W. J. SPILLMAN.

PERPETUAL CALENDAR.

APPLICATION FILED MAY 18, 1920.

1,374,532.

Patented Apr. 12, 1921.

2 SHEETS—SHEET 1.

The No. of line to use for any year in the calendars of the months is shown here the line containing the last 2 digits of the year crosses the column containing the first 2 digits. Leap years occur on two lines and give the two such numbers; the first applies to January and February, the second to the other months.

	LAST TWO DIGITS OF THE YEAR.																								
00	00	12	17	23	28	34	40	45	51	56	62	68	73	79	84	90	96	1	6	4	2	7	6	5	4	3	2	1
01	07	12	18	24	29	35	40	46	52	57	63	68	74	80	85	91	96	2	7	5	3	1	7	6	5	4	3	2
02	08	13	19	24	30	36	41	47	52	58	64	69	75	80	86	92	97	3	1	6	4	2	1	7	6	5	4	3
03	08	14	20	25	31	36	42	48	53	59	64	70	76	81	87	92	98	4	2	7	5	3	2	1	7	6	5	4
04	09	15	20	26	32	37	43	48	54	60	65	71	76	82	88	93	99	5	3	1	6	4	3	2	1	7	6	5
05	10	16	21	27	32	38	44	49	55	60	66	72	77	83	88	94		6	4	2	7	5	4	3	2	1	7	6
00	11	16	22	28	33	39	44	50	56	61	67	72	78	84	89	95		7	5	3	1	6	5	4	3	2	1	7

	FIRST TWO DIGITS OF THE YEAR.																								
New Style	00	01	02	03																					
Old Style	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Fig. 1.

Cal. No.	19 hundred and	January. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	February. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	March. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	April. Su.	Mo.
1	— 22 28 33 39	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	17 23 — 34 40	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3	18 24 29 35 —	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
4	19 — 30 36 41	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
5	20 25 31 — 42	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	— 26 32 37 43	—	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
7	21 27 — 38 44	—	—	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Cal. No.	19 hundred and	May. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	June. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	July. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	August. Su.	Mo.
1	— 22 28 33 39	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	17 23 — 34 40	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
3	18 24 29 35 —	—	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	19 — 30 36 41	—	—	—	—	—	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
5	20 25 31 — 42	1	2	3	4	5																		
6	— 26 32 37 43	—	1	2	3																			
7	21 27 — 38 44	—	—	1																				

Cal. No.	19 hundred and	September. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	October. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	November. Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	December. Su.	Mo.
1	16 22 — 33 39																							
2	17 23 28 34 —																							
3	18 — 29 35																							
4	19 24 30 —																							
5	— 25 31 36																							
6	20 26 —																							
7	21 27 32																							

Fig. 2.

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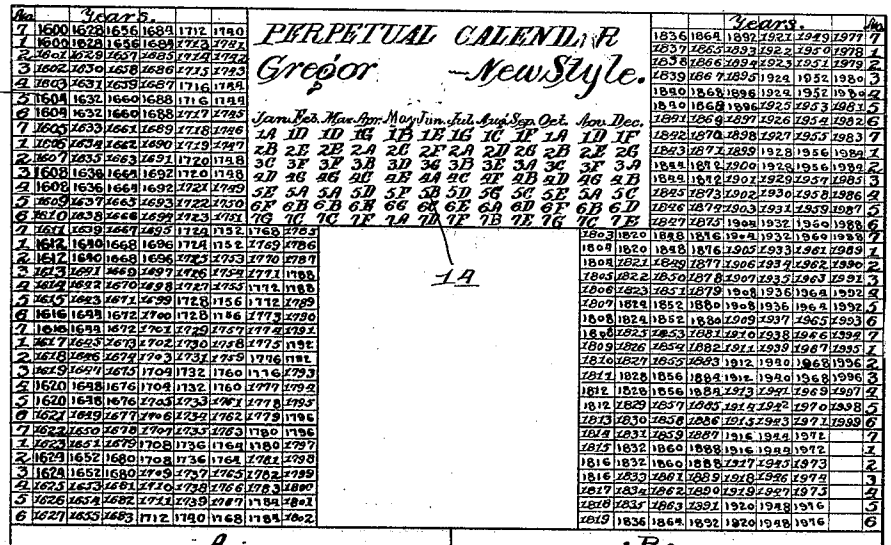
PERPETUAL CALENDAR.

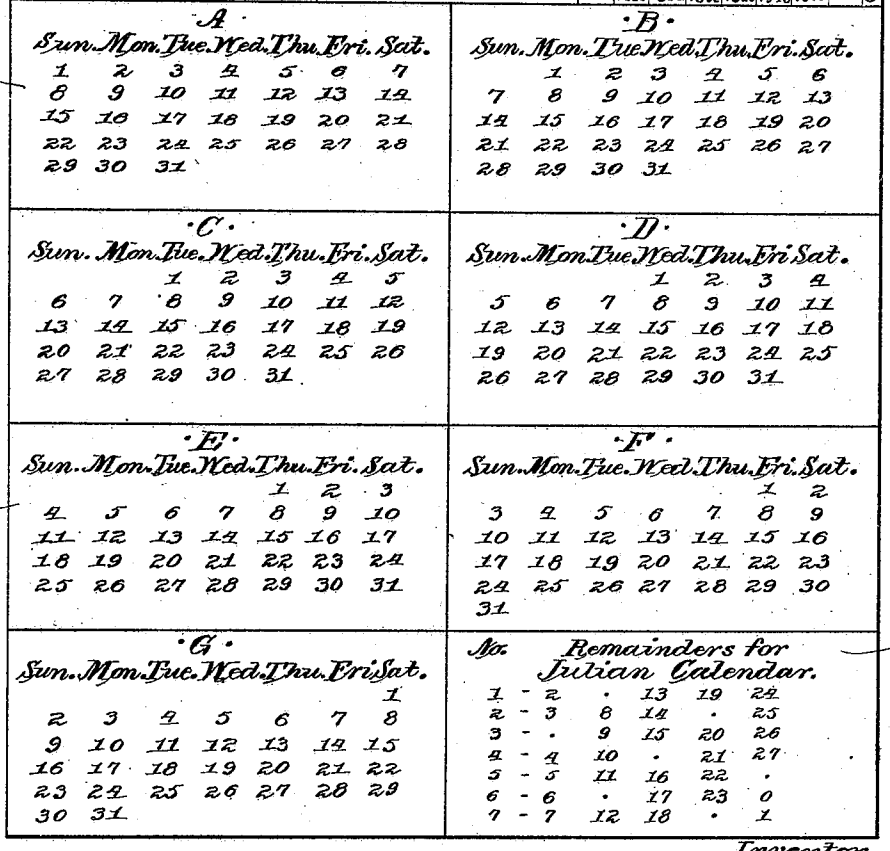
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2 SHEETS—SHEET 2.





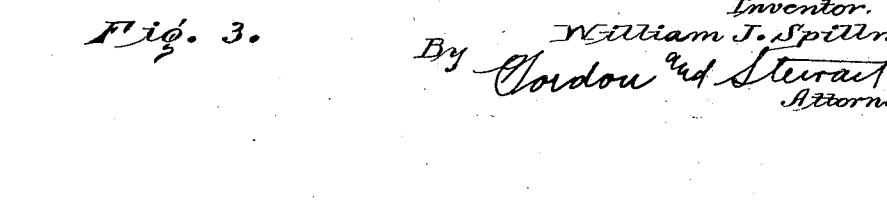


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PERPETUAL CALENDAR.

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To all whom it may concern:

Be it known that I, WILLIAM JASPAR SPILLMAN, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new Improvements in Perpetual Calendars, of which the following is a specification.

This invention relates to calendars of the type generally termed "perpetual calendars", and has as one of its objects the provision of a calendar by which the day of the week of any desired date within a definite period of years may be readily and directly determined. Further objects are the provision of a calendar of this type which will facilitate the determination of the day of the week or any date whether of the Gregorian (new style) or Julian (old style) calendar, and the provision of such an arrangement of the various parts of the calendar as will facilitate and simplify its use.

Various embodiments of my invention are illustrated in the accompanying drawings and further objects of the invention and features of novelty will be apparent from the following description when taken in connection with such drawings, in which:

Figure 1 and Fig. 2 show the various charts or tables which comprise one embodiment of my invention; and

Fig. 3 shows a modified arrangement in which my invention may be employed.

In each of the modifications a table of numbers indicating years is employed, such numbers being arranged to correspond to a set of symbols such as the numerals 1 to 7 or the letters A to G; and a table of month calendars is provided, each having one of said symbols to indicate which calendar is to be used.

The form shown in Figs. 1 and 2 comprises a table 11 having a part 11^a thereof in which numbers indicating centuries are arranged in four parallel columns, and a part 11^b in which numbers indicating the last two digits of a year-number are arranged in groups of seven lines with two lines for leap year numbers. The table further includes a part 11^c in which symbols 1 to 7 are arranged to correspond in one direction with the four columns of century numbers and in another direction with the seven lines of the year-of-the-century numbers. The numbers indicating leap years may be repeated as shown, or may be indicated in only one or in both spaces, as desired, and it will be evident that for any common year the corresponding symbol may be found in the same column as its century number and on the same line as its year-of-the-century number. For leap years there will be two symbols, the first of which is to be used for the months of January and February in such years, and the second of which applies to the other months of such years, for a reason which will be presently apparent.

A table 12 is provided which comprises a plurality of month calendar tables, there being seven month calendar tables for each month of the year and each beginning on a different day of the week and having as marginal indicia the seven symbols used in part 11^c of the table 11. The numerals of the month calendar tables are arranged under indicia of the days of the week, and it will be understood that the number of numerals used in the month calendar for each month will be the same as that of the number of days in such month, the numerals 1 to 29 being used for February. I have shown the symbols of the table 12 as arranged in a marginal part 12^b, and spaced from the body of the table 12^a to permit the arrangement of the part 12^c of the table wherein certain year numbers may be arranged as shown. These numbers preferably indicate the years immediately adjacent the time at which the calendar is used and are arranged in groups of seven spaces with two spaces for leap years as in the part 11^b of the table 11.

To find the calendar applicable for a given month, for a year from 1917 to 1944, inclusive, it is only necessary to find in the part 12^c of the table 12 for the given month the line on which the year number occurs and follow such line to the right to find any given date in the month. The column in which the date occurs will be headed by the indicia of the day of the week on which such date occurs. If the date is in a leap year, the first line is used for dates in January and February and the second line for the dates in the other months. For any date in the first twenty centuries the table 11 may be used by finding the symbol corresponding to the year number as previously described and finding in the marginal portion 12^b of the table 12 the line on which such symbol occurs for the given month. Such

line will have the numbers of the days of the month arranged under the indicia of the days of the week on which they fall.

In order to adapt the calendar for the determination of dates in the Julian calendar, called "old style calendar," I have shown the table 11 as having a portion 11^d in part of which the numerals indicating the first twenty centuries are arranged in seven columns, and in another part of which the symbols are arranged to correspond in one direction with such columns and in another direction with the lines of the numerals indicating the years of a century in the part 11^b of the table. The symbols in the table 11^d for any given year may be found in the same manner as those for dates in the Gregorian calendar and may be used in the same way by referring to the table 12 to find the month calendar applicable for a given month.

The principle involved is that, since a common year has one day in addition to the fifty-two weeks while a leap year has two days in addition to the fifty-two weeks, a common year or the months of January and February of leap year, or the months of March to December of a leap year each constitute what may be termed a "calendar period," and the effect of each will be to postpone by one day the day of the week on which a given date will fall. If a series of successive calendar periods were divided into groups of seven and numbered in order, in all periods of the same number any given month would begin on the same day of the week. Hence by arranging the numerals indicating the years successively in groups of seven spaces with two spaces for leap years, in those years whose numbers occur in the same position in their groups the same month calendars will be applicable for the various months. It will also be apparent that since only every fourth centennial year in the Gregorian calendar is a leap year, dates which differ by exactly four centuries would fall on the same day of the week, so that symbols which correspond to a given year in the fifteenth century would also correspond with the same year in the nineteenth century.

In the Julian calendar every fourth year is a leap year and dates which differ by exactly seven centuries would fall on the same day of the week.

The embodiment of my invention shown in Fig. 3 comprises seven month calendar tables 13, each beginning on a different day of the week and designated by one of the symbols A to G, the numerals 1 to 31 being arranged under indicia of the days of the week. A second part of the calendar consists of a table 13^b of numbers indicating the years of the Gregorian calendar arranged consecutively in groups of seven spaces with two spaces for leap years. The table 13^b is provided at the margin with the numerals 1 to 7 which indicate the position of the year numbers in their groups. An index table 14 is provided in which the symbols A to G of the month calendar tables are arranged in groups of seven under indicia of the months of the year, the symbols in each group being numbered consecutively from 1 to 7 to indicate their position in the group.

To find the calendar applicable for a given date of the Gregorian calendar, the number of the year is found in the table 13^b and the marginal number 1 to 7 of the line is noted. Under the column in the table 14 which is headed by the indicia of the given month, that symbol A to G is found which corresponds to the marginal number, and such symbol is that of the month calendar table 13 which is applicable for the given month and year. For dates in leap years the marginal number corresponding to the first occurrence of the year number is used for dates in January and February and the number corresponding to the second occurrence for dates in the other months. The table 13^b preferably covers a period of four centuries, and it will be apparent that for any date outside of the period covered such multiple of 400 may be added to or subtracted from the year as will bring it within the table.

To provide for the use of the calendar shown in Fig. 3 for dates of the old style or Julian calendar, a table 15 may be provided in which numerals 0 to 27 are arranged in groups of seven spaces, with two spaces for numerals divisible by 4 and having marginal indicia 1 to 7, as in the table 13^b. Since every fourth year in the Julian calendar is a leap year, twenty-eight years constitute a solar cycle, at the end of which the days of the month again fall on the same days of the week, so that a table for twenty-eight years will suffice. The procedure in using the table is the same as that for the dates of the Gregorian calendar, such even multiple of 28 being added to or subtracted from the year number as will bring it within the limits of the table. The series could run from 1910 to 1937, inclusive, but it is preferable to use the numerals 0 to 27, as shown, so that the number indicating a year may be divided by 28 and the remainder found in the table 15 as if it were the number of the year.

It will be understood that various changes may be made in either of the embodiments of my invention shown, especially as to the arrangement of the parts. For instance, the arrangement as to columns and lines may be interchanged, other characteristics than the symbols shown herein or characteristic colors may be employed in the index table to

correspond to similar characteristics or colors designating the month calendar tables, and various other changes may be made without departing from the spirit of my invention, which is defined in the appended claims.

Having thus described my invention, what I claim is:

1. A calendar comprising a table of numbers indicating years arranged consecutively in groups of seven spaces with two spaces for leap years, a series of month calendars each calendar having one of seven symbols, and a table of symbols arranged in groups of seven, the symbol for any given month calendar having the same position in its group as do those numbers in their groups of seven spaces which indicate years in which said month calendar is applicable.

2. A calendar comprising a plurality of month calendar tables, each having one of seven symbols, a table of numbers indicating years arranged consecutively in groups of seven spaces with two spaces for the numbers indicating leap years, and a table having the seven month calendar symbols so arranged therein that the position of any given symbol in the table corresponds with the position of those numbers in the groups of seven spaces of the year indicating table which indicate years for which the month calendar table having such symbol is applicable.

3. A calendar comprising a table of numbers indicating years-of-a-century arranged in groups of seven spaces with two spaces for leap years, a table of numbers indicating centuries, a plurality of month calendars having distinguishing characteristics, and a table having the month calendar designating characteristics arranged therein to register in one direction with certain of the century indicating numbers and in another direction with certain of the year-of-a-century indicating numbers, the characteristics corresponding to given years being those of month calendars applicable for such years.

4. A calendar comprising a table having the last two digits of the year numbers arranged therein in groups of seven spaces with two spaces for numbers indicating leap years, a table having the century digits of year numbers arranged therein in groups of four spaces, a table having seven symbols arranged therein so that each registers in one direction with certain of the century digits and in another direction with certain of the last two digits to indicate certain years, and a table of month calendars designated by said symbols.

5. A calendar comprising a table of numbers indicating years arranged in groups of seven spaces with two spaces for leap years, a plurality of month calendar tables each having one of seven distinguishing characteristics, and a table having said characteristics arranged therein to correspond with the spaces in the table of year indicating numbers, the characteristics corresponding to given years being those of the month calendar tables applicable for said years for all years except leap years, and the characteristics corresponding with the first space of leap year numbers being those for the month calendars for January and February in said leap years and those corresponding with the second space of leap year numbers being those for the month calendars for the other months in said leap years.

In testimony whereof I have hereunto set my hand.

W. J. SPILLMAN.