J. P. Allen,

Safety Wheel for Watches.

No. 100,245. Patented Mar. 1. 1870.

Fig. 1.

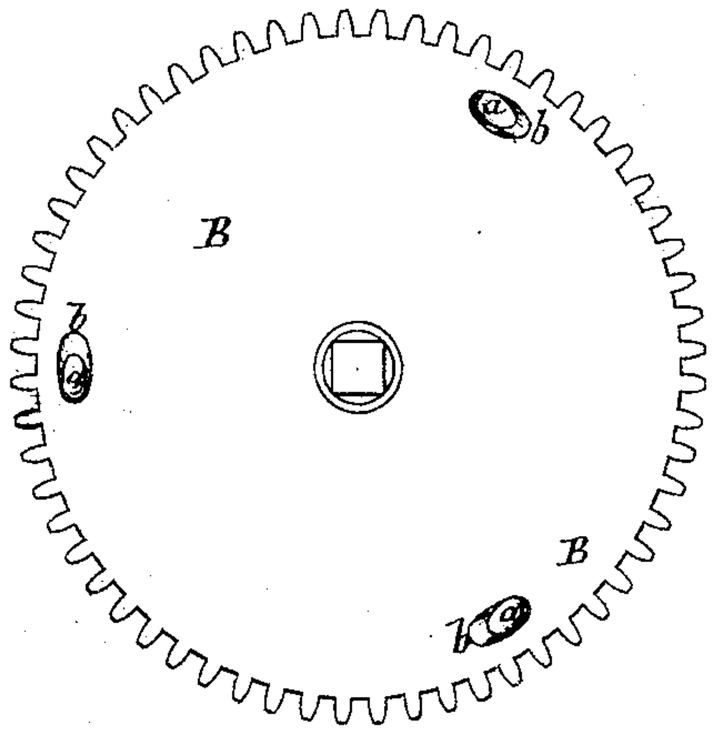


Fig. 2.

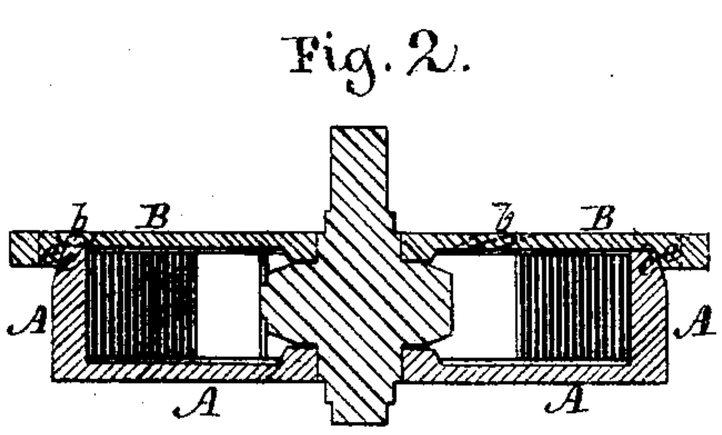
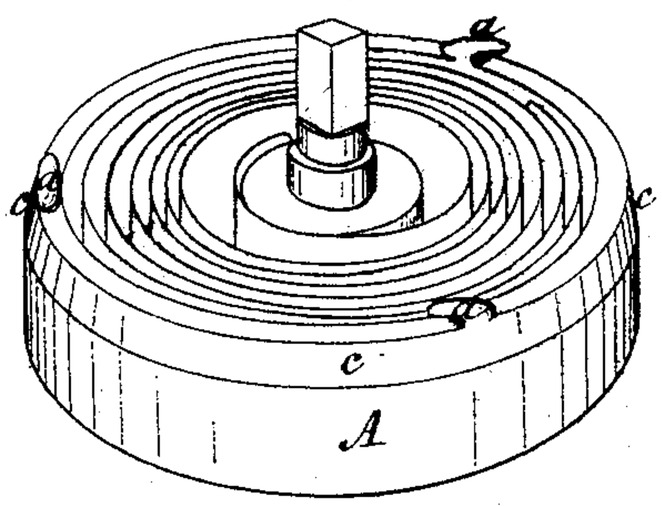


Fig. 3.



Witnesses.
Jno. D. Patten
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UNITED STATES PATENT OFFICE.

JOHN P. ALLEN, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN MAINSPRING-BARRELS FOR WATCHES.

Specification forming part of Letters Patent No. **100,245**, dated March 1, 1870.

To all whom it may concern:

Be it known that I, JOHN P. ALLEN, of Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Mainspring-Barrels for Watches, and other similar purposes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the plate or head of the mainspring-barrel. Fig. 2 represents a vertical central section through the mainspring-barrel. Fig. 3 represents in perspective the top and interior of the barrel, as it appears when the plate or head is removed.

Similar letters of reference, where they occur in the separate figures, denote like parts of the mainspring-barrel, and its appliances in all of the drawings, which are on an enlarged scale, for the purpose of better showing the parts.

The breaking or unhooking of the mainspring of a watch, which frequently occurs, is liable to break the trains of watch or other movements, and cause much expense and injury.

The object and purpose of my invention is to prevent either of the above-named accidents or casualties from breaking or injuring the gears or trains of watch or other movements by a peculiar connection between the body of the mainspring-barrel and its head or top plate, which, so long as they move in the proper direction, are held together and move together, but which, upon the breaking or unhooking of the mainspring, and its consequent reactionary power in the wrong direction, raises the head-plate instantly, disconnecting it from the body portion and throwing said head-plate out of gear with the train, and thus prevent damage by breaking the teeth of the gear.

I am aware that clutching and unclutching mechanisms have been used with various kinds of machinery, and that watch-gears have been arranged so as to be disengaged in case the mainspring is unhooked or breaks; but these heretofore-suggested devices are uncertain; there is no provision made for frictional resistance to such disengaging mechanism, and if the disengaging be not instantaneous with the separating of the mainspring from the barrel the speed that is caused by the reversed action of the mainspring will tear or break out the delicate teeth of the small gears, so that they do not afford a certain remedy to or for such accident when it happens.

My invention consists, first, in combination with the body and head of a mainspring-barrel, a series of hooks or catches on one, and a corresponding series of openings in the other, both hooks and openings being made with inclined surfaces, so that they will move together while going in the proper direction to drive the train of gears and immediately disconnect, and the head raised up and out of gear with its wheel when the spring reacts by breaking or becoming unhooked; and my invention further consists, in combination with the body and head of a mainspring-barrel that are made to connect and disconnect under varied circumstances, the beveled surfaces of the rim of the body and of the recesses of the head, so that when the two parts are to separate there shall be little or no frictional contact between the two surfaces, caused by the reaction of the mainspring when it is broken or unhooked, and thus expands against the rim of said barrel.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the body, and B the head or plate of a barrel for containing a mainspring that is to be wound up in the usual well-known way. On top of the rim of the body portion A there are hooks, catches, or clutches *a a a*, and in the head or plate B there is a corresponding number of holes, *b b b*. The hooks and the holes *a* and *b* are so inclined and formed that, while moving in the proper direction to drive a train of gears, they will hold and move together; but should the mainspring break or become unhooked, and its action thus become reversed, then the hooks or clutches will not slip or back out of the holes, but in so doing will move the head or plate B away from the body, and slip it out of gear with the pinion or wheel with which it works, and thus the body A of the barrel may be rapidly moved by the spring, but the gears

will remain stationary or unmoved by the spring. The sudden reaction of the mainspring when unhooked or broken would be against the rim of the head portion of the body A, which rim sits in a recess in the cap or head B, and the pressure of the mainspring would so force the rim against the flange of the plate as to create much friction and prevent the head from freely leaving the body of the barrel. To remedy this the rim is beveled off, as at *c*, and the flange of the cap or head B is similarly inclined, as at *e*, so that the expansive force of the spring against the rim of the barrel, if it does not aid in raising the cap or head, certainly does not impede it, as would be the case if these bearing-surfaces were cylindrical instead of conical, as they are shown to be.

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

1. In combination with the body and cap or head, that together form a mainspring-barrel, the inclined hooks on one, and the beveled holes in the other, for forming a connecting and disconnecting mechanism between the two parts, substantially as and for the purpose described.

2. In combination with the body and cap or head of a mainspring-barrel, the beveled surfaces *c e*, so that the expansive force of the mainspring, when broken or unhooked, against the rim of the body shall not produce undue friction between the two parts, but aid to separate them, substantially as and for the purpose described.

JOHN P. ALLEN.

Witnesses:
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