May 16, 1967 O. VON AESCH ETAL 3,319,415

CHRONOMETER MECHANISM

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FIG. 1

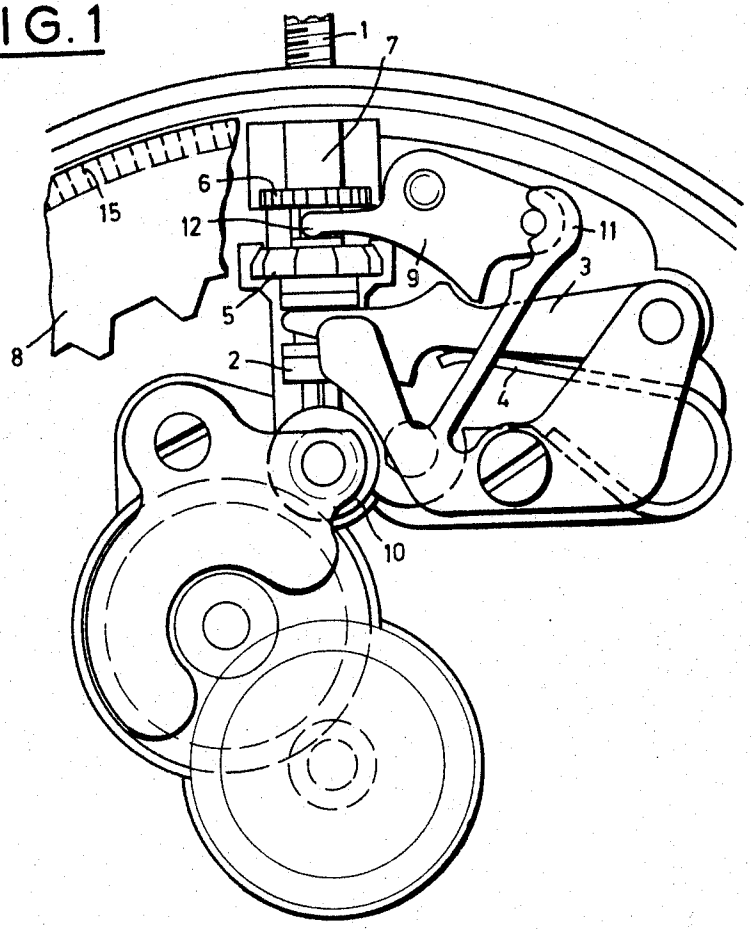

FIG. 2

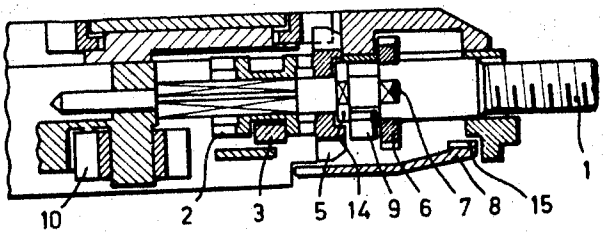

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FIG.3

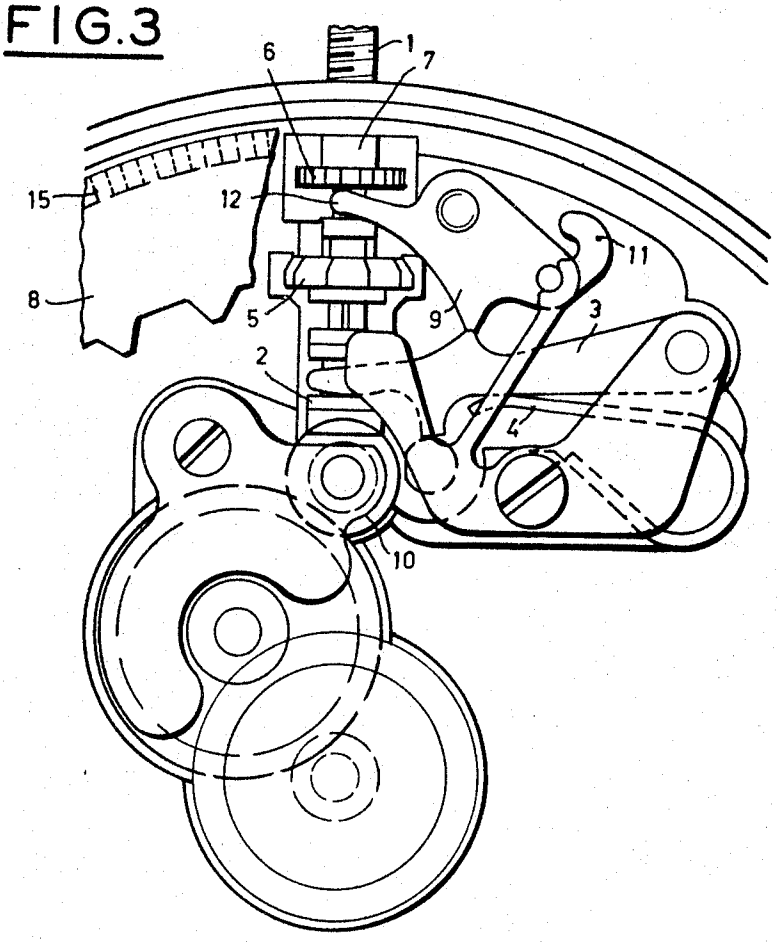
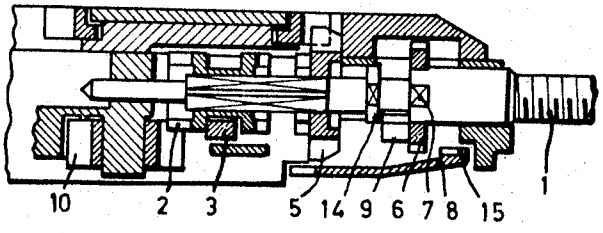


FIG.4



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CHRONOMETER MECHANISM

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FIG. 5

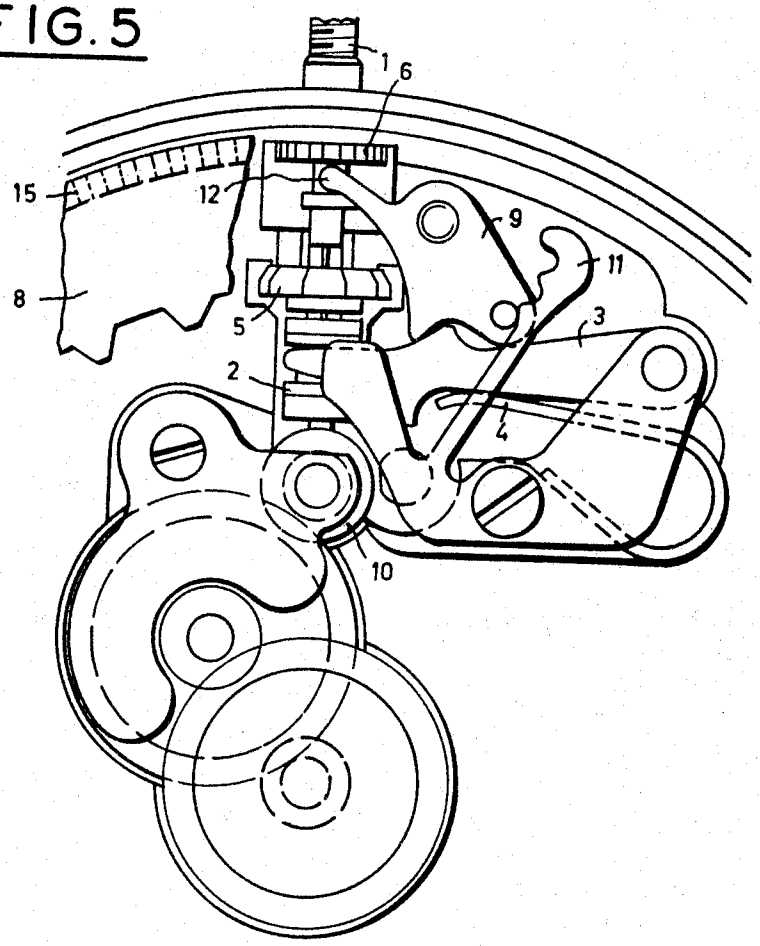
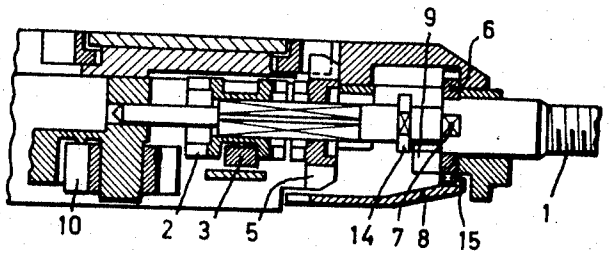


FIG. 6



United States Patent Office 3,319,415 Patented May 16, 1967

3,319,415

CHRONOMETER MECHANISM

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Claims priority, application Switzerland, Nov. 3, 1964, 14,215/64
3 Claims. (Cl. 58—63)

This invention relates to novel chronometer mechanisms.

Well known are chronometer mechanisms comprising a winding mechanism with a clutch-wheel and pull-out setting-lever the stem of which can be put into three different positions; namely, winding, setting of time, and setting of date or date correcting. But in these mechanisms the winding-mechanism has a clutch-lever or, if it has a clutch-wheel and pull-out setting lever, this clutch-wheel has three toothed gears, the purpose of one of which is to correct the date.

According to this invention, there is provided in a chronometer comprising a driving mechanism, a hand setting mechanism, a date setting mechanism, a winding stem and a winding pinion, the winding pinion being mounted on the winding stem, a mechanism alternatively adjustable to a winding position, a hand setting position and a date setting position.

In one embodiment of the invention, the adjustable mechanism comprises a first lever having a free end, first lever engaging means defined on the stem for engagement with the free end of the first lever, the first lever being juxtaposed to the first lever engaging means with its free end abutting the first lever engaging means, a second lever having a free end, second lever engaging means defined on the stem for engagement with the second lever, the second lever being juxtaposed to the second lever engaging means with its free end abutting the second lever engaging means, clutch means mounted on the stem for engagement with the hand setting mechanism and a date setting pinion mounted on the stem for engagement with the date setting mechanism, the levers defining means for mutual engagement.

The adjustable mechanism may be adjusted to its winding position by longitudinally positioning the stem so that the winding pinion is engaged with the drive mechanism, the clutch means is unengaged with the hand setting mechanism and the date setting pinion is unengaged with the date setting mechanism. The adjustable mechanism may be adjusted to its hand setting position by longitudinally positioning the stem so that the first and second levers mutually engage and the second lever is urged by the first lever to abut against the clutch means and the clutch means thereby is urged into engagement with the hand setting mechanism, the winding pinion is disengaged from the drive mechanism and the date setting pinion remains unengaged with the date setting mechanism. The adjustable mechanism may be adjusted to its date setting position by longitudinally positioning the stem so that the abutting relation of the first and second levers is changed to disengage the hand setting pinion from the hand setting mechanism, the date setting pinion is engaged with the date setting mechanism and the winding pinion remains unengaged with the winding mechanism.

The first lever engaging means may comprise a circular groove defined in the periphery of the stem. The second lever engaging means may be operatively connected to the clutch means. Furthermore, the operative connection may be effected by providing that the second lever engaging means be integral with said clutch means. Preferably, the adjustable mechanism according to this

invention further includes stop means to hold the mechanism in adjustment in any one of the positions.

According to a specific embodiment of this invention, the operation of setting or connecting the date is done by means of a pinion mounted on a square portion of the winding stem at a point above that at which the pull-out setting lever is connected to this stem; and this pinion rests upon this pull-out lever, which raises it to its date setting position, while at the same time it moves the clutch-wheel into a neutral position by cooperating with a second lever, namely, a clutch-lever.

The attached drawing gives, by way of example, a working embodiment of this invention.

FIGURE 1 shows a plan view and FIGURE 2 shows a section cut along the center-line of a chronometer mechanism according to this invention, in the winding position.

FIGURES 3 and 4, and 5 and 6, show the same views of the same mechanism as in FIGURES 1 and 2 but FIGURES 3 and 4 show the hand setting position and FIGURES 5 and 6 show the date setting position.

In these figures, the winding stem 1 is shown in its three axially displaced positions; the winding and hand setting mechanism includes, as is customary, the clutch-wheel 2 driven by the clutch-lever 3 which is subject to the upward bias of the spring 4; 9 is the pull-out setting-lever held in one of its three successive positions by the jumper 11 and acting upon the clutch-lever 3; 10 is the hand setting intermediate wheel which is part of a conventional hand setting mechanism (not shown), and 5 is the winding-pinion which in the position shown in FIG. 1 and FIG. 2 engages a conventional drive mechanism (not shown) for winding of said mechanism; the pull-out setting-lever is connected to the winding stem in the usual fashion, by means of a head 12 engaged in a circular groove in this stem.

Above the pull-out setting-lever the winding stem has a square part 7 upon which the pinion 6 is fitted, forming, along with the band 14, the usual circular groove into which the head 12 of the pull-out setting-lever fits.

When one pulls up the stem to change from the winding position to the hand setting position, then from the latter to the date correcting position, each time, the pull-out setting-lever lifts up the pinion 6, finally bringing it into the third position, in mesh with a set of teeth 15 in the part 8 bearing the date indications, part 8 with its set of teeth 15 comprising a date setting mechanism.

Also, when one pulls up the stem to move the mechanism from the winding position to the hand setting position, lever 9 moves into abutment against lever 3 and urges lever 3 downward thus moving clutch-wheel 2 into engagement with hand setting intermediate wheel 11 and simultaneously moving winding pinion 5 out of engagement with the drive mechanism. And, when one pulls up the stem further to change the mechanism from the hand setting position to the date setting position, lever 9 is moved relative to lever 3 to permit the free end of lever 3 to rise to cause clutch wheel 2 to move upward somewhat and thereby disengage from hand setting intermediate wheel 10.

While the invention has been described with particular reference to specific embodiments, it is to be understood that the scope of the invention is to be determined by reference to the claims appended hereto and that all obvious variations and modifications within the spirit of the invention are intended to be encompassed within the scope of the claims.

What we claim and desire to secure by Letters Patent is:

1. In a chronometer comprising a driving mechanism, a hand setting mechanism, a date setting mechanism,

a winding stem having a square part, a winding pinion, said winding pinion being counted on said part, a mechanism alternatively adjustable to a winding position, a hand setting position and a date setting position, said adjustable mechanism comprising a first lever having a free end, first lever engaging means defined on said stem for engagement with the free end of said first lever, said lever engaging means comprising a circular groove defined in the periphery of said stem, said first lever being juxtaposed to said first lever engaging means with its free end abutting said first lever engaging means, a second lever having a free end, second lever engaging means defined on said stem for engagement with said second lever, said second lever being juxtaposed to said second lever engaging means, with its free end abutting said second lever engaging means, clutch means mounted on said stem for engagement with the hand setting mechanism, said second lever engaging means being operatively connected to said clutch means, and a date setting pinion mounted on the stem for engagement with the date setting mechanism, said levers defining means for mutual engagement, whereby the adjustable mechanism may be adjusted to its winding position by longitudinally positioning the stem so that the winding pinion is engaged with the drive mechanism, the clutch means is unengaged with the hand setting mechanism and the date setting pinion is unengaged with the date setting mechanism, the adjustable mechanism may be adjusted to its hand setting position by longitudinally positioning the stem so that the

first and second levers mutually engage and said second lever is urged by said first lever to abut against said clutch means and said clutch means thereby is urged into engagement with said hand setting mechanism, the winding pinion is disengaged from the drive mechanism and the date setting pinion remains unengaged with the date setting mechanism, and the adjustable mechanism may be adjusted to its date setting position by longitudinally positioning the stem so that the abutting relation of the first and second levers is changed to disengage the hand setting pinion from the hand setting mechanism, the date setting pinion is engaged with the date setting mechanism and the winding pinion remains unengaged with the winding mechanism.

2. An adjustable chronometer mechanism according to claim **1**, wherein said second lever engaging means is integral with said clutch means.

3. An adjustable chronometer mechanism according to claim **2**, further including stop means to hold said mechanism in adjustment in any one of said positions.

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