S. W. MORGAN.

Safety Device for Main-Springs.

No. 212,042. Patented Feb. 4, 1879.

FIG. 1.

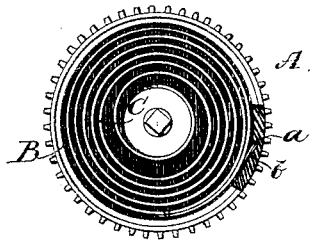


FIG. 5.

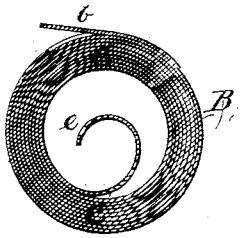


FIG. 2.

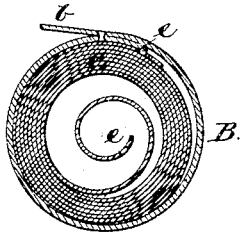


FIG. 6.

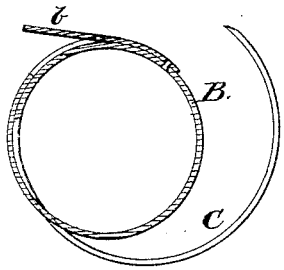


FIG. 3.

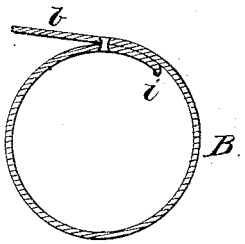


FIG. 7.

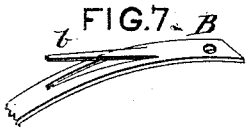
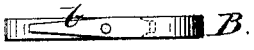


FIG. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

STEPHEN W. MORGAN, OF WINONA, MINNESOTA.

IMPROVEMENT IN SAFETY DEVICES FOR MAINSPRINGS.

Specification forming part of Letters Patent No. **212,042**, dated February 4, 1879; application filed June 15, 1878.

To all whom it may concern:

Be it known that I, STEPHEN W. MORGAN, of Winona, in the county of Winona and State of Minnesota, have invented a new and valuable Improvement in Preventers of Reaction of the Mainsprings of Watches; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a plan view, showing present invention as in use in a watch-barrel. Fig. 2 is a sectional view on a horizontal line, showing the mainspring in position inside the band or ring. Fig. 3 is a detail, showing in horizontal section the band or ring. Fig. 4 is a side elevation of the ring, showing the outwardly-projecting spring arm of the band or ring. Fig. 5 is a plan view, showing the band or ring made by fastening the end of the whirl on the outer band of the coil. Fig. 6 is a detail after above manner of construction, and showing the spring unwound; Fig. 7, another detail of same method of construction.

This invention relates to that class of devices or improvements in watch-making which are designed for preventing injury to the watch mechanism from the recoil of a broken mainspring; and consists, more particularly, in a band or ring with its ends lapping, the inside end adapted to hook one end of the mainspring upon, and the outer end for engaging in a notch or on a projection on the inside of the going-barrel, and in a band or ring surrounding the mainspring, formed by fastening the end of the mainspring upon the outer coil, and having integral therewith an outwardly-extending spring arm or pawl to act as a ratchet, whereby the ordinary use of the mainspring is preserved, and any injury from recoil in breaking is prevented, all as will now be more in detail set out and explained.

In the accompanying drawings, the letter A designates the going-barrel of a watch, having inside of its barrel a notch, *a*. B indicates a band or drum formed of spring-steel by bending a piece of spring into the form of a ring, and passing a rivet through the lap, leaving a projecting end, *b*, projecting outwardly. The other end, *i*, of the strip is shaped, as shown in Fig. 4, to form a hook, *i*, for a purpose hereinafter set forth. This ring fits snugly in the spring-barrel, and the outwardly-projecting end of spring-arm *b* engages the notch *a* aforesaid therein. C represents a mainspring having an eye, *e*, at each end, and of the usual form. The eye at the outer end of the spring is passed over the hook *i* of the inwardly-projecting end of the band or drum, and the spring is then coiled within it, the eye at the inner end of the said spring being engaged with the key-post, in the usual manner. The outwardly-projecting arm *b*, being engaged with the notch *a* of the barrel, prevents the drum from moving forward during the winding of the spring; but should the spring break, the drum or band not only receives the force of the spread thereof, but its outwardly-projecting arm *b*, acting as a pawl or ratchet, escapes from the ratchet-notch *a*, and allows the said drum to revolve in the barrel independently of the same.

By this means the watch-movement is but little affected by the breaking of the spring, and the barrel sustains no injury whatever. Instead of merely hooking the end of the spring to the inwardly-projecting arm or end *i* of the band or drum, it may be riveted thereto, if I deem it most expedient.

It may sometimes be desirable to form the outer whirl of the mainspring into a band or ring by riveting its end to the body of the coil or whirl in the outer band, as is now shown in Fig. 5. In this instance the outwardly-extending spring arm or pawl may be struck out of the metal, or made as before stated.

In adapting my present invention to springs now in use, the form now shown in Fig. 3 may be employed to best advantage; but in new watches it may be preferred to adopt the form now illustrated in Fig. 5.

I am aware that heretofore a spring has been fixed in the side of a case for holding the mainspring; but this method of construction is expensive, and liable to injury from dirt, and not easy to clean; also, that a spring or pawl arm has been cut out of the end of the mainspring itself; but this construction will

not allow the mainspring to be readily handled in the trade and by the watch-maker, since the spring is not confined, nor will the mainspring insure an even and regular pressure of the pawl-arm against the sides of the going-barrel, and hence will not always be sure to act. Therefore I do not now lay any claim to either of these devices or to the inventions indicated in them.

What I claim as new, and desire to secure by Letters Patent, is—

1. A ring or band for containing the mainspring of a watch, fastened together near its ends, the inner end adapted to attach an end of the mainspring upon, and the other constituting a spring arm or pawl adapted to engage in a notch or upon a projection on the inside of the watch-barrel, substantially as shown and described.

2. A watch-mainspring the outer end of which is fastened to the outer part of the coil forming a case or band around the spring, and provided in said case or band with an outwardly-projecting spring-arm, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

STEPHEN W. MORGAN.

Witnesses:

O. B. GOULD,

C. G. MAYBURY.