TIMEPIECE PROVIDED WITH A GUIDE BUSH

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ABSTRACT

A timepiece provided with a guide bush comprises, in combination, a second arbor provided with a fourth wheel, a cannon pinion, and an hour wheel rotatably mounted in the guide bush. The guide bush is fixedly mounted to an hour wheel guard plate so that the arbor, pinion and wheels are rotatably mounted in the guide bush and to a dial plate via the guide bush.

2 Claims, 2 Drawing Figures
TIMEPIECE PROVIDED WITH A GUIDE BUSH

BACKGROUND OF THE INVENTION

The conventional type of a timepiece provided with a guide bush is shown in FIG. 1 and comprises an arbor 3A, on which a fourth wheel 3 for driving a second hand is mounted, supported by a bearing 2 which is provided in a bridge plate 1 and by a center pipe 5 which penetrates a movement plate.

A cannon pinion 7 is disposed and mounted at the outer surface of said center pipe 5, a center wheel 6 for driving a minute hand is rotatably mounted around the center pipe 5, and an hour wheel 8 for driving an hour hand is also disposed therearound.

Furthermore, an hour wheel guard plate 9 is disposed around the center pipe 5, and a guide bush 10 is fixedly mounted to the wheel guard plate 9. A day-disk 11 is rotatably mounted around the guide bush 10 by means of a snap for supporting a day-disk 12, and a dial plate 13 is concentrically disposed around the lower periphery of the guide bush 10.

In the conventional embodiment, the center pipe 5 bears the fourth wheel 3, the cannon pinion 7 and the hour wheel 8. On the other hand, said guide bush 10 bears the dial plate 13.

In this way, there are two kinds of bearing means of the guide bush 10 and said center pipe 5, whereby the productive cost of the watch is very high owing to said center pipe, and the overall thickness of the watch increases by the thickness of said center pipe 5.

Therefore, it is difficult to make a compact watch at a low price.

OBJECT OF THE INVENTION

The present invention aims at eliminating the above-noted difficulty and insufficiency, and therefore the primary objects of the present invention are to provide a timepiece provided with a guide bush, to eliminate the drawbacks in the conventional case mentioned above, and to provide a new guide bush for a dial which bears a fourth wheel, a cannon pinion and an hour wheel as well as a dial without using a center pipe.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a timepiece provided with a guide bush. A second arbor provided with the fourth wheel, a cannon pinion and an hour wheel are respectively and rotatably mounted into the guide bush. The guide bush is fixedly mounted to the hour wheel guard plate so that the arbor and wheels are rotatably mounted into the guide bush and to the dial plate via said guide bush without the center pipe, and said guide bush functions like the conventional center pipe.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and further objects, features and advantages of the present invention will become more apparent from the following description when taken in connection with the accompanying drawing, which shows one preferred embodiment, in which:

FIG. 1 is an expanded sectional view showing a prior art construction, and
FIG. 2 is an expanded sectional view showing a main part of an embodiment according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the accompanying drawings, the embodiment of this invention is explained and this embodiment is directed to a timepiece provided with a guide bush.

FIG. 2 shows the principal part of a timepiece providing a guide bush of this invention, and there is a new guide bush 14 which permits the elimination of the center pipe 5 shown in FIG. 1. A second arbor 3A is rotatably positioned on a bridge plate 1, and a cannon pinion 7 and a minute wheel 6 are rotatably mounted on said second arbor 3A.

An hour wheel 8 is rotatably positioned on the outer surface of said cannon pinion 7 and rotatably mounted into the inner portion of the guide bush 14, said guide bush 14 being fixedly mounted to an hour wheel guard plate 9 and to a dial plate 13.

Therefore, said second arbor 3A, said cannon pinion 7 and said hour wheel 8 are respectively and rotatably mounted into said guide bush 14 in a coaxial alignment.

By such a mounting, the second arbor 3A, cannon pinion 7 and hour wheel 8 are respectively and rotatably mounted to the dial plate 13 via said guide bush 14.

Said guide bush 14 functions as a bearing for said second arbor 3A, cannon pinion 7 and hour wheel 8, and at the same time supports and mounts said second arbor 3A, cannon pinion 7 and hour wheel 8 to said dial plate 13.

By such an arrangement, the second arbor 3A, cannon pinion 7 and hour wheel 8 are respectively and rotatably mounted to said dial plate 13 via said guide bush 14 without need of the center pipe member 5 as used in a conventional type.

Said second arbor 3A is strongly mounted to a base plate 4 by a bearing 4A provided therein.

In this case, the base plate 4 (or a bridge plate 1) is made thin in thickness as compared to a conventional plate (or bridge), thereby reducing the thickness of the watch.

Furthermore, in order to securely mount and bear the second arbor 3A of the fourth wheel 3, said bearing 4A is provided in the plate 4.

As mentioned above, the guide bush according to the present invention serves as the center pipe in the conventional type timepiece to bear the fourth wheel, the cannon pinion and the hour wheel as well as the dial plate, whereby the productive cost of a watch is lessened.

Further, the dial plate and the movement can be assembled without slippage therebetween when setting them, since the center of the dial plate and the center of the fourth wheel of the cannon pinion and of the hour wheel are borne only by said guide bush.

Furthermore, by removing the center pipe, a compact watch can be produced in a large quantities at a low cost.

What we claim is:

1. A timepiece provided with a guide bush disposed between an hour wheel guard plate and a dial plate: a second arbor provided with a fourth wheel, a cannon pinion and an hour wheel respectively and rotatably mounted into the guide bush, said guide bush being fixedly mounted to the hour wheel guard plate such that said arbor, pinion and wheels are rotatably mounted into said guide bush and to said dial plate via said guide bush.

2. A timepiece as claimed in claim 1, wherein an end portion of said cannon pinion is supported to a base plate, said second arbor being rotatably positioned by a bearing which is provided in said base plate.