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CALENDAR INDICATOR MECHANISM

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Fig. 1

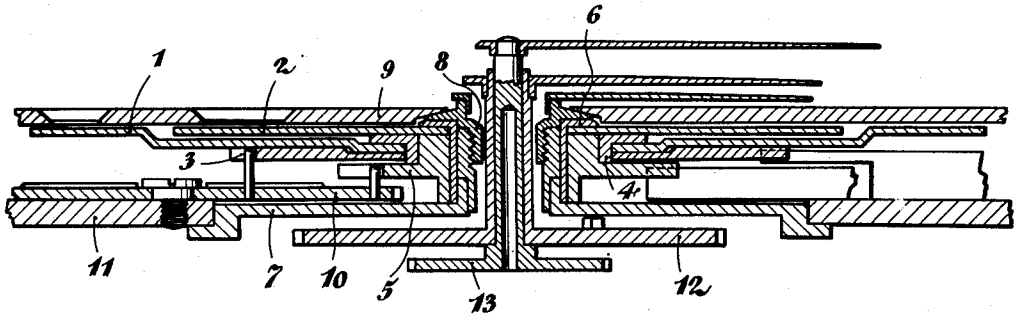
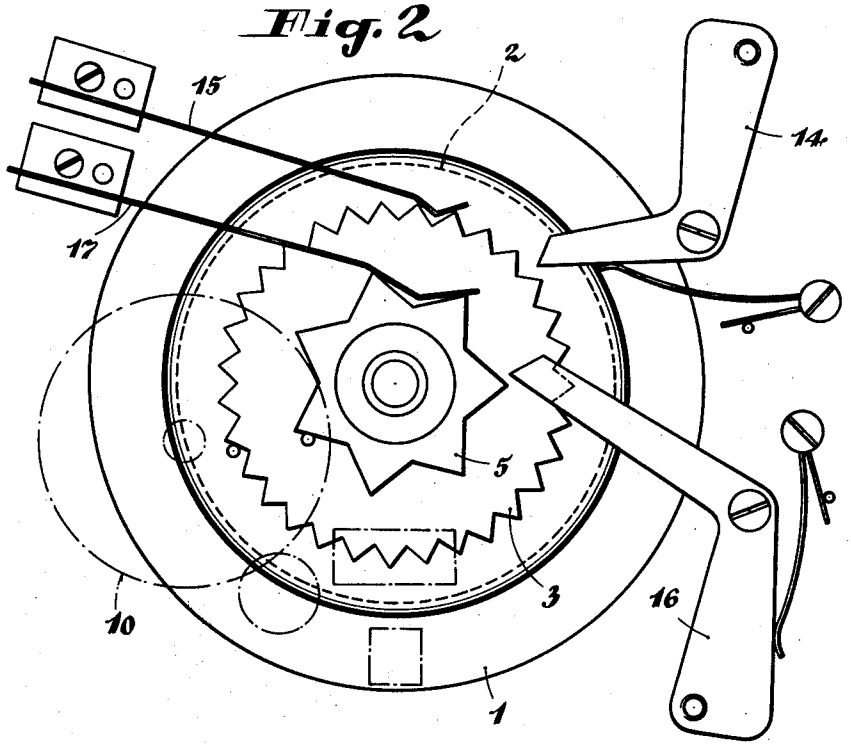


Fig. 2



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CALENDAR INDICATOR MECHANISM

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2 Claims. (Cl. 58—58)

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This invention relates to indicator mechanisms and has more particular reference to an indicator mechanism which comprises at least two moving indicating members partially screened by a covering plate having windows therein through which the numbers or markings of the indicating members may be viewed.

An important feature of the invention resides in that motion can be imparted to each moving indicating member by separate operation of driving members situated on the back face of the indicating members, said indicating members and said driving members forming an integral body the front face of which carrying the indications has a determined shape situated at equal distance from the windows of the covering plate, whereby to facilitate reading of the indications.

The accompanying drawings represent by way of an example one practical indicator mechanism construction embodying the invention and applied to an alarm clock movement.

In the drawing:

Fig. 1 is a sectional view taken in a plane passing through the central shaft of the indicator mechanism and comprising the driving means and the time and alarm bell hands, the indicator mechanism being destined to indicate the days of the week and the days of the month.

Fig. 2 is a bottom plan view of the indicator mechanism comprising the driving means and the stop means.

The indicator mechanism illustrated in the drawings and described by way of example does not limit itself, what its applications are concerned. Besides its application to time pieces, and more particularly to watch and clock movements with or without alarm bell, the indicator mechanism could also be incorporated in measuring instruments in which it is desired to characterize one or several quantities in various units, either staggered according to their order of magnitude and referred or not to a common scale.

In the present example, the indicator mechanism embodying the invention is destined to confer to an alarm clock the character of a calendar time piece by indicating the days of the week and the days of the month. There is a particular case in which both the indicating units are in perfect synchronism with each other and thus the indicating members can be controlled and driven by a single mechanism, namely that of the clockwork. It is to be understood however that the invention does not limit itself to such a restrictive condition as generally exists in the instruments which serve to time measuring. Furthermore the advance of the disks is effected in the present example in a discontinuous way, every time a determined period has elapsed.

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With reference to the drawing, the disk 1 showing the days of the month is of circular shape and carries on a peripheral zone of its upper face the Figures 1 to 31. The inner portion of the disk 1 is dished. Within this dished central portion there is rotatably mounted a second disk 2 of circular shape, showing on its upper face the days of the week, so that the indications on that disk 2 are situated in the same plane as the indications of the disk 1. The disk 1 is drivingly connected to the star wheel 3 by means of a flanged sleeve 4, the flange of which comes to rest between the disk 1 showing the days of the month and the disk 2 showing the days of the week, in such a way that a sufficient clearance is provided between the two discs 1 and 2. The star wheel 3 for the days of the month constitutes the member which is necessary to drive in rotation and to lock the disk 1 of the days of the month. On the other hand, the disk 2 showing the days of the week is drivingly connected to the star wheel 5 for the days of the week by means of another flanged sleeve 6 which fits into the cylindrical hub which extends from the star wheel 5 for the days of the week. This flanged sleeve 6 has for its dual purpose to render the disk 2 of the days of the week dependent upon its star wheel 5 and also to hold together the whole assembly constituted, on the one hand by the disk 1, its star wheel 3 and the sleeve 4, and on the other hand by the disk 2 and its star wheel 5. The rotation of the disk 1 of the days of the month with its driving member constituted by the star wheel 3 for the days of the month is entirely independent, from the rotation of the disk 2 of the days of the week with its driving member constituted by the star wheel 5 for the days of the week.

It is to be understood that there could be superposed in the same way more than two disks having diameters decreasing in succession and each of them comprising a driving member so that the largest disk would be formed with a central recess or aperture of a sufficient size to allow rotation of the other superimposed disks therein and so on up to the smallest disk, the whole being centered on a common axis of rotation. It is sufficient of course to make each of the disks or indicating members dependent upon a driving member in such a way that the outer sleeves should be allowed to freely rotate about

the sleeves situated at the inside, the driving members being dimensioned in such a way that the largest disk should be dependent upon the largest driving member, whereby said largest driving members can be operated by the motor, for instance by the clockwork. Each pair consisting of an indicating disk and its driving member is tightened by a sleeve with upper flange which serves to maintain the said disk and at the same time to secure a certain spacing between two superposed disks, but for the last flange which is destined to hold the whole assembly in cooperation with the smallest one of the driving members.

The whole assembly or body mentioned above is mounted in the present example on the alarm let-off wheel 7 which has for this purpose a cylindrical hub with inner screw thread extending in axial direction. In this cylindrical hub is screwed a flanged plug 8 on which comes to rest the plate 9 having the windows therein which constitutes the covering plate of the mechanism. In that way all the indicating pieces or disks are situated at the same distance from the window plate 9.

The operation of the driving members is effected in the present case by the 24-hour wheel 10. Owing to the synchronism existing between the days of the month and the days of the week, the pins which operate the star wheel 3 for the days of the month and the star wheel 5 for the days of the week respectively, can be situated on a single driving wheel which is in the present case the 24-hour wheel 10. This latter is carried by the bridge 11 of the alarm let-off wheel. The other members illustrated in the Figure 1 are pertaining to an alarm clock movement and they show how the indicator mechanism can be mounted in relation with an alarm bell clockwork. 12 designates a flanged cannon at the outer end of which is secured the hour hand. 13 is the cannon pinion at the outer end of which is mounted the minute hand. The alarm clock bell index is mounted at the outer end of the plug 8.

The lever 14 cooperates with the star wheel 3 for the days of the month and allows a discontinuous rotation thereof according to the angular displacements of the corresponding pin 18 by rotation of the wheel 10. A retaining pawl 15 is provided to prevent the star wheel 3 from rotating before the moment is come to do so. A further lever 16 cooperates in the same manner with the star wheel 5 for the days of the week to allow discontinuous rotation thereof according to the angular displacements of the pin 19 by rotation of the wheel 10. The star wheel 5 is also prevented from rotating out of time by a second retaining pawl 17.

It is evident that instead of the 24-hour wheel 10 a different combination could be provided according to the purpose considered. In the clock movements the rotation of the driving wheel which operates the star wheels is proportional to the time elapsed. If continuous rotation of the disks is desired, the star wheels can be replaced by toothed wheels which are directly meshing with a driving toothed wheel. In that case the retaining pawls and the levers could be omitted.

The indicator mechanism is supported by the tube which carries the index hand of the alarm bell; this tube is concentrical to the axis of rotation of the indicating members. All rotations are effected about a common axis.

Owing to the fact that the indicating members

are arranged about a common axis of rotation, the window plate can be positioned according to any desired azimuthal orientation conforming to the symmetrical distribution of the indications. Suppose the position of the windows to be fixed, it would be sufficient to adjust the indicator mechanism in order to mount the dial plate in any desired orientation, of course within the limits imposed by the distribution of the indications. If the driving members are operated by motors having no common control means and at the condition that adjustment could be made separately for each indicating member, the orientation of the window plate would be absolutely optional, for there would be then possible to adjust the position of the indicating members before assembly of the dial plate. For a discontinuous rotation of the indicating members however, it will be necessary to choose the position of the windows in such a way that they coincide exactly with the indications after the driving member has been put into mesh with the motor.

It will be understood that it is desired to comprehend within the invention such modifications as may be necessary to adapt it to varying conditions and uses.

What I claim is:

1. In a time piece, an indicator mechanism comprising in combination a first disk carrying on its front face indications of the days of the month and a second disk carrying on its front face indications of the days of the week, said two disks being concentrically and rotatably mounted about a common axis, a fixed covering plate having windows therein through which the said indications of both disks may be viewed, a first star wheel on the back face of the first disk, a first sleeve-shaped member drivingly connecting said first disk with said first star wheel, a second star wheel extending at the back of the second disk, a second sleeve-shaped member drivingly connecting said second disk with said second star wheel, said second sleeve-shaped member having a flange for rotatably holding together the whole disk and star wheel assemblies and said first sleeve-shaped member having a flange for spacing said first disk from said second disk, the first disk having a dished central portion to allow the second disk to rotate freely therein with its front face situated at the same distance from the covering window plate as the front face of the outer portion of the first disk carrying the indications thereof, whereby to facilitate reading of the indications of both disks.

2. In a time piece with alarm bell clockwork comprising a hollow axle carrying an alarm clock index, an indicator mechanism as claimed in claim 1, wherein the first and second disks are concentrically and rotatably mounted about said hollow axle.

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