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ALARM CLOCK AND LIKE APPARATUS

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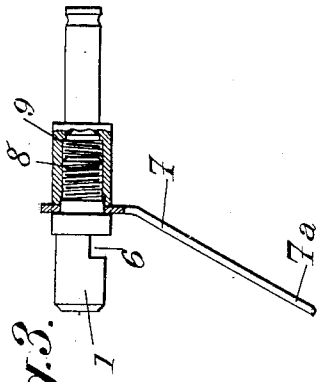


Fig.3.

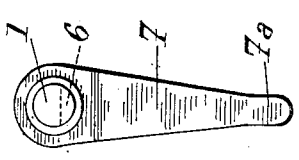


Fig.4.

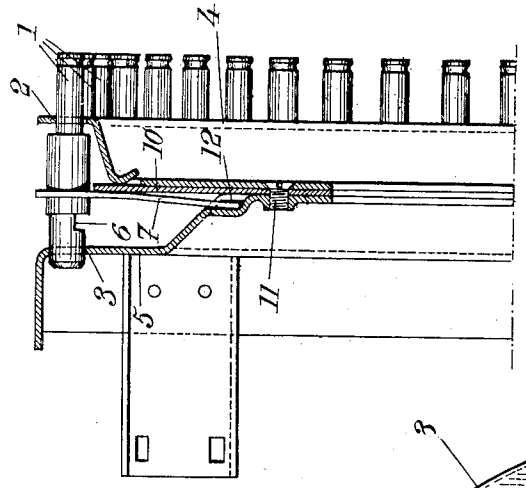


Fig.1.

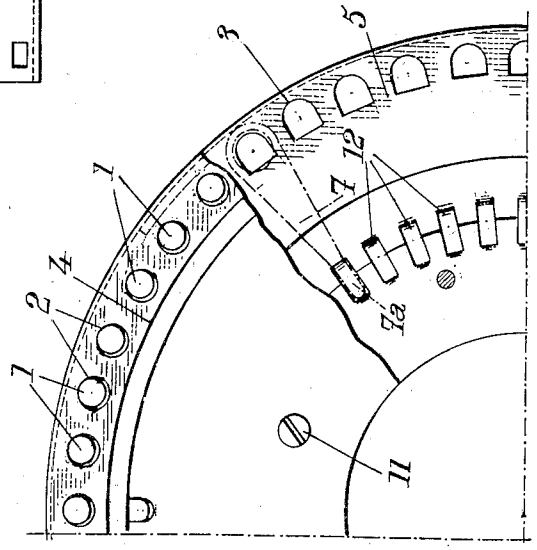


Fig.2

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ALARM CLOCK AND LIKE APPARATUS

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5 Claims. (Cl. 161—6)

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The present invention relates to alarm clocks and like apparatus provided with a plurality of parts for setting the alarm mechanism to obtain several signals of limited duration at predetermined times.

The object of my invention is to provide an apparatus of this type which is better adapted to meet the requirements of practice than those used for the same purposes up to this time.

A preferred embodiment of my invention will be hereinafter described with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 shows, in sectional view, the front portion of an alarm clock made according to my invention.

Fig. 2 shows the same portion of the clock in elevation, with parts cut away.

Figs. 3 and 4 show, on an enlarged scale and respectively in section and in elevation, an alarm setting element with its spring.

My invention is not concerned with the general arrangement of the clock, and in particular of the clockwork and the alarm mechanism, which may be of any suitable construction provided that the means for setting said alarm mechanism are constituted by a plurality of push pieces, preferably disposed in an annular row about the dial, each push piece corresponding to a given time (for instance hours and fractions of hours).

The number of push pieces provided about the dial may be chosen at will. For instance in the case of a clock the hour hand of which makes a full rotation in twelve hours, this number is equal to 48, so that a signal can be obtained on every quarter of an hour.

Preferably, each push piece 1 is housed in two apertures 2 and 3, respectively provided in the front annular wall 4 of the clock and in an inner partition 5 thereof.

Preferably, both ring 4 and inner partition 5 are cup-shaped.

Each push-piece is provided with a notch 6 for holding said push-piece in its depressed position (to produce an alarm signal) against the inner edge of the corresponding aperture 3.

It is therefore necessary for every button to pivot at the end of its inward stroke. Inversely, to bring back a push-piece into its inactive position, as shown by Fig. 1 (position of rest) notch 6 must first be disengaged from the inner edge of the corresponding aperture 3, by pivoting in the opposite direction, after which, the push-

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piece can return to its inactive position by sliding axially.

In order to obtain this operation, each button is subjected to the action of a spring plate which is initially stressed, in the inactive position of the corresponding push-piece so as both to oppose depressing of the button and to facilitate pivoting thereof into engagement with the inner edge of hole 3 once this push-piece has been fully depressed against the action of said spring.

In order to obtain this initial stressing, spring plate 7 is advantageously given a bent shape as shown by Fig. 3. When the parts are assembled, plate 7 is stressed so that the angle between the two branches of the plate becomes at least approximately equal to 180° (see Fig. 1).

Preferably, the two branches of the obtuse angle formed by plate 7 in the free state are made of unequal lengths and push-piece 1 is fixed to the shorter branch. To this effect the push-piece is made of two parts one of which projects from the casing of the apparatus for operation of the push-piece, whereas the other part is provided with notch 6. Fixation of these two parts to each other and also to plate 7 is obtained by screwing a threaded rod 8 rigid with one of the parts in a threaded hole 9 provided in the other, this threaded rod extending through an aperture provided in the short branch of plate 7 (Fig. 3).

Preferably, each push-piece 1 is fitted with a spring plate 7, the free end of which is engaged in an individual housing provided in part 5, inside which this end is not free, but can slide radially. Furthermore, I provide for push-pieces 1, between apertures 2 and 3, means for limiting the pivoting displacement that corresponds to the engagement of their notches 6 on the edges of the corresponding holes 3.

This means is constituted by a ring 10 interposed, for instance, between elements 4 and 5 and the outer edge of which forms an abutment for all the buttons distributed along the periphery of the clock, the three elements 4, 5 and 10 being fixed to one another by screws 11.

To house the inner ends of spring plates 7, I provide, in wall 5, as many recesses 12 as there are plates 7, the end 7a (Fig. 4) of an elastic blade 7 being inserted in each of said recesses.

After assembly, each plate has the shape and position shown by Fig. 1, the end 7a of said plate being radially guided in one of the housings 12, whereas the upper part of said plate bears against the peripheral portion of ring 10, so as to give it an initial stressing as above mentioned.

In order to bring any push-piece from the position of rest shown by Fig. 1 into the working position, this push-piece is axially pushed in against the action of spring plate 7 which, at the end of this axial sliding movement, causes the push-piece to pivot so as to engage its notch 6 on the inner edge of hole 3.

In this position, the pushes operates the alarm mechanism at the given time, through any suitable means for instance as described in the U. S. patent application Ser. No. 704,653, filed October 21, 1946, by René Mille, other means, such as also described in this patent application acting to realise notch 6 from the inner edge of aperture 3 a short time thereafter whereby elastic blade 7 can restore the corresponding push-piece to its position of rest.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments of my invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the accompanying claims.

What I claim is:

1. In an apparatus, the combination of a support having a flat annular portion provided with a row of holes, a ring shaped wall carried by said support in front of said annular portion also provided with a row of holes corresponding with the first mentioned holes, respectively, a plurality of push-pieces each slidable in two corresponding holes of said respective rows, each push-piece being provided in the part thereof normally located between said two holes with a notch adapted to engage on the adjacent edge of the corresponding hole of the first mentioned row, a spring plate fixed to said push-piece transversely thereto and extending radially with respect to said support, a housing formed in said support for slidably accommodating the inner end of said spring plate to guide it radially, said spring being so shaped, in its free state, as to urge said push-piece frontwardly in said holes and to urge pivoting thereof in the direction corresponding to engagement of said notch on said edge of the corresponding hole of the first row, and an annular disc carried by said support between the flat annular portion thereof and the front ring-shaped wall carried by it, said disc being so positioned and dimensioned to limit frontward displacements of said push-piece under the action of said spring plate to a position of rest and to limit pivoting displacements of said push-piece under the action of said spring for engagement of said notch on said edge.

2. In an apparatus, a combination according to claim 1 in which the initial shape of said spring plate is that of an obtuse angle having unequal branches, the shorter one being that fixed to the push-piece.

3. In an apparatus, a combination according to claim 1 in which each push-piece is made of two portions screwed in each other, the corresponding spring plate being provided with a hole, engaged on one of said portions and fixed by the other one.

4. In an apparatus, the combination of a flat annular support, a plurality of push-pieces extending transversely to said support and each provided with a notch adapted to be engaged on a corresponding edge of said support after a given axial displacement of said push-piece in one direction, a spring plate fixed to each push-piece transversely thereto and extending radially with respect to said support, a housing formed in said support for slidably accommodating the inner end of said spring plate to guide it radially, said spring plate being so shaped in its free state as yieldingly to oppose axial displacement of said push-piece in the above mentioned direction and to urge pivoting of said push-piece in the direction corresponding to engagement of the notch thereof with the corresponding edge of the support once said push-piece has been moved in said first mentioned direction against the resistance of said spring plate so as to bring said notch opposite said edge and guiding means carried by said support to oppose this pivoting as long as said notch is not opposite said edge.

5. In an apparatus, the combination of a flat annular support, a plurality of push-pieces extending transversely to said support and each provided with a notch adapted to be engaged on a corresponding edge of said support after a given axial displacement of said push-piece in one direction, a spring plate fixed to each push-piece transversely thereto and extending radially with respect to said support, a housing formed in said support for slidably accommodating the inner end of said spring plate to guide it radially, said spring plate being so shaped in its free state as yieldingly to oppose axial displacement of said push-piece in the above mentioned direction and to urge pivoting of said push piece in the direction corresponding to engagement of the notch thereof with the corresponding edge of the support once said push-piece has been moved in said first mentioned direction against the resistance of said spring plate so as to bring said notch opposite said edge, guiding means carried by said support to oppose this pivoting as long as said notch is not opposite said edge, and means for limiting axial displacements of each push-piece in the direction of the axial thrust exerted by said spring plate to a position of rest, said spring plate being shaped and mounted to be already stressed in this position of rest.

HENRI BLAMPAIN.

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