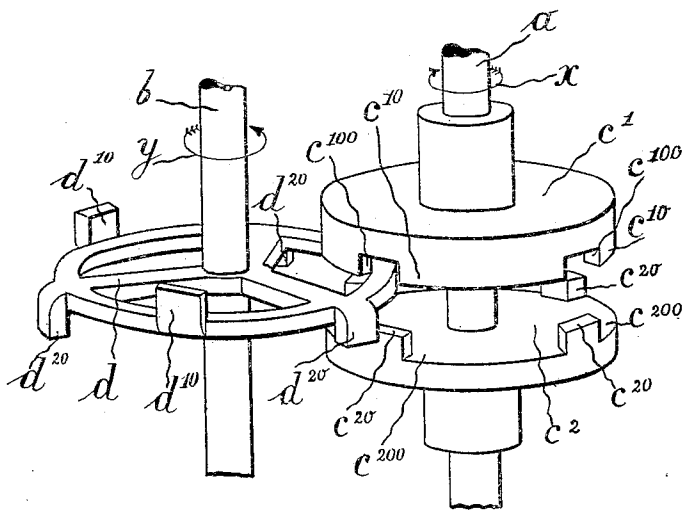
A. J. CHAÎNAT.

ESCAPEMENT DEVICE.

APPLICATION FILED SEPT. 14, 1917.

1,273,734. Patented July 23, 1918.



Witness

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UNITED STATES PATENT OFFICE.

ANDRÉ JULIEN CHAÎNAT, OF PARIS, FRANCE.

ESCAPEMENT DEVICE.

1,273,734. Specification of Letters Patent. Patented July 23, 1918.

Application filed September 14, 1917. Serial No. 191,442.

To all whom it may concern:

Be it known that I, ANDRÉ JULIEN CHAÎNAT, manufacturer, a citizen of the French Republic, residing at Paris, France, have invented certain new and useful Improvements in Escapement Devices, of which the following is a specification.

The invention relates to escapement devices adapted to stop at given time intervals and for a given period, the rotation of a spindle or the like, and it relates particularly to those spindles of speedometers which control the hands.

This invention comprises a spindle carrying thereon a cylindrical disk provided on its periphery with an even number of fingers arranged alternately on each of its faces, and another spindle having secured thereto two cylindrical disks, comprising on the periphery of their opposite faces, projections, each of the projections of one disk being arranged opposite to, and having the same width as, the interval separating two projections of the other disk, the said disks being of such dimensions and so arranged that the fingers of the disk are adapted to register respectively and alternately with the intervals between the projections of the corresponding disk.

In combination with this main arrangement, the invention comprises other features, more particularly pointed out in the claims.

An escapement, according to this invention, is shown in perspective in the single figure of the drawing.

A spindle a is rotated in the direction of the arrow x, by a clockwork not shown in the drawing, and another spindle b parallel to the spindle a, has a tendency to rotate in the direction of the arrow y for example, under the action of a spring barrel, (not shown in the drawing).

The spindle a is provided with a pair of cylindrical disks c^1 and c^2 of the same diameter, each of these disks having on the periphery of one of its faces, projections c^{10} and c^{20} so arranged, and of such dimensions, that when the two disks c^1 and c^2 are placed face to face, each of the projections of one of the disks is opposite to, and of the same width as, the interval c^{100} or c^{200} separating two projections of the other disks.

The two disks c^1 and c^2 are secured to the spindle a in that position and are separated from each other by a suitable interval. Another cylindrical disk d is provided on the spindle b having on its periphery any desired even number of fingers d^{10} and d^{20} arranged alternately on each of its faces and at suitable distances apart. The fingers d^{10} of the said disk d are adapted to engage with the intervals c^{100} between the projections c^{10} of the disk c^1, and the fingers d^{20} with the interval c^{200} between the projections c^{20} of the disk c^2. Preferably, the diameters of the disks c^1 and c^2, are the same, and the diameters of said disks and of the disk d are so related that the sum of the squares of the radii of the disks c^1 and c^2 should be approximately equal to the square of the distance between the two spindles a and b. Moreover, the projections and the intervals separating the same, are so arranged that, when one of the fingers of the disk d is opposite to an interval between the projections of the disks c^1 or c^2 and engages between the said two projections, there is at the opposite side of the disks c^1 or c^2 such an interval as to allow of the passage of the finger of the disk d which then passes through the said intervals.

The operation of the escapement is as follows:

The spindle a being rotated in a continuous and uniform manner by the clockwork, brings alternately in front of the fingers of the disk d, the intervals separating the respective projections of the disks c^1 and c^2. When an interval, for instance c^{100}, comes in front of a finger d^{10} of the disk d, the said finger which prevented the spindle b from turning by resting against the projection c^{10} preceding the said interval, enters the same interval, and thus allows the spindle a to rotate until a finger d^{20} of the disk d comes into contact with the projection c^{20} of the disk c^2. When the interval c^{200} following the said projection c^{20}, arrives opposite the finger d^{20}, the spindle b is given a further rotation, until the finger d^{10} of the disk d engages with a projection c^{10} of the disk c^1, and so on.

Obviously, by varying the number and the dimensions of the projections and fingers of the various disks, it is possible to bring about an intermittent rotation of the spindle b at any given equal or unequal time intervals, and for any given period of time.

The arrangement regulating the movement of rotation of the spindle a, in the present case a clockwork, has to supply only the

small amount of power sufficient to overcome the friction between the fingers of the disk d and the projections of the disks c^1 and c^2. Moreover, as the momentum stored by the spindle b during its movement, is absorbed by the shock of the fingers of its disk against the corresponding projections of the disks c^1 and c^2, and produces on the same a reaction which passes through the axis of the spindle a, the bearings of which bear the whole strain, it follows that there is no tangential reaction which is liable to increase or reduce the force of the regulating motion and consequently affect regular running of the spindle a.

Obviously the invention is not limited to the construction described, but comprises any modification within the scope of the claims. The spindle a may be the driving spindle, and the spindle b the regulating spindle, provided that the dimensions of the projections and of the intervals between the projections are suitably chosen.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An escapement comprising a spindle carrying thereon a cylindrical disk provided on its periphery with an even number of fingers arranged alternately on each of its faces, and another spindle having secured thereto two cylindrical disks comprising on the periphery of their opposite faces, projections, the projections of one disk being arranged opposite to, and having the same width as, the interval separating two projections of the other disk, the said disks being of such dimensions, and so arranged, that the fingers of the disk are adapted to engage respectively and alternately with the intervals between the projections of the corresponding disk.

2. An escapement comprising a spindle carrying a disk having an even number of fingers arranged alternately on its opposite faces, and a second spindle carrying a pair of disks having projections on their opposing faces, the projections on one disk of the pair being opposite to the intervals between the projections on the other disk of the pair, and the diameters of the disks of said pair being the same and the distance between the spindles and the diameters of the disks on the two spindles being so related that the sum of the squares of the radii of the first named disk and one of the disks of said pair is substantially equal to the square of such distance.

3. An escapement comprising a pair of rotatable spindles, a member carried by one of said spindles and having sets of annularly spaced teeth projecting from opposite faces thereof, the spacing of the teeth of one set alternating with the spacing of the teeth of the other set, and a pair of adjacently located members carried by the other spindle and between which the periphery of the member first mentioned projects, the members of said pair having projections on their adjacent faces, the projections on one of the members of said pair being opposite to the intervals between the projections on the other member of said pair, and the projections on the members of said pair being arranged to coöperate respectively with the respective sets of teeth on the member first mentioned.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ANDRÉ JULIEN CHAÎNAT. [L. S.]

Witnesses:
JOSEPH GEMENIL,
EUGÉNE PILLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."