0 and 7 are identical this is an increase of three instead of one. (1900 not a leap year.)

To correct this advance of three instead of one, the key numbers are now applied to the century years.

As the 19th century was correct the key number 0 is assigned to 18 which covers years 1800–1899. As stated before 0 and 7 are identical, the extra two are deducted from 7. Thus, the key number of 5 is assigned to 19 for the years 1900–1999. This century is now corrected.

However, the year 2000 is a leap year and the same condition that happened changing from 1899 to 1900 happens when changing from 1999 to 2000. So correction is again made on the century year. This time only one is subtracted on account of 2000 being a leap year. This gives 20 the key number of 4.

At the end of the 21st century, the condition is identical with the condition that existed at the end of the 19th century so the key number of 2 is assigned to 21. Key numbers are assigned to remaining century years in same manner.

This explanation has now covered a period of 400 years and every 400 years the calendar repeats itself. Thus Jan. 1, 1800 is identical to Jan. 1, 2200. Both are Wednesday. By applying the foregoing over and over the key numbers produce a perpetual calendar.

Co-operable with the slides A, B, C, D and E is a face plate P having slots S through which said slides pass, so that portions of the latter are behind the face plate. This face plate is also provided with openings 0 to display the indicia of the columns A′, B′, C′, D′ and E′. The face plate is also formed with additional openings 0′ to display the key numbers A^2, B^2, C^2, D^2 and E^2.

The slides may be relatively adjusted to expose a complete set of the century, century year and month day numbers and month and week day names, so as to represent any selected date. For instance, in Fig. 1, the slides A and B have been adjusted to represent the year 1926; the slides C and D have been adjusted to indicate July 4th, and the slide E has been moved to show that July 4, 1926 falls upon Sunday. The slides A, B, C and D may obviously be set properly without taking their key numbers into consideration. However, the week day name to appear in the opening 0 in front of the slide E, is the unknown element. However, in order to properly set said slide E, it is only necessary to add the key numbers of the slides A, B, C, and D, appearing in the opening 0′. Adding these key numbers, we find that they total 15. Hence, by setting the slide E so that 15 appears in the co-related opening

0′, we find that Sunday appears in the adjacent opening 0. We are thus informed that July 4, 1926 falls upon Sunday. This is only one example of the manner of using the invention, but such example will suffice, it being of course remembered that in leap years, when dealing with January or February, the properly designated names or abbreviations of the slide C, must be set at the opening 0.

The slides A, B, C, D and E need not in all instances be used, but other equivalent changeable exhibitors could be employed, such as rotary disks, cylinders, endless bands and the like. In this connection, attention is invited to Figs. 3 and 4 which disclose endless bands A^3, B^3, C^3, D^3 and E^3, corresponding to the slides A, B, C, D and E. These bands are trained around suitable rollers R and said bands and rollers are disposed in a suitable casing P′ having the requisite openings 0^2 and 0^3. Portions of certain of the rollers are exposed so that said rollers may readily be rotated to adjust the bands as occasion may demand.

While excellent results may be obtained from the disclosure herein given, it is to be understood that such disclosure is for illustrative purposes, and that within the scope of the invention as claimed, numerous variations may be made. For instance, key numbers here assigned may be changed by assigning different key numbers to the days of the week. Key numbers assigned to slide A can be added to slide C. This would give four sets of months for slide C and no key numbers for slide A. Same applies to slides A and B.

For a calendar of one year period, keys of A, B, and C may be added and shown as months. In this case a small device of slides could contain the data and the device be of pocket size, as the data for A and B would be eliminated.

Also a calendar for a five year period, a ten year period, etc., can be made likewise.

Further: To slide A, key numbers 21 can be added. Then key numbers of slides B, C and D can be subtracted from 7. Now if the totals of B, C and D are subtracted from A, the number will be the correct day of the week. Example—

Date	19	26	May	1
Key	5	4	4	1

Total of keys 14. To 5 add 21. Subtract 4 from 7; subtract 4 from 7 (May); subtract 1 from #7.

Result	26	3	3	6

Add the last three key numbers and subtract them from the 1st number.

Equals.—26 less 12 or 14 which is same as key number result first shown. Key numbers may be altered in one part and balanced in other parts.

The starting point in this explanation was Jan. 1, 1800, Wednesday. If the starting point is changed to some other time, the key numbers will also be changed. For example: Had the starting point been Jan. 1, 1900, Monday, key for January would be 1; February 4; March 4; April 0; May 2; June 5; July 0; August 5; Sept. 6; Oct. 1; November 4; Dec. 6. The key number then for 19 would be 0 instead of 5.

Symbol might also be substituted for the key numbers for example—a dot (.) may take the place of 1. Two dots (. .) in place of 2, etc.

I claim:—

1. In a calendar, changeable exhibitors having indicia representing centuries, century years, month names and month days, permitting said exhibitors to be set to represent any desired date, keys assigned to said indicia and exposed to view by setting of said exhibitors, an additional changeable exhibitor having week day names to disclose the day on which any date fell or will fall, and keys on said additional exhibitor constituting the results of mathematical calculations with the keys of the first named exhibitors, whereby upon setting the first named exhibitors for any date, performing the predetermined mathematical calculation with the keys thus exposed and setting the additional exhibitor to expose the key duplicating the result of said calculation, the day of the week for the date setting will be disclosed.

2. A calendar comprising five changeable exhibitors; century numbers, century year numbers, month names, month day numbers, and week day names on said exhibitors respectively; key numbers on said exhibitors allotted one to each century number, century year number, month name, month day number and week day name; and a face plate apertured to expose a full set of the aforesaid names and numbers to represent any selected date; the key number for the week day name of any such set being the total of the other key numbers of said set.

In testimony whereof I have hereunto affixed my signature.

LAWRENCE P. LANDMAN.