C. W. RICE & A. L. BURBANK.

Main-Spring for Watches.

No. 163,694. Patented May 25, 1875.

Fig 1.

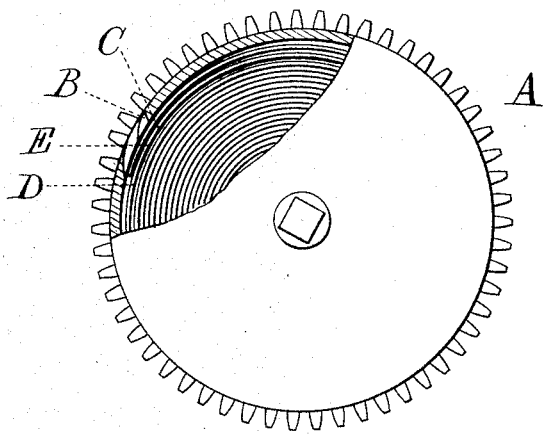
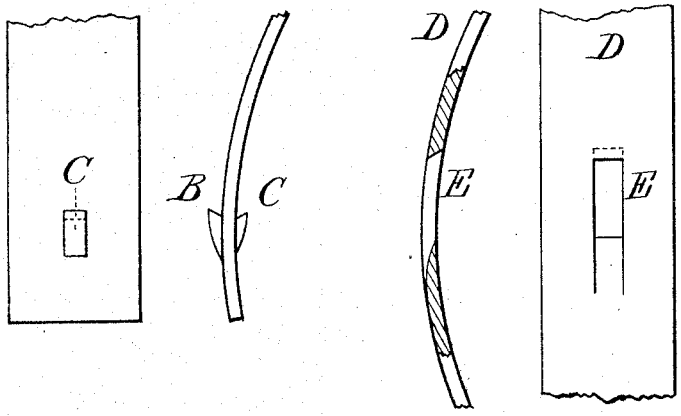


Fig 2.



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UNITED STATES PATENT OFFICE.

CHARLES W. RICE AND ASA L. BURBANK, OF WORCESTER, MASS.

IMPROVEMENT IN MAINSPRINGS FOR WATCHES.

Specification forming part of Letters Patent No. **163,694**, dated May 25, 1875; application filed November 25, 1874.

To all whom it may concern:

Be it known that we, CHARLES W. RICE and ASA L. BURBANK, both of the city and county of Worcester, State of Massachusetts, have invented an Improvement in Mainsprings for Watches, &c., of which the following is a specification:

Our invention is designed to guard and control the spring from too great expansion, so as to relieve the barrel or drum of any pressure except that of the driving-catch; and in case the spring is broken the guard part thereof will control the rest, and receive the shock, both of the sudden expansion and backward motion, and the spring turn back freely in the barrel without affecting it or the other parts so liable to be damaged by the breaking of the spring.

We accomplish this, and make a self-controlling spring, by so constructing the outer coil or turn of the spring that, when it runs nearly down, it shall form a clasp or guard to prevent it from bearing outwardly on the barrel, (to which it is only connected by its driving-catch,) and give it freedom of backward motion, and in doing this in such a way that the outer coil of the spring is not materially affected in its action, but winds up with the rest, and acts with it until nearly run down, when the clasp is formed automatically, by means of catches or similar devices, and the outer turn of the spring holds the rest from any larger expansion, (the size of it being predetermined by the size of the barrel, so as to be free therein,) while the spring runs fully down.

The accompanying drawings represent a barrel and spring of a watch, on an enlarged scale, embodying our invention.

Figure 1 shows the barrel with the spring in place, a part of the cap or end being removed, showing the clasp and the looseness of the spring in the barrel, and Fig. 2 shows the catch and slot forming the clasp.

A is the barrel of the usual form; B, the end of the spring which connects to, or drives the barrel A, by any of the common forms of connection, in which the spring may be detached from the barrel, and is free to turn back without affecting it. C is a hook on the inside of B, and at the right distance from the hook C is a hole or slot, E, in the spring, made to fit on or receive the hook C, and the length from C to E being such as to form a circular clasp a little smaller than the inside of the barrel A, and to permit the spring to be free to turn backward therein when run down, the hook C and slot E being free to unhook when the spring is wound up, thus allowing the whole spring to be used, as in the old or common form.

When the spring runs down the catch E engages on the hook C, and forms the clasp or guard; this, in springs that run five and a half turns of the arbor, will occur about the four and a half turn; thus, as they would drive their watches thirty-two and a half hours, the clasp forms when they have run about twenty-six hours, being wound every twenty-four hours.

In ordinary use the clasp is not formed, and the springs act only as in the common form, but when a break of the spring or release of the arbor occurs, the clasp is formed, receiving the shock, and unhooking the spring from the barrel, and the spring allowed to turn backward freely, thus protecting all other parts of the watch from breakage.

It is not necessary that the hook on the inside of B be opposite the one on the outside, as it has no connection with that, except as a matter of convenience in putting both in one piece, and other variations will appear in adapting our invention to the various springs in use, as the use of a loop at the end B, and a hook at E, or hooks on both, and other ways substantially the same might be enumerated to accomplish the same object, namely, to make the outer turn or coil of the spring serve as a guard for the whole when run nearly down, or, in other words, making it self-controlling, and a protection to the adjacent parts of the watch without impairing its action.

We claim—

The mainspring, having its outer turn or coil constructed with a hook, C, and a catch E, or their equivalents, so as to form a clasp or guard restraining and holding the spring when nearly run down, and allowing it to turn backward in the barrel without damage, substantially in the manner and for the purpose above set forth.

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