

(No Model.)

2 Sheets—Sheet 1.

G. F. MERTZ.
Spring Catches for Watches.
No. 234,999.
Patented Nov. 30, 1880.

Fig 5

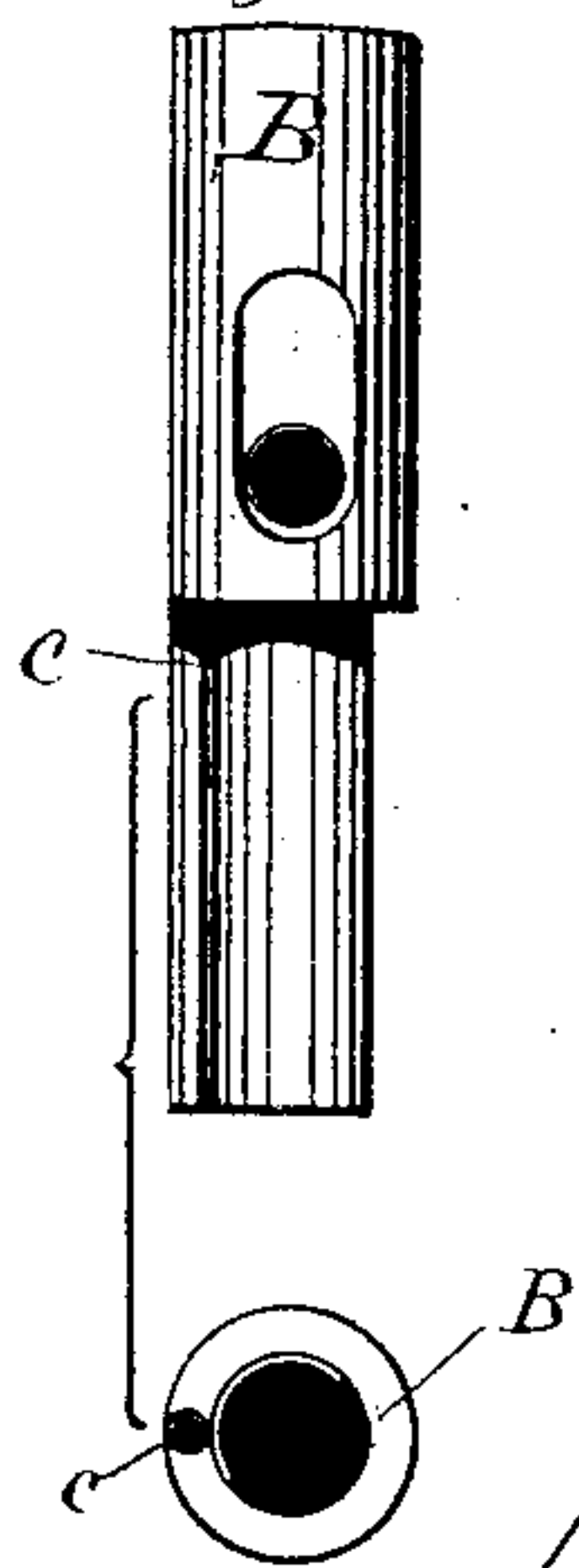


Fig. 1.

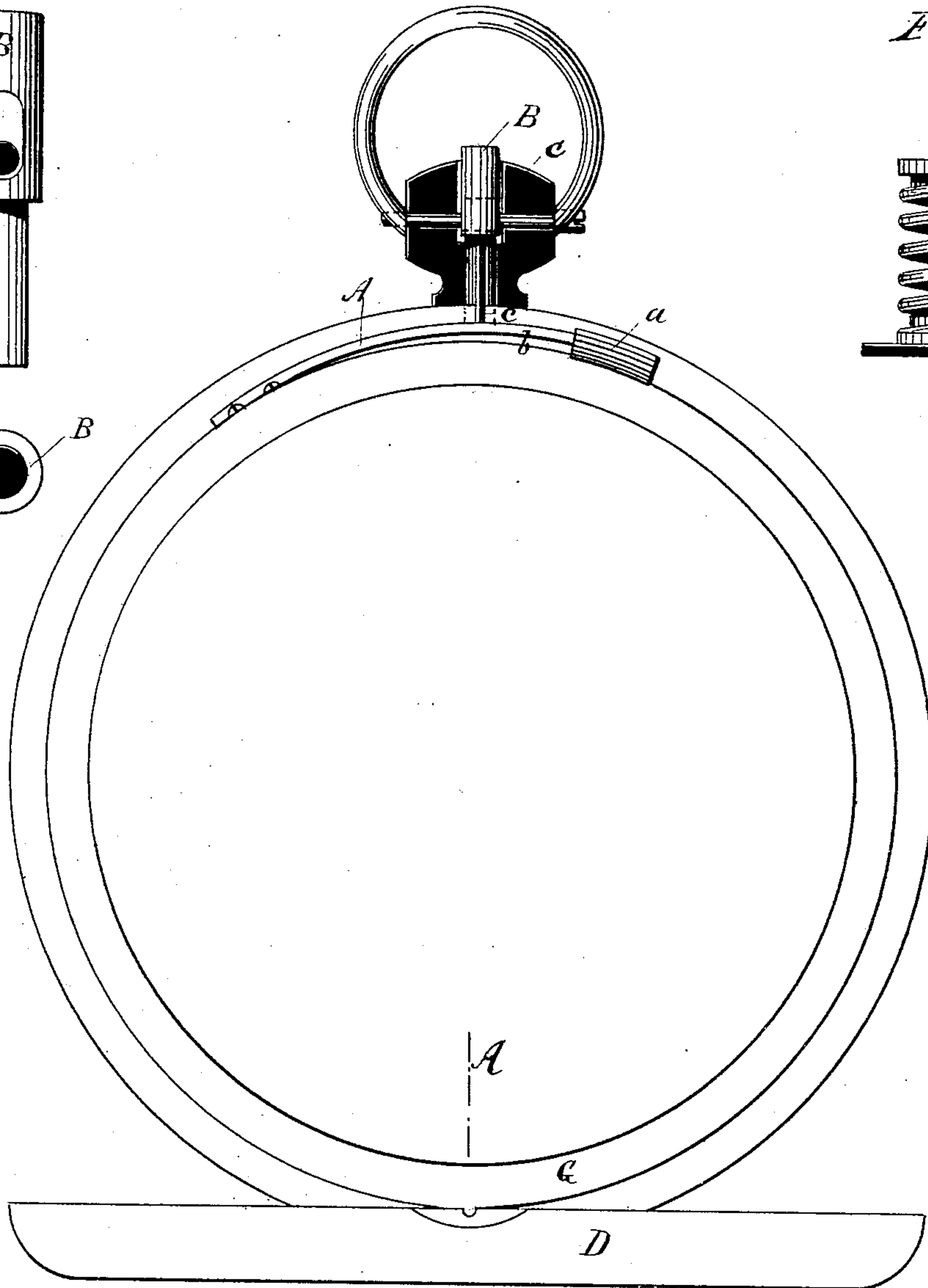


Fig 6

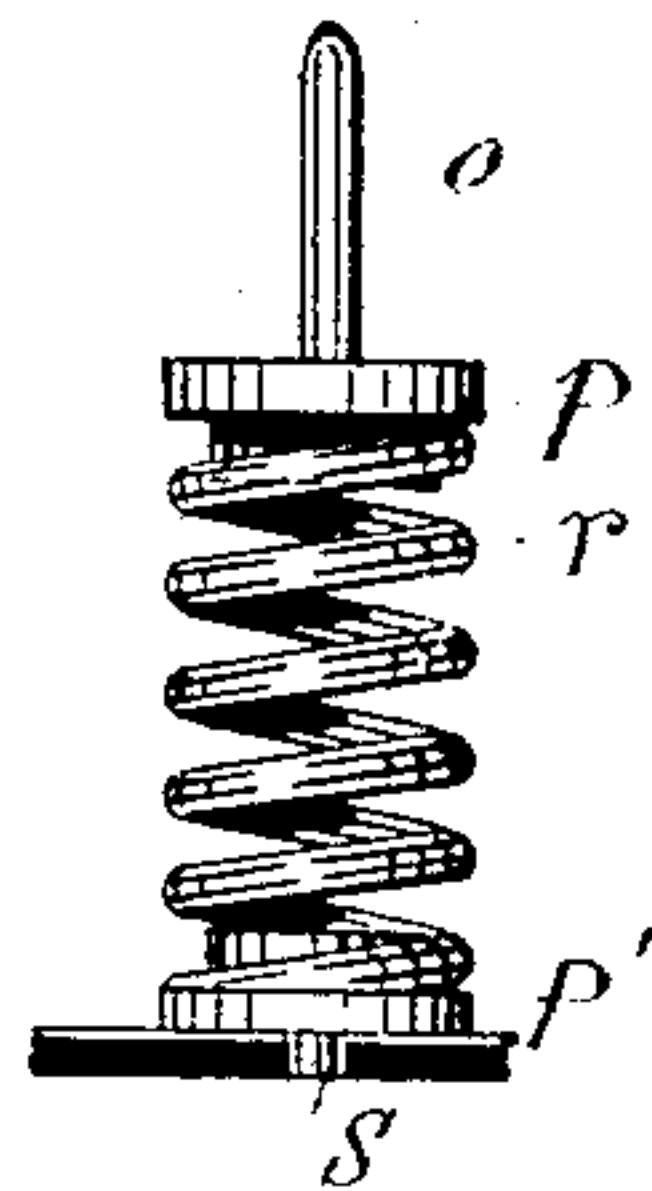
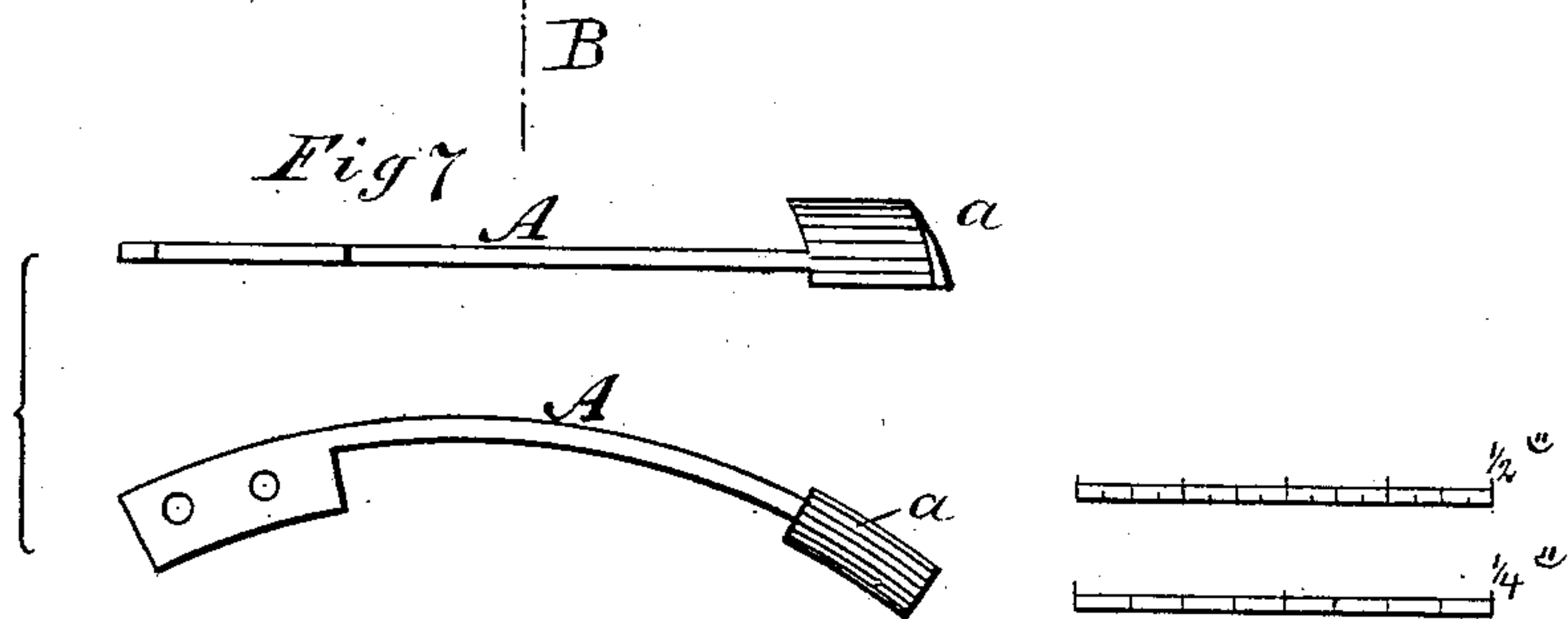


Fig 7



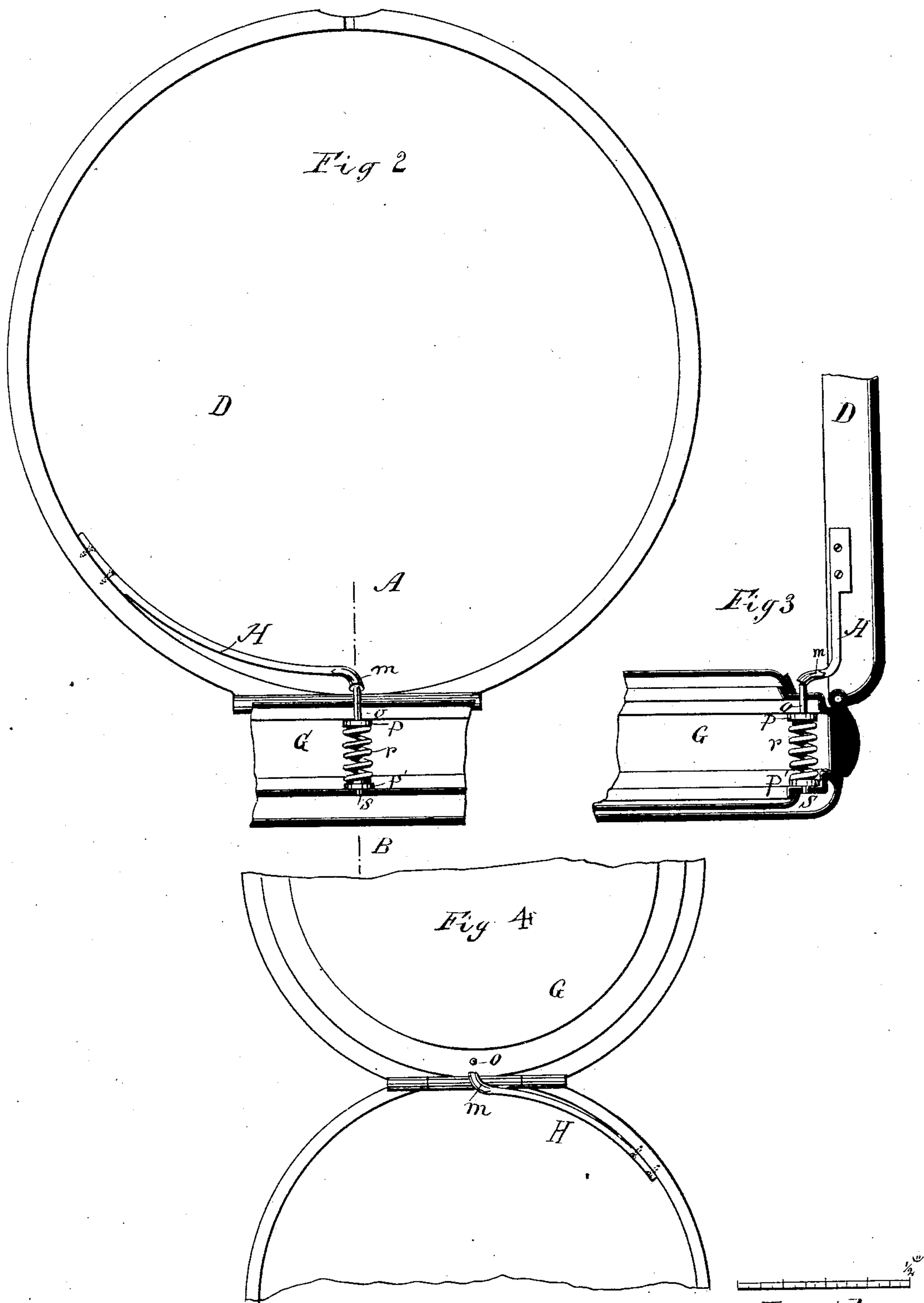
Attest
J. A. Rutherford
J. Henry Kaiser.

Inventor:
Georg. Friedrich Mertz.
By James L. Norris.
Atty.

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2 Sheets—Sheet 2.

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J. Henry Kaiser

Inventor:

Georg Friedrich Mertz
By James L. Norris.
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UNITED STATES PATENT OFFICE.

GEORG F. MERTZ, OF MITAU, RUSSIA.

SPRING-CATCH FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 234,999, dated November 30, 1880.

Application filed October 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORG FRIEDRICH MERTZ, of the city of Mitau, Empire of Russia, have invented a new and useful Improvement in Spring-Catches for Watches, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in watch-cases and the springs which serve for opening and fastening the same, and has for its object to prevent the entrance of dust which takes place through the openings provided for the spring-fastenings of ordinary watch-case lids or covers and for the springs which cause such lids or covers to fly open.

My improvements differ from the systems hitherto applied principally in the fact that I do not place the fastening-springs of the watch lid or cover in the interior of the watch-case which contains the works, but arrange such springs on the outside thereof, while of the springs which, according to my invention, cause the lid to fly open, one is also arranged on the outside, while the other works through an aperture, which, when the lid is open, is perfectly closed by the action of the spring itself, whereby it is rendered possible to close these cases quite hermetically without leaving any passage through which dust could penetrate into the works.

In the constructions hitherto known this has not been possible, as the aforesaid springs act outwardly from the interior of the case, and a certain amount of space has to be left in the interior for the play of such springs, and dust is liable to get into the space through the openings provided for the heads of the springs to pass outward, and the working of the watch therefore becomes impaired.

In carrying my invention into practice I construct a watch-case and its spring in the manner hereinafter specified and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a watch-case with my improvements applied thereto, the lid being shown open and the bow or pendant in section. Fig. 2 shows the interior of the lid or cover and parts of the watch-case, the latter in section. Fig. 3 is a section on the line A B, Figs. 1 and 2. Fig. 4 shows part of the case, the lid or cover being supposed to

be laid back, so as to afford a clear view of one of the springs. Fig. 5 is a detail view of the pusher which moves in the bow or pendant. Fig. 6 shows a detail view of one of the springs which causes the lid or cover to fly open. Fig. 7 shows details of the fastening-spring.

All the figures are drawn to a scale about three times larger than the ordinary size.

Like letters of reference indicate the same parts throughout the drawings.

I will now proceed fully to describe the parts of which a watch-case embodying my improvements consists, and the manner in which they operate.

Close to the bow or pendant I place the fastening-spring A, which I fix on the outside of the case containing the works, but in such manner that it will be covered by the lid or outer cover when the latter is closed. This spring A has a hook-shaped head, *a*, which is slightly bent, so as to economize space as much as possible, by making the said spring capable of adapting itself (at the time it is pressed back by the lid when the same is being shut) to the form of the recessed ring which serves to hold the glass. This ring I provide with a small recess or groove, *b*, allowing the spring to recede.

The pusher B is mounted in the bow or pendant C in the usual manner. The said pusher carries on one side a small steel pin, *c*, (see Figs. 1 and 5,) which, when the pusher is depressed, presses against the aforesaid spring A and throws the same out of engagement with the lid or cover, and the latter is released.

The fastening-spring A is, as shown in Fig. 1, fixed outside the casing containing the works or movements and in line with the center of the watch, so that there is no need for an opening in the watch-case; but this spring is covered by the lid or cover when the same is shut, as hereinbefore stated.

The springs for causing the lid or cover to fly open when the fastening-spring releases the same I construct and arrange as follows—that is to say: For the purpose of obtaining sufficient resistance or elasticity in the very limited space between the lid or cover D and the case G, containing the works, I use two springs, which are caused to act against each other.

One of these is a flat spring, and the other a coiled spring. The flat spring H is attached, preferably by screws, to the lid or cover D, (see Figs. 2, 3, and 4,) and its end *m*, which is
 5 hook-shaped, presses upon a pin, *o*, projecting from the interior of the case, and exactly guided in a hole therein. To prevent the end or head *m* of the said spring H slipping off the pin *o* the front end of the former has a
 10 slight indentation, into which the slightly-rounded end of the aforesaid pin *o* fits. This pin is made in one piece with a small disk or plate, *p*, which forms its base, and is in connection with one end of coiled spring, *r*, the
 15 other end of which bears upon a second disk or plate, *p'*, fixed to the other side of the case by a stud, *s*, or by other suitable means. The coiled spring *r* has the tendency to press the pin *o* (with which it is connected by the disk
 20 *p*, as aforesaid) outward. The said spring *r*, as well as the flat spring H, is compressed when the lid is shut, and by thus arranging the two springs to press against each other their effect is increased, so that when the fast-
 25 ening-spring A is compressed they will cause the lid to fly open with great ease. As hereinbefore mentioned, the pin *o* is exactly guided in an aperture in the case, which aperture is furthermore completely closed by the disk *p*
 30 upon the lower end of the said pin *o*, as by the spring *r* the said disk is pressed against the upper part of the watch-case, and by so closing the aperture through which the pin *o* works the entry of dust is rendered impossible. By

reason of these two springs acting against each other both are only half compressed, which causes the same to last a longer time than would otherwise be the case. 35

The chief advantage offered by the construction above set forth is, however, as hereinbefore stated, that it is thereby rendered possible perfectly to exclude dust from the works or movement. 40

It is obvious that this arrangement of springs may be used for any watch, as slight changes 45 in the form, such as are caused by difference in the shape of the case, do not affect the peculiarity of construction.

What I claim is—

1. The combination of the bent spring, arranged in a recess in the rim of the ring which carries the glass, with a pusher arranged to move in the bow or pendant, and having a pin for depressing the bent spring, substantially as and for the purpose described. 50 55

2. The combination of the spring H, arranged in the lid or cover D of a watch, the spring *r*, arranged within the watch-case, and the stud *o*, projecting through the case and bearing on the end of the spring H, substantially as and for the purpose described. 60

This specification signed by me this 31st day of August, 1880.

GEORG FRIEDRICH MERTZ.

Witnesses:

BERTHOLD ROI,
 FRANZ SCHULTZE.