

(Model.)

C. F. MORRILL.
WATCH CASE.

No. 418,047.

Patented Dec. 24, 1889.

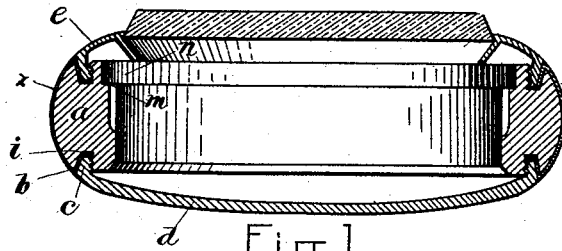


Fig. 1.

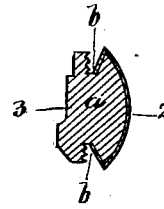


Fig. 1a.

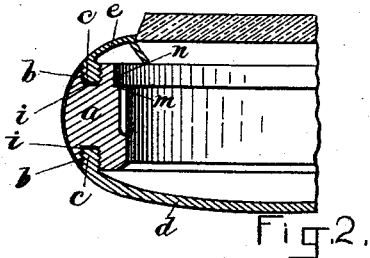


Fig. 2.

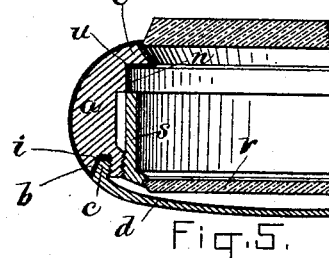


Fig. 5.

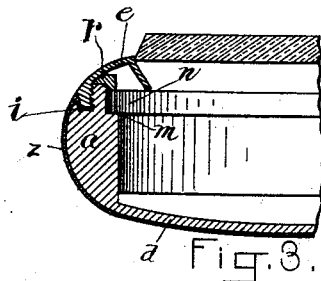


Fig. 3.

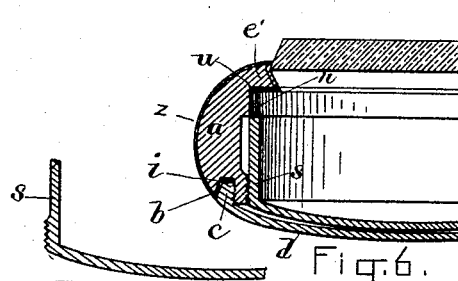


Fig. 6a.

Fig. 6.

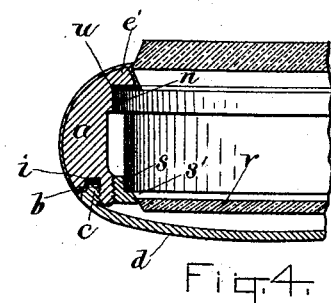


Fig. 4.

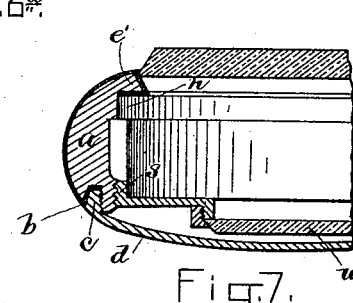


Fig. 7.

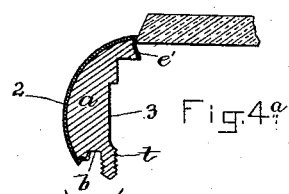


Fig. 4a.

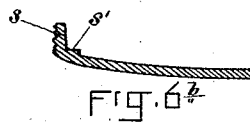


Fig. 6b.

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UNITED STATES PATENT OFFICE.

CHARLES F. MORRILL, OF BOSTON, MASSACHUSETTS.

WATCH-CASE.

SPECIFICATION forming part of Letters Patent No. 418,047, dated December 24, 1889.

Application filed April 4, 1889. Serial No. 306,019. (Model.)

To all whom it may concern:

Be it known that I, CHARLES F. MORRILL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Watch-Cases, of which the following is a specification.

This invention relates chiefly to watch-cases in which the case-center is composed of inferior metal having a covering of metal of a higher grade, as shown in Letters Patent No. 381,380, granted to D. C. Percival and myself June 12, 1888, and No. 360,105, granted to me March 29, 1887; and it has for its object to secure the maximum degree of tightness and resistance to the admission of dust or dampness between the case-center and the parts of the case that are detachably secured to the center, to reduce the cost of manufacture to the minimum, and to provide such construction as will admit of symmetry of form. These results I attain by the improved construction which I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figures 1 and 4 represent sectional views of watch-cases embodying my invention. Fig. 1^a represents a sectional view of the case-center shown in Fig. 1. Fig. 4^a represents a sectional view of the case-center shown in Fig. 4. Figs. 2 and 3 represent sectional views showing modifications of the constructions shown in Figs. 1 and 4. Figs. 5, 6, 6^a, 6^b, and 7 represent sectional views of cases embodying my invention, but differing in certain particulars from the constructions shown in the preceding figures.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* represents a case-center, which is composed of a solid ring or body having suitable seats or bearings on its inner surface for a watch-movement. The solid portion of said center is made of sufficient thickness to permit the formation in each of its edges (or, in other words, between its exposed outer surface 2 and its inner surface 3) of an annular groove *b*, Fig. 1^a, of approximately V shape, extending from the said edge into the case-center. Said groove receives an annular flange *c*, formed on a removable part of the case—as the back *d*

or bezel *e*—the groove and flange being formed to closely fit each other. The groove is provided with a screw-thread, which may be on one or both of its sides, and the flange *c* has a corresponding screw thread or threads to engage the thread or threads of the groove, the flange and the member or part of the case of which it forms a part being thus secured to the case-center. When one side only of the flange and groove are screw-threaded, the opposite side of each is preferably beveled, as shown in Figs. 1 and 1^a, so that the threaded sides will be pressed firmly together by the entrance of the flange into the groove. The screw-threads of the flange and groove may be at the outer sides, the beveled sides being the inner ones.

It will be observed that the groove in the case-center and the flange on the movable part or member give each part an extended reciprocal bearing on the other part, whereby the possibility of the entrance of dust and other foreign matter at the connection between the parts is prevented, the bearing-surfaces of said parts being the bottom and two sides of the groove and the outer edge and two sides of the flange. The tightness of the connection is further increased by the screw-threads and, in the construction shown in Figs. 1, 1^a, 4, 5, 6, and 7, by the beveled surfaces of the groove and flange acting to press the threaded surfaces thereof together.

I prefer to place a packing *i*, of rubber or other compressible material, in the bottom of the groove *b*, said packing being compressed by the flange *c* and still further increasing the tightness of the connection.

In cases in which both the back *d* and bezel *e* are detachable the case-center will have two grooves, as shown in Figs. 1, 1^a, 2, and 3—one in the rear edge to receive a flange on the back and the other in the opposite edge to receive a like flange on the bezel; but when the bezel or front is formed as an integral part of the case-center, as shown in Figs. 4, 5, 6, and 7, only one groove is provided, the same being at the back of the case-center and receiving a flange on the back *d*.

The construction whereby the watch-movement may be secured to the case varies in the different constructions here shown.

In Figs. 1 and 2 the inner side of the case-

center has a shoulder *m*, which supports the movement-plate *n*, the movement being inserted from the front or dial side and secured by screws on the opposite or back plate in the usual manner.

In Fig. 3 the construction is the same as in Figs. 1 and 2, with the exception that the back of the case is made integral with the center, as shown in Patent No. 360,105, and the movement is secured by an externally-threaded ring *r*, screwed into an internally-threaded portion of the case-center, said ring bearing on the margin of the dial or of the outer movement-plate.

In Figs. 4, 5, 6, and 7 the case-center and bezel are shown as formed in one part, the bezel being an inwardly-projecting lip *e'* integral with the case-center. The exposed portions of the center and bezel are covered with a coating *z* of superior metal, applied in the manner described in the patents above mentioned. In this construction the movement is inserted from the back of the case-center, the bezel being immovable. The movement is secured by an externally-threaded ring *s*, which is engaged with an internal screw-thread *t*, Fig. 4^a, in the inner surface of the case-center, and, when made as shown in Figs. 4 and 6^b, is provided with a lip or shoulder *s'*, bearing on the back plate of the movement. Said ring, when screwed into the case-center, presses the outer plate or dial against the lip or bezel *e'*. A packing *u*, of rubber or other compressible material, is interposed between said bezel-lip and the movement-plate or dial, and is compressed by the pressure caused by the ring *s*, thus making a tight joint and preventing the admission of dust between the case and the dial or outer plate *n*.

The ring *s* may be a part of an inner cap, as shown in Fig. 6, or it may be the holder of a glass plate or cap *v*, as shown in Figs. 4 and 5. In Figs. 5, 6, and 6^a I have shown the ring *s* extended to bear against the inner side of the front plate of the watch-movement, said ring, with the cap of which it forms a part, constituting a box, which incloses all parts of the watch-movement excepting the front plate thereof, as clearly shown in Fig. 6. Fig. 6^b shows the ring and the inner cap formed as one piece, the ring being narrow, as in Fig. 4, and provided with a shoulder *s'* to support the back plate of the watch-movement.

In Fig. 7 the ring *s* is shown as forming a part of an inner cap, which is provided with a central opening, to which is fitted a removable cover *w*, either of metal or, as here shown, composed of a ring screwed upon the threaded margin of said opening and provided with a glass plate. Said removable cover permits access to the regulator of the watch-movement without the removal of the entire inner cap and the loosening of the movement.

It will be observed that in the construction shown in Figs. 4, 5, 6, and 7 the back plate of

the movement is not in contact with the case-center, but is separated therefrom by the space which is filled by the ring *s*. The movement is therefore enabled by the said space to be easily inserted in the case-center from the back, and when the movement is of the pendant-set type the said space enables the pendant to be conveniently adjusted, it being easily seen through said space before the ring *s* is applied.

It will be observed that by making the bezel and case-center as a single piece or core of base metal having a covering of superior metal an extremely strong and durable dust-proof case is produced at a small cost of manufacture.

It will be observed that by making the case-center of base metal covered with a precious metal, as set forth in my above-mentioned patents, the bulk and thickness necessary to permit the formation of the groove or grooves *b* are obtained without undue expense. The case-center constructed as herein shown is very strong and durable.

The outer side of the groove *b* and the corresponding side of the flange *c* may be provided with ledges or shoulders, as shown in Figs. 4 and 4^a, to increase the extent of bearing-surface and the firmness of engagement of said parts each with the other.

The ring *s*, instead of being screw-threaded, may be fitted tightly in the case-center by friction and positively engaged therewith by a screw or screws. Said screw may be inserted in a threaded orifice formed partly in the case-center and partly in the periphery of the ring *s*.

It is obvious that instead of the screw-thread connection between the flange *c* and groove *b* and between the ring *s* and case-center *a* a bayonet-joint connection or other equally obvious equivalent of a screw-connection may be adopted, and I desire to be expressly understood as including such equivalents in the following claims.

I claim—

1. In a watch-case, the combination of a case-center having an annular groove of approximately V shape between its outer and inner surfaces, composed of two sides of substantially equal depth and a bottom between said sides, and a removable part or member having a marginal flange formed to fit said groove, as set forth.

2. In a watch-case, the combination of a case-center having a screw-threaded annular groove of approximately V shape between its inner and outer surfaces, composed of two sides of substantially equal depth and a bottom between said sides, and a removable part or member having a marginal screw-threaded flange formed to enter and engage the screw-threaded groove, as set forth.

3. In a watch-case, the combination of a case-center having an annular groove between its inner and outer surfaces, composed of two sides of substantially equal depth and a bot-

tom between said sides, one of said sides being beveled and the other screw-threaded, and a removable part or member having a marginal flange one side of which is beveled and the other threaded, as set forth.

4. A watch-case center having at its front edge an inwardly-projecting lip or bezel e' and at its rear edge an internal screw-thread t , of larger diameter than the inner margin of the bezel, for the engagement of an externally-threaded retaining cap or ring, whereby a watch-movement may be pressed against said lip, as set forth.

5. A watch-case center having at its front edge an inwardly-projecting lip or bezel e' and at its rear edge an internal screw-thread t , of larger diameter than the inner margin of the bezel, combined with an externally-screw-threaded ring or cap engaged with said internal screw-thread, whereby a watch-movement may be pressed against said lip or bezel, as set forth.

6. A watch-case center having at its front edge an inwardly-projecting lip or bezel e' and at its rear edge an internal screw-thread t , of larger diameter than the inner margin of the bezel, combined with an externally-screw-threaded ring or cap engaged with said internal screw-thread, whereby a watch-movement may be pressed against said lip or bezel, and a compressible packing interposed between the front plate or dial of the movement and the lip or bezel, as set forth.

7. The combination of the case-center having the inwardly-projecting lip or bezel e' ,

the internal screw-thread t , and the externally-threaded inner cap formed to engage the screw-thread t of the case-center, and provided with an opening and a detachable cover w therefor, whereby access may be had to a part of the back of the movement without removing the entire inner cap, as set forth.

8. The combination of a watch-case center having an annular screw-threaded approximately-V-shaped groove b , composed of two sides of substantially equal depth and a bottom between said sides, a removable part or case member having an annular screw-threaded flange, and a compressible packing in said groove, as set forth.

9. The movement-inclosing ring s , having a back or inner cap formed therewith and provided with an external screw-thread for attachment to a case-center and bearing against the movement-casing, as set forth.

10. The combination, with a case-center having an internal screw-thread, of a ring or cap provided with an external thread to engage the internal thread of the case-center and adapted to secure and bear against a watch-movement in said center, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of March, A. D. 1889.

CHARLES F. MORRILL.

Witnesses:

C. F. BROWN,

A. D. HARRISON.