G. NUTTING.

WATCH MOVEMENT.

APPLICATION FILED JULY 27, 1912.

1,041,335. Patented Oct. 15, 1912.

Fig. 1.

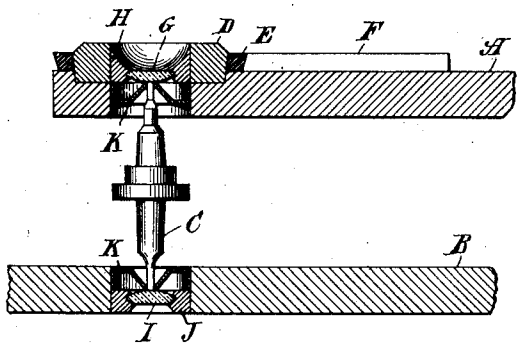


Fig. 2.

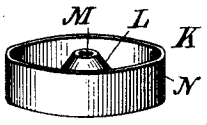
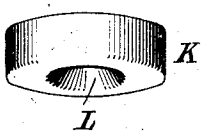


Fig. 3.



WITNESSES

A. J. Walsh

H. M. White

INVENTOR

Granville Nutting

BY George Cook

ATTORNEY

UNITED STATES PATENT OFFICE.

GRANVILLE NUTTING, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE KEYSTONE WATCH CASE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WATCH-MOVEMENT.

1,041,335. Specification of Letters Patent. Patented Oct. 15, 1912.

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To all whom it may concern:

Be it known that I, GRANVILLE NUTTING, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have made and invented certain new and useful Improvements in Watch-Movements, of which the following is a specification.

My invention relates to an improvement in watch movements, and more particularly to a shell or bushing, made of metal, to be used as a substitute for the upper and lower balance hole jewels. As is well known to manufacturers and others familiar with the art, these jewels add considerably to the cost of a watch movement, in that, in addition to the first cost of the stone, it is the usual practice to mount them in a bushing which latter must be accurately made and fitted to the balance cock dome, and at the opposite end of the balance staff into the dial-plate of the movement. These bushings in which the jewels are mounted are made slightly larger than the holes or openings into which they are fitted, the bushings being then crowded into their places friction-tight. If the bushings are made slightly too large, and it is attempted to force them into place, the jewel, which is extremely thin, is invariably cracked or broken, and if the bushing be made too small it is rendered useless, or, in other instances, requires the spreading thereof in order to accurately fit it into place to prevent its accidental disengagement from the dome or dial-plate. Furthermore, these upper and lower balance jewels being so thin, become broken not only in assembling the parts of the movement, but many are broken during transportation.

The object of my invention is to avoid the use of these expensive jewels and to provide a substitute therefor which, being made of metal, avoids all danger of injury thereto during transportation or in assembling the several parts of the watch movement, and which while equally well performing all the functions of a jewel will effect a great saving in the cost of the movement. This object I accomplish by means of a cup-shaped shell or bushing, struck up in its finished form at one operation in a suitable die from thin sheet metal, preferably steel, or what is commonly known as "white" metal, this shell being illustrated in the accompanying drawings, in which

Figure 1 is a view in section of a part of a watch movement showing a part of a balance cock and dial-plate, and a balance staff mounted therein; Fig. 2 is a detached perspective view of my improved shell showing the interior thereof, and Fig. 3 a like view showing the under side thereof.

Referring to the drawings, A represents a part of a balance cock, and B a part of the dial-plate of a watch movement, a balance staff C being mounted therein. To the balance cock A is fitted the dome D surrounded by the index finger ring E provided with the index finger F. In the dome D is fitted the cock end stone G mounted in the end stone setting H, and in the dial-plate B is fitted the lower end stone I mounted in the lower end stone setting J, all of the above parts being made and assembled in the usual way. Instead, however, of employing the usual upper and lower balance jewels, I substitute therefor a bushing K made of thin sheet metal and struck up at one operation in a suitable die, the bushing, after being formed or shaped, being then hardened or tempered. This bushing, as clearly illustrated in the drawing, is provided with a conical-shaped center L, the end of which is provided with a hole or opening M through which passes the upper or lower end of the balance staff C, as illustrated in Fig. 1, one end of the balance staff bearing against the cock end stone G, and the opposite end against the lower end stone I. The edge of the bushing K is bent or turned to form the flange N of approximately the same height as the cone L, the diameter of the bushing or shell being such as to have it tightly and snugly fit in the opening in the balance cock or dial-plate in which it is employed. This substitute for the upper and lower balance jewel is superior in many respects to the stone usually employed, in that my experience has taught me in fitting many thousands of watches with the same that it costs approximately about one-tenth as much as the ordinary jewel used for the same purpose. Furthermore, made of tempered metal, the shell does not have to be made with such extreme accuracy, as the surrounding flange N contains a certain amount of resiliency tending to

tightly hold it in its proper position. Again, the space between the upper and lower balance jewels and the end stones is so slight that but a small quantity of oil is held therein, whereas by the use of the steel shell a much greater space is afforded for the oil and permitting the movement to run much longer without the necessity of supplying additional oil. Again, the upturned flange also affords a rest or seat for the setting of the end stone, and all loss heretofore occurring in the breaking of the thin jewels, either while assembling the parts or during transportation, is avoided.

What I claim is:—

1. A shell, for use as a substitute for the balance jewels in a watch movement, made of tempered metal and formed with a perforated center, the outer edge being formed with an upwardly-turned flange forming a setting for the end stone.

2. A shell, for use as a substitute for the balance jewels in a watch movement, made of metal, and formed with a perforated cone-shaped center, the outer edge thereof being flanged to provide a setting for the end stone.

Signed at Jersey City, in the county of Hudson and State of New Jersey, this 25th day of July A. D. 1912.

GRANVILLE NUTTING.

Witnesses:

WM. M. MATHESON,

JOHN H. COX.