

# PATENT SPECIFICATION

(11)

1 345 949

1 345 949

- (21) Application No. 58362/71 (22) Filed 15 Dec. 1971  
(31) Convention Application No. 98 531 (32) Filed 16 Dec. 1970 in  
(33) United States of America (US)  
(44) Complete Specification published 6 Feb. 1974  
(51) International Classification A44C 5/14  
(52) Index at acceptance  
A3H 1X 31  
E2A E12  
F2S 6D2B



## (54) SPRING BAR ASSEMBLY

(71) We, TIMEX CORPORATION, a Corporation organized under the laws of the State of Delaware, United States of America, of Waterbury 20, Connecticut, United States of America, 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:—

The present invention relates to a spring bar assembly for watches.

Conventional spring bars which are used to join bands or straps to watches have been a source of numerous problems. The spring bar must have outwardly extending projecting members or pins at each end which are readily compressible to facilitate assembly to the watch bezel lugs. On the other hand, the pins must be urged against the lugs with sufficient force to provide a secure mounting. The general solution has been to mount a coiled spring within the body of the assembly to provide a backing for the projecting pins.

Since the coiled spring for such assemblies is rather small, it gives rise to problems during assembly of the spring bar and often does not provide sufficient holding force. Furthermore, failures may occur in the future due to the corrosion of the coiled spring.

It is an object of this invention to provide an improved spring bar assembly for watches.

In accordance with the invention there is provided a spring bar assembly for a watch comprising: a tubular body having inwardly extending edges at both ends, a member consisting of a resilient material mounted within the tubular body to permit lateral expansion thereof when said resilient member is placed under longitudinal compression, and a pin retained within each end of the tubular body by the

inwardly extending edges, said pins each having a portion slidably engaging the walls of the tubular body and said pins abutting against opposite faces of the resilient member.

The invention employs a resilient material to provide the urging behind the spring bar pins. An embodiment of the assembly may comprise a main tubular body portion having a predetermined amount of shaped resilient material which is corrosion resistant, for example silicon rubber, mounted therewithin and pins extending outwardly from each end of the body portion. The pins are slideably mounted for movement within the body portion and are backed by the resilient material. The resilient material is suitably arranged within the hollow body to permit expansion in a direction transverse to the axis of the assembly as the pins are placed under compression.

The spring bar assembly as disclosed above eliminates the use of extremely small coiled springs which gave rise to assembly difficulties and ultimately to many corrosion failures. The resilient material provides sufficient holding force even in quite small spring bars.

A preferred embodiment of the present invention will now be described by way of example, reference being had to the accompanying drawings wherein:

Figure 1 is a side view of a watch fitted with a spring bar assembly embodying the present invention;

Figure 2 is a cross-sectional view of the spring bar assembly taken along the line 2-2 in Figure 1; and

Figure 3 is a cross-sectional view similar to Figure 2 but showing the spring bar assembly in the course of being mounted to the watch.

Referring to the drawings, the invention comprises a spring bar assembly 10 which

[Price 25p]

is used to secure a watch band or strap (not shown) to a watch 11. The watch 11 has a bezel 27 provided with two pairs of lugs 24 (only one pair is shown). A spring bar assembly 10 is mounted between each pair of lugs 24 to attach the watch band.

The spring bar assembly 10 comprises a substantially cylindrical body portion 12 having a hollow interior 13 and an inwardly extending edge or rim 14 and 15 at each end. A resilient member 16 of a material such as silicon rubber or a suitable plastics is positioned within the body portion 12. The amount and shape of the resilient material forming the member 16 is carefully selected to provide the necessary holding force to secure a watch band to the watch 11. Preferably the member 16 is positioned within the substantially cylindrical interior 13 to permit room for uniform lateral expansion during the longitudinal compression.

A pair of spring bar pins 17 and 18 are slideably mounted at the ends of the body portion 12. Each pin comprises a rear portion 19, an intermediate portion 21 of lesser diameter and an outer portion 22 of a still smaller diameter. The intermediate portion 21 forms a ledge 23 with the enlarged rear portion 19 and the smaller diameter outer portion 22 forms a ledge 26 with the intermediate portion 19. The rear portions 19 of pins 17 and 18 abut and are backed by the respective opposite end faces of the resilient member 16 while the outer walls thereof are mounted for sliding movement along the interior surface of the body 12. In the extended or uncompressed position of Figure 2, the pins 17 and 18 are retained within the body by their ledges 23 abutting the respective inwardly turned edges 14 and 15 of the body 12. The outer portions 22 of the pins engage the bezel lugs 24 with the ledge 26 bearing against the bezel 27.

As may be seen from Figure 2, the resilient member 16 is mounted within the body portion 12 of the assembly 10 leaving a clearance 28. When the pins 17 and 18 are forced inwardly to permit assembly to the bezel 27, the member 16 is compressed and expands into the clearance space 28 as seen in Figure 3. The resilient member 16 urges the pins 17 and 18 outwardly with sufficient force to securely hold the watch band which is assembled about the spring bar 10 to the watch 11. This overcomes a serious difficulty with small size spring bars of conventional design wherein coiled springs are unable to provide adequate holding force. On the other hand, the member 16 must be designed so that compression thereof does not distort the tubular body

12. In another embodiment of the invention, the resilient member 16 may be a hollow slug which has the necessary pressure and resilience characteristics.

The above-described invention also facilitates construction of the spring bar assembly 10 by eliminating the difficulty experienced in handling small coiled springs. The member 16 in the form of a resilient slug may be readily inserted within the tubular body 12, the pins 17 and 18 placed thereagainst and the ends of the tube crimped over to hold the assembly 10 together.

#### WHAT WE CLAIM IS:—

1. A spring bar assembly for a watch comprising: a tubular body having inwardly extending edges at both ends, a member consisting of a resilient material mounted within the tubular body to permit lateral expansion thereof when said resilient member is placed under longitudinal compression, and a pin retained within each end of the tubular body by the inwardly extending edges, said pins each having a portion slidably engaging the walls of the tubular body and said pins abutting against opposite faces of the resilient member.

2. A spring bar assembly in accordance with Claim 1 wherein the material comprising the resilient member is silicon rubber.

3. A spring bar assembly in accordance with Claim 1 or Claim 2 wherein the pins each comprise an enlarged rear portion slidably engaging the walls of the tubular body and contacting the resilient member, an intermediate portion of lesser diameter forming a ledge with the rear portion to engage the inwardly extending edges of the tubular body in order to retain the pins within the assembly with the resilient member in an uncompressed state, and an outer portion of still smaller diameter forming a ledge with the intermediate portion, said outer portion being for engaging the bezel lugs in a watch.

4. A spring bar assembly in accordance with Claim 1, Claim 2 or Claim 3, wherein the resilient member comprises a body of resilient material designed not to distort the tubular body when subjected to compression by the pins.

5. A spring bar assembly in accordance with Claim 4 wherein the resilient member comprises a hollow slug of resilient material.

6. A spring bar assembly for a watch substantially as hereinbefore described with reference to the accompanying drawings.

is used to secure a watch band or strap (not shown) to a watch 11. The watch 11 has a bezel 27 provided with two pairs of lugs 24 (only one pair is shown). A spring bar assembly 10 is mounted between each pair of lugs 24 to attach the watch band.

The spring bar assembly 10 comprises a substantially cylindrical body portion 12 having a hollow interior 13 and an inwardly extending edge or rim 14 and 15 at each end. A resilient member 16 of a material such as silicon rubber or a suitable plastics is positioned within the body portion 12. The amount and shape of the resilient material forming the member 16 is carefully selected to provide the necessary holding force to secure a watch band to the watch 11. Preferably the member 16 is positioned within the substantially cylindrical interior 13 to permit room for uniform lateral expansion during the longitudinal compression.

A pair of spring bar pins 17 and 18 are slideably mounted at the ends of the body portion 12. Each pin comprises a rear portion 19, an intermediate portion 21 of lesser diameter and an outer portion 22 of a still smaller diameter. The intermediate portion 21 forms a ledge 23 with the enlarged rear portion 19 and the smaller diameter outer portion 22 forms a ledge 26 with the intermediate portion 19. The rear portions 19 of pins 17 and 18 abut and are backed by the respective opposite end faces of the resilient member 16 while the outer walls thereof are mounted for sliding movement along the interior surface of the body 12. In the extended or uncompressed position of Figure 2, the pins 17 and 18 are retained within the body by their ledges 23 abutting the respective inwardly turned edges 14 and 15 of the body 12. The outer portions 22 of the pins engage the bezel lugs 24 with the ledge 26 bearing against the bezel 27.

As may be seen from Figure 2, the resilient member 16 is mounted within the body portion 12 of the assembly 10 leaving a clearance 28. When the pins 17 and 18 are forced inwardly to permit assembly to the bezel 27, the member 16 is compressed and expands into the clearance space 28 as seen in Figure 3. The resilient member 16 urges the pins 17 and 18 outwardly with sufficient force to securely hold the watch band which is assembled about the spring bar 10 to the watch 11. This overcomes a serious difficulty with small size spring bars of conventional design wherein coiled springs are unable to provide adequate holding force. On the other hand, the member 16 must be designed so that compression thereof does not distort the tubular body

12. In another embodiment of the invention, the resilient member 16 may be a hollow slug which has the necessary pressure and resilience characteristics.

The above-described invention also facilitates construction of the spring bar assembly 10 by eliminating the difficulty experienced in handling small coiled springs. The member 16 in the form of a resilient slug may be readily inserted within the tubular body 12, the pins 17 and 18 placed thereagainst and the ends of the tube crimped over to hold the assembly 10 together.

#### WHAT WE CLAIM IS:—

1. A spring bar assembly for a watch comprising: a tubular body having inwardly extending edges at both ends, a member consisting of a resilient material mounted within the tubular body to permit lateral expansion thereof when said resilient member is placed under longitudinal compression, and a pin retained within each end of the tubular body by the inwardly extending edges, said pins each having a portion slidably engaging the walls of the tubular body and said pins abutting against opposite faces of the resilient member.
2. A spring bar assembly in accordance with Claim 1 wherein the material comprising the resilient member is silicon rubber.
3. A spring bar assembly in accordance with Claim 1 or Claim 2 wherein the pins each comprise an enlarged rear portion slidably engaging the walls of the tubular body and contacting the resilient member, an intermediate portion of lesser diameter forming a ledge with the rear portion to engage the inwardly extending edges of the tubular body in order to retain the pins within the assembly with the resilient member in an uncompressed state, and an outer portion of still smaller diameter forming a ledge with the intermediate portion, said outer portion being for engaging the bezel lugs in a watch.
4. A spring bar assembly in accordance with Claim 1, Claim 2 or Claim 3, wherein the resilient member comprises a body of resilient material designed not to distort the tubular body when subjected to compression by the pins.
5. A spring bar assembly in accordance with Claim 4 wherein the resilient member comprises a hollow slug of resilient material.
6. A spring bar assembly for a watch substantially as hereinbefore described with reference to the accompanying drawings.



7. A watch including a bezel and at least one pair of bezel lugs, and a spring bar assembly in accordance with any one of the preceding claims mountable to the 5 or each pair of lugs for holding a watch strap or band.

STEVENS, HEWLETT & PERKINS,  
Chartered Patent Agents,  
5, Quality Court,  
Chancery Lane,  
London, W.C.2.

(10)

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1974.  
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

