

PATENT SPECIFICATION

(11) 1 336 224

DRAWINGS ATTACHED

- (21) Application No. 29888/71 (22) Filed 25 June 1971
(31) Convention Application No. 63480 (32) Filed 27 June 1970 in
(33) Japan (JA)
(44) Complete Specification published 7 Nov. 1973
(51) International Classification G04B 29/00
(52) Index at acceptance

G3T A7B
E2B 5A4
G1J 5



(54) SUPPORT STRUCTURE E.G. FOR A TIMEPIECE MOVEMENT

(71) We, KABUSHIKI KAISHA SUWA SEIKOSHA, a corporation of Japan, of 3—4, 4—chome, Ginza, Chuo-ku, Tokyo Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns a support structure e.g. for a timepiece movement.

According to the present invention, there is provided a support structure comprising two parallel frame members which are maintained a predetermined fixed distance apart by spacer means, a resilient support member which is adapted to support a part of a mechanism and which has a first substantially planar surface which engages one of the frame members, the resilient support member having a second substantially planar surface which is disposed opposite to the first planar surface and which has at least one projecting portion with a face which engages the other support member and clamp it in position between the frame members, the distance between the first planar surface and the said face before the resilient support member is subjected to compression being larger than the said predetermined distance.

Preferably the spacer means comprise pillars oppositely facing parts of which respectively engage the frame members. In this case the clamping means may comprise screws which threadedly engage the pillars, the screws having heads engaging a said frame member.

The resilient support member is preferably formed of plastics material.

The frame members may be respectively a plate and a bridge of a timepiece movement.

The resilient support member may be a stem block or a coil block of the said timepiece movement.

The invention also comprises a timepiece

having a movement provided with support structure as set forth above.

The invention is illustrated, merely by way of example, in the accompanying drawing, which is a cross-sectional view of part of a timepiece movement provided with a support structure according to the present invention.

Referring to the drawing, a timepiece movement (e.g. for an electrically operated wrist watch) plate comprises a bridge 1 supported by a plate 2. The bridge 1 and plate 2 are parallel to each other and engage oppositely facing shoulders 3, 4 of pillars 5 which serve to maintain the bridge 1 and the plate 2 a predetermined fixed distance 1₁ apart. The pillars 5 are secured in holes in the plate 2 by means (not shown) screws 6, which threadedly engage the pillars 5, have heads 7 which engage the outer surface of the bridge 1. The screws 6 thus serve to clamp the bridge 1 and plate 2 together. The bridge 1 and plate 2, which are relatively thin sheet material, support the ends of staffs (not shown) of carrying wheels (not shown) and gears (not shown) of the timepiece movement.

Interposed between the bridge 1 and the plate 2 is a stem block 10 which is adapted to support a stem 11, the stem 11 being disposed parallel to the bridge 1 and plate 2.

As so far described, the construction is that conventionally provided in a comparatively low priced watch. In such a conventional construction, the stem block 10 may be fixed by positioning members and screws other than the screws 6. However, if this is done, the number of parts employed is obviously large and this is particularly undesirable because of the limited space that can be provided in a watch movement.

Alternatively, in the conventional construction, the stem block 10 may be fixed in position by the pillars 5 and screws 6 which are used to position the bridge 1 with respect to the plate 2, but in this case difficulties arise from the fact that the thickness 1₂ of the

[Price 25p]

Price 75p

stem block 10 is normally made less than the distance 1_1 which constitutes the space between the bridge 1 and the plate 2. However, if 1_1 is greater than 1_2 , the stem block 10 cannot be securely fixed in position because of the gap which will then exist between the stem block 10 and the bridge 1. If, on the other hand, it were arranged that the distance 1_1 were less than that of the thickness 1_2 , then the bridge 1 would be positioned with respect to the plate 2 by the height of the stem block 10, with the result that high precision positioning of the bridge 1 would be difficult to obtain.

In order to overcome these difficulties, in the case of the preferred form of the invention shown in the drawing, the stem block 10 is formed of a resilient plastics material and is compressed by the screws 6 so as to clamp it in position between the bridge 1 and plate 2. The stem block 10 has oppositely facing planar surfaces 9, 13 of which the latter engages the plate 2. The surface 9 has a plurality of projecting portions 14 whose outer faces 12 engage the bridge 1.

Alternatively, if desired, the surface 13 could also be provided with one or more projections. The distance 1_2 , i.e. the distance between the surface 13 and the outer faces 12, before the stem block 10 is subjected to compression, is larger than the distance 1_1 . Stated mathematically,

$$1_2 = 1_1 + \Delta l$$

where Δl is the distance through which the stem block 10 is compressed.

As a result of the construction shown in the drawing, the distance between the bridge 1 and the plate 2 is determined by the height 1_1 of the pillars 5 and high degree positioning of the bridge 1 can thus be readily obtained. The stem block 10, moreover, while sufficiently strong to perform its function in an electric watch where there is no need to wind a spring, is tightly secured between the bridge 1 and the plate 2 without the use of additional screws and pillars which occupy valuable space.

The present invention is applicable not only to the fixing in position of a stem block of a timepiece movement, but also to the fixing in position of a coil block thereof. Moreover, it is not necessary that the bridge 1 should be spaced from the frame 2 by

pillars, since this spacing can also be effected by notched members (not shown).

WHAT WE CLAIM IS:—

1. A support structure comprising two parallel frame members which are maintained a predetermined fixed distance apart by spacer means, a resilient support member which is adapted to support a part of a mechanism and which has a first substantially planar surface which engages one of the frame members, the resilient support member having a second substantially planar surface which is disposed opposite to the first planar surface and which has at least one projecting portion with a face which engages the other frame member, and clamping means which compress the resilient support member and clamp it in position between the frame members, the distance between the first planar surface and the said face before the resilient support member is subjected to compression being larger than the said predetermined distance.

2. A support structure as claimed in claim 1 in which the spacer means comprise pillars oppositely facing of which respectively engage the frame members.

3. A support structure as claimed in claim 2 in which the clamping means comprise screws which threadedly engage the pillars, the screws having heads engaging a said frame member.

4. A support structure as claimed in any preceding claim in which the resilient support member is formed of plastics material.

5. A support structure as claimed in any preceding claim in which the frame members are respectively a plate and a bridge of a timepiece movement.

6. A support structure as claimed in claim 5 in which the resilient support member is a stem block or a coil block of the said timepiece movement.

7. A support member substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

8. A timepiece having a movement provided with a support structure as claimed in any preceding claim.

J. MILLER & CO.,
Agents for the Applicants,
Chartered Patent Agents,
262 High Holborn,
London, WC1V 7EF.

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Agents for the Applicants,
Chartered Patent Agents,
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Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1973.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.



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