

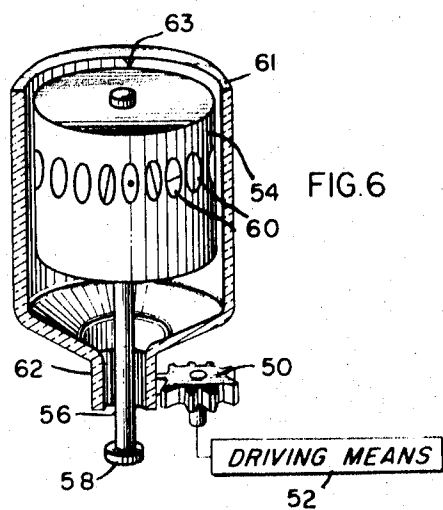
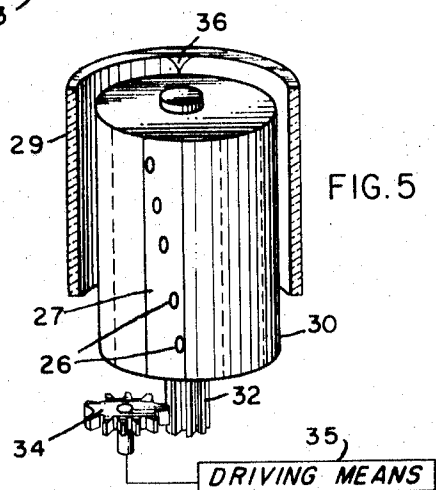
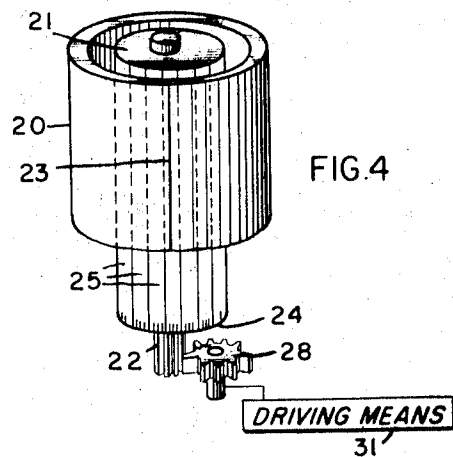
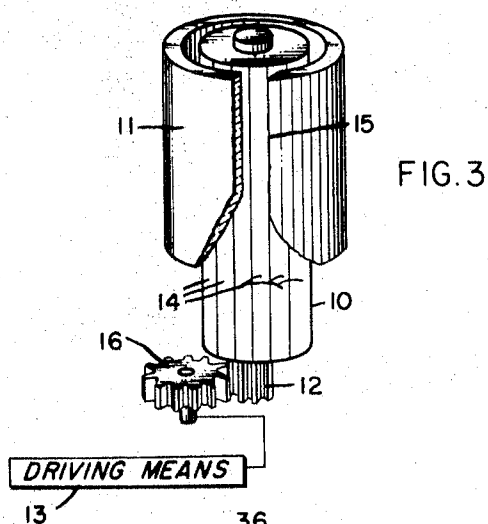
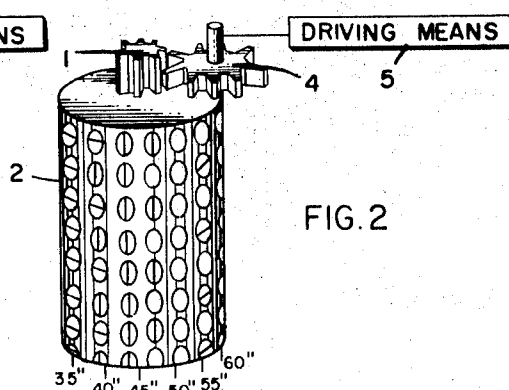
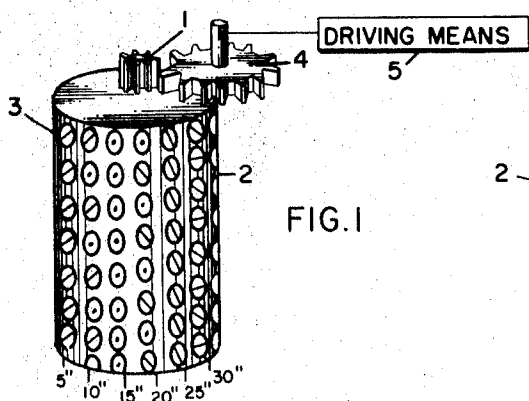
Nov. 2, 1971

M. J. MAUE

3,616,643

TIMEPIECE FOR IDENTIFYING TIME BY COLOR

Filed Jan. 10, 1968



INVENTOR.
MARILYN J. MAUE

1

3,616,643 TIMEPIECE FOR IDENTIFYING TIME BY COLOR

Marilyn J. Mauc, 20 Melwex St.,
Belleville, N.J. 07109

Filed Jan. 10, 1968, Ser. No. 696,940
Int. Cl. G04b 19/06

U.S. Cl. 58—127

32 Claims

ABSTRACT OF THE DISCLOSURE

A timepiece for indicating time, preferably a twelve or a sixty minute period, in distinguishable colors each corresponding to a standard unit of the time period, which colors are coded on a color carrying member and indicated successively within the time period by a uniform rate of movement between the color carrying member and a point of reference carried by a separate casing member which is employed in association with the color carrying member. A particular timepiece of this invention comprises a cylinder on which is coded, preferably in longitudinal sections, the distinguishable colors, each color corresponding to a standard unit of the time period, and a casing substantially enclosing the display surface of the cylinder; said casing having a point of reference which indicates the distinguishable color corresponding to the correct unit of time, and driving means adapted to cause uniform rotational movement between the casing and the cylinder so as to display each of the distinguishable colors within the time period.

In one aspect the invention relates to timepieces of various sizes adapted for commercial installation or for personal use. More specifically, the invention relates to ornamental clocks.

In regard to commercial timepieces such as, for example, a wall clock, very often the clock is mounted at a great elevation in a large room or shop area so that the clock face can be observed over the heads of many people. However, many persons find it difficult to read the proportionately small minute divisions or quarter hour divisions on the face of the dial at any substantial distance where the face of the clock is still easily seen. Moreover, the hands of the commercial clocks, being thin and unadorned, are at times difficult to view because of light reflection on the glass cover plate.

It is therefore an object of the present invention to overcome the difficulties pointed out above and to provide a new concept in timepieces for the visual indication of time.

Another object is to provide a timepiece for determining time without the assistance of numerals and/or regularly spaced markings.

Still another object of the invention is to provide a timepiece lacking hands which systemically revolve around the dial face of the watch.

These and other objects of the invention will become apparent from the accompanying description and disclosure.

The present invention departs from the previous concept of deriving time indicated exclusively by printed numerals and/or spaced markings of a dial and the use of pointing hands or other indicating means which rotate around the

2

face of a clock. In contrast, this invention utilizes distinguishable color changes to indicate a progression of certain incremental units of a time period which unit is an interval of time such as minute or hour intervals. According to this invention, a certain unit of a time period, such as for example, the quarter of an hour period or the hour of a twelve hour period, is designated by a distinguishing color which appears on the display surface of a color carrying member such as a cylinder or sphere and which changes as the units of the time period progress until all of the units in the total period have been indicated in succession by movement of each color past a point of reference. In a timepiece which indicates a least one time period by rotation of the cylinder past a fixed reference point on a stationary casing substantially enclosing the cylinder and which simultaneously indicates more than one period of time such as hours and minutes, at least one of the periods is indicated by distinguishing color changes past a point of reference such as an aperture, a pointer, mark, line or bar carried by the casing or cover member which is positioned adjacent the display surface of the cylinder or color carrying member. When both periods of time are not indicated by distinguishable colors, one period can be indicated by a numeral, by an identifiable marking, or by the accumulative appearance of an increasing number of mounted stones, or color markings which correspond to the proper number of units of the time period. In a timepiece it is preferable to indicate the divisible parts of the hour, such as the 5-, 10-, 15-, or 20-minute intervals, by a change in color. The change of color can represent a completely different hue, a different color pattern or it can be a distinguishable shade of the same color or any combination of these methods of representing color changes.

The color is preferably distributed over a large area of the face or display surface of the timepiece so that, without the assistance of visual aid, the indicated increment of the time period can be easily determined.

In the timepiece of the present invention both the hours and the intervals of an hour can be indicated by color changes.

As pointed out above, in connection with a timepiece, an incremental change in time, whether in the hour or in the minutes of an hour, can be indicated by a corresponding change to a representative color or color temperature which appears at the point or reference on the display surface of the timepiece. This is preferably accomplished by any of three methods; namely, by the movement of a color carrying body relative to a fixed point; by the movement of a color carrying body relative to an aperture of a nontransparent stationary casing mounted over the color carrying body or by the movement of the apertured casing relative to a stationary color carrying body. Preferably, the display mechanism of the present timepiece concerns the movement of one body relative to a fixed reference point on a separate body so that a designated color is indicated on the display surface of the timepiece at the proper interval of time and so that an entire color cycle of unit intervals comprising a time period is progressively indicated. The color cycle conveniently represents, for example, an hour period or a twelve-hour period.

Although the source of power for the timepiece of the present invention can be any of the sources heretofore applied, the power is usually supplied electrically

or mechanically, for example, in the form of an uncoiling spring or a falling weight which actuates a train of gear wheels for transmission of power to the movement of the movable portion of the present timepiece. The timepiece usually includes an escapement controlling the mechanism's rate of speed to provide uniform movement by converting circular force of the escape wheel into an oscillating motion of the regulating device, e.g., foliot, balance wheel, pendulum, etc. The movable body of the present invention can be connected to a pinion wheel or pinioned shaft associated with a geared wheel to effect the uniform movement of the movable body over a fixed period of time.

For the purposes of the present invention, a time period is the complete period to be indicated, usually a 12-hour or a 1-hour period, and is represented by one complete color cycle coded on the color carrying member or by the total number of incremental units comprising the period. The time period is uniformly divided into unit time segments or time intervals, a time interval is one incremental unit of the time period and is represented by one of the distinguishable colors or color patterns of the color cycle or spectrum coded on the color carrying member, whereas a time segment is a uniform subdivision of the time interval; a key stone is a unit of stones or a single stone or marking, differentiated from the time interval of the time period.

The color delineation or color patterns can be distributed lengthwise around the periphery of the cylinder or around the ball and appear in the same color sequence on each member which indicates the same time period. If desired, the rotating ball or cylinder can carry a repetition of the color code providing that the color carrying member be controlled to rotate through only one color cycle or delineation for each complete time period. Thus the color carrying member of the latter case will be geared to revolve at a slower rate than the color carrying member having only one color cycle or code which must make a complete revolution in each complete time period.

The color indicating the time changes can be painted, printed, etched, inscribed or otherwise imposed on the color carrying member. The color can be most aesthetically produced by individually mounted colored bodies, e.g., gem or gem-like stones. It is to be understood that each of the distinguishing colors can be a single color or shades of the same color or each can be a distinguishing color pattern comprising a distinctive arrangement of shades and/or different colors. The patterns can be varied in their design, in the size and/or in the shape of the colored bodies to provide distinction. While the distinguishing colors or color patterns over the entire surface of the color carrying member are distinctly different, it may be desirable from an aesthetic standpoint to blend the colors or color patterns in such a way as to provide a gradual change between them so as to create a continuous and harmonious shading of colored light which is appealing to the eye and, more particularly to provide a means of gauging time intervals between those intervals designated by the distinguishing color. Also to enhance the beauty of the present timepiece, reflecting surfaces or stones capable of reflecting the various colors can be employed to border any of the color areas of the timepiece assembly and thereby accentuate each distinctive color of the time intervals.

In the present invention numbers, a corresponding number of identifying markings, or colors can be employed to indicate hourly progression. The time segments of the interval when the interval is one hour of a 12-hour period and the colors associated with the hours can be fixed at the option of the individual designer; however, accumulative 5-, 10-, 15-, or 20-minute intervals are most convenient.

The color changes can be graduated or blended by the use of shaded color bands or bodies or by the graduated

size of the color bodies. Intermittently disposed bodies of adjacent colors or intermittent rows of color bodies composed of adjacent colors can also be utilized for blending purposes and as a means for determining intervening segments of time between the chosen time intervals.

As an illustration of color blending between 20-minute interval divisions of an hour which are registered by color changes, the basic color code selected to identify each progressive 20-minute interval in the hour period is red, blue and yellow. Each color is represented by a relatively large stone or by a cluster of smaller stones of the same color mounted on the color carrying member. The three basic colors can be represented, for example, by ruby, to denote 20 minutes of elapsed time; by sapphire to denote 40 minutes of elapsed time; and by yellow topaz, to denote 60 minutes of elapsed time or the end of the third 20-minute interval of the hour period. For the purpose of illustration, clusters of uniformly colored stones are employed for each 20-minute interval. Between the areas of stone clusters a mixture of the two adjacent colors is provided to produce an intermediate distinctive color which serves to indicate 10-minute intervals within each 20-minute interval. Thus, the end of the first 20-minute interval would be indicated by a cluster consisting of ten red stones or of rubies; the end of the 40-minute interval would be indicated by a cluster consisting of ten blue stones or blue sapphires; and the end of the 60-minute interval would be indicated by a cluster of ten yellow stones or topaz. Midway between the solid ruby and the solid sapphire clusters a blending of the red and the blue stones provides a purple hue so that a 10-minute interval between the 20- and 40-minute intervals is indicated by a distinctive color and 30 minutes of elapsed time is clearly visible. Since the blending of blue and yellow provides a green hue, and the blending of yellow and red provides an orange hue, this principle of blending colors can be applied to provide an accurate color reading at each 10-minute interval from 10 to 60 minutes. Additionally, the variation of the blending pattern or the density of the pattern regulated by the size and/or shape of the mounted stones, can be used to designate minute segments within the 10-minute intervals. For example, 1-minute segments within each ten minute interval could be gauged by progressively placing one to nine stones (or one to nine fixed units of stones) of the succeeding primary color, for example, red in a diminishing solid background cluster of the preceding primary color, for example yellow. Thus, in the preceding illustration, at one minute after the hour, one red stone would be placed in a cluster of nine yellow stones; at two minutes after the hour, two red stones would be placed in a cluster of eight yellow stones and so on until, at ten minutes after the hour, there appears an even and alternating distribution of five red and five yellow stones to provide the orange hue which designates 10 minutes after the hour. After the 10-minute interval, the placement of stones continues so that at 11 minutes after the hour six red stones appear in a cluster of 4 yellow stones; at 12 minutes after, 7 red stones appear in a cluster of 3 yellow stones and so on until at 20 minutes after the hour, 10 red stones, with no intervening color appears. Alternatively, a minute stone or key stone could be used to mark each minute segment without the cluster of background color, although this would impair harmony in the blending of the colors. Individual key stones or minute stones can vary in size and shape from the stones marking the 10 minute intervals and these stones can be all of the same color or the colors of the preceding and/or succeeding interval designating color. When the color carrying member is a rotating cylinder or ball, the color designations can be applied lengthwise or in strips on the periphery of the cylinder or ball and color blending can be accomplished by intermediate rows or strips of colors composed of the preceding and succeeding color designation or composed of the intermediate color per se. A dissimilar colored or

5

colorless stone, e.g., a white diamond, is particularly suitable for indicating minute segments on the rows intermediate the color designating rows. For example, when the 10-minute intervals are marked by distinguishing colors, a diamond placed in different positions in the intermediate rows could represent each two minute segment of the 10-minute interval. Assuming that there are 4 rows intermediate each of the six color changes, a diamond placed at the top of the first row, at the upper middle portion of the second row, at the lower middle portion of the third row and at the bottom of the fourth row would be an attractive indicator of two minute time segments. When precision is not of prime importance, the minutes can be judged by the color blending alone, e.g., a row of more yellow than orange stones would indicate less than five minutes after the hour, whereas a row of more orange than yellow stones would indicate more than 5 minutes but less than 10 minutes after the hour.

Below are listed a group of brilliant stones which can be used to designate colors.

magenta	garnet
violet	alexanderite
purple	amethyst
blue	sapphire
aqua	aquamarine
green	emerald
olive	olivite
chartreuse	chrysoberyl
yellow	topaz
orange	topaz
red	ruby
cerise	rubellite

It is to be understood that the present invention is not limited to the particular colors or number of colored stones discussed above or to the use of color combinations in the order set forth and that other color shades, or even patterns can be selected to designate intervals in the time periods desired. It may be desirable to indicate each hour of a 12-hour period or each 5-minute period of an hour by a distinctive color. In this case, a convenient selection, but by no means the only selection of twelve colors which lend themselves to color blending if used in the following order are: white, pink, orange, red, magenta, brown, black, purple, violet, blue, green, and yellow. White, yellow, red and blue are suitable for indicating 15-minute intervals. Other interesting effects of color blending can be achieved with varying shades of a few colors or of the same color to provide distinction by color temperature. Quarter intervals could be further distinguished by dissimilar markings. For example, in a jeweled watch, diamond and onyx can be combined with varying shades of brown topaz and grey topaz to designate time intervals. It may be further desirable to vary the form of stones in one interval and to repeat the order of different shapes for each interval to further differentiate one shade from another when stones of the same basic color are employed. This repetition of a series of distinctive shapes (for example, a sphere, a square and a triangle) would cover such diversity of shading that the change in depth of color on the repeated order would be very pronounced.

While the hour period of the timepiece can be recorded by the same color principle described above for the minute intervals of an hour, other means of hour recording can be used in combination with the color recording. The combination avoids confusion between the time periods, is less complicated to use and the timepiece is more economical to manufacture.

To further illustrate the present invention, the following series of drawing are presented to portray a few of the combinations and arrangements which may be used. It is to be understood, however, that the drawings are in no

6

way limiting to the scope of the present invention and that innumerable combinations and arrangements not illustrated will become apparent to one skilled in the art. Also many modifications of the combinations shown can be made without departing from the present inventive concept of indicating an interval of time by a distinguishing change of color.

FIGS. 1 and 2 are perspective views of the front and back portions of a color carrying member; and

FIGS. 3-6 are perspective views of alternate embodiments of the invention.

FIGS. 1 and 2 illustrate a color carrying cylinder which, when mounted in a casing and rotated at a uniform rate controlled by the same mechanism as, for example that which drives the minute hand of an ordinary watch or clock, displays a distinguishable color which corresponds to a uniform portion of an hour as it rotates past an aperture or reference point of the casing. FIGS. 1 and 2 illustrate the front and back portions of a cylinder 2 carrying brilliantly colored stones 3 mounted in a specific color code of distinguishing colors. The color key which is illustrated in the drawing is as follows: ○=green; ⊙=yellow; ⊖=orange; ⊕=red; ⊗=violet; and ⊕=blue. As shown by the drawing the colors are arranged in rows and the cylinder is designed to provide a color reading at each five minute interval as it rotates past the aperture or reference point of the casing in which it is to be mounted. In a timepiece mechanism the cylinder can be mounted in any position and can be longer or shorter depending on the desired design. Shaft 1 integrally mounted in the cylinder and extending through the upper central portion thereof is serrated to engage a gear wheel 4 geared to rotate at a uniform rate and actuated by a driving means 5 to cause one complete revolution of the cylinder in the period of one hour past a point of reference on the casing.

FIG. 3 of the drawings illustrates the invention in a perspective view in which the casing of the timepiece is partly broken away to reveal the color cylinder which is rotatably mounted within the casing. Referring more particularly to the drawing, cylinder 10 having uniform sections 14 of distinguishing colors is mounted by means of shaft 12 to rotate within non-transparent casing 11 having an aperture 15 which, in this case is designed as a slot for denoting which color section is to be relied upon to identify the hour of the day or the approximate minute of the hour as the individual sections of the cylinder pass the apertured area. In this figure the sections are longitudinally disposed on the surface of the cylinder; although the color sections could be disposed as a continuous spiral on the surface of the cylinder, if desired. The shaft of the cylinder is connected to gear wheel 16 which is geared to rotate at a uniform rate and actuated by an ordinary driving mechanism 13 of an ordinary clock or watch, e.g., to the shaft which drives the minute hand or the hour hand of a timepiece. When the color cylinder is used to identify the hour of the day or the minute of the hour, ancillary means can be used to identify either the hour of the day or the minute of the hour which is not indicated by the colors on the cylinder to complete the identification of time.

FIG. 4 of the drawings illustrates cylinder 21 having uniform sections or color bands 25 of distinguishing color and uniformly spaced segments 24, denoted by three markings horizontally dividing each color band of the cylinder. This cylinder is mounted to rotate by means of serrated shaft 22 connected to gear wheel 28 which is driven by driving mechanism 31 of a timepiece within transparent casing 20 which carries reference point 23 described by a line marking for denoting which color section is to be relied upon to identify the hour of the day or approximate minute of the hour of the time interval within the time period indicated and for denoting which segment marking is to be relied upon to identify a portion of the time interval as the uniform and indi-

vidual bands of color and segment markings of the cylinder pass the line marking or reference bar of the casing.

FIG. 5 illustrates an enlarged view of one of the uniform color sections 27 which is carried by cylinder 30. The cylinder is mounted on shaft 32 and is geared at its lower end to engage gear wheel 34 which is actuated by standard driving means 35 as the driving means for the hour hand or the minute hand of a timepiece. The cylinder is rotated at a uniform rate within casing 29 which carries reference indicator 36. Within each color section or band of color, key stones 26 are uniformly spaced across the width of the band. In this figure, the color bands indicate hours of the day by distinguishing colors and five key stones are mounted in each band to indicate 10-minute time segments of the hour interval as the cylinder rotates at a uniform rate past indicator 36 on the casing. Alternatively, for example, four key stones, uniformly spaced in the color band, could be used to indicate 2-minute time segments when the color bands denote 10-minute intervals of a one hour time period.

FIG. 6 illustrates cylinder 54 having uniform sections 60 of distinguishable colors uniformly spaced around the circumference of the cylinder. Each section represents a uniform division of the time period to be indicated. The cylinder is enclosed by transparent casing 61 which carries a reference point indicator 63 and which is designed to include a narrowed hollow throat section 62 at one end which throat section encloses shaft 56 on which the cylinder is fixedly mounted by means of bolt 58. The outer surface of the throat section is geared to engage gear wheel 50 which in turn is actuated by ordinary timepiece driving means 52. Said driving means actuates the gear wheel to cause the casing to make one complete revolution around the cylinder in the time period indicated by the color code of markings 60.

Of the many embodiments included within the scope of this invention, the distinguishing color is indicated by movement between the color carrying member and a point of reference or indication. The above figures illustrate only a small number of the modifications included in the scope of the present invention which comprises a progressive and distinctive color display of intervals in a given time period. It is to be understood that the movement of a time display member or movement relative to the display member which indicates minute intervals of a one-hour period is actuated by the same mechanism which actuates the minute hand of an ordinary clock or watch and that movement of a display member or movement relative to the time display member which indicates hours of a 12 or 24 hour period is actuated by the same mechanism, i.e., train of gears and wheels, which actuates the hour hand of an ordinary watch or clock.

Having thus described my invention I claim:

1. A timepiece comprising:

a timepiece driving means;

a cylindrical member having on its surface substantially longitudinally disposed sections of uniform width and distinctive colors, each of said colors representing a predetermined time interval;

a casing enclosing the longitudinal surface of said cylindrical member having a fixed reference means thereon;

means for causing relative rotational movement between said cylindrical member and said casing at a uniform rate;

whereby, upon said relative rotational movement, said fixed reference means indicates at least a portion of a particular one of said distinctive color sections thereby identifying a predetermined time interval.

2. The timepiece as recited in claim 1 wherein said casing includes a substantially opaque tubular member enclosing the longitudinal surface of said cylindrical member, said fixed reference means comprising a longitudinally disposed aperture in said tubular member

through which a portion of said cylindrical surface is visible.

3. The timepiece as recited in claim 2 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

4. The timepiece as recited in claim 2 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

5. The timepiece as recited in claim 1 wherein said casing includes a tubular member, said tubular member being transparent and completely enclosing the longitudinal surface of said cylindrical member, said fixed reference means comprising a line longitudinally disposed on said tubular member.

6. The timepiece as recited in claim 5 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

7. The timepiece as recited in claim 5 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular member.

8. The timepiece as recited in claim 1 wherein said color sections on said cylindrical member comprise solid bands of color disposed on a substantially longitudinal area of the surface of the cylinder.

9. The timepiece as recited in claim 1 wherein said color sections on said cylindrical member comprise individually mounted gem or gem-like stones of distinguishing colors so as to indicate a predetermined time interval.

10. The timepiece as recited in claim 9 wherein said gem or gem-like stones are of the same size and shape.

11. The timepiece as recited in claim 9 wherein said casing includes a substantially opaque tubular member enclosing the surface of said cylindrical member, said fixed reference means comprising a longitudinally disposed aperture in said tubular member through which a portion of said cylindrical surface is visible.

12. The timepiece as recited in claim 11 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

13. The timepiece as recited in claim 11 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

14. The timepiece as recited in claim 9 wherein said casing includes a tubular member, said tubular member being transparent and completely enclosing the longitudinal surface of said cylindrical member, said fixed reference means comprising a line longitudinally disposed on said tubular member.

15. The timepiece as recited in claim 14 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

16. The timepiece as recited in claim 14 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

17. The timepiece as recited in claim 1 wherein each of said uniform sections are further divided into seg-

9

mental increments, each of said increments indicating a predetermined portion of any of said color sections.

18. The timepiece as recited in claim 17 wherein said casing includes a substantially opaque tubular member enclosing the surface of said cylindrical member, said fixed reference means comprising a longitudinally disposed aperture in said tubular member through which a portion of said cylindrical surface is visible.

19. The timepiece as recited in claim 18 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

20. The timepiece as recited in claim 18 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

21. The timepiece as recited in claim 17 wherein said casing includes a tubular member, said tubular member being transparent and completely enclosing the longitudinal surface of said cylindrical member, said fixed reference means comprising a line longitudinally disposed on said tubular member.

22. The timepiece as recited in claim 21 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

23. The timepiece as recited in claim 21 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

24. The timepiece as recited in claim 17 wherein said segmental increments include individual gem or gem-like stones disposed in each of said sections, each of said stones being laterally and longitudinally offset with respect to each other for indicating a predetermined time interval within any one of said color sections.

25. The timepiece as recited in claim 24 wherein said casing includes a substantially opaque tubular member enclosing the surface of said cylindrical member, said fixed reference means comprising a longitudinally disposed aperture in said tubular member through which a portion of said cylindrical surface is visible.

26. The timepiece as recited in claim 25 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving

10

means to rotate said casing relative to said cylindrical member.

27. The timepiece as recited in claim 25 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

28. The timepiece as recited in claim 24 wherein said casing includes a tubular member, said tubular member being transparent and completely enclosing the longitudinal surface of said cylindrical member, said fixed reference means comprising a line longitudinally disposed on said tubular member.

29. The timepiece as recited in claim 28 wherein said means for causing relative rotational movement includes means on said casing adapted to engage said driving means to rotate said casing relative to said cylindrical member.

30. The timepiece as recited in claim 28 wherein said means for causing relative rotational movement includes a shaft upon which said cylindrical member is mounted, said shaft having gear means thereon adapted to engage said driving means for rotating said cylindrical member past said fixed reference means on said tubular casing.

31. The timepiece as recited in claim 24 wherein said stones which designate said segmental increments are of the same shape.

32. The timepiece as recited in claim 24 wherein said stones which designate said segmental increments are of different shapes.

References Cited

UNITED STATES PATENTS

393,000	11/1888	Ethridge	58—128
866,533	9/1907	Stephens	58—127 X
1,375,470	4/1921	Shaw	58—128
2,635,357	4/1953	Whitlock	58—127 X
2,925,706	2/1960	Morf	58—59
3,106,817	10/1963	Ducommun	58—2
3,439,492	4/1969	Gravenson	58—1
2,411,597	11/1946	Smith	58—126

FOREIGN PATENTS

350,250	12/1960	Switzerland	58—152
155,165	9/1932	Switzerland	58—126

RICHARD B. WILKINSON, Primary Examiner

S. A. WAL, Assistant Examiner

U.S. Cl. X.R.

58—2