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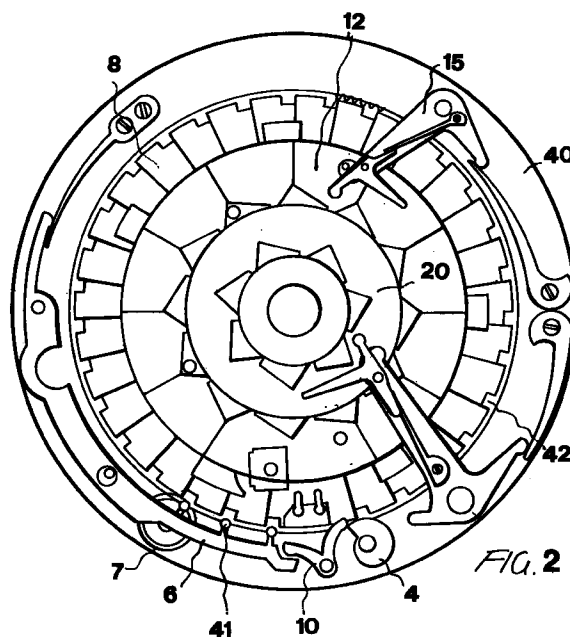
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(54) **Mechanical movement watch provided with an alphanumeric perpetual read-out calender**

(57) The invention relates to a mechanical movement watch provided with an alphanumeric perpetual read-out calendar and including an assembly of mechanical elements for driving the chronologic indicators thereof, comprising a first disc with an alphanumeric indication of the day of the month, a second disc with an alphanumeric indication of the day of the week, a third disc with an alphanumeric indication of the months of the year, the alphanumeric indications being displayed on the watch dial, and further comprising driving means for automatically causing a further displacement movement of the disc of the month day for months having a number of days less than thirty one and for the month of February for leap years. The first, second and third alphanumeric indication discs are arranged on a central plate, on the side of the watch dial opposite to the assembly of mechanical elements for driving the chronologic indicators.



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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a mechanical movement watch provided with an alphanumeric perpetual read-out calendar.

[0002] A lot of mechanical watches including a plurality of operating functions and designed for indicating a lot of chronologic information, in addition to the hour and the day of the week, such as the moon phases, the current month and year as well as other like additional information, are already known.

[0003] These watches, of very great value and high mechanical complexity are, known as "Grand Complication" watches.

[0004] However, the mentioned additional information, i.e. the information different from the hour and week day proper, is presented to the user of a Grand Complication watch, or of other like mechanical watches, under an analogic form and, in particular, by a circular displacement on the watch dial of corresponding mechanically driven pointers.

[0005] This approach, even if characteristic of a lot of mechanical watches and, in particular, of the mentioned Grand Complication watches, is rather objectable, since it compels the user to exert a comparatively high effort for interpreting the information supported by the watch dial.

[0006] In fact, as is known, a mental translation of the position of a pointer to a corresponding chronologic information, instead of deriving this information from a direct read-out of a number or of an alphabetic letter indication, represents a rather complex operation.

[0007] Moreover, the chronologic information represented by pointers can not be easily read-out by users having view defects, thereby these users are frequently compelled to use eyeglasses in order to properly read the complex watch dial.

[0008] In the mechanical watch field is furthermore known to use an alphanumeric read-out calendar, i.e. a calendar including a wheel bearing a digital indication, of the number of the week day, as well as alphabetic letters for indicating, usually in a shortened form, the day of the week.

[0009] On the other hand, the provision of the above mentioned calendars in mechanical watches is disadvantageous due to the different number of the days included in a year.

[0010] Actually, the different numbers of the days of each individue month compels the user, at the end of a month having a duration less than thirty one days, to manually adjust the alphanumeric calendar.

SUMMARY OF THE INVENTION

[0011] Accordingly, the aim of the present invention is to provide a mechanical movement watch specifically

designed for displaying the information related to the number of the days of a month, the name of the week day and the month of the year, by using alphanumeric indications displayed on the watch dial, and designed to be easily read-out by a user of the watch.

[0012] Within the scope of the above mentioned aim, a main object of the present invention is to provide such a mechanical movement watch which allows the current year indication and the number of years separating the current year from a leap year to be easily displayed in a digital form.

[0013] Another object of the present invention is to provide such a mechanical movement watch which does not require manual adjustments by the user thereof, in particular adjustments related to the above mentioned alphanumeric indications, for example for setting the first day of a moth following a month having less than thirty one days, thereby providing a perpetual calendar type of watch.

[0014] According to one aspect of the present invention, the above aim and objects, as well as yet other objects, are achieved by a mechanical movement watch including an alphanumeric perpetual calendar, provided with an assembly of mechanical elements for driving the chronologic indicators of said watch, characterized in that said watch comprises moreover a first disc bearing an alphanumeric indication of the day of the month, a second disc bearing an alphanumeric indication of the day of the week, a third disc bearing an alphanumeric indication of the months of the year, said alphanumeric indications being displayed on a dial of said watch, and driving means for automatically further displacing said disc of the day of the month for months having a number of days less than thirty one and for the month of February of a leap year.

[0015] In particular, the mentioned alphanumeric indication first, second and third discs are provided on a central plate, on a side of the watch dial opposite to the assembly of mechanical elements for driving the watch chronologic indicators, i.e. said mechanical elements being arranged at the center of a plate element, while leaving the edge of said plate element free to provide a fixed space for anchoring levers, springs and gears included in the watch movement.

[0016] Under the mentioned discs are provided signs or marks of the month days, of the months and of the days of the week, said marks comprising digital or shortened-letter indications.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Further advantages and characteristics of the present invention will become more apparent hereinafter from the following detailed disclosure, given by way of an illustrative but not limitative example, with reference to the accompanying drawings, where:

Figure 1 is a top plan view of the dial of the watch

including an alphanumeric read-out dial according to the present invention;

Figure 2 is a plan rear view of the assembly of alphanumeric indication concentric discs for respectively indicating the day of the month, the day of the week and the months of the year;

Figure 3 is a cross-sectional view of the alphanumeric indication or displaying discs;

Figure 4 is a top plan view of a detail of the mechanical movement watch according to the present invention, comprising a star fan and a small plate of the so-called queen type; and

Figure 5 is a top plan view of the assembly of mechanisms for step by step driving the indications of the days, months, years and of the years separating a current year from a leap year.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] In the following disclosure reference will be made to a preferred embodiment of the invention, which is illustrated as a not limitative example of several possible variations of the invention.

[0019] Figure 1 shows the information bearing dial of the mechanical movement watch including an alphanumeric read-out perpetual calendar according to the present invention.

[0020] As shown, the watch comprises a first disc 8 bearing an alphanumeric indication of the day of the month, a second disc 20 bearing an alphanumeric indication of the day of the week, as well as a third disc 12 bearing an alphanumeric indication of the months of the year.

[0021] Said first, second and third alphanumeric indication discs are substantially concentric to one another and arranged on a central small plate 40, which separates the inner space of the watch into two portions.

[0022] Said central plate 40 is moreover provided with windows 21 therethrough the watch user can see the alphanumeric indications of the discs 8, 12 and 20 said windows 21 being so arranged as to register with corresponding windows 22 formed through the watch dial 30 in order to allow the user to properly read the mentioned indications.

[0023] At an opposite position from said central plate 40, the driving mechanical elements for driving the movements of the watch are provided.

[0024] Said mechanical elements drive or displace the concentric discs 8, 20 and 12 which, as stated, are provided with alphanumeric indications for displaying the different measured time units, and which can be seen by the user through the corresponding windows 21 of said central plate 40 and windows 22 of said dial 30.

[0025] The concentric discs 8, 20 and 12 are arranged on a side of the central plate 40 opposite to the watch mechanical elements, as clearly shown by a rear view in Figure 2.

[0026] The first disc 8, which is the outermost disc, bears on one of its sides the alphanumeric indications of the days of the month, which are correspondingly numbered from one (1) to thirty one (31).

[0027] Said outermost disc 8, moreover, is divided into thirty one (31) sectors, each said sector being provided with an outer sector notch 42.

[0028] Inside said outermost disc 8, at a position concentric thereto, is provided a further disc 12 on a side of which the shortened alphabetic letter indications for indicating the twelve months of the year are supported.

[0029] At a further inward displaced position of said outermost disc 8, the disc 20 bearing on a side thereof the shortened indication, in alphabetic letters, of the seven days of the week is arranged.

[0030] Figure 5 is a plan view illustrating the assembly of mechanisms for step by step driving the days, months, years and the indication of the number of years from an actual year to a leap year.

[0031] More specifically, a first wheel 1 is provided, which performs an overall rotation during a twenty four hour period and being provided with a lug engaging with an angled lever 2 for driving the week day disc 20.

[0032] The angled lever 2 drives moreover a second wheel 3 which is coupled to a latching means for latching the month day disc 12.

[0033] Said means for latching the month day disc 12 comprise a comb element 6 provided with a plurality of tooth elements 41 engaging in corresponding notches 42 provided on the outer circumference of the month day disc 12, as shown in Figure 2.

[0034] With the comb element 6 is associated a scroll element 4, in turn coupled to the second wheel 3, and raising a dovetail element 5 designed for disengaging or releasing the comb element 6 to allow the month day disc 12 to turn, said disc being in turn driven by a rotor 7.

[0035] Figure 5 also shows a first lever 15 driven by a first dog element 16, and cooperating for step by step driving the month day disc 12.

[0036] The watch according to the present invention comprises moreover a plurality of alphanumeric read-out small discs 19, each of which is associated with a corresponding window 35 of the watch dial 30.

[0037] Each of said small discs 19 bears thereon a digit of the current year number; moreover, the step by step driving of said small discs 19 is carried out through a second lever 19 and a driving assembly including a second dog element 18.

[0038] The watch according to the invention comprises furthermore another alphanumeric read-out small disc 14, associated with a corresponding window 36 through the watch dial 30, and bearing thereon the number of years separating an actual year from the fol-

lowing leap year.

[0039] Figure 4 illustrates further components of the watch according to the present invention, that is a star fan 13, a so-called queen plate 9 and a Malta cross 11, the function of which will be disclosed hereinafter.

[0040] The mechanical movement watch provided with an alphanumeric perpetual read-out calendar according to the present invention operates as follows.

[0041] The first wheel 1 performs a full rotation within a twenty four hour period, and operates, by the angled lever 21, the movement of the week day disc, whereas, by said angled lever 2, said first wheel 1 will in turn drive the second wheel 3.

[0042] Said second wheel 3, which is coupled to its corresponding scroll element 4 under the central plate 40, will cause, as it is turned through 360°, the dovetail element 5 to raise for disengaging the comb element 6 and starting the rotor 7.

[0043] Thus, the rotor 7 will drive the disc 8 to a stop condition thereof, thereby the indication 32 of the following month day will appear through the corresponding window 22 of the watch dial 30.

[0044] In this connection it should be pointed out that, as stated, the watch according to the invention is specifically designed to operate as a perpetual calendar and to display the proper day number even at the start of a month following a month having a number of days less than thirty one.

[0045] In this case, the disc 8, during the rotary movement thereof, will pass through a fixed point where the movable queen plate 9 is arranged.

[0046] At this point the number of days of a month including less than thirty one days will be eliminated (or a corresponding increase by a day of the February month of a leap year will be performed).

[0047] This movement is obtained by locating the bell 11 between the Malta cross 11 and the corresponding notch 42 of the disc 8, to cause said disc to slide by one or more notches, thereby properly displaying the number of the days of the month day.

[0048] As the month day disc 8, arranged inside the day disc 12 and concentric therewith, abuts on the front of the queen plate 9, it will indicate, by said fixed bells and Malta cross 11, the number of the days of the month.

[0049] At hour twenty four of the first day of January, by the malta cross 11 and the small disc 14 indicating the number of years to a leap year, will be properly set by the star fan 13, depending on a leap or not leap actual year.

[0050] The month step movement is provided by the first wheel and first lever 15 operated by the first dog element 16 and the element assembly associated therewith, to allow a proper read-out of the indication 33 of the current month on the watch dial.

[0051] The year step by step movement, on the other hand, is obtained through the second lever 17, arranged at the edge of the assembly of the discs 8, 12 and 20

and by the second dog element 18 assembly driving the small discs 19 for providing the actual year number indication 34.

[0052] From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

[0053] In particular, the invention provides a Grand Complication type of watch, of very high value and mechanical complexity, which, on the other hand, can be easily read-out since it displays in an easily readable form all the provided chronologic information.

Claims

1. A mechanical movement watch including an alphanumeric perpetual calendar, provided with an assembly of mechanical elements for driving the chronologic indicators of said watch, characterized in that said watch comprises moreover a first disc (8) bearing an alphanumeric indication of the day of the month, a second disc (20) bearing an alphanumeric indication of the day of the week, a third disc (12) bearing an alphanumeric indication of the months of the year, said alphanumeric indications being displayed on a dial (30) of said watch, and driving means for automatically further displacing said disc (8) of the day of the month for months having a number of days less than thirty one and for the month of February of a leap year.
2. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to Claim 1, characterized in that said alphanumeric indication first (8), second (20) and third (12) discs are arranged on a central plate (40), on a side of the watch dial opposite to said assembly of mechanical elements for driving the chronologic indicators of the watch.
3. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to Claim 1 or 2, characterized in that said alphanumeric indications are visible through corresponding windows (22) formed through the dial (30) of said watch.
4. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claim, characterized in that said watch further comprises a first wheel (1), which performs a 360° rotation in a 24 hour period and being provided with a lug engaging with an angled lever (12) for driving said week day disc (20).
5. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to Claim 4, characterized in that said angled

lever (12) drives moreover a second wheel (3) coupled to latching means (8) for latching the month day disc (8).

6. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to Claims 4 or 5, characterized in that said latching means for latching said month day disc (8) are provided with a comb element (6) including a plurality of tooth elements (41) engaging in corresponding notches (42) provided on the outer circumference of said month day disc (8). 5
7. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to Claim 6, characterized in that said watch further comprises a scroll element (4), coupled to said second wheel (3) and designed for raising a dovetail element (5) disengaging said comb element (6) to allow said month day disc (8) to be rotatively driven by a rotor (7). 15 20
8. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said driving means for further driving said month day disc (8), for months having a number of days less than thirty one, comprise a bell element (10) arranged between a Malta cross element (11) and one of said notches (42) of said month day disc (8), preventing said disc (8) from being locked by said comb element (6) for a number of notches (42) corresponding to the days allowing said disc (8) to properly display the first day of a month following a month having a number of days less than thirty one. 25 30 35
9. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said driving means for further driving said month day disc (8) for the February month of a leap year, comprise a star fan (13) operatively coupled to said Malta cross (11). 40 45
10. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said watch further comprises a plurality of alphanumeric read-out small discs (19), each associated with a corresponding window (35) of said watch dial (30), and indicating a digit of the current year number. 50
11. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said watch further comprises a

further alphanumeric small disc (14) associated with a corresponding window (36) through the dial (30) of said watch, and indicating the number of years separating a current year from a following leap year.

12. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said star fan (13) drives said disc (14) indicating the number of years separating a current year from a following leap year.
13. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that the month day disc (8) is step by step driven by a driving wheel coupled to a first lever (15) driven by a first dog element (16).
14. A mechanical movement watch provided with an alphanumeric perpetual read-out calendar, according to one or more of the preceding claims, characterized in that said year disc is driven step by step by a second lever (17) in turn driven by a second dog element (18).

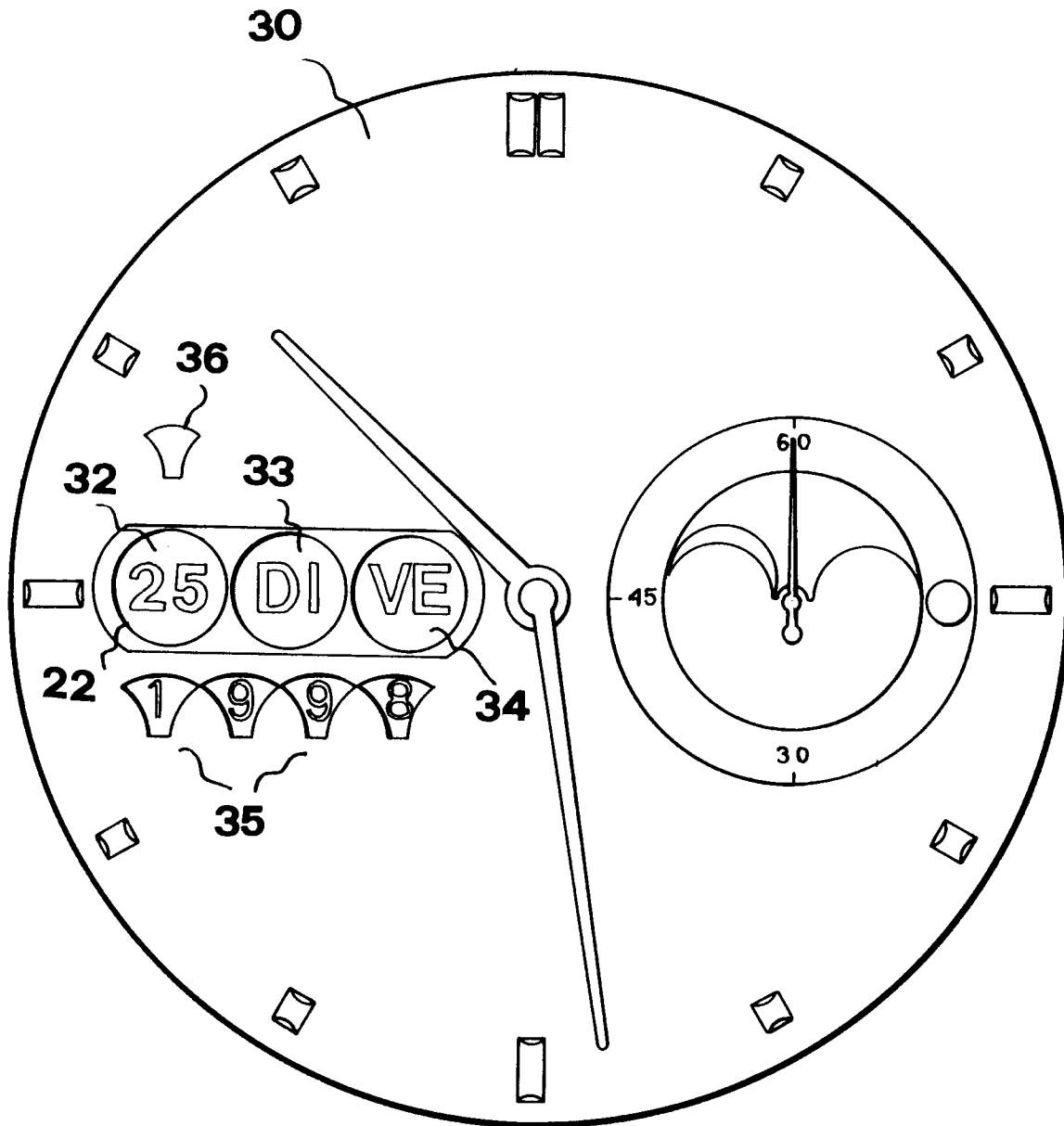
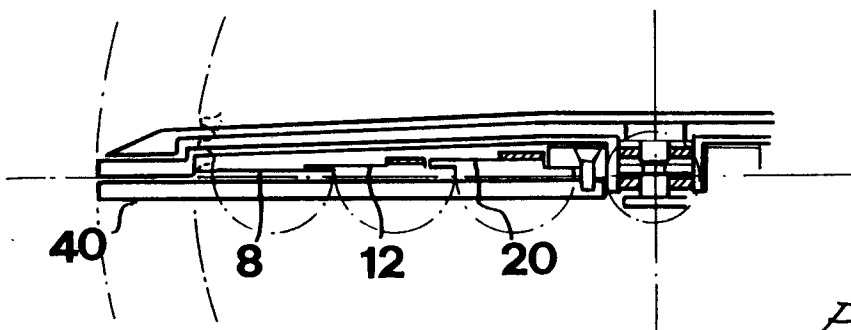
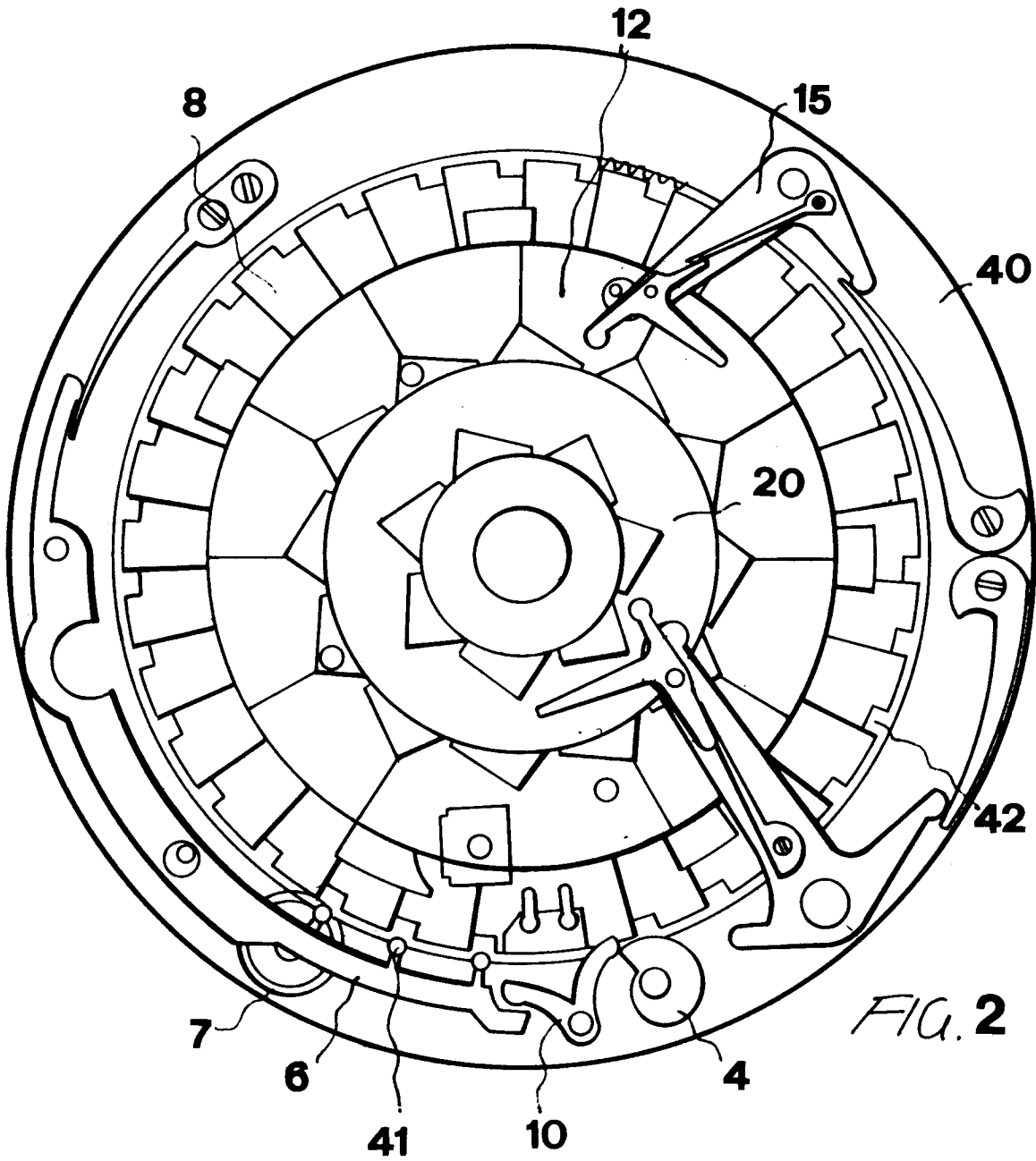


FIG. 1



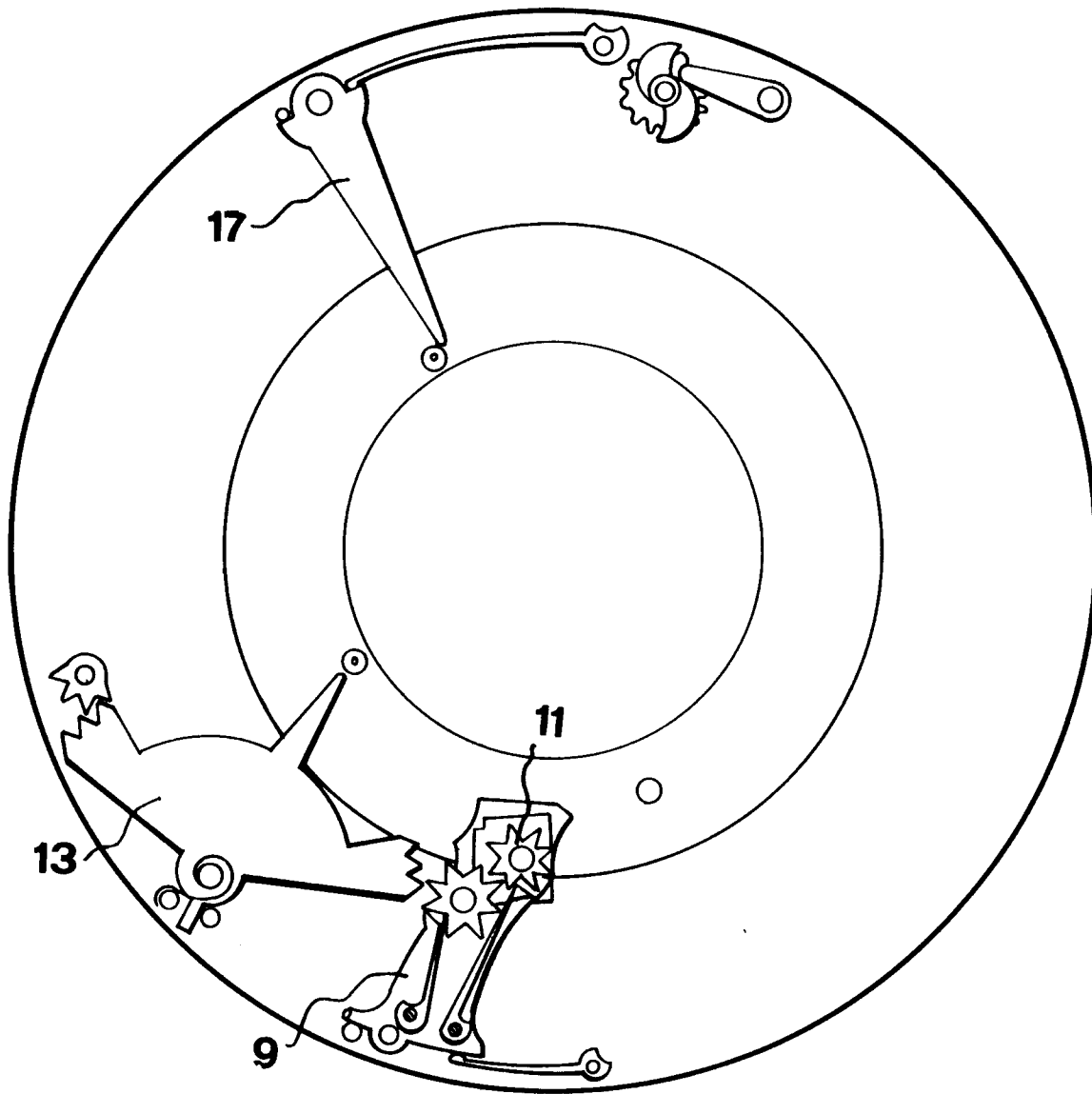


FIG. 4

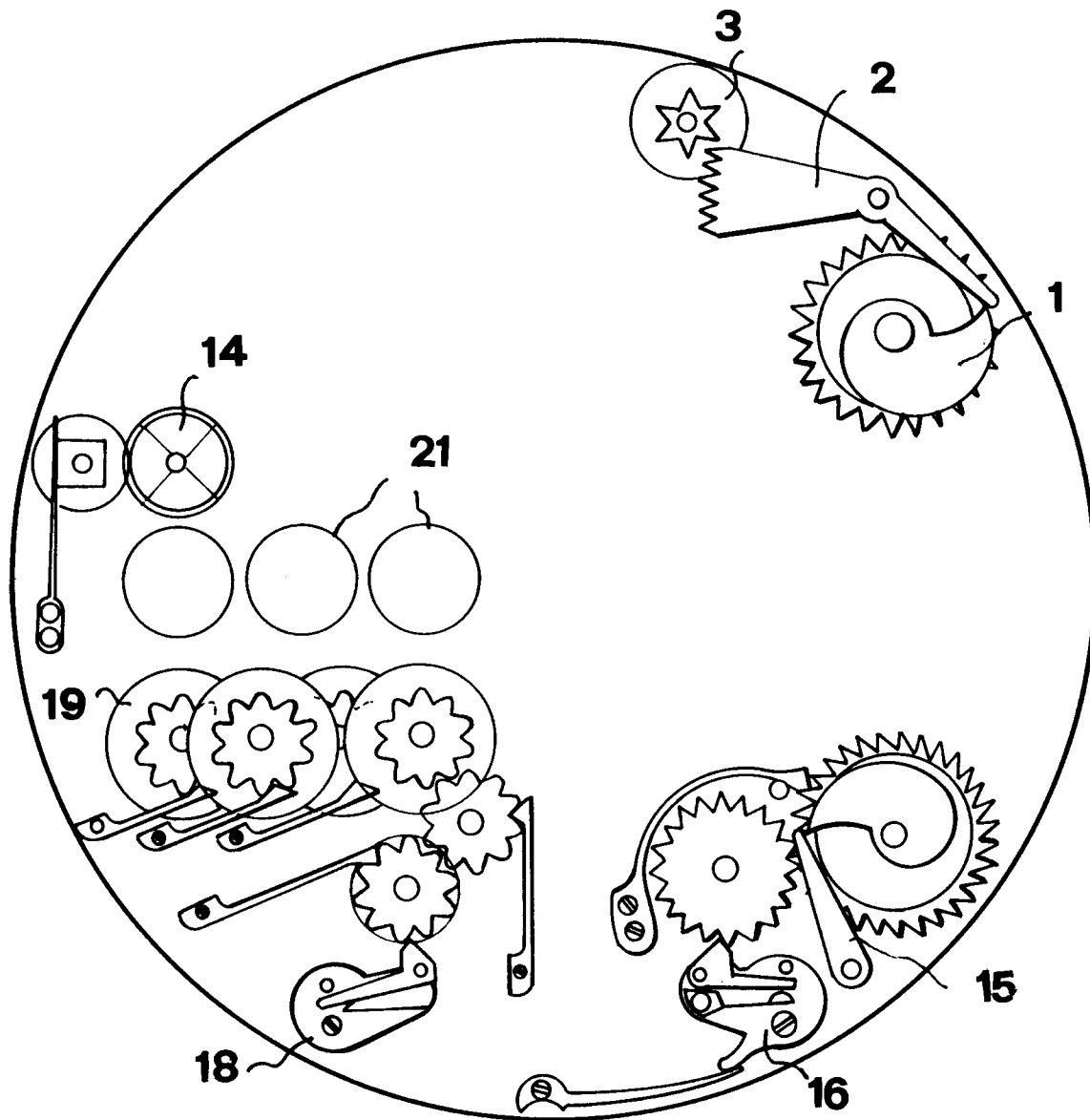


FIG. 5