July 10, 1945. N. HAMMER 2,380,171

TIME INDICATING MECHANISM

Filed Aug. 3, 1944

Fig. 1.

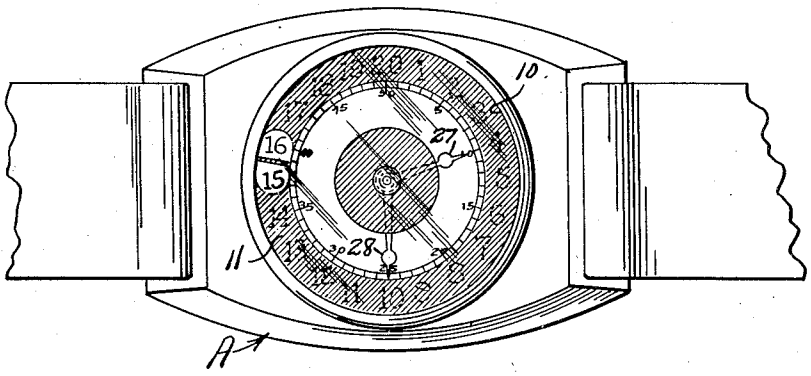


Fig. 2.

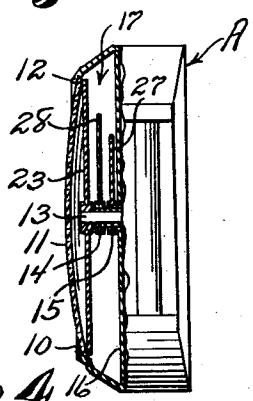


Fig. 3.

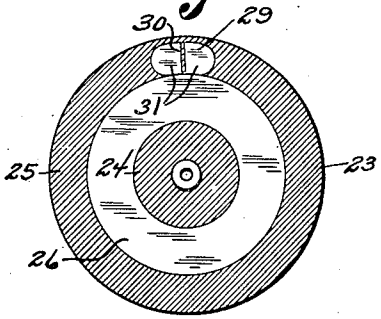
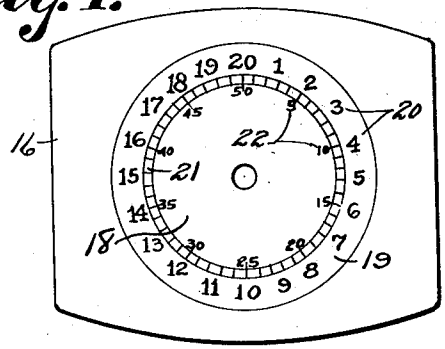


Fig. 4.



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Patented July 10, 1945 2,380,171

UNITED STATES PATENT OFFICE

2,380,171

TIME INDICATING MECHANISM

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Application August 3, 1944, Serial No. 547,864

3 Claims. (Cl. 58—126)

The invention relates to a timepiece, and more especially to watches, clocks or the like having visible time indicating mechanism constituting refinements over the subject matter of Letters Patent No. 2,202,581, issued on May 28, 1940.

The primary object of the invention is the provision of mechanism of this character, wherein a stationary dial has digits thereon indicative of hour periods ranging from one to twenty or from one to one hundred hour periods, while tracking such dial are minute and second hands, these coacting with indicia representative of fifty minutes and fifty seconds periods of time divisions on the dial, all being quickly and readily discerned, the half-hour periods of time being identified by visibility of several hour period digits concurrently with each other, through a double window exposure disk and the hour periods digits are accentuated independently of the others thereof on the hour throughout the range of the same, through this window in single order exposure, thus adapting the said indicating mechanism for worldwide usage.

Another object of the invention is the provision of mechanism of this character, wherein the time registry is effected by a dial, windowed disk and hands, for disclosing accurately and minutely the exact time by the hour, minute and second periods thereof progressively throughout a determined range, the mechanism being novel and unique and is adaptable for clocks, watches or the like.

A further object of the invention is the provision of mechanism of this character, wherein the time-piece works are not altered, excepting that the hour, minute and second timing arbors are interfitted with each other, the windowed disk being turned by one, and the minute and second hands turned by the others, which together with the disk track the dial for time telling purposes.

A still further object of the invention is the provision of mechanism of this character, which is simple in construction, thoroughly reliable and efficient in operation, durable, conveniently readable for time telling purposes, and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a plan view of a wrist watch showing the mechanism constructed in accordance with the invention installed therewith.

Figure 2 is a fragmentary sectional view through the mechanism under installation in the watch.

Figure 3 is a detail plan view of the rotary windowed disk of such mechanism.

Figure 4 is a plan view of the dial of such mechanism.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, A designates generally the casing of the watch, which is in this instance of the wrist fitting type, and has its front wall formed with an aperture 10, closed by a transparent lens 11, fixed within a base 12 mounted on the casing about said aperture. Within the casing and in the rear of the lens 11 is a ternary of shafts, one arranged within the other, for independent rotation. The said ternary of shafts comprise hour, minute and second shafts 13, 14 and 15, respectively, which are operated by a timing mechanism of ordinary construction, not shown, as built within the casing in the usual well-known manner, it being understood that said timing mechanism per se forms no part of the present invention, it being merely referred to for the purpose of an understanding of the construction and manner of operation of the time indicating mechanism constituting the present invention and hereinafter set forth.

The time indicating mechanism constituting the present invention, comprises a stationary dial 16 secured in place by a suitable dial holder for matching the lens 11, which is spaced outwardly therefrom, and providing therebetween a raceway or chamber 17 having projected therein the shafts 13, 14 and 15, these being loosely carried centrally through the dial 16. The dial 16 is provided on its outer face with inner and outer concentrically arranged circular zones 18 and 19. The outer zone 19 is provided with indicia 20, for instance, digits or Arabic numerals 1 to 20, inclusive, indicative of hour periods of time, in a progressive range, which also may be from 1 to 100, hour periods of time, or otherwise. The inner zone 18 is defined in respect to the outer zone by a circumscribed scale 21 indicative of the minutes and seconds periods of each hour periods of time defined by the outer zone, and this scale is further provided with indicia 22, for instance Arabic numerals, indicative of the number of seconds per minute.

Within the chamber or raceway 17 extend an appropriate distance the shafts 13, 14 and 15, one beyond the other, and secured to the outer end

of the hour shaft 13 is an hour indicating disk 23 having central and outer opaque circular areas 24 and 25, while between these is an intermediate circular transparent area 26, the latter and the area 25 being concentric to the area 24, so that the transparent area 26 will expose through the lens 11 the scale 21 and the indicia 22 with which cooperate minute and second hands 27 and 28, respectively, suitably attached to their minute and second shafts 14 and 15, respectively.

The outer opaque area 25 has a width coincident with the outer zone 19 of the dial 16, and this area is provided with a transparent window 29, which is divided by a demarcation line 30 for effecting separated sight panels 31 thereto, and on the rotation of this disk either of the panels 31 makes visible one of the hour indicating numerals in rear thereof on the dial 16, thus progressively disclosing definitely the hour periods of time. To make effective a disclosure of half hour periods of time when the two panels 31 make fully visible through the window 29 two of the hour numerals adjacent to each other at one and the same time, then this exposure is indicative of the half-hour period of an hour, the demarcation line 30 being an identifying marking for the hour periods of time, and the panels 31 make visible the particular hour throughout the indicial 20 range thereof.

The minute hand 27 is of less length than the second hand 28, and in this manner the same are distinguished from each other in the reading of the time indicating mechanism.

From the foregoing, it will be apparent that there has been provided a simple and effective form of time indicating mechanism whereby the hour, half-hour are accentuated and thus quickly and readily discerned from a distance, together with the minutes and seconds thereof. Also, it will be seen that such mechanism for indicating time has a maximum hour periods range, from one to twenty hours or from one to one hundred hours, and the minutes and seconds range each is from one to fifty, the fifty minutes making the hour, and the fifty seconds making the minute for time indications.

What is claimed is:

1. A time indicating mechanism for a watch, clock or the like, having time shafts, a time dial having outer and inner time zones, each provided with time denoting indicia, a disk fixed to one of the said shafts and provided with a transparent portion overlying said inner zone, and an opaque portion having a double paneled transparent window overlying the outer zone for making visible singly and double progressively the indicia in the latter, and indicator hands fixed to the other shafts and overlying the inner zone for co-action with the time indicia therein and visible through the transparent portion of the said disk.

2. A time indicating mechanism for a watch, clock or the like, having time shafts, a time dial having outer and inner time zones, each provided with time denoting indicia, a disk fixed to one of the said shafts and provided with a transparent portion overlying said inner zone, and an opaque portion having a double paneled transparent window overlying the outer zone for making visible singly and double progressively the indicia in the latter, and indicator hands fixed to the other shafts and overlying the inner zone for co-action with the time indicia therein and visible through the transparent portion of the said disk, the hands being of different lengths with respect to each other.

3. A time indicating mechanism for a watch, clock or the like, having time shafts, a time dial having outer and inner time zones, each provided with time denoting indicia, a disk fixed to one of the said shafts and provided with a transparent portion overlying said inner zone, and an opaque portion having a double paneled transparent window overlying the outer zone for making visible singly and double progressively the indicia in the latter, indicator hands fixed to the other shafts and overlying the inner zone for co-action with the time indicia therein and visible through the transparent portion of the said disk and means included in the window for co-action with the time denoting indicia in the outer zone for indicating half-time periods of reading thereof.

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