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(54) Nut and bolt-type double case watch

(57) A watch or similar instrument having high strength and mechanical resistance characteristics as it is provided with a double watchcase, the outer case being made of an hexagonal nut-type mechanical fastening element while the inner case being made of a bolt-type element.

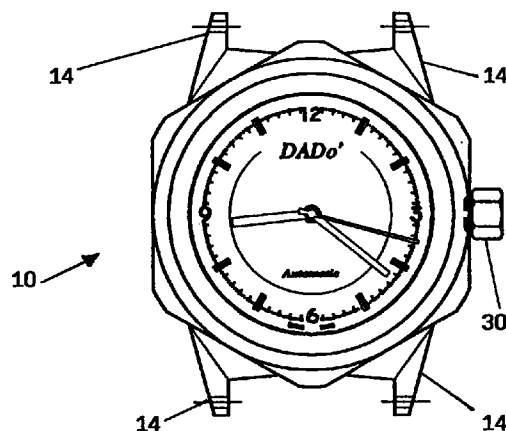


Fig. 1

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Description

The present invention relates to the field of the time measuring instruments namely watches, chronometers, chronographs and in particular to such an instrument having strength, mechanical resistance and assembling easiness that are definitely higher than similar instruments that are, at present, known.

A variety of models and kinds of watches, chronographs, chronometers and similar instruments is known and available on the market, such instruments being made of corresponding different materials and using different machining/assembling techniques.

However the above mentioned instruments have often a reduced or non equivalent strength and a higher complexity, thus resulting in higher assembling costs, and in many cases they provide inadequate characteristics of water, moisture and dust imperviousness. Last but not least it is known that the field of the consumer goods, like such instruments, is always looking for new articles having more eccentric and novel shapes.

In view of the above shortcomings and needs, the present invention provides for a time measuring instrument that is very sturdy, and easy to assemble, has very good imperviousness characteristics and a new aesthetic shape.

The main conception of the invention is to use mechanical components or members which are generally used for their mutual threading engagement. In practice, the outer or protective watchcase is made of a standard hexagonal nut while the inner watchcase is made of a length of hollow bolt within which the instrument mechanism is housed. The two mechanical members or main components are mutually connected by threading the bolt into the nut, thus resulting in a very strong assembly which is very difficult or almost impossible to dismantle and thus protects the mechanism in a very effective way.

An instrument having the above features is claimed in independent claim 1; the further claims set forth additional and distinctive features of the instrument itself. Finally, claims 8 and 9 recite a method for assembling such an instrument.

Now a detailed technical description of the instrument will follow, such a description being merely illustrative and non limitative, to be read with reference to the annexed sheets of illustrative drawings wherein the various figures show:

- Fig. 1 is a top plan view of a first embodiment of the instrument according to the invention;
- Fig. 2 is a side view thereof;
- Fig. 3 is a top plan view of a second embodiment of the instrument according to the invention;
- Fig. 4 is an isometric view of the inner watchcase according to the first embodiment of the invention and the respective handles before their mutual assembly;

- Fig. 5 is a view similar to Fig. 4 but relates to the second embodiment;
- Fig. 6 is an exploded view of the instrument according to the first embodiment; and
- Fig. 7 is an exploded view of the instrument according to the second embodiment.

For clarity purposes the same or similar reference numbers have been used for designating the same or similar parts.

Further it must be noted that, also for clarity purposes in the following disclosure, as well as in the annexed claims, reference generally has been always made to wrist watches but the same claimed and set-forth concepts can be of course applied to other similar instruments such as pocket watches, wall clocks, table clocks or vehicle clocks, chronometers, chronographs, altimeters, etc. and thus the term "(wrist) watch" has to be considered as having a meaning which is wider than what it would actually have.

Figure 1 shows a plan view of a watch 10 according to the first embodiment while Fig. 3 shows the second embodiment 10' thereof. The difference, as it will be promptly clear, lies in the orientation of the outer watchcase 12, 12'. As it is known for a man skilled in the mechanical field, in the watchcase 12 of Figure 1 the end-to-end distance, or nut-wrench distance is measured ("S-type reading" hexagonal nut, "S-type" watch) while in the watchcase 12' of Figure 3 the corner-to-corner distance or overall dimension distance is measured ("E-type reading" hexagonal nut, "E-type" watch). Anyway it is also within the scope of protection of the present invention using hexagonal nuts that are neither "E-type" nor "S-type" nuts or even using non hexagonal nuts namely nuts having a number of sides different from six.

Corresponding handles 14, 14' are connected to the outer watchcase 12, 12' for supporting a strap or the like (not shown) and a respective inner watchcase 16, 16' is threadily introduced into the outer watchcase. A standard mechanism 18 with a standard dial 20 and standard hands 22, a ring 24 and a protective glass 26 are housed within the watchcase. A small threaded bar or driving ring nut 28 provided with a driving member 30 at its end projects from the mechanism 18 and the watchcase 16; 12, 12'.

Obviously, in case the present instrument is a digital watch, a chronograph, a chronometer, etc., the dial could have a quite different shape and one, two, three or more driving ring nuts, could possibly be provided as push buttons.

Starting from a standard nut 12, 12', possibly having a reduced height and/or which is machined inside for obtaining a circular plane seat 32, proper cavities 36, 36' for introducing the corresponding handles 14, 14' are obtained in addition to a hole 34 for the driving ring nut 28. Preferably the handles are connected to the outer watchcase 12, 12' by inserting respective screws

or pins (not shown) into little holes 38 machined in the outer case (at the point of seat 32) and obviously also in the handles 14, 14' (even if they are not shown).

Going on assembling the watch according to the present invention, the inner watchcase 16 is threaded in the outer watchcase up to a limit stop position. Further, the inner watchcase also is drilled as the ring nut 28 can pass through the hole 34. Finally, the mechanism 18, the dial 20, the hands 22, the ring 24 and the protective glass 26 are assembled in a conventional way.

Preferably, just for mechanical strength purposes, the driving member 30 of the ring nut 28 is also a nut, obviously having a reduced size. This is clear if one considers that the operation of the ring nut provides a rotary movement (a shifting movement just during the setting stage), such a motion corresponding to the conventional use of an hexagonal nut.

In addition to the above general features, it is pointed out that the hexagonal nuts could be of any of the types which are at present on the market or special nuts having any thread width (M2, M4, M6, etc.) thread pitch (coarse, fine, etc.) and thread type (gas thread, metric thread etc). As far as the material for making the instrument is concerned it could range from standard metals and non precious metal alloys (plated, unplated or subjected to different thermal or surface treatments), precious metals and/or alloys thereof, composite materials, ceramics, wood, natural fibers, plastics or synthetic materials, etc.

It is thus clear that several modifications, adaptations and substitutions of parts with other functionally equivalent parts could be made to the embodiments that have been disclosed and shown in detail without departing from the scope of protection defined by the appended claims.

Claims

1. Watch-type time measuring instrument characterized in that it comprises an outer watchcase and an inner watchcase which can be connected thereto, said outer watchcase being in the form of a nut-type mechanical fastening element.
2. Instrument according to claim 1, characterized in that the inner watchcase is connected to the outer watchcase by a threading engagement.
3. Instrument according to any of claims 1 or 2, characterized in that the inner watchcase is provided with a closed bottom.
4. Instrument according to any of claims 1-3, characterized in that it further comprises handles for supporting a strap or the like.
5. Instrument according to claim 4 characterized in that said handles are inserted in cavities provided in

the outer watchcase and preferably connected thereto by screws or pins.

6. Instrument according any of the preceding claims, characterized in that it further comprises a driving ring nut which in turn comprises a further hexagonal nut.
7. Instrument according to any of the preceding claims, characterized in that the outer nut-type watchcase is an hexagonal nut, possibly having a reduced height and with its inner part machined for obtaining a circular plane seat.
8. Method for assembling an instrument according any of claims 1-7 comprising the following steps: a) providing a nut-type fastening device; b) machining at least one hole in such a fastening device; c) connecting a bolt-type hollow element to said bored nut-type fastening element; d) side drilling the bolt-type hollow element at said hole of the nut-type fastening element; e) introducing the instrument mechanism in said bolt-type hollow element and inserting a driving nut in the nut-type fastening element hole and in the corresponding hole of the inner watchcase; and f) completing the instrument assembly by mounting the other instrument parts and a protective glass or the like.
9. Method according to the claim 8, characterized in that before carrying out the phase c), handles or connecting elements are fixed to said fastening device.

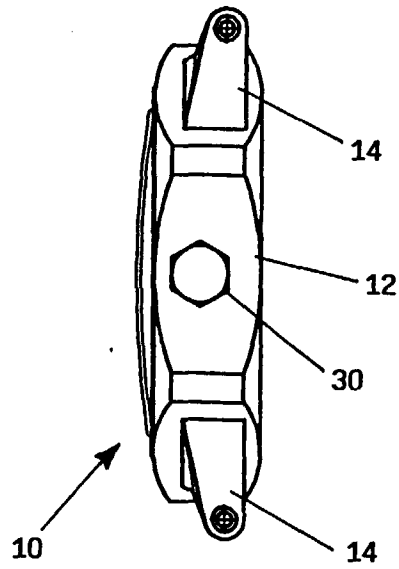


Fig. 2

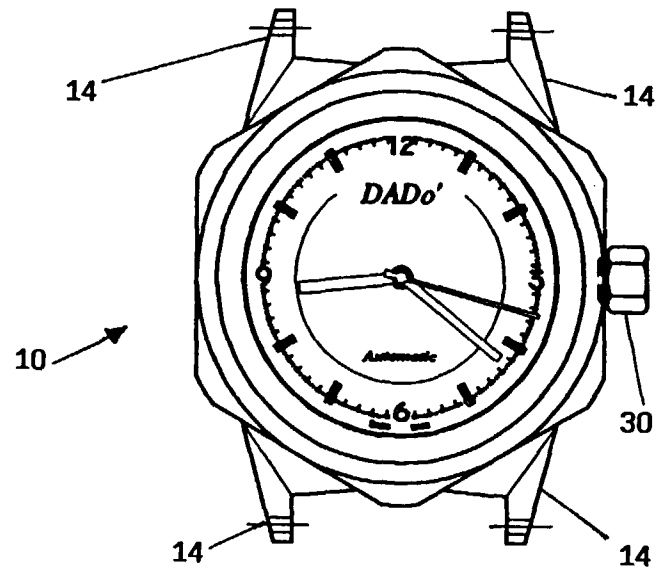


Fig. 1

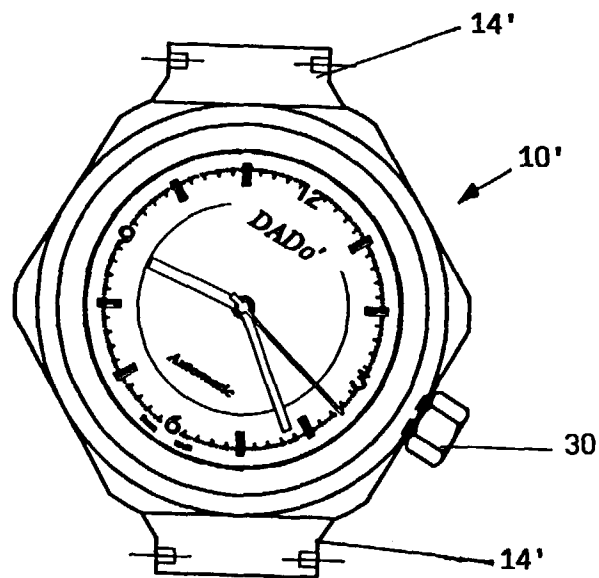
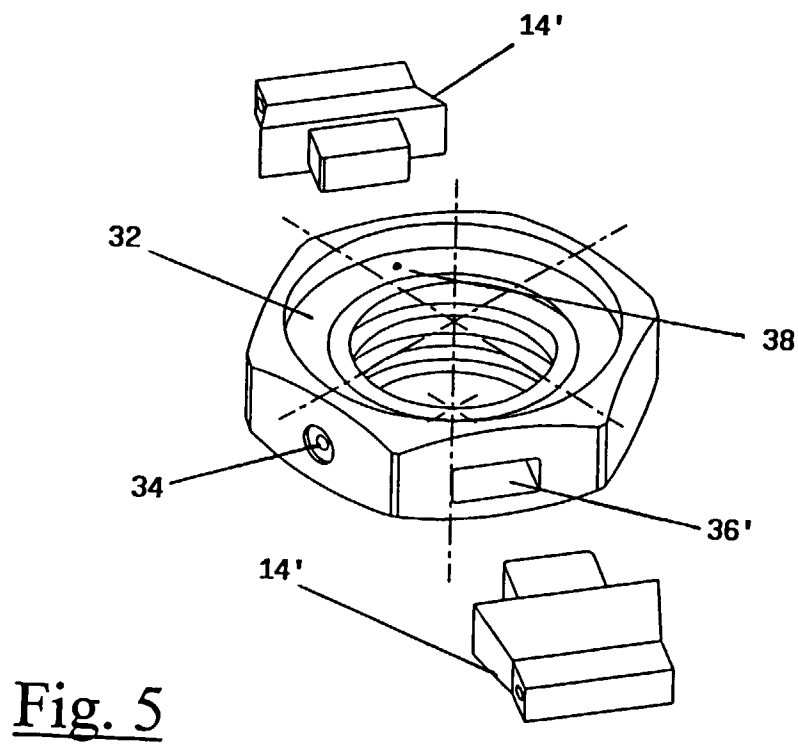
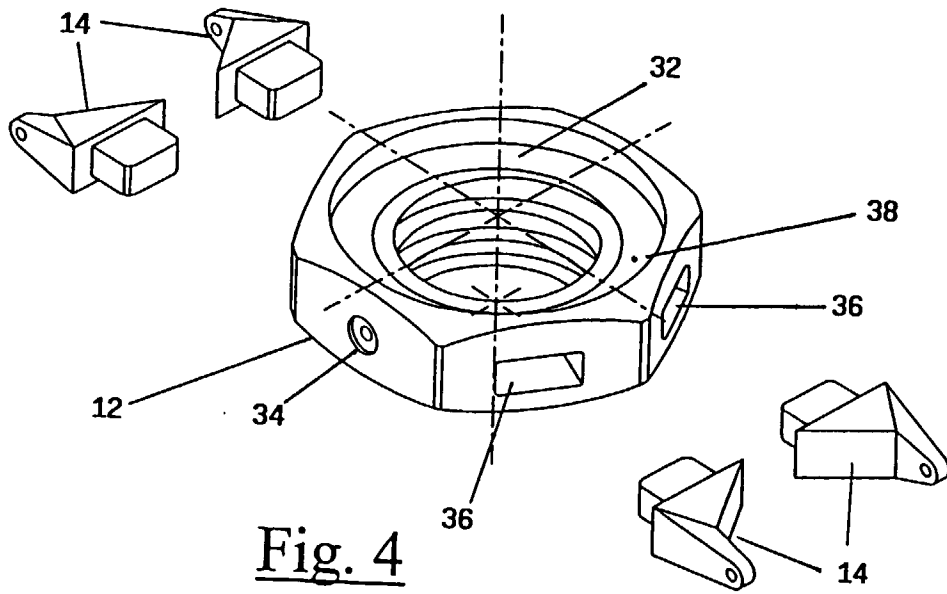


Fig. 3



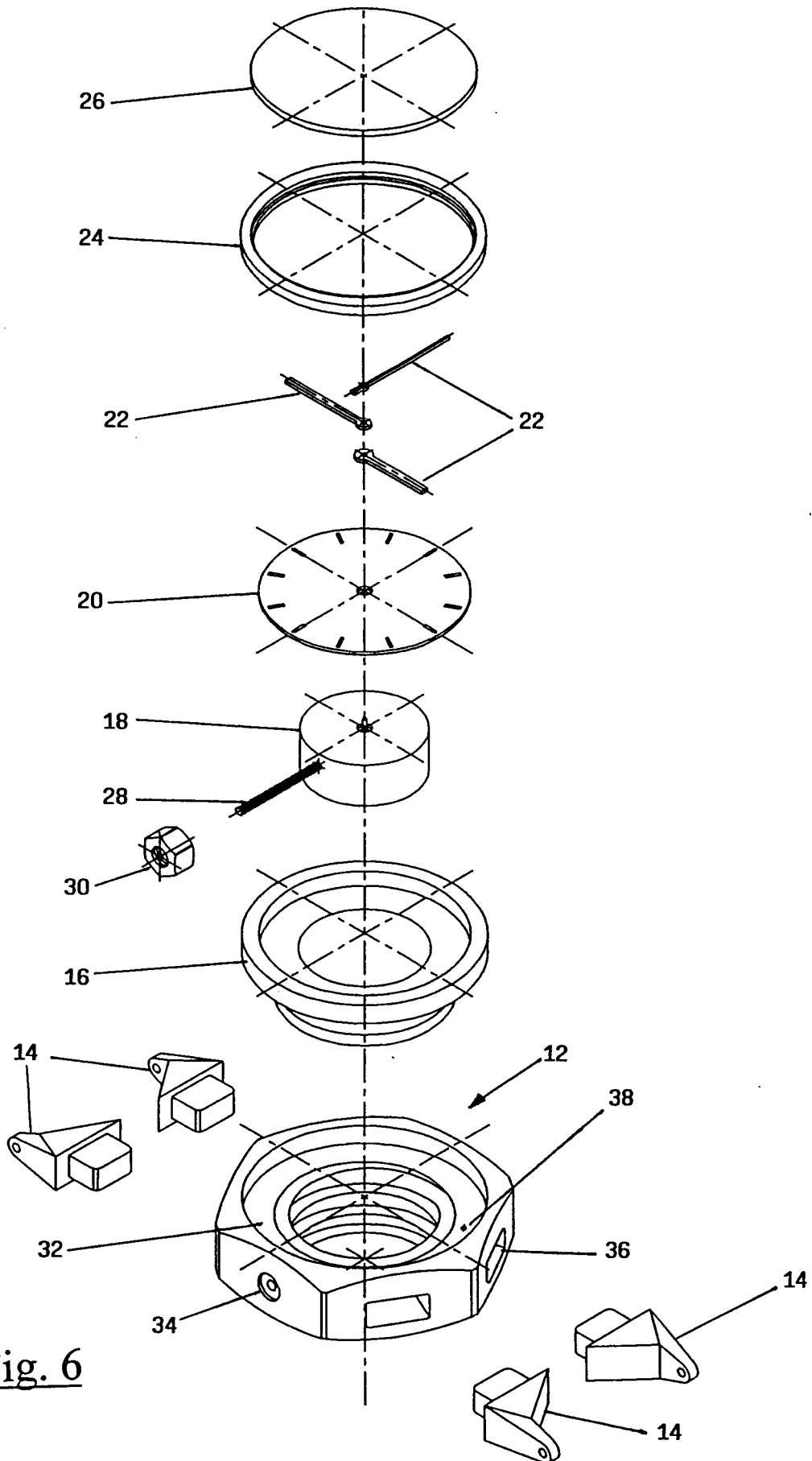


Fig. 6

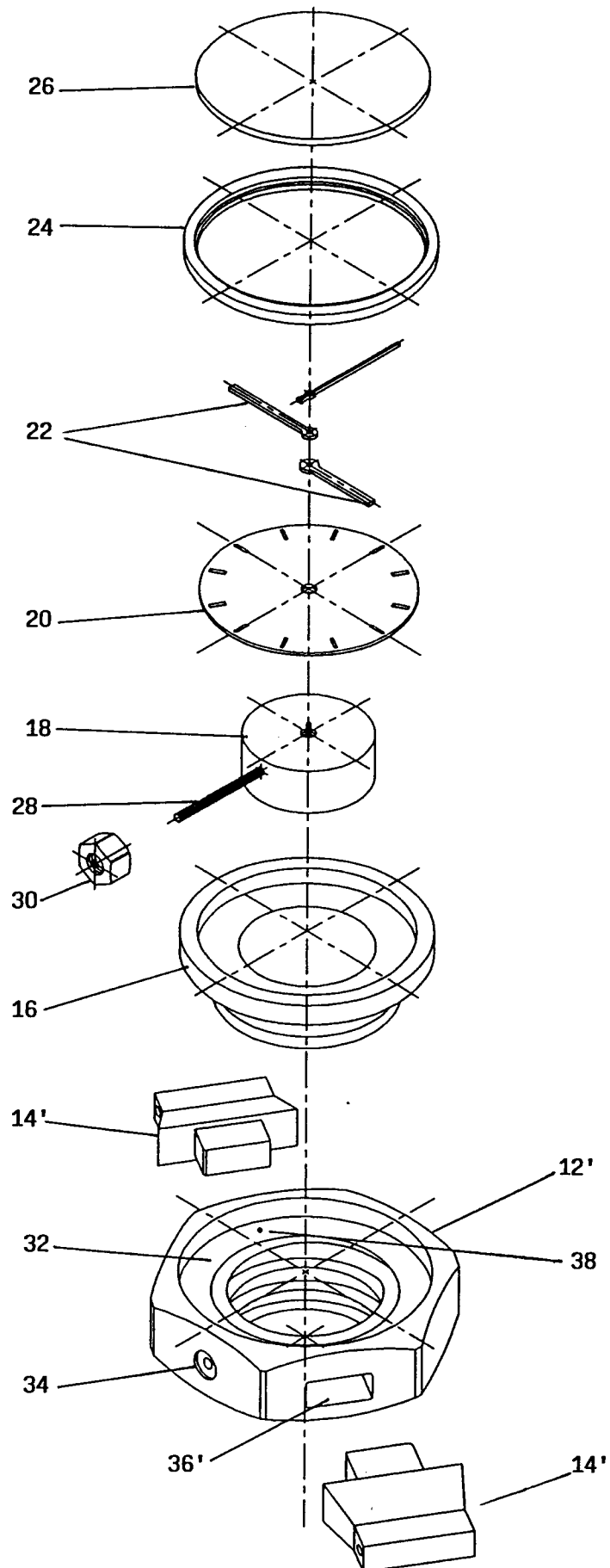


Fig. 7