Nov. 20, 1928.

1,692,199

H. S. BOWMAN

CALENDAR

Filed Sept. 9, 1927

2 Sheets-Sheet 1

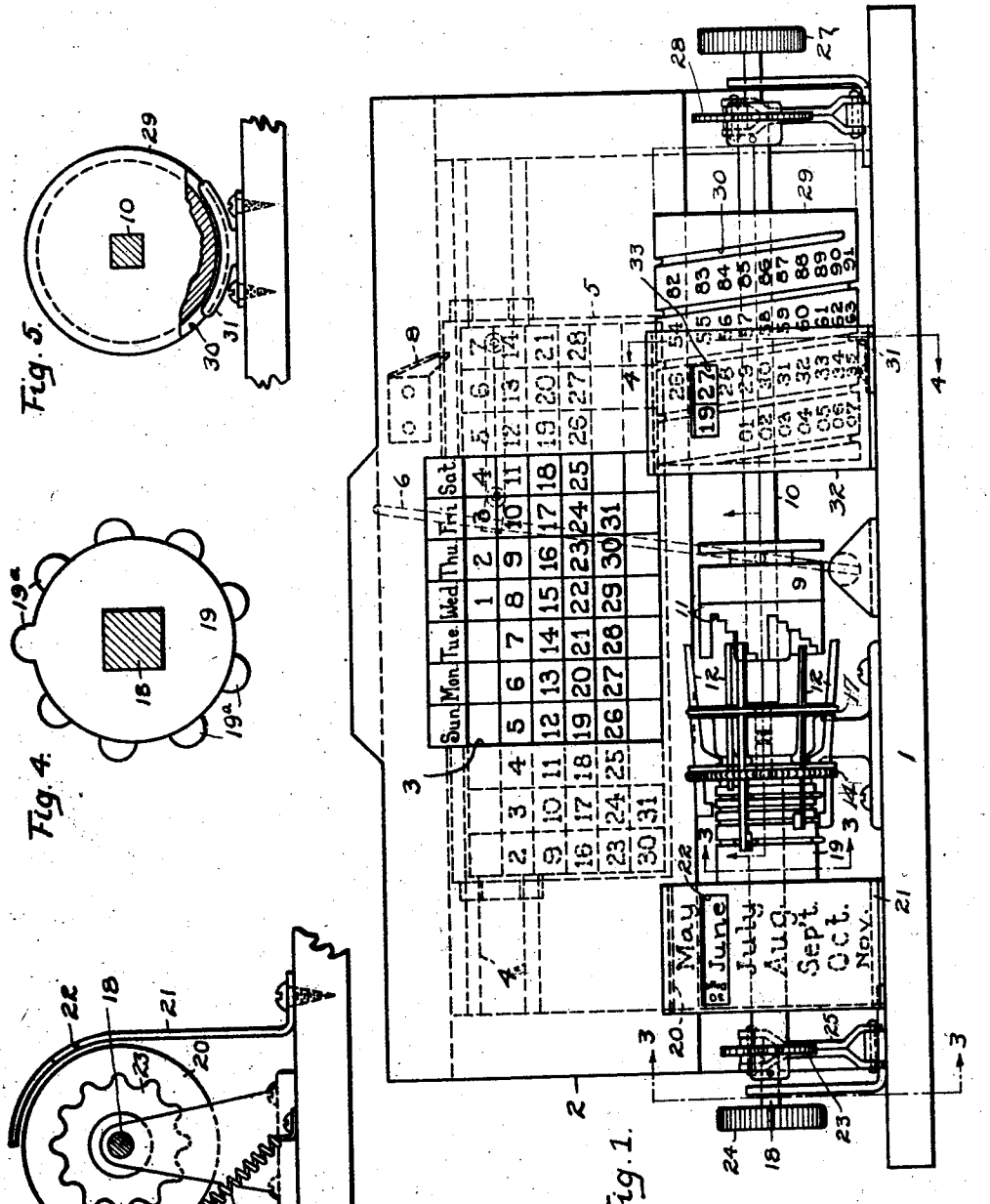



Fig. 1.



Fig. 5.



Fig. 4.



Fig. 3.

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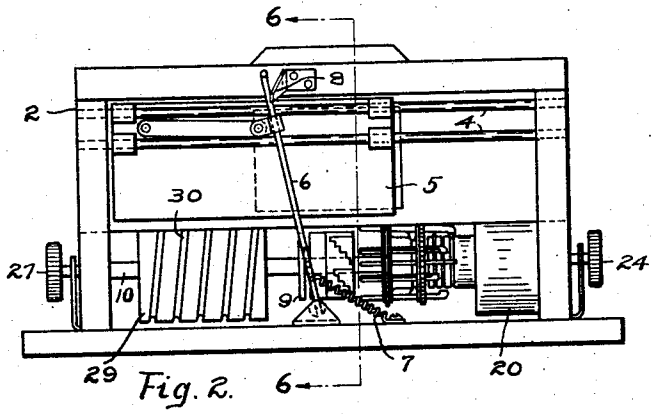



Fig. 2.

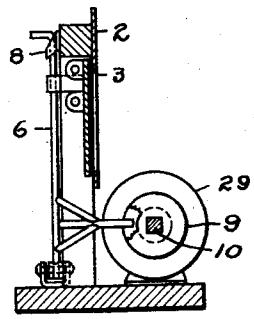



Fig. 6.

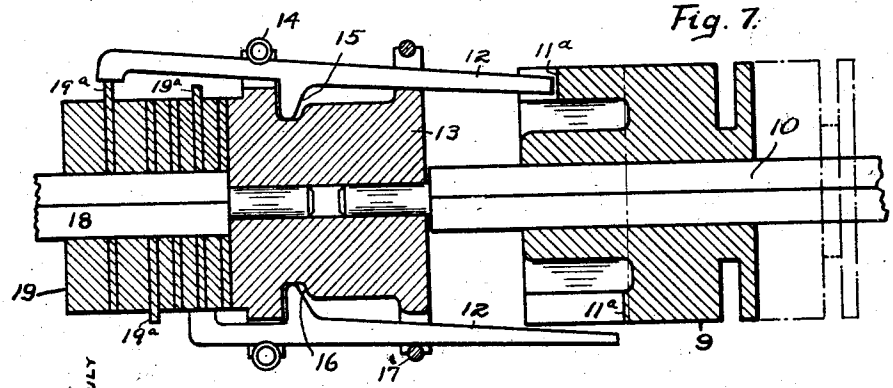



Fig. 7.

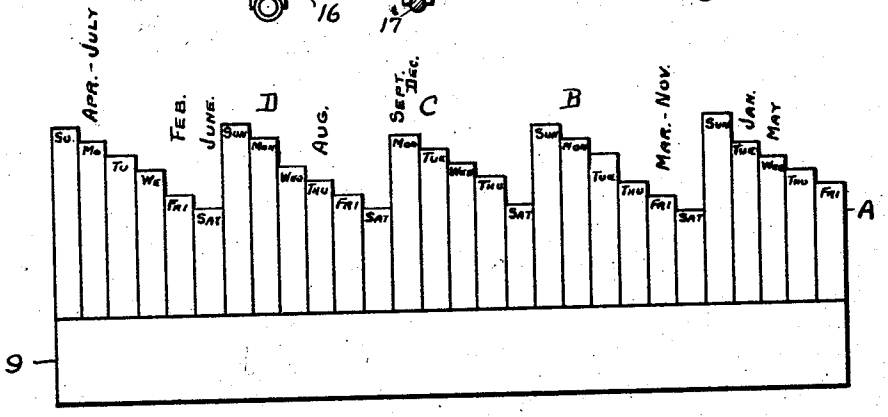



Fig. 8

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# UNITED STATES PATENT OFFICE.

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## CALENDAR.

Application filed September 9, 1927. Serial No. 218,380.

The invention relates to calendars of the perpetual type and its object is to provide a simple device by which any month and the days thereof of any year over a long period of years may be shown, and upon which the day of the week upon which any given date will or did fall may be readily ascertained.

Another object is to provide a device wherein novel means is employed for setting the mechanism so that the first day of a selected month of a selected year is positioned at the correct week day.

Other objects and advantages will appear hereinafter.

An embodiment of the invention is illustrated in the accompanying drawings in which,

Figure 1 is a front elevational view of the device; Fig. 2 a rear elevational view of the device; Fig. 3 a view substantially on line 3—3 of Fig. 1 of the month selector; Fig. 4 a cross section on line 4—4 of Fig. 1; Fig. 5 a side view of the year selector taken on line 5—5 of Fig. 1; Fig. 6 a cross section on line 6—6 of Fig. 2; Fig. 7 a longitudinal cross section of the day selector and Fig. 8 a developed view of the stops of the day selector.

In the illustrative embodiment of the invention, 1 is a suitable base and 2 is a suitable back member mounted on the base. An opening 3 is formed in the back and above this opening the days of a week are imprinted or otherwise shown in proper order. On the rear side of the back are secured two supports or rods 4 upon which is slidably mounted a plate 5 having upon its face opposing the back 2 the numbers representing the days of a month, similarly to the usual calendar except that there are thirteen vertical columns of figures instead of seven as in the common calendar, so arranged that a full month will be visible through the opening 3 irrespective of which day of the week the figure 1 is below.

A lever 6 is pivotally mounted on the base and is loosely or pivotally connected to the plate or slide 5. A spring 7 is connected to the lever and to the base and opposes movement of the slide to the right (Fig. 1). A lug 8 projects from the back 2, behind which the lever may be engaged to hold the same when the selectors are being set as hereafter explained.

The lever 6 is also suitably connected to one side of the cylindrical stop carrier 9 that is slidably mounted on the shaft 10, which shaft is preferably square. Five groups of recesses 11 are formed on the opposite sides of the member 9, each group consisting of several horizontal recesses progressively increasing in depth, as shown in Fig. 8, to form a group of stops $11^a$ against one of which the end of a selected lever 12 will abut.

The levers 12 are pivotally mounted upon a carrier 13 that is mounted on the base 1, and their arms rearwardly of their fulcrums differ in length. One end of the shaft 10 is revolubly borne by the carrier (Fig. 7). A suitable spring or other suitable means 14 engages the levers and normally holds the forward ends of the levers in elevated position, each lever having a lug 15 that rests in an annular groove 16 formed in the carrier and forming the fulcrum of the lever. A guard 17 retains the levers on the carrier. Any suitable manner of mounting the pawls or levers 12 will suffice. One end of the shaft 18 is also revolubly supported by the carrier. Upon the shaft 18 is secured a cam carrier 19 having a selected number of cams $19^a$, nine such cams being shown, (Figs. 4 and 7), and which cams are adapted by rotating the shaft 18 to be moved under the rear ends of the pawls 12 selectively to rock the selected pawl and cause its forward end to engage the selected abutment $11^a$.

A cylindrical or other member 20 is secured to the shaft 18 and carries on its periphery the names of the months in proper order, a cover 21 having a port 22 at a selected point therein being secured to the base 1 and covering the front side of the member 20 with the aperture 22 exposing any one of the names of the months. An annular rack 23 and a suitable hand wheel 24 are secured to the shaft 18, the rack having as many teeth as there are months in the year and being engaged by a roller pawl 25 held against the rack by the spring 26. The shaft 18 may be rotated in either direction to cause the name of a selected month to be exposed through the port 22, and when thus exposed the pawl 25 is engaged between two teeth of the rack 23 so that the shaft is held against further rotation. Before the shaft can be rotated the lever 6 must be swung so as to withdraw the stop member 9 forwardly from the levers since one of the levers is in engagement with one of the stops.

A hand wheel 27 is secured to the free end of the shaft 10 and an annular rack 28 is also secured to the shaft and is engaged by a pawl similarly to the rack 23, the rack 28 having 28 recesses. A cylinder 29 is slidably mounted

on the preferably square portion of the shaft 10. A spiral groove 30 is formed in the periphery of the cylinder and is engaged by a dog 31 secured to the base 1. When the shaft 10 is rotated the dog causes the cylinder to move along the shaft according to the direction of rotation thereof. Between the turns of the spiral groove are suitably disposed a series of yearly numbers beginning with any one, say 01, and continuing successively to 99. A shield 32 covers the front side of the cylinder 29, or a part thereof, and a port 33 is formed therein through which any number on the cylinder will be visible. At the left side of the port the number 19 is suitably disposed to cooperate with any number on the cylinder and represent a year, the year 1927 being shown in Fig. 1. As in the case of shaft 18, the stop carrier must be shifted away from the levers before the shaft 10 may be rotated. The rotation of shaft 10, under the control of the rack 28 and its pawl, to cause the selected year to be exposed through the port 33, carries the stop carrier with it and positions the proper group of stops so that the correct stop of the group will be engaged by the lever that is rocked by the cam corresponding to the month exposed on the cylinder 20 through the port 22.

I have found that the calendar repeats itself after twenty-eight years, hence I provide on the stop carrier a total of 28 stops arranged in five groups, there being a similar quantity of yearly numbers on the cylinder 29 that will pass the port 33 in one complete revolution of the cylinder, and there being also 28 recesses in the rack 28. The development of the stop carrier 9 (Fig. 8) shows the twenty-eight stops marked with the days of the week in five groups, leap years being provided for by omitting every fifth day. The names of the months are indicated at the proper stops representing the first days of the months respectively in 1901, 1929, 1957, etc. Starting for example, with 1901, January 1 of that year fell on Tuesday and the Tuesday stop in group 1, Fig. 8, is the selected stop for that month and year; January 1, 1902, fell on Wednesday and its stop is the Wednesday stop of group A; the Thursday stop of group A is the stop for January 1, 1903; the Friday stop of group A is the January, 1904, stop and the Sunday stop of group B is the January, 1905, stop, the Saturday stop being omitted in group A because 1904 was leap year, the same rotation of stops continuing for 28 years, or until 1929, the stop for January, 1929, being the Tuesday stop of group A. The other months of 1901 take the same rotation each month starting in at the proper stop. Since March and November always begin on the same week day in any year and April and July also begin on the same week day and the same is true of September and December, it is only necessary to use nine pawls or levers instead of twelve.

In operation the lever 6 is swung to retract both the calendar plate and the stop-carrier and is engaged behind the lug 8. The annual or yearly cylinder 29 is rotated until the desired year indicating numerals are exposed at the port 33. The stop-carrier 9 is simultaneously rotated to position the stops in proper relation to the pawls or levers 12. The monthly cylinder is then rotated until the name of the selected month is exposed at the port 22. The cam-carrier is simultaneously rotated by the shaft 18 and the cam that is positioned on the carrier for the selected month rocks the proper pawl 12 and causes it to engage the proper stop which has been lined up with that pawl in accordance with the year exposed through the port 33. The lever 6 is then released and the calendar slide is moved to the left (Fig. 1) by the spring 7, the stop carrier being also moved along the shaft until the selected pawl 12 engages the selected stop whereupon the calendar slide comes to rest, the numeral 1 thereof being below the name of the correct week day heading on the back 2. The rotation of the cylinder 20 in step with the cam carrier selects the predetermined cam for the selected month and the rotation of the cylinder 29 in step with the stop carrier places the required stop in alinement with the pawl that the selected cam will rock.

Having once arranged the cams in conformity to the month cylinder 20 and having properly disposed the pawls or levers 12 on the carrier 13, and having formed the stops as shown in the development of the cam carrier, Fig. 8, and alined them properly with respect to the yearly cylinder, the device is ready at all times to set the calendar for any month and year.

It will be noted from Fig. 8 that the stops of each group are set back progressively from the side face of the carrier 9, except for each leap year the stop for the succeeding year is set back twice as far as the preceding stop.

What I claim is:

1. A calendar consisting of a movable member carrying thereon columns of numerals representing the days of the month, a fixed member in front of the movable member and having the names of the days of the week in a horizontal row, the fixed member having an aperture therein adapted to expose any seven of said columns of numerals below the said names of the day of the week, and means operatively connected to the movable member for adjusting the said member to indicate a selected month of a selected year and comprising a movable stop carrier having thereon a predetermined number of stops arranged in predetermined order to represent a period of successive years, means to selectively position any one of said stops, a series of stop engaging members, and means to actu-

ate the engaging members selectively, said means being arranged in accordance with the months of a year.

2. A calendar consisting of a movable member carrying thereon columns of numerals representing the days of a month, a member in front of said movable member and shaped to expose any seven of said columns of numerals and means operatively connected to the movable member for controlling the movement of said member and comprising a slidably and revolubly mounted stop carrier, means simultaneously revoluble with the stop carrier having thereon a succession of members representing a sequence of years, means to expose any one of said year numerals, a plurality of members adapted to engage any of the stops, a revoluble member adjacent to the latter members and having means thereon to engage and operate said latter members selectively, a member revoluble with the latter revoluble member and having thereon the names of the months of the year in succession and means to expose any one of said names.

3. A calendar consisting of a movable member carrying thereon columns of numerals representing the days of the month, means to expose any seven of said columns constituting an entire month, a rotatable and shiftable stop carrier having thereon a predetermined number of stops to represent a period of successive years and having an operative connection with the movable member, a cylinder rotatable in unison with the stop carrier and carrying about its periphery a series of numerals representing a succession of years, means to expose any selected year numeral whereby to position the stop carrier for said year, a plurality of stop engaging members and means to selectively actuate the latter members to control the shifting movement of the stop carrier, said means including a series of members adapted to selectively engage and operate the stop engaging members respectively.

4. In a calendar, a movable member carrying a plurality of columns of numerals representing days of the month, a peripherally adjustable carrier having stops thereon representing a period of successive years, means to shift the carrier and the movable member simultaneously and selectively actuated pawls to engage the stop carrier for controlling said shifting movement and causing said columns of numerals to represent a selected month.

5. In a calendar, a movable plate carrying a plurality of columns of numerals representing days of the month, means to expose a portion of said columns, a revolubly and slidably mounted carrier having thereon a plurality of stops, a cylinder having thereon a sequence of numerals representing a period of years, an apertured member adapted to expose any one of said year representing numerals, means to rotate the carrier and cylinder simultaneously to expose the selected year representing numeral and adjust the carrier, means to simultaneously move the plate and the carrier and selectively operated members to engage the stops to limit the said simultaneous movement of the plate and the carrier whereby the numerals of an entire month on the plate are exposed.

6. In a calendar, a movable plate having thereon columns of numerals representing days of the month, means to expose seven of said columns of numerals, a movable stop carrier, means having connection with the plate and the carrier to cause simultaneous movement thereof, a revolubly and slidably supported cylinder having a series of numerals arranged in a spiral line thereon representing a period of years, means to expose any one of said year representing numerals, means to rotate the stop carrier and the cylinder simultaneously and in step with each other, means engaging the cylinder to cause it to slide on its support to cause any selected year representing numeral to be exposed, and selectively actuated members to engage the stop carrier and limit the simultaneous movement of said carrier and the plate, whereby to cause seven of the columns of numerals to be exposed.

7. In a calendar, a movable plate having thereon columns of numerals representing days of the week, a fixed member having an aperture therein through which any seven of said columns are visible, the said member carrying the names of the days of the week under which said columns are adapted to register, a revoluble shaft, a carrier slidably mounted on the shaft and having a series of stops thereon arranged in a predetermined order, a cylinder slidably mounted on the shaft, a spiral groove formed in the peripheral wall of the cylinder, a series of numerals on the cylinder between the turns of the groove, means to expose any one of said year representing numerals, fixed means engaging the groove to cause the cylinder to slide on the shaft when the shaft is rotated to expose a selected year numeral, the rotation of the shaft causing the stops to assume a predetermined position relatively to the exposed year numeral and selectively actuated means to engage the stops to limit the sliding movement of the carrier and cause the required columns of numerals on the plate to register with the said names of the days.

8. In a calendar the combination of a movable member having thereon a plurality of columns of figures representing the days of the month, a revoluble and slidable member having a connection to the movable member and having a plurality of stops thereon, means to adjust the latter revoluble and slidable member selectively, a fixed member, a plurality of pawls mounted on the fixed

member and adapted to engage the stops, a revoluble carrier, a plurality of cams on the latter carrier adapted to operate the pawls selectively, a revoluble cylinder having on its periphery the names of the months of a year, the cylinder being operatively connected to the cam carrier to rotate the carrier for selecting a cam and causing it to operate the required pawl and means to expose any one of the names on the cylinder.

In witness whereof I have hereunto signed my name.

HERBERT S. BOWMAN.