No. 666,997. Patented Jan. 29, 1901.

A. BANNATYNE.

REGULATOR FOR TIMEPIECES.

(Application filed Nov. 30, 1900.)

(No Model.)

Fig. 1

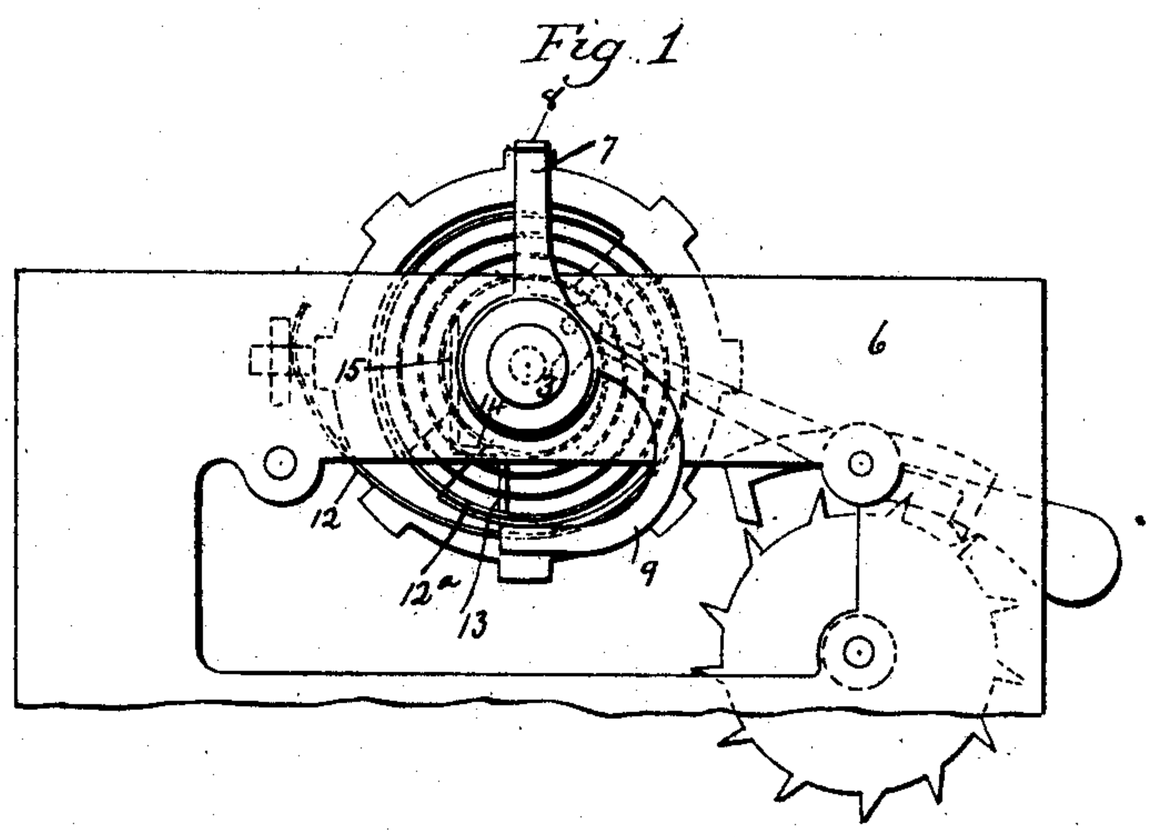


Fig. 2

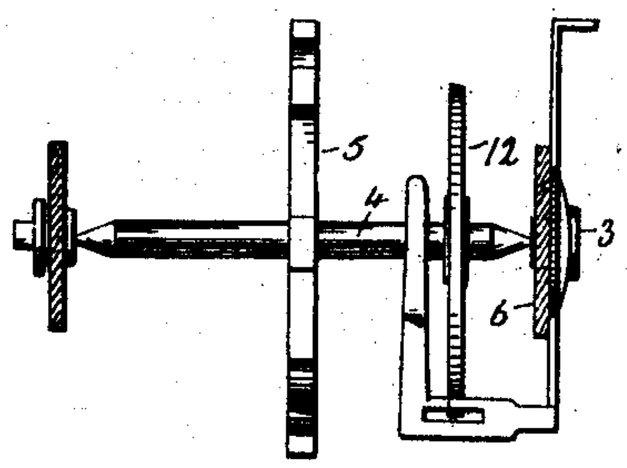


Fig. 3

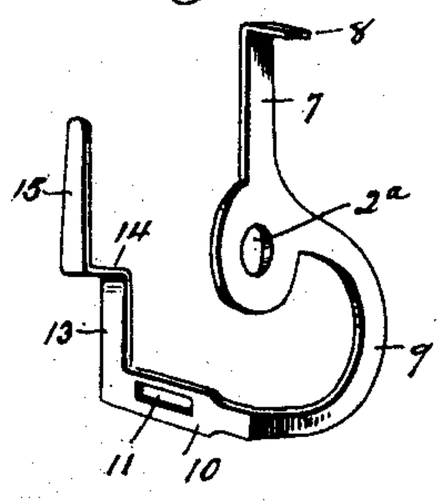
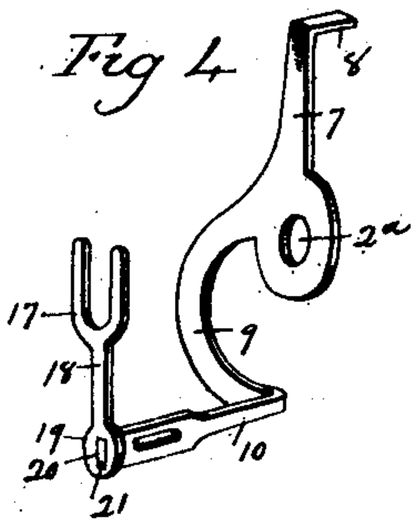


Fig 4



Witnesses
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UNITED STATES PATENT OFFICE.

ARCHIBALD BANNATYNE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY CLOCK COMPANY, OF SAME PLACE.

REGULATOR FOR TIMEPIECES.

SPECIFICATION forming part of Letters Patent No. 666,997, dated January 29, 1901.

Application filed November 30, 1900. Serial No. 38,118. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD BANNATYNE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Regulators for Hair-Springs of Time-Movements; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a broken view, in rear elevation, of a time-movement, showing the application thereto of my improved regulator; Fig. 2, a broken view, in vertical section, showing the regulator in side elevation; Fig. 3, an enlarged detached perspective view of the regulator; Fig. 4, a corresponding view of one of the modified forms which my improved regulator may assume.

My invention relates to an improvement in regulators for the hair-springs of "marine" time-movements, the object being to produce an adjustable regulator constructed with particular reference to preventing the hair-spring from fouling with it.

With these ends in view my invention consists in a regulator consisting of a lever having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention as herein shown I construct from a single piece of sheet metal a lever having a washer-like body portion formed with a pivot-hole 2^a, receiving one of the pivots 3 of the staff 4 of the balance-wheel 5, whereby the lever is pivotally mounted upon the outer face of the rear plate 6 of a small time-movement of the marine type. The said regulator also comprises an upwardly-projecting operating-arm 7, having a forwardly-turned finger 8 and a downwardly-projecting bowed arm 9, which may be easily opened out or closed up for adjusting the regulator, the action of which will be increased by opening out the arm and decreased by closing up the arm, in doing which the arm is bent edgewise by means of a pair of pliers or some other instrumentality. At its lower end the adjustable bowed arm 9 merges into a spring-receiving arm 10, which extends inwardly and forwardly from it at a right angle and is furnished with an opening 11, through which the outer coil of the hair-spring 12 passes, as clearly seen in Fig. 2. At its inner end, which is also its forward end, the spring-receiving arm 10 merges into an upwardly-extending guard or spring-fender arm located at a right angle to the arm 10 and comprising a lower reach 13, a shoulder or bend 14, and an upper reach 15, which extends upward on one side of the staff 4. The function of the fender-arm just described is to prevent any coil, and particularly the second coil 12^a of the hair-spring, from fouling with the regulator, and here it may be said that although it may seem almost unnecessary that such precautions should be taken experience has shown that these delicate hair-springs are very apt to get fouled with the regulator unless extraordinary preparations are made with the aim of avoiding such contingencies. However, with my improved regulator fouling of the spring is effectually prevented, no matter how severe the shocks or jars to which the spring may be subjected.

With regard to the adjustment of the regulator, it will be readily understood that by bending the arm 9 the spring-receiving opening 11 is moved diametrically toward or away from the pivot-receiving opening 2^a, on which the regulator is turned, whereby the outer coil of the hair-spring will be moved toward and away from its center, so as to effect the action of the spring in going faster or slower.

It is apparent that in carrying out my invention some changes in the form and construction of my improved regulator may be made. Thus, if desired, it may be made of two parts secured together, as shown in Fig. 4, in which the guard or spring-fender arm is shown as made independent of the other members of the device and shaped in the form of a fork 17, having a long shank 18, terminating at its lower end in a disk 19, having an elongated slot 20, receiving a rivet-like finger 21, formed upon the extreme end of the spring-receiving arm 10. It will be understood that in this construction the arms of the fork extend upward on opposite sides of the staff 4

of the balance-wheel 5. I would therefore have it understood that I do not limit myself to the precise details shown and described, but hold myself at liberty to make such variations therefrom as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hair-spring regulator adapted to be pivotally secured in place, and consisting of a lever provided with an operating-arm, a spring-receiving arm, an arm connecting the operating-arm with the spring-receiving arm, and a spring-fender or guard arm extending alongside of the staff of the balance-wheel of the movement containing the regulator.

2. A hair-spring regulator consisting of a lever having a body portion through which it is pivotally secured in place, an operating-arm, a bowed adjustable arm, a spring-receiving arm which is moved diametrically toward or away from the center of the body portion of the lever by closing up or opening out the said bowed arm, and a spring-fender or guard arm, adapted in length to extend alongside the staff of the balance-wheel of the movement containing the regulator.

3. A regulator for the hair-springs of time-movements of the marine or lever-escapement type, the said regulator being made from a single piece of sheet metal and consisting of a lever having a body portion, an operating-arm, an adjustable bowed arm, a spring-receiving arm and a spring-fender or guard arm having an upper and a lower reach and a shoulder or bend between them, and extending alongside of the staff of the balance-wheel of the movement containing the regulator.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARCHIBALD BANNATYNE.

Witnesses:
A. J. STORZ,
G. W. WATSON.