March 6, 1934. J. PEJCHAR 1,950,189

TIMEPIECE

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FIG. 1.

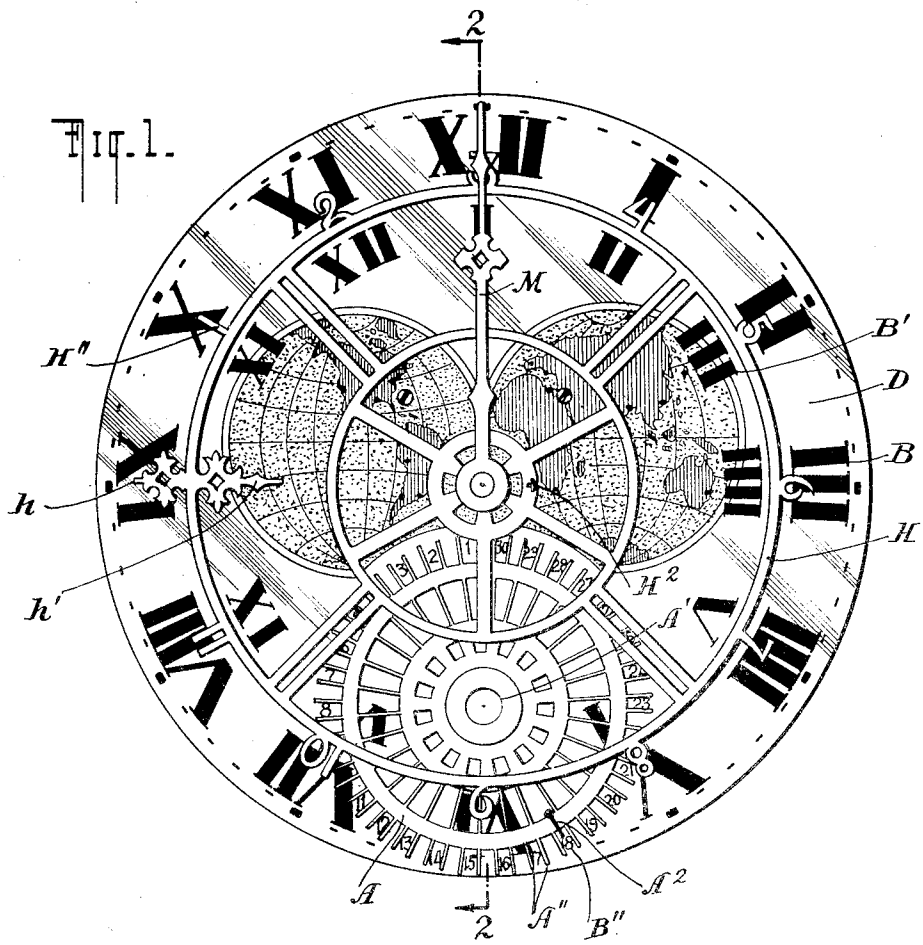
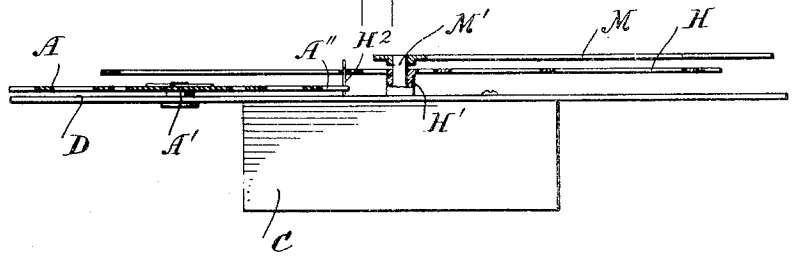


FIG. 2.



INVENTOR
JOSEF PEJCHAR
BY Lorka & Kehlendorf
ATTORNEYS

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Fig. 3.

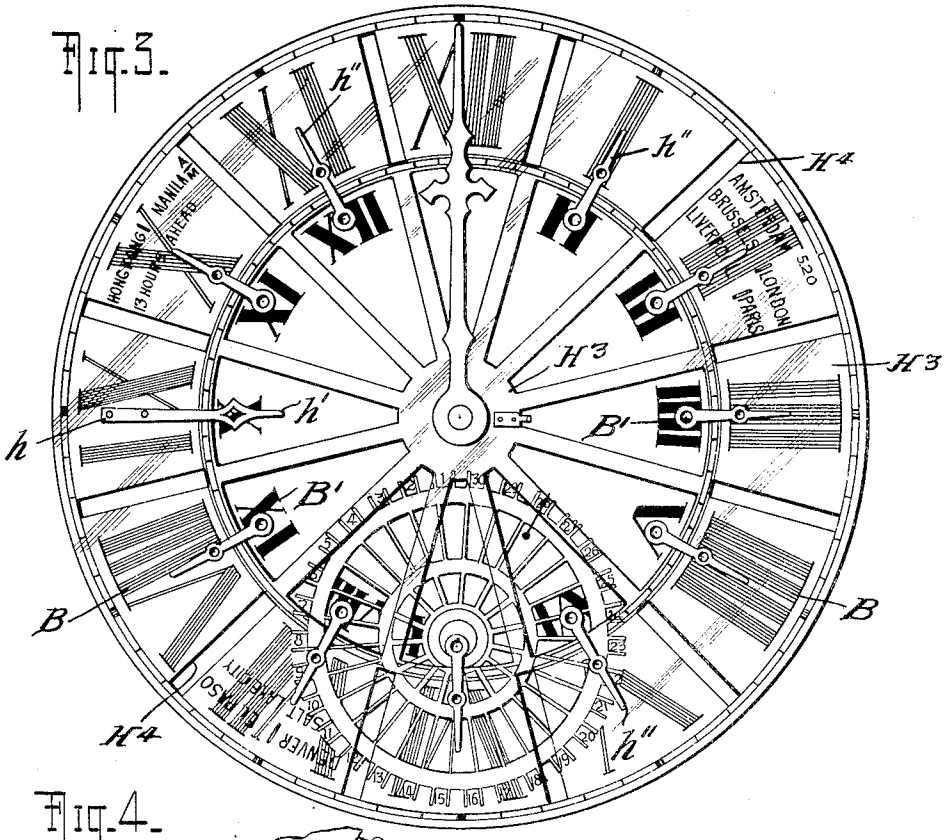


Fig. 4.

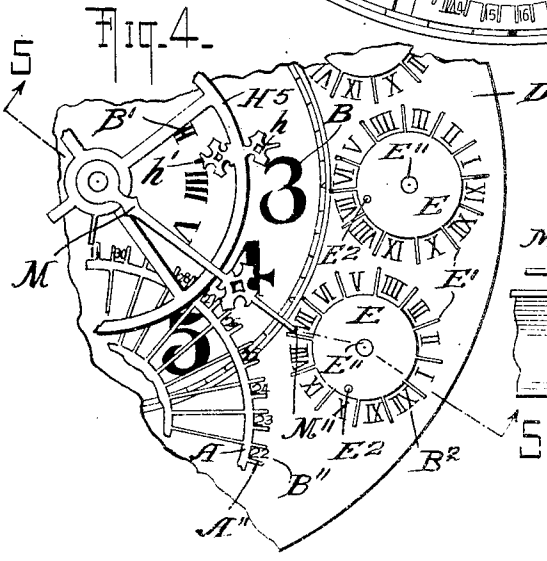
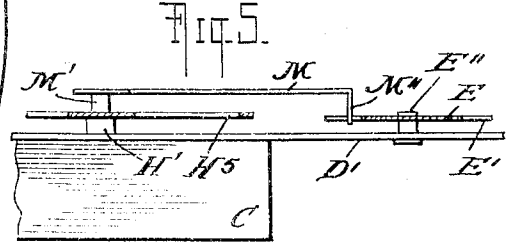


Fig. 5.



INVENTOR
JOSEF PEJCHAR
BY Lotka & Kehlenbeck
ATTORNEYS

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UNITED STATES PATENT OFFICE

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TIMEPIECE

Josef Pejchar, Brooklyn, N. Y.

Application May 31, 1930, Serial No. 458,342

4 Claims. (Cl. 58—43)

My invention relates to time pieces such as clocks and watches, and has for its object to provide a simple construction for indicating different time at the same place (such as standard and daylight saving time) as well as corresponding times occurring simultaneously at different places. In its preferred embodiment, the invention also provides a calendar operated by the clockwork to indicate the day of the month. While I do not wish to restrict myself to the particular embodiments shown, I desire to state that the preferred forms of my invention are of such simple construction that they may be utilized in connection with existing clockworks of inexpensive character, by the simple substitution of special dials and other parts, as will be readily understood from the detailed description following hereinafter.

Reference is to be had to the accompanying drawings in which Fig. 1 is a face view of one form of clock embodying my invention; Fig. 2 is a partial section on line 2—2 of Fig. 1; Figs. 3 and 4 are face views showing two further forms of the invention, and Fig. 5 is a partial section on line 5—5 of Fig. 4.

C indicates a clockwork of any suitable character, the kind used in ordinary alarm clocks being quite sufficient for the purposes of my invention. This clockwork has the customary tubular hour spindle H′ and the customary minute hand spindle M′ carrying the minute hand M. Instead of the hour hand of the usual type, I secure to the tubular spindle H′ an hour-member which extends in a complete circle around the clockwork spindles. In Figs. 1 and 2, this hour-member is indicated at H and consists of an open-work or spider-like structure located in a plane perpendicular to the clockwork spindles. Beneath the hour-member H is located the stationary dial D which as shown has a double row of hour-figures, the figures of the outer row B differing from those of the inner row B′ by one unit, so that the outer figures B may be used for standard time and the inner figures B′ for daylight saving time. Local time is indicated on said dial figures by an outwardly pointing hand *h* and an inwardly pointing hand *h′* co-operating with the figures B and B′ respectively. In order to indicate time at other localities, the hour-member H is provided with a set of indicators or numbers H″ located at hour-intervals from the hands *h*, *h′*. If, for instance the locality at which the timepiece is used, has eastern time, the number 11 on the hour-member H will serve as a hand to indicate the corresponding central time. It will be obvious that if, for instance, the hand *h* points to XII, the number or hand 11 of the hour-member H will point to XI, thus indicating that it is eleven o'clock at a place having central time when it is twelve o'clock at a place having eastern time. The user of such a clock or watch would be supplied with a table or booklet giving a list of the places having the various times corresponding to the several time indicators H″ of the hour-member H. It will be understood that the user of such a watch or clock would be able to read off not only the standard or daylight saving time of his own locality, but also the standard or daylight saving time of any other locality using a time differing from the time of his locality by an hour or multiple thereof. The open-work character of the hour-member H enables the user to see the figures of the dial D and particularly those of the inner row B′.

The hour-member H may be arranged to operate a day-of-the-month calendar. For this purpose, I have shown on said hour-member a projection H^2 extending toward the dial D and adapted to engage projections or teeth A″ which extend from the periphery of a calendar body or rotor A pivoted to the dial D at A′ and located between said dial and the hour-member H. This calendar body A has a hand or indicator A^2 which points to figures B″ provided on the dial D, indicating days of the month. The body A is preferably also of open-work character so that the figures of the dial may be seen through it readily. It will be noted that there are two teeth A″ to each division of the row of figures B″. The projection H^2 of the hour-member H is preferably located diametrically opposite the hands *h*, *h′*, the pivot A′ being preferably located diametrically opposite the figure XII of the outer row of figures B. Thus, every time the hour hand *h*, *h′* passes the figure XII of the row B, the projection H^2 will engage one of the teeth A″ and shift the rotor or calendar body A to the extent of one half division of the row of figures B″. Two such feeding movements will advance the calendar rotor A by one full division, that is to say, the indications of the day will change once in every twenty four hours. At such times when the projection H^2 is away from the rotor teeth A″, the rotor can be adjusted by hand about its pivot A′, so as to bring its indications in accord with the calendar, and particularly to adjust the rotor to the proper position at the end of a month as may be necessary in view of the fact that months are not of uniform length.

Fig. 3 shows a construction differing from the one of Figs. 1 and 2 only as regards the nature of the hour-member, the other parts being exactly as described above. In Fig. 3, the hour-member H^3 is made of transparent material, such as celluloid, and has a double hour hand *h*, *h'* of the same character as in Fig. 1. In addition thereto, and as a substitute for the numbers H'' of Fig. 1, the hour-member H^3 has additional hands or time indicating members *h''* located at hour-intervals from the double hour hand *h*, *h'*. These time indicating members *h''* perform the same function as the time indicating members H'' of Fig. 1. By using a transparent material for the hour-member H^3, I secure the advantage that in each sector of this hour-member I may mark by engraving or in any other suitable way, the names of the localities which have the particular time corresponding to the individual indicators *h''*; with this form of my invention, therefore, it is not necessary for the user to consult a separate chart or booklet giving a list of the various places. In order to separate the sectors more clearly, I may provide lines or boundaries, formed, for instance by openings or windows H^4 extending as radial slots.

In Figs. 4 and 5, the construction of the day-of-the-month calendar and its drive by a projection on the hour-member H^5 may be exactly the same as described in connection with Figs. 1, 2, 3, so that further explanation of these parts will not be required. Said hour-member H^5 is of open-work character and indicates by means of its double hour hand *h*, *h'* on a double row of figures B, B' of the same character as referred to above. The hour-member H^5 has no time indicating member in addition to the double hand *h*, *h'*. In this form of my invention, the means for indicating time at places different from the locality where the watch or clock is being used, is actuated, not by the hour-member, but by the minute hand M which in this case is extended beyond the rows of figures B, B' and is provided at its end with a projection M'' extending toward the dial D'. This projection M'' is adapted to come into contact, as the minute hand sweeps around the dial, with teeth E' on the peripheries of a number of disks E pivoted to the dial at E'', all of said disks being of like construction and their pivots E'' at equal distances from the spindles of the clockwork. Each of the disks has a suitable indicating mark E^2 operating in conjunction with a series of hour-figures B^2 on the dial D' to indicate the time at the particular locality or localities to which this particular disk E refers. The time of the locality at which the clock is used, is indicated by the double hand *h*, *h'*. Each of the disks E might have engraved or otherwise produced thereon, the names of the localities the time of which it indicates, or instead of this, each disk E might have a distinguishing mark such as a letter or a numeral, and the chart or booklet would tell the user of the clock the names of the localities employing the time indicated by the several disks E. It will be understood that each of the disks E will be advanced the distance of one tooth space (which corresponds to the space between two figures of the series B^2) once an hour, by the minute hand M. The correct hour indications will be read off on those disks E which have been shifted by the minute hand M since the latter passed the uppermost or full-hour position; in other words, those disks E which, measuring clockwise from the full-hour position of the minute hand, lie between said position and the minute hand. One hour will have to be added, however, in reading off indications from the other (still unshifted) disks E, that is to say those which, measuring clockwise from the position of the minute hand M, lie between such position and the full-hour position. If this rule is borne in mind, correct indications will be obtained in every case.

The form of my invention shown in Figs. 1 and 2 lends itself to ornamental treatment such as illustrated where the representation of two hemispheres appears in an arrangement symmetrical to the calendar; on such hemispheres I have preferred to mark in some distinctive way as by dots or circles, the location of those cities the time of which corresponds to the row of figures H''.

The calendar feature indicated at A, A', A'', A^2, B^2 and projection H^2 may be omitted thus simplifying the structure and enabling it to be applied on a scale small enough for pocket watches; this applies particularly to the construction shown in Fig. 1; if this were applied to a pocket watch, the representation of the hemispheres would preferably also be omitted since these would be on too small a scale in a pocket watch, for practical use.

It will be understood that my invention does not contemplate any change in the clockwork proper but may be used in connection with any suitable clockwork, all that is required in most forms of my invention being the substitution of an hour-member such as described for the ordinary hour hand, and the use of a dial of the particular characteristics set forth. In the form illustrated by Figs. 4 and 5, a special minute hand would have to be employed to operate the disks E.

I have found that ordinary spring clockworks such as are used for alarm clocks, even of the cheaper grades, have sufficient power to operate the additional parts of my invention without affecting the proper running of the clockwork, and the same remark will apply to clockworks using a power other than spring power, for instance to electric or pneumatic clocks; thus in my invention, I utilize an excess power which hitherto has been wasted or allowed to remain unused.

Various modifications may be made without departing from the nature of my invention as set forth in the appended claims.

I claim:

1. A time-piece having a clockwork with an hour-member and a minute-hand, and a plurality of rotary hour-indicating disks pivoted about axes substantially equidistant from the axis of said minute hand and having portions, arranged in the path of said minute hand, arranged to be engaged and shifted successively once an hour by said minute-hand as it sweeps around the dial.

2. A time-piece having a dial with an inner row of hour-figures and an outer row of hour-figures of like numbering in fixed relation to each other, the figures of one row differing by one-hour units from the adjoining figures of the other row, and an hour-indicating device comprising a ring arranged between said rows, an hour-indicating member extending and pointing outwardly from said ring to co-operate with said outer row of hour-figures, and another hour-indicating member extending and pointing inwardly from said ring to co-operate with said inner row of hour-figures.

3. A time-piece having a dial with an inner row of hour-figures and an outer row of hour-figures of like numbering in fixed relation to each other,

the figures of one row differing by one-hour units from the adjoining figures of the other row, and an hour-indicating device comprising a ring arranged between said rows, a plurality of hour-indicating members extending and pointing outwardly from said ring at regular intervals to co-operate with said outer row of hour-figures, and an hour-indicating member extending and pointing inwardly from said ring to co-operate with said inner row of hour-figures.

4. A time-piece having a dial with an inner row of hour-figures and an outer row of hour-figures of like numbering in fixed relation to each other, the figures of one row differing by one-hour units from the adjoining figures of the other row, and an hour-indicating device comprising a ring arranged between said rows, a plurality of hour-indicating members extending and pointing outwardly from said ring at regular intervals to co-operate with said outer row of hour-figures, and a plurality of hour-indicating members extending and pointing inwardly from said ring in registry with said outwardly-extending members, to co-operate with said inner row of hour-figures.

JOSEF PEJCHAR.