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(54) Calendar apparatus and method.

(57) Calendar apparatus 10 comprises two scale members, namely a fixed main body 12 and a rotatable disc 20. Scales 28 to 42 are printed on the scale members to identify data relating to centuries, years, months, day names and day numbers. The method of the invention permits the calculation of the day names for a chosen month in the past or in the future to be performed by two movements of scale 20.

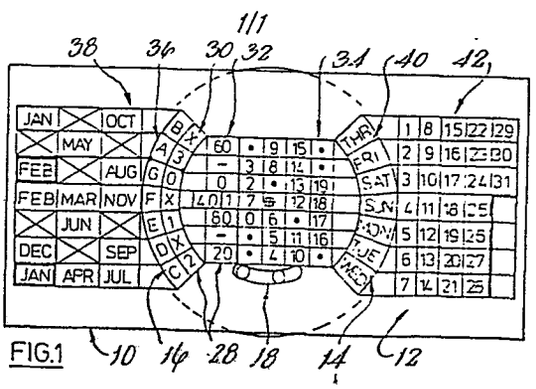

FIG.1

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CALENDAR APPARATUS AND METHOD

This invention relates to calendar apparatus and a method of calculating dates . By the term " calculating dates " as used in this specification it is intended to refer to the identification of the name of the day of the week (Sunday , Monday , Tuesday , etc.) corresponding to a given day or series of days in a chosen month or year .

For the purpose of calculating dates , as referred to above , there have been proposed various kinds of calendar apparatus , as well as programmed calculators and complex written or printed charts . None of the methods and apparatus concerned with these prior proposals are entirely satisfactory , in that they are either too expensive or too large or otherwise unsatisfactory .

In the case of previously proposed calendar apparatus , although such apparatus may have been capable of performing the intended function , study of these prior proposals show that they require the use of relatively complex apparatus often involving several moving parts carrying detailed printed matter. As a result , they are in some cases relatively bulky and/ or expensive to manufacture , and/or they are relatively difficult to use , and/or their range of date coverage is relatively limited.

Thus , there is a need for calendar apparatus and a method of using same offering improvements in relation to one

or more of these matters .

According to the invention there is provided calendar apparatus and a method of using same as defined in the accompanying claims.

In an embodiment described below there is provided calendar apparatus adapted for use in accordance with the present universal calendar known as the Gregorian calendar introduced in October 1582 AD .

In the embodiment , there are only two moving parts , namely a main body and a single rotary scale member mounted thereon. All the scales are printed on one side of these two scale members. Moreover , the calculation of a given date is achieved by a simple two stage process.

In the embodiment , there are individual scales for the following quantities or data relating to a particular date , namely the century , the duodecade (period of twenty years) within the century containing the year in question , the individual year within that duodecade , this latter year being identified in one scale by means of a symbol , the month , the day names , and the day numbers . In this way , by use of individual scales suitably positioned on the two scale members , the complexity of the data required to be printed on previously proposed apparatus is greatly reduced and the apparatus is thereby rendered so simple that it can be manufactured at almost a nominal cost determined by the cost of printing .

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which :

Figs. 1 and 2 show plan views of calendar apparatus in two successive stages of the calculation of a date ; and

Fig. 3 shows a plan view of a movable scale member of the apparatus of Figs. 1 and 2.

As shown in the drawings , calendar apparatus 10 comprises a main body 12 having arcuate cut-outs 14 and 16 , and a further arcuate slot 18 for a purpose to be described.

A disc 20 shown in Fig. 3 is mounted below main body 12 so as to be visible and actuatable through cut-outs 14 , 16 and 18 . Disc 20 has apertures 22 for actuation purposes and is mounted for rotation about an axis 24 by means of a pivot pin or the like (not shown) extending through main body 12 .

Main body 12 and disc 20 constitute scale members mounted so as to be position-adjustable relative to each other and having printed thereon data defining dates , namely years , months , day names , and day numbers . This data is printed in the form of scales whereby the day names can be set with respect to the day numbers for chosen dates within a range of several centuries.

The arrangement of scales on the scale members 12 , 20 is as follows.

Firstly , there are provided year scales 28 , comprising a century scale 30 , a primary duodecade scale 32 , a secondary duodecade scale 34 and a reference scale 36 .

Century scale 30 is printed in arcuate form on disc 20 so as to be visible through slot 16 and comprises the numerals 0 , 1 , 2 and 3 suitably positioned and spaced by means of crosses .

Primary duodecade scale 32 is printed on main body 12 in the form of a generally linear row of numbers , namely 0 , 20 , 40 , 60 , and 80 . These are suitably spaced by dashes and refer to the duodecades or periods of 20 years within any given century under calculation.

Secondary duodecade scale 34 is printed on main body 12 alongside primary duodecade scale 32 . Scale 34 includes the numbers from 0 to 19 within any chosen duodecade. These numbers being suitably positioned for the purpose of the method employed in the apparatus .

Reference scale 36 is printed on disc 20 in arcuate form and alongside scale 30 so as to be visible through arcuate slot 16 . Scale 36 comprises reference symbols in the form of letters of the alphabet arranged alongside the century-defining integers of scale 30 .

In addition to the year scales 28 , there are provided a scale 38 of months , a scale 40 of day names , and

a scale 42 of day numbers.

Months scale 38 is printed on main body 12 at the left hand end thereof . The months are arranged in three linear columns and suitably spaced for the purpose of the method . It will be noted that the months of January and February appear twice , once in normal display , and once with accentuation of the boxes in which they appear. These latter occurrences of the months of January and February correspond to leap years for use in the method employed in the apparatus , as described below.

Day name scale 40 is printed in arcuate form on one side of disc 20 so as to be visible through arcuate slot 14 in main body 12 , as shown in Figs. 1 and 2.

Day number scale 42 is printed on main body 12 at the right hand end thereof to co-operate with the day name scale by means of the printed lines linking the two.

The apparatus is employed as follows. All that is required is to set movable disc 20 to a first or reference position , and then to move it onwards to a final or date position.

Figs. 1 and 2 show the use of the apparatus in calculating the name of the day of the week corresponding to a well known date in the past. During the Great War of 1914 - 1918 , Sunday June 25th. 1916 was the Sunday preceding the start of the combined British and French offensive known as the Battle of the Somme on the following

Saturday , July 1st. 1916. The calculation of the name of the day of the week corresponding to 25th. June 1916 (if it were not known) is shown in Figs. 1 and 2.

The first step in this process is to set disc 20 to its first or reference position by setting the century scale 30 . To set the century scale , one first performs a simple calculation to identify the relevant century on scale 30. To do this , one takes the two digits of the century (19 in this case) and divides them by the number 4 , leaving the remainder 3 in this case. The number 3 (corresponding to this remainder) on century scale 30 thus designates the relevant century (for the date 1916) and is then used for setting the first position of disc 20.

This first position of disc 20 is obtained by setting numeral 3 in century scale 30 against the primary duodecade scale 32 .

The position on duodecade scale 32 against which numeral 3 should be set is determined by the duodecade concerned. For the date calculation process in hand , the relevant numeral in century scale 30 (which is " 3 " for the twentieth century) is set against the numeral in duodecade scale 32 corresponding to the start of the duodecade concerned . Thus , as can be seen in Fig 2 , the numeral 3 in scale 30 has been set against the figure 0 in scale 32 , because the duodecade containing the year 1916 (from 1900 to 1920) starts at 0. This is the first or reference position

of disc 20.

To complete the calculation process , disc 20 is moved onwards to its final or date position. This is done by setting a reference symbol corresponding to the year in question on scale 36 of disc 20 (and identified by means of the disc's first position , as described above) against the month in question on month scale 38 on main body 12.

To identify the reference symbol for the year in question on scale 36 , the remainder obtained by subtracting the duodecade start number (in this case 1900) from the full number of the year concerned (in this case 1916) is obtained , and in this case is 16 . The position of the numeral 16 in the secondary duodecade scale 34 is then used to identify a reference symbol opposite it in reference scale 36 . As can be seen from Fig. 2 , the reference symbol concerned is the letter " E " . This symbol corresponds to the year 1916 and now merely needs to be set against the relevant month , namely June , to produce the final or date position of disc 20 .

Therefore disc 20 is rotated (by means of apertures 22 using slot 18 and a pointed instrument such as a pencil), until reference symbol E is opposite the relevant month (June in this case) . This position is shown in Fig. 1 . This now defines the final date position of disc 20 and the names of the days of the week corresponding to the relevant days of the month can be seen on scales 40 and 42 , and it can be seen that the 25th.June 1916 was indeed a Sunday.

The above process can be employed for calculating any other required date within the range of the calendar.

Among modifications which could be made in the above embodiment are changes to the exact physical form of the scale members , and the manner in which the scales are printed or represented thereon . It may be possible to provide linearly moving scales corresponding to a slide rule with a suitable cursor. The scale members could be cylindrical or of other forms such as spherical , elliptical etc.. Obviously , it is not necessary to have letters in reference scale 36 . Any suitable symbol can be employed . Also , if it is not desired to cover multiple centuries as described above , century scale 30 could be modified . For example , it could be marked with the particular limited range of centuries concerned , the relevant one of these then being set against the relevant duodecade etc..

Obviously also , in month scale 38 , the actual position of the months could be changed in the lateral direction. The duplicated months January and February as highlighted in this scale are employed in leap years , that is when the year number is divisible by four .

The method of calculation underlying the embodiment described above may be suitable to be programmed into a digital calculator and it is intended that a claim to calculating apparatus so programmed may be included in this application in due course.

CLAIMS :

1. Calendar apparatus comprising first and second scale members (12 , 20) mounted to be position-adjustable relative to each other , said scale members carrying at least one scale for each of the following data items defining dates namely years (28) , months (38) , day names (40) , day numbers (42) , said scales enabling the day names to be set with respect to the day numbers for chosen dates within a range of years ; characterised in that said scales (28 to 42) are arranged with respect to said scale members (12 , 20) whereby said day names can be set with respect to said day numbers by a method comprising the stages of :

a) moving said scale members (12 , 20) relative to each other to establish a first or reference position of the scale members by reference to the year in question ; and

b) using said reference position of the scale members to determine a final or date position thereof by reference to the month in question .

2. Apparatus according to claim 1 characterised by said scale members (12 , 20) comprising a year scale in the form of a primary duodecade scale identifying periods of twenty years within a century.

3. Apparatus according to claim 2 characterised by said scale members (12 , 20) comprising a year scale in the form of a secondary duodecade scale identifying individual years within a twenty year

period .

4. Apparatus according to claim 3 characterised by said scale members (12 , 20) comprising a year scale in the form of a century scale.

5. Apparatus according to claim 4 characterised by said century scale identifying centuries by means of the remainder when the first two digits of the century are divided by four.

6. Apparatus according to claim 5 characterised by said scale members (12 , 20) comprising a year scale in the form of a reference scale (36) identifying a particular year in question by means of a symbol determined by said reference position of the scale members , said symbol being used in the second stage of the date calculation by setting the symbol against the month in question on the months scale.

7. Apparatus according to claim 1 characterised in that one (20) of the scale members carries a scale (40) of the names of the days of the week , and a reference scale (36) relating to the year in question , and the other scale member (20) carries scales relating to the year (32 , 34) , month (38) , and month day numbers (42) .

8. Apparatus according to claim 7 characterised in that said other scale member (12) is a relatively fixed main body member of the apparatus , and said one scale member (20) is rotatably mounted thereon.

9. Apparatus according to claim 8 characterised in that said scale members are generally planar in form and said scales are printed or marked on one side only of said scale members .

10. A method of calculating a date (as defined herein) comprising providing calendar apparatus comprising first and second scale members (12 , 20) mounted to be position-adjustable relative to each other , said scale members carrying at least one scale (28 to 42) for each of the following data items defining dates , namely years , months , day names , and day numbers , said scales enabling the day names to be set with respect to the day numbers for chosen dates within a range of years , characterised by the steps of :

a) moving said scale members (12 , 20) relative to each other to establish a first or reference position of the scale members by reference to the year in question ; and

b) using said reference position of the scale members to determine a final or date position thereof by reference to the month in question .

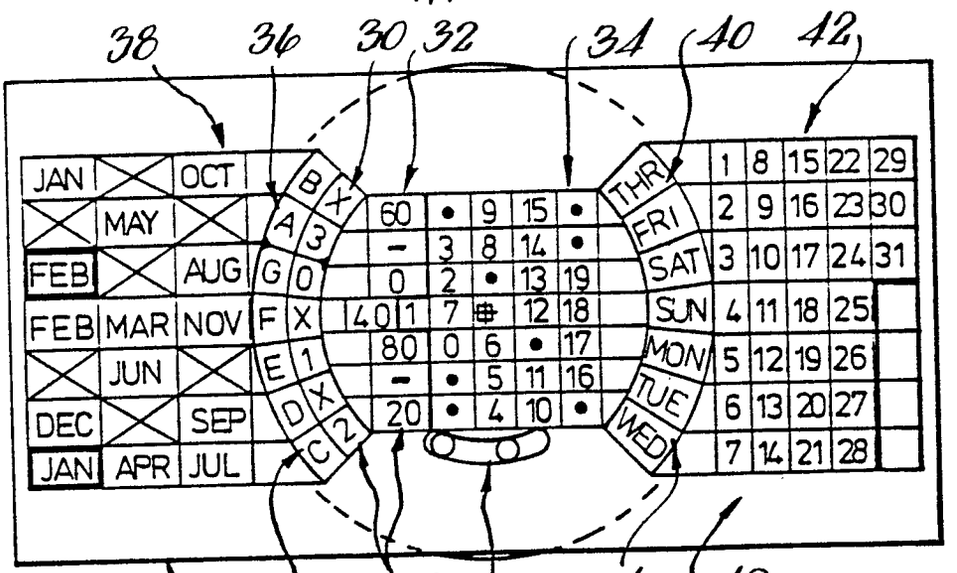

FIG.1

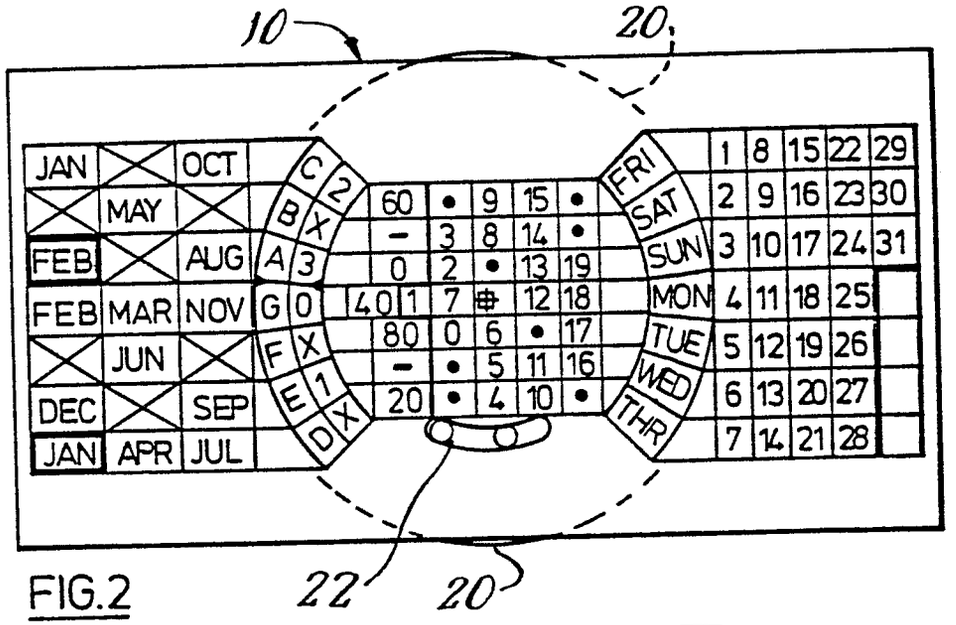

FIG.2

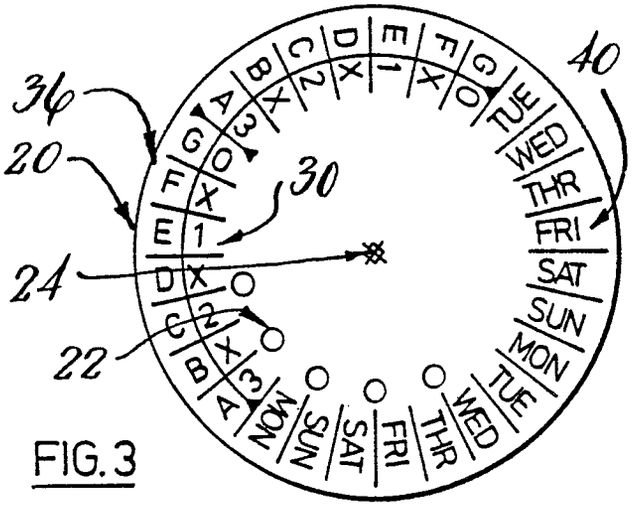

FIG.3

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EUROPEAN SEARCH REPORT

0196869
Application number

EP 86 30 2232

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl 4)
A	FR-E- 91 348 (F. SERGENT) * Page 1, column 2, lines 14-37; page 2, figures 1,2 *	1,4,6-8,10	G 09 D 3/08
A	FR-A-2 194 332 (P. SCHRAMM) * Page 1, lines 1-10, 26-32; page 2, lines 1-11; figures 1-3 *	7-9	
A	US-A-3 805 430 (C. SMADER) * Abstract; column 3, lines 18-55; figures 1-3 *	1,4-10	

TECHNICAL FIELDS SEARCHED (Int Cl 4)

G 09 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	30-05-1986	ODGERS M.L.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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