Sept. 5, 1961 M. N. STERN 2,998,666

CYLINDRICAL PERPETUAL CALENDAR

Filed Nov. 27, 1959

FIG. 3.

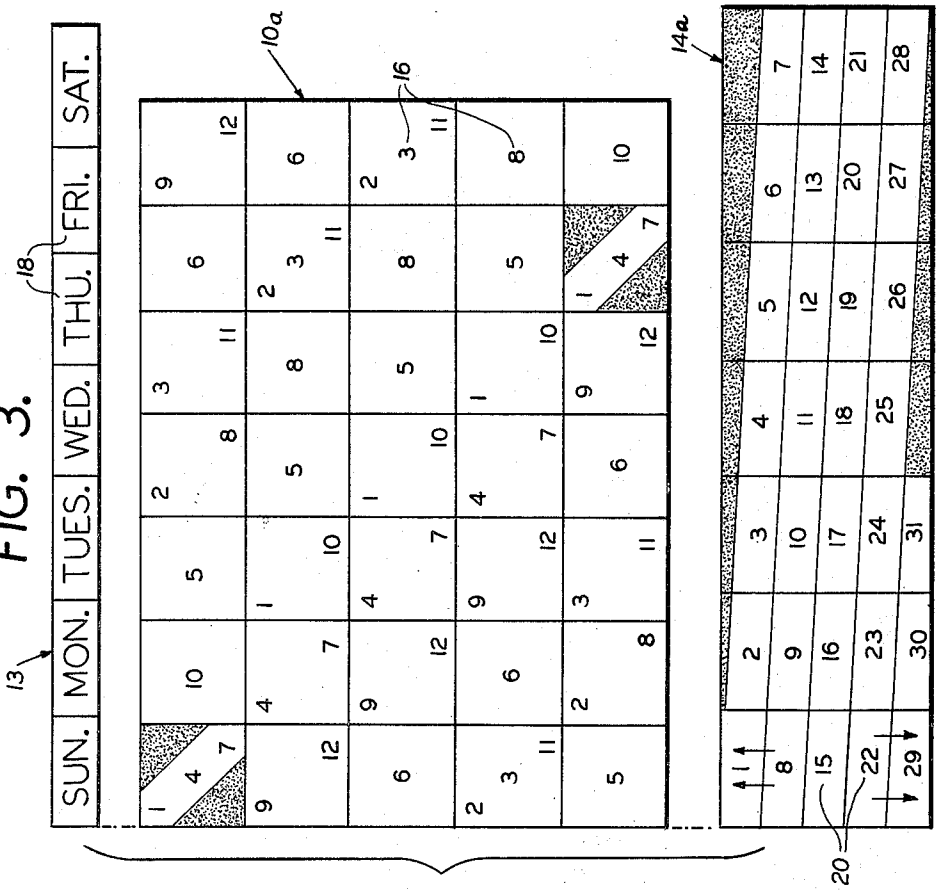


FIG. 2.

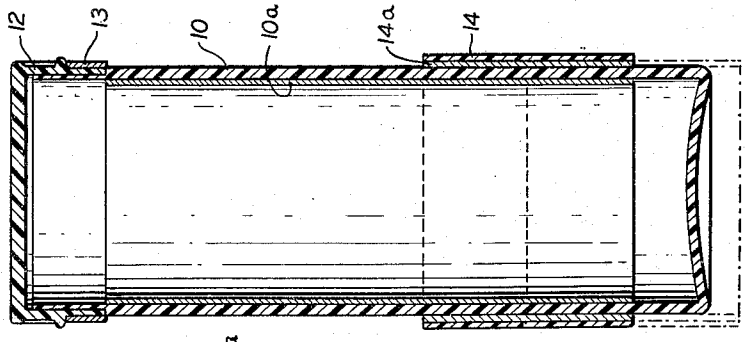
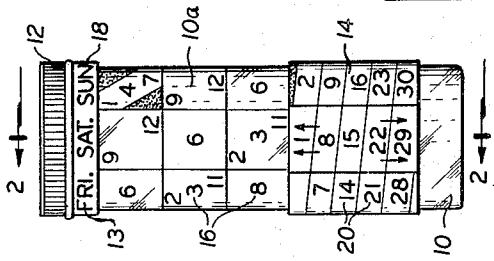


FIG. 1.



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CYLINDRICAL PERPETUAL CALENDAR

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This invention relates to perpetual calendars and more particularly to such calendars which may be set and re-set for selected periods of time projected either forwardly into the future or back into the past.

This application is a continuation-in-part of my prior patent application, Serial No. 733,234, filed May 1, 1958 for a perpetual cycle calendar, and my second prior patent application, Serial No. 848,079 filed October 22, 1959, now abandoned, for a flat-slide perpetual calendar. The first application provided a perpetual calendar embodied in the physical form or structure of an endless band. The second application provided a perpetual calendar in a flat physical form or embodiment including flat slidable elements movable in different directions. The present application, which is the third in the series of cases covering applicant's perpetual calendar, provides a perpetual calendar in cylindrical form, there being one fixed cylinder and at least one, and preferably two, rotatable cylinders designated, respectively, as a rotatable ring and a rotatable cylindrical sleeve.

More specifically, the cylindrical perpetual calendar herein described and claimed, and the perpetual calendars of the two earlier patent applications, are based upon a twenty-eight year solar cycle. This means that a chronological pattern is utilized which repeats itself every twenty-eight years. In the two prior applications charts are provided in which a complete twenty-eight year cycle is set forth and such charts may be used, as described in said applications, in connection with any twenty-eight year solar period. In the present application, a cylindrical chart is provided in which only a part of the twenty-eight year pattern is set forth but by means of the rotatable ring above mentioned, and hereinafter more fully described, the calendar may be set to cover any selected portion of any twenty-eight year past or future period.

It is accordingly the object of this invention to provide a perpetual calendar, based on the twenty-eight year solar cycle, but utilizing only a portion of the twenty-eight year solar pattern as its basic operating element, coupled with means for setting and re-setting it to any selected portion of any selected twenty-eight year solar period, past, present or future.

To clarify the foregoing, it will be understood that the cylindrical chart provides the years and months of any selected portion of any selected twenty-eight year solar period. The rotatable ring provides the days of the week in relation to the years and months of the cylindrical chart. The rotatable sleeve provides the days of the month in relation to the years and months of the cylindrical chart and the days of the week of the rotatable ring. The structural features of the present invention and the method of its use will now be described in connection with the accompanying drawing in which:

FIGURE 1 is a side view of an embodiment of the invention;

FIGURE 2 is a longitudinal section taken on the line 2—2 of FIGURE 1, and

FIGURE 3 is a developed view of the cylindrical chart, days-of-the-week ring and days-of-the-month sleeve which together comprise the invention whose embodiment is shown in FIGURES 1 and 2.

The perpetual calendar herein claimed comprises a cylinder **10** on which is formed a cylindrical chart **10***a*,

a rotatable ring **12** on which is formed an annular chart **13**, and a rotatable sleeve **14** on which is formed a cylindrical chart **14***a*. In the physical embodiment of the invention as illustrated in the drawing, cylinder **10** has a bottom wall but is open at the top and consequently forms a cylindrical receptacle for auxiliary purposes. For example, it may be used as a container for medicinal pills or tablets or for such diverse objects as paper clips, postage stamps and other articles adapted to be accommodated within a cylindrical container. Said cylinder **10** may be made of any suitable material such as glass, plastics or metal and it may be of pocket size to be carried around on one's person or desk size to be placed on a desk or table. In the preferred form of this invention cylinder **10** is made of transparent plastics.

Rotatable ring **12** is shown in its preferred form to have a top wall but to be open at the bottom. It therefore assumes the shape of a cap and is adapted to perform the function of a cap relative to cylinder or cylindrical container **10**. As shown in FIGURES 1 and 2 of the drawing, ring or cap **12** is rotatably mounted on the upper open end of the cylinder or cylindrical container **10**. Said ring or cap may be made of the same material as the cylinder or of any other suitable material. In the preferred form of this invention it is made of the same material, namely, plastics. The combination of cylinder or cylindrical container **10** and ring or cap **12** comprises a convenient receptacle for various objects as, for example, those above mentioned.

Cylindrical sleeve **14** is rotatably mounted on cylinder **10** for rotary movement in either direction about the longitudinal axis of said cylinder. The sleeve is also longitudinally movable on and relative to said cylinder in either direction. The rotatable sleeve **14** may also be made of any suitable material but preferably is made of transparent plastics as illustrated in the drawing and corresponding to the material of which said cylinder **10** is itself made.

Chart **10***a* may be formed on a flat sheet of paper as shown in FIGURE 3 and said sheet of paper may then be rolled into cylindrical form and inserted into cylinder **10**. It may be held in place therein frictionally, by means of an adhesive or by any other suitable means. Since the cylinder **10** is made of transparent plastic, the cylindrical chart **10***a* disposed therein may easily be viewed through the cylindrical wall. Chart **13** may also be formed on a flat strip of paper which may then be rolled around ring **12** to form a second cylindrical chart and any suitable adhesive or other fastening means may be used to hold said chart **13** in place on said ring **12**. Chart **14***a* may similarly be formed on a flat sheet of paper which may also be rolled into cylindrical form and inserted into sleeve **14** as shown in FIGURE 2. Since said sleeve is made of transparent plastics the now cylindrical chart **14***a* may clearly be viewed therethrough.

It will be apparent that it is wholly immaterial whether the three charts shown in FIGURE 3 are secured to the inside or the outside of their respective supporting structures. It is preferred that charts **10***a* and **14***a* be placed within their respective supporting elements in order to protect them against damage resulting from handling. It is not very convenient to place chart **13** within ring **12** because said ring is adapted to receive the upper open end of cylinder **10** as above mentioned. Consequently, it has been found desirable to place chart **13** in an annular recess or rabbet formed in the outer wall of said ring, thereby recessing the chart itself and protecting it against damage from handling. It covers only part of the ring, the remaining part being knurled to facilitate actuation. It is, of course, equally visible, within the scope of the present invention, to apply the

charts directly to their supporting members rather than to carrier sheets of paper. For example, the charts may be applied to cylinder **10**, ring **12** and sleeve **14** by the conventional silk screen process or by any other conventional means for applying markings or indicia to a supporting surface. The process method to be used would of course depend upon the nature of the material of which the supporting surface is made. In the case of plastics, the silk screen process is quite satisfactory.

Cylindrical chart **10***a* is best shown when spread out flat as in FIGURE 3 and it will there be seen that it consists of five horizontal rows intersected at right angles by seven vertical columns, such intersection forming thirty-five squares or frames **16**. On each of these squares or frames is at least one number or digit, sometimes two or three. These numbers or digits run consecutively from "1" to "12" and they designate the months of the year. Thus, digit "1" signifies January, digit "2" February, and so on, to digit "12" which signifies December. It will be noted that two of the squares **16** contain the numbers or digits "1," "4" and "7" and two opposite corners of each of these squares are inked in so that the squares will be emphasized and will stand out among the rest. These "1," "4," "7" squares will herein be designated as the key squares of chart **10***a* and their use will shortly be described. It will be understood from what was previously said that when chart **10***a* is rolled into cylindrical form the first and last columns shown in FIGURE 3 will adjoin each other.

Chart **13** is best seen as spread out flat as in FIGURE 3 and it will be noted that it comprises a group of seven rectangular spaces or frames **18** arranged horizontally in side-by-side relationship to form a single horizontal row. These frames **18** are lettered with the days of the week, commencing with Sunday and terminating with Saturday. Actually, when chart **13** is rolled into cylindrical form, the Saturday and Sunday frames will adjoin each other and in the functioning of the present invention no purpose is served in designating any one day as the first of the week or any other day as the seventh day of the week, and so on.

Chart **14***a* is similarly best viewed when spread out flat as in FIGURE 3. This chart comprises a plurality of generally horizontal but slightly inclined rows which intersect seven vertical columns to form a plurality of quadrilateral spaces or frames **20**. These spaces are numbered consecutively from "1" to "31" and they designate the days of the month. The reason for the inclined form of the horizontal rows will become apparent when it is understood that chart **14***a* is also curled into cylindrical shape when used. Consequently, to provide for continuity from one horizontal row to another, it is essential that the horizontal row terminating with the space numbered "7" be brought into juxtaposition with the horizontal row commencing with the space numbered "8." Similarly, the horizontal row terminating with space "14" should be brought into juxtaposition with the horizontal row commencing with space "15," and so on. In effect, therefore, the several slightly inclined horizontal rows shown on chart **14***a* in FIGURE 3 become a helix or spiral when said chart is curled into cylindrical form, as shown in FIGURE 1.

For example, let it be assumed that the first horizontal row signifies the year 1900. The second horizontal row will then signify 1901, the third 1902, the fourth 1903 and the fifth 1904. It will also be understood in the use of this device that the months designated in the several squares **16** commence on the day of the week indicated in the aligned space **18** on chart **13**. Thus, as shown in FIGURE 3, the space designated Sunday on chart **13** is situated in line with the first vertical column of spaces **16** on chart **10***a*. This means that the first day of each month designated in the first vertical column on chart **10***a* falls on a Sunday. To be more specific, the first space in the first vertical column on

chart **10***a* is numbered "1," "4," "7." Since this first space is also in the first horizontal row, what is signified by this arrangement is that the first days of January, April and July in the year 1900 fell on a Sunday. The second space in the first vertical column (which is also the first space in the second horizontal row) bears the numbers "9," "12." This means that the first days of September and December in the year 1901 fell on a Sunday. The same is true of the first day of June in the year 1902 and the first days of February, March and November in 1903 and the first day of May in the year 1904. By the same token, since the second square **16** in the first horizontal row (this being also the first square in the second vertical column) is situated under Monday on chart **13**, this means that the first day of October in the year 1900 fell on a Monday. Projecting this downwardly through the remaining squares in the second vertical column on chart **10***a*, it will be observed that in the year 1901 the first days of April and July fell on a Monday, in the year 1902 the first days of September and December fell on a Monday, in the year 1903 the first day of June was on a Monday, and in the year 1904 the first days of February and August also fell on a Monday.

The pattern of chart **10***a* is so arranged that when the first vertical column is situated under Sunday as shown in FIGURE 3, the first horizontal row designates the year 1900 and the second, third, fourth, and fifth horizontal rows designate, respectively, the years 1901, 1902, 1903 and 1904. This is not an arbitrary arrangement since the first row could in fact very well represent the year 1900 because in that year Sunday was the first day in the first, fourth and seventh months, Monday was the first day in the tenth month, Tuesday was the first day in the fifth month, Wednesday was the first day in the second and eighth months, Thursday was the first day in the third and eleventh months, Friday was the first day in the sixth month and Saturday was the first day in the ninth and twelfth months. The information set forth in the second, third, fourth and fifth rows does in fact correspond to the 1901, 1902, 1903 and 1904 calendars. Thus, referring to the second horizontal row, it will be understood that in the year 1901 the first day in the ninth and twelfth months fell on a Sunday, the first day in the fourth and seventh months fell on a Monday, the first day in the first and tenth months fell on a Tuesday, the first day in the fifth month fell on a Wednesday, the first day in the eighth month fell on a Thursday, the first day in the second, third and eleventh months fell on a Friday and the first day in the sixth month fell on a Saturday. The calendar may be advanced four years by turning chart **10***a* back two days relative to the days-of-the-week chart **13**. The key square ("1," "4," "7") will now be situated under Friday and the first horizontal row will now designate the year 1904, the second horizontal row 1905, the third 1906, the fourth 1907 and the fifth 1908. The first days of January, April and July in the year 1904 fell on a Friday. The first days of September and December in the year 1905 also fell on a Friday, and so on.

The calendar may be advanced still another four years by turning chart **10***a* back another two days relative to the days-of-the-week chart **13**. The key square ("1," "4," "7") in the first horizontal row will now be situated under Wednesday on chart **13** and so will all of the other squares in the same vertical column. This means that the month numbers of the first horizontal row now designate the year 1908 and the second, third, fourth and fifth horizontal rows designate, respectively, the years 1909, 1910, 1911 and 1912. Thus, the first days in the months of January, April and July in the year 1908 fell on a Wednesday and this is also true of the first days of September and December in 1909, June in 1910, February, March and November in 1911 and May in 1912.

The calendar may be advanced still another period of

four years by turning chart **10***a* back two additional days relative to chart **13**. The key square ("1," "4," "7") in the upper horizontal row of chart **10***a* will now be situated under Monday on chart **13**. The first horizontal row will now designate the year 1912, the second 1913, the third 1914, the fourth 1915, and the fifth 1916. The first days of January, April and July in the year 1912 will now be seen as having fallen on a Monday, and this is also true of the first days of September and December in 1913, June in 1914, February, March and November in 1915 and May in 1916.

Summarizing the foregoing, it will be noted that the key square ("1," "4," "7") is now situated one day ahead of its original position relative to chart **13**. At the beginning of this discussion of the use of the present calendar it was stated that when the key square in the top horizontal row is set at Sunday, said horizontal row designates the year 1900. We now find that when the key square is set at Monday the first horizontal row designates the year 1912. Consequently, instead of shifting the calendar by four year intervals, it may be shifted by twelve year intervals by simply advancing chart **10***a* one day relative to chart **13**. Thus, when the key square ("1," "4," "7") in the upper horizontal row on chart **10***a* is set at Sunday, said row designates the year 1900; when it is set at Monday, said row designates the year 1912; when it is set at Tuesday, said row designates the year 1924, and so on.

The calendar may be shifted by even longer time intervals, for example, 100 year intervals, by means of the following procedure: when the key square ("1," "4," "7") in the upper horizontal row is moved ahead one day on chart **13**, the calendar is set back a full century. Thus, starting with the key square set at Sunday and the first horizontal row representing the year 1900, when said key square is advanced one day to Monday, said first horizontal row will now represent the year 1800. This feature of the present calendar is simply a projection of what has above been described. This is a twenty-eight year solar cycle calendar, as has clearly been indicated.

Utilizing the fact that any multiple of 28 is a composite of two complementary numbers, one of which can be taken as 12 (such as 12 and 16=28), we can use 12 and 100 as the complements of 112, which is a multiple of 28 (namely 4×28). Therefore, when the key square ("1," "4," "7") is moved one day ahead from its position in FIGURE 3, the upper horizontal row will then represent 1800. And the reverse is equally attained: when the key square ("1," "4," "7") is moved back one day of the week, from its FIG. 3 position, the said upper horizontal row then designates the year 2000.

It thus appears that when said key square is moved back one day on chart **13**, the calendar is advanced one hundred years, and when said key square is moved ahead one day on **13** the calendar is moved back one hundred years.

It will now be noted that there are two key squares bearing the numerals "1," "4," "7"—one being situated in the top horizontal row of chart **10***a* and the second being situated in the bottom horizontal row on said chart. For the purposes of the present discussion, the second key square will be designated as the alternate key square, but it will be understood that it has precisely the same significance and performs precisely the same function as the first mentioned key square. However, the alternate key square facilitates use of the calendar in referring back to prior years. For example, when the alternate key square is set at Sunday, the bottom horizontal row represents the year 1900, the second row from the bottom represents the year 1899, the third row from the bottom represents the year 1898, the fourth row from the bottom represents the year 1897, and the top row will now represent the year 1896.

As an illustration of how the calendar may be used in respect to the current year 1959, let the procedure start by setting the key square ("1," "4," "7") in the upper horizontal row at Sunday on chart **13**. The top horizontal row will now represent the year 1900. Said key square should now be advanced one day ahead to Monday, and this will advance the calendar twelve years so that the top horizontal row will represent the year 1912. The key square in said top horizontal row may now be moved a second day ahead to Tuesday, and said horizontal row will now represent the year 1924. Moving the key square ahead a third day to Wednesday on chart **13** will advance the calendar a further period of twelve years and the top horizontal row will now represent the year 1936. Moving the key square ahead a fourth day to Thursday will advance the calendar an additional twelve years and the top horizontal row will now represent 1948. If the key square is now moved ahead a sixth day to Friday on chart **13**, the calendar will be advanced a further period of twelve years and the top horizontal row will now represent the year 1960. Since we are interested in the year 1959, we shift chart **10***a* so that the alternate key square in the lowermost horizontal row is set at Friday on chart **13**.

As has above been indicated, the two key squares may be used interchangeably . Since the alternate key square is now situated under Friday, the lowermost horizontal row represents the year 1960. One row above the bottom row represents 1959, and if we should be interested in 1958, 1957 and 1956, the third, fourth and fifth rows from the bottom will represent those years.

We may arrive at the same results by a more simple procedure, as follows: The main (rather than the alternate) key square ("1," "4," "7") is set at Sunday and, as has already been indicated, the top horizontal row may now be deemed to represent the year 1900. This being a twenty-eight year cycle calendar, the top row may equally be deemed to represent the years 1928 and 1956. To find a row representing the year 1959, all that need be done is to count three rows down from the top row (which would bring us to the fourth row from the top), the second row from the top representing 1957, the third 1958, and the fourth 1959.

Referring now to chart **14***a*, which is the day-of-the-month chart, it will be understood that this chart may be used in conjunction with the other two charts **10***a* and **13** above described. By way of illustration, let chart **10***a* be set with its key square ("1," "4," "7") at Sunday on chart **13**. The first day of January of the year 1900 will fall on a Sunday. To quickly ascertain the days of the week on which the remaining days of that month fell in the year 1900, chart **14***a* is rotated until the first of the month on that chart is set at Sunday on chart **13** and the remaining days of the month on chart **14***a* will now be properly keyed to the days of the week on chart **13**. To facilitate reading chart **14***a*, said chart may be moved axially of chart **10***a* until it abuts chart **13**. The two charts **14***a* and **13** may now be read conjointly and without any visual interference by chart **10***a*.

The foregoing is illustrative of a preferred form of this invention and of the procedures involved in using it. It will be understood that variations and modifications may be incorporated both into the structure itself and into the method of operation thereof without departing from the basic principles of the invention or the scope of the claims. For example, while the third chart which designates the days of the month greatly facilitates the use of the present calendar, it is by no means essential thereto and the calendar may be used very conveniently when consisting only of the first and second charts.

The invention is also illustrated in the form of a container adapted to receive and hold such articles as medicinal pills, tablets and the like. It will be understood, however, that the invention may be embodied in other devices and objects. For example, it may take

the form of a pencil or a disk type of stamp holder, or any other object which is normally of cylindrical form.

I claim:

1. A perpetual calendar based upon a twenty-eight year solar cycle, comprising a first cylindrical chart divided into a plurality of individual frames arranged in seven vertical columns and a plurality of horizontal rows intersecting said columns, there being seven such frames in each horizontal row, each of said seven frames occupying a different vertical column, said seven frames being marked with the twelve months of the year, and each horizontal row of seven frames representing corresponding years in the twenty-eight year solar periods, a second cylindrical chart mounted co-axially with the first chart, the two charts being adapted to rotate relative to each other in either direction, said second chart being divided into seven frames situated side-by-side and adapted to register with the seven columns of the first chart, said seven frames on the second chart being marked with the seven days of the week, the significance and relationship of the markings on the two charts being such that, when they are properly set relative to each other, for any given year represented by any horizontal row on the first chart, the first day of any month designated in said horizontal row corresponds to the day of the week designated in the registering frame of the second chart, and a third cylindrical chart provided in co-axial relation to the first two charts, said third chart being mounted for both rotary and axial movement relative to said first two charts and

being divided into a plurality of individual frames arranged in seven vertical columns and a plurality of slightly inclined horizontal rows forming a helix and intersecting said columns, there being seven such frames in each such inclined horizontal row, each of said seven frames occupying a different vertical column, all of the frames of said third chart being marked with the days of the month, the seven columns of the third chart, the seven columns of the first chart and the seven frames of the second chart being adapted to register with each other, said first cylindrical chart being provided on a cylindrical container which is closed at one end and open at the opposite end, said second cylindrical chart being provided on a cylindrical cap adapted to be rotatably mounted on said cylindrical container at its open end, thereby closing said cylindrical container.

2. The perpetual calendar of claim 1 wherein said third cylindrical chart is provided on a cylindrical sleeve mounted on said container for rotary and axial movement relative thereto.

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