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C. A. LAUGHLIN
MAGNETIC BALL CLOCK

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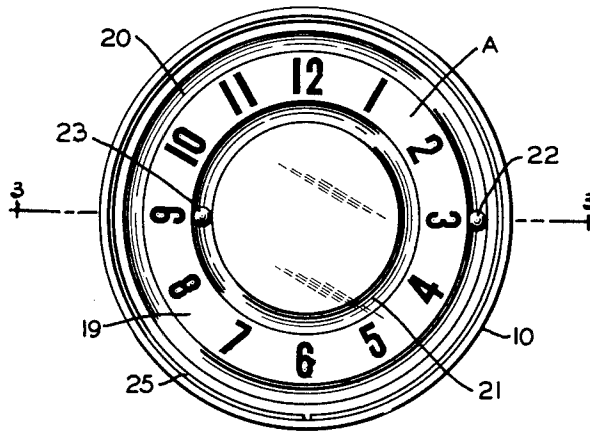


FIG. 1

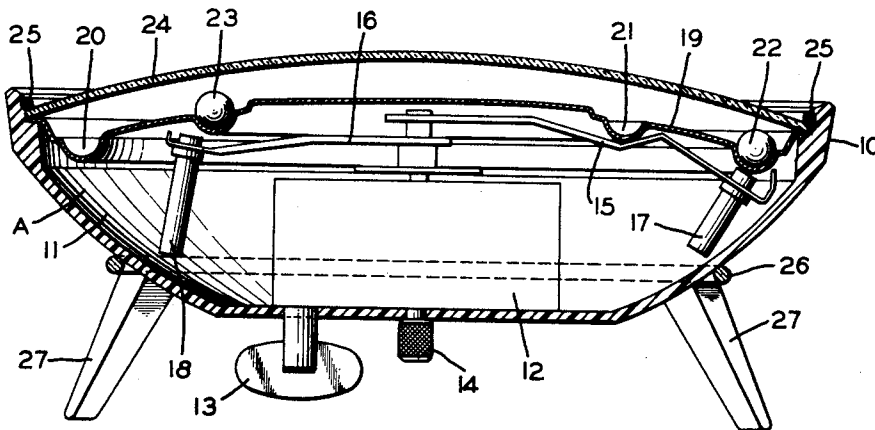


FIG. 3

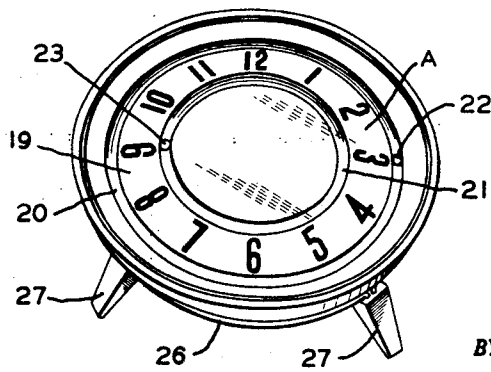


FIG. 2

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MAGNETIC BALL CLOCK

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2 Claims. (Cl. 58—126)

This invention relates to a magnetic ball clock wherein the clock mechanism is adapted to operate arms which support magnets and thereby cause the ball, carried in a ball race in the face of the clock, to move about the face to indicate the time of day.

This magnetic clock does not have hands which operate over the face thereof. In place of the regular hands of the clock I provide a face which indicates the numerals 1-12 inclusive, to specify the hour of the day and around the periphery or outside of the numerals indicating the hour, I have a depressed ball race in the face of the clock. This ball race carries a steel ball which indicates the minutes by moving around in the race on which it is confined.

Directly inside the numerals which indicate the hours of the day, I provide a ball race in which a steel ball is free to rotate to indicate the hour of the day. The respective balls indicating the minutes and the hours in my clock may be of different colors so as to readily distinguish them from each other.

My magnetic clock is of a simple character and is provided with a regular clock mechanism for operating a long and short arm which rotate under the face of the clock and each of said arms carry a magnet on the outer end thereof so as to position the respective magnets in close proximity to the respective ball races so as to influence the movement of the balls in relation to the movement of the arms. The arms operated by the clock mechanism in reality take the place of the minute and hour hands of a clock and the clock mechanism may be electric, the ordinary winding type of clock mechanism together with the regular hand setting mechanism which is ordinarily used in a clock.

The clock mechanism is concealed under the face in the base of the clock and a suitable glass crystal covers the face so as to protect the same and prevent interference with the balls in the respective races formed in the face. Further, the clock crystal or glass covering the face extends in close proximity to the surface of the balls so that the respective balls will be confined within the respective races of the clock face.

My magnetic clock is designed to attract the observer, particularly by the absence of any hands for indicating the hour and the minutes and the appearance of the balls which are caused to move in their respective races so as to indicate the time by the relation of the respective balls to the numerals indicated on the face of the clock.

These features together with other details and objects, together with the particular design of my clock, will be more fully and clearly set forth in the following specification and claims.

Figure 1 is a plan view of my magnetic ball clock.

Figure 2 is a perspective view of the magnetic clock.

Figure 3 is a section on the line 3—3 of Figure 1.

The drawings illustrate the clock A having a circular case 10 which is in the form of a bowl-like case which provides a recess 11 for receiving the clock mechanism 12.

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The clock mechanism 12 is indicated diagrammatically and it will be observed that such mechanism can be of any suitable nature, either electrically operated or in a form to be hand wound. Figure 3 illustrates a clock mechanism 12 where the main spring of the clock is wound by the key 13 which projects from the bottom of the bowl-like body 10. The clock mechanism 12 has a knurled knob 14 which is adapted to be used in setting the arms 15 and 16 of the clock.

The arm 15 acts as the minute hand for the clock A and is adapted to support a magnet 17 in the outer free end thereof.

The arm 16 of the clock mechanism 12 represents the hour hand of the clock and it is adapted to support a magnet 18 in the outer free end thereof.

The face of the clock 19, in the form shown, is more or less convex in shape and is formed with an outer ball race 20 and an inner ball race 21. Outer race 20 provides an annular track for steel ball 22 while inner race 21 provides an annular track for steel ball 23. Balls 22 and 23 roll freely in races 20 and 21.

The glass or crystal 24 which covers the face 19 of the clock and which is held in place by the spring ring 25 is also convex in form and is so positioned as to be in close proximity to the balls 22 and 23. This holds the balls in their respective races and irrespective of the position of the clock, the respective steel balls 22 and 23 remain within their respective races or race.

The clock A, in its bowl-like form is adapted to be supported on a wire ring 26 which in turn is supported by the legs 27, thus holding the clock freely supported upon the ring 26 and so that it can be lifted off of the ring when desired. Ordinarily the clock A is supported upon the wire ring 26 which is in turn supported by the legs 27 as more clearly illustrated in Figures 2 and 3. The clock A merely rests upon the ring, thus it may readily be moved on the ring or entirely removed therefrom by lifting the clock A off of the ring 26.

The magnet 17, carried by the free end of the hand or arm 15, controls the position of the ball 22 in the ball-race 20. As the arm 15 is moved by the clock mechanism 12 under the face 19, the magnet 17 will cause the ball 22 to move with it, thereby indicating by the ball 22 the minutes of the hour and when the ball 22 is above the numeral 12 the minute arm 15 with the arm 16 will indicate the hour.

The arm 16 which represents the hour hand of the clock A is adapted to influence the ball 23 by means of the magnet 18, thus as the hour arm 16 is moved by the clock mechanism 12, the magnet 18 is moved under the face 19 and the race 21 causing the ball 23 to follow the position of the magnet and thus the clock A indicates the hour.

While the balls 22 and 23 are free to move in the respective races 20 and 21, the balls are restricted by the magnets 17 and 18 which normally hold the respective balls 22 and 23 in close proximity to the respective magnets 17 and 18.

If for any reason the balls 22 and 23 are caused to move away from the respective magnets 17 and 18, the balls will be attracted by the respective magnets as they roll adjacent the same and thus the magnets will hold the balls 22 and 23 in proper position to indicate the time by the clock A.

It will be apparent that the drawings illustrate a particular form of the magnetic clock A, however, the invention should not be restricted to said form illustrated and described but should be interpreted within the scope of the following claims.

I claim:

1. A magnetic clock having a dish shaped housing

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with a clock motor positioned therein to actuate an hour hand and a minute hand, a pair of magnets each secured respectively to the free end of the hour hand and minute hand for rotation therewith, a clock face secured to the open end of said housing and coextensively positioned thereover in spaced relationship from said motor, hands and magnets, the outer facing surface thereof having a substantially convex contour, a pair of concentric raceways depressed in the outer surface of said face, each raceway disposed respectively along the path of rotation of said magnets attached to the hour hand and the minute hand, a steel ball having magnetic properties positioned in each of said raceways and adapted to be rolled therealong by the attraction of said magnets, and a glass crystal coextensive with said face having a concave inner surface substantially parallel with the convex outer surface of the said face, said crystal secured to said housing and positioned from the outer surface of said face a distance substantially less than the diameter of said balls for restricting the movement of said balls over said face to rotation within said depressed raceways.

2. A magnetic clock comprising a truncated hemispherical housing with a clock motor affixed to the planar portion thereof for actuating an hour hand and a minute hand, a pair of magnets secured respectively to the free end of the hour hand and minute hand for rotation therewith, a clock face secured to the open end of said housing and coextensively positioned thereover in spaced relationship from said motor, hands and magnets, the outer facing surface of said face having a substantially convex contour, a series of time indicia affixed to the outer facing surface of said face, each indicia radially positioned equidistant from the center of said face, a first concentric raceway depressed in the outer facing surface of said face between the periphery thereof and said indicia and in spaced relation over the path of rotation of said mag-

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net at the free end of the minute hand, a second concentric raceway depressed in the outer facing surface of said face between the center thereof and said indicia and in spaced relation over the path of rotation of said magnet at the free end of the hour hand, a pair of steel balls having magnetic properties, one of said balls positioned in said first raceway and the other positioned in said second raceway, each of said balls adapted to be rolled along its respective raceway by the magnetic attraction of the magnet rotating in spaced relation to said raceway, and a glass crystal coextensive with said face having a concave inner surface substantially parallel with the convex outer surface of said face, said crystal being joined to said housing at the open end thereof and disposed from the outer surface of said face a distance substantially less than the diameter of said balls for restricting the movement of said balls over said face to rotation within said first and second raceways.

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