March 9, 1971 G. DUBOIS ETAL 3,568,432

CHRONOGRAPH-WATCH WITH INDEPENDENTLY MOUNTED CHRONOGRAPH MECHANISM

Filed Sept. 18, 1968 4 Sheets-Sheet 1

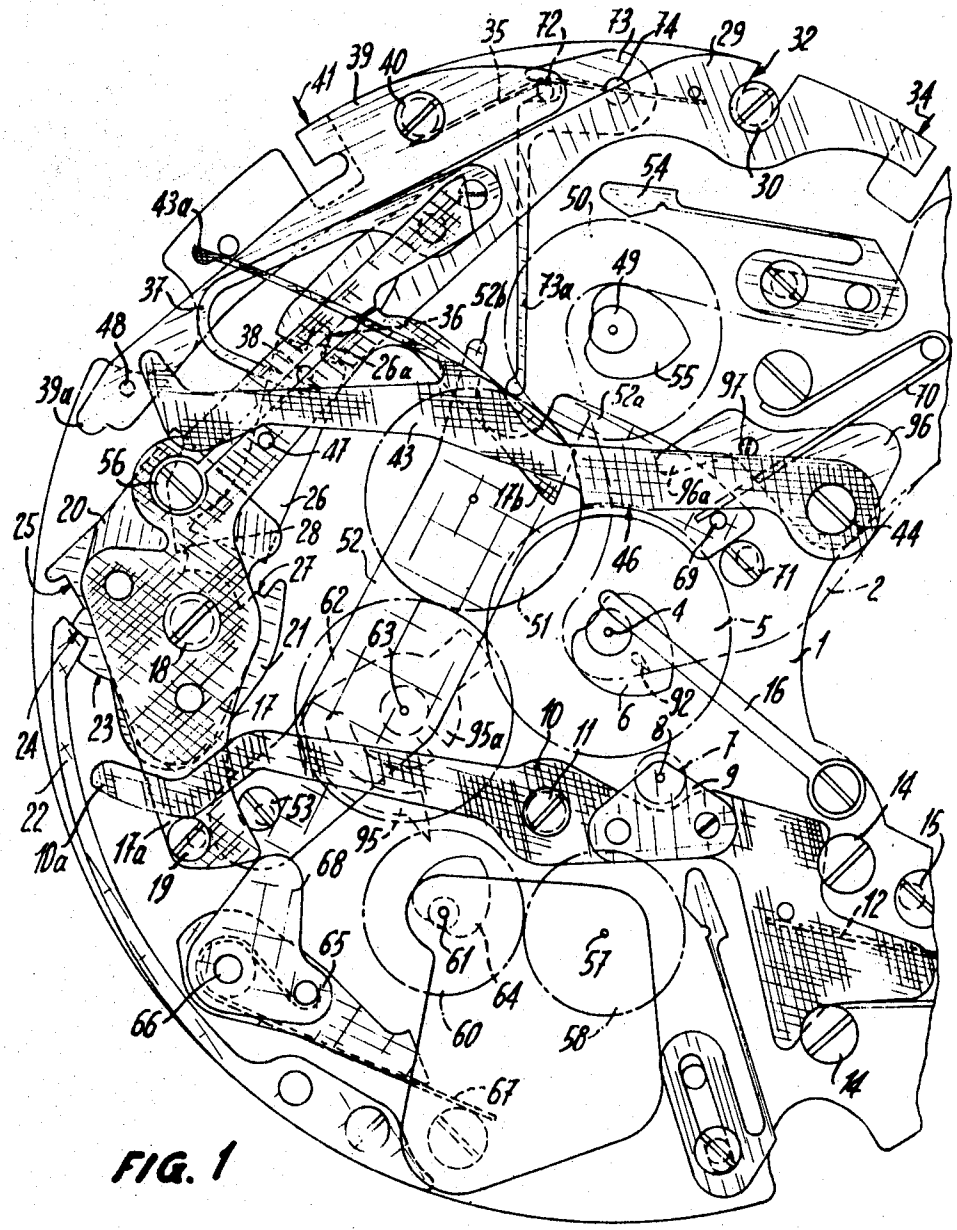

FIG. 1

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Filed Sept. 18, 1968 4 Sheets-Sheet 2

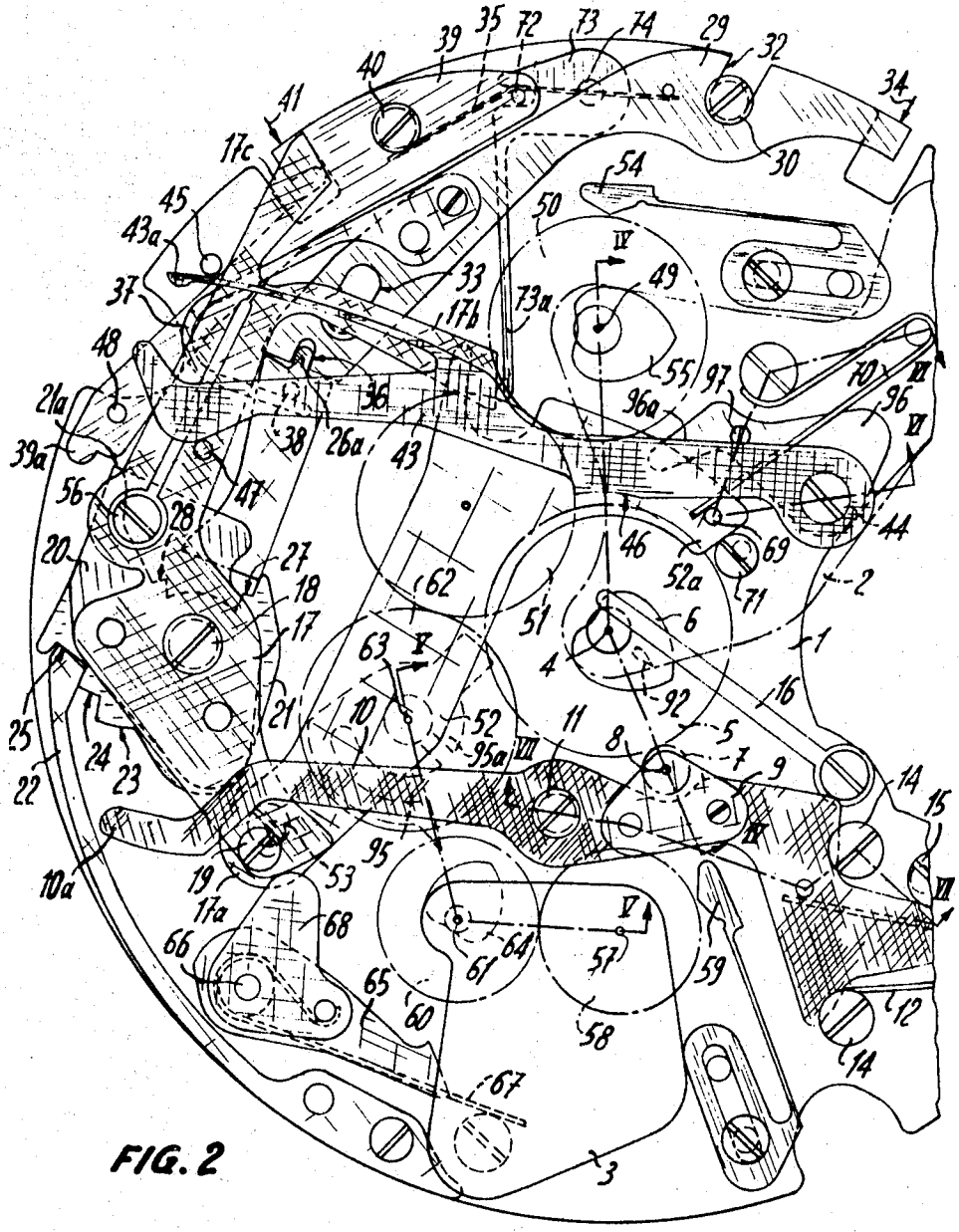

FIG. 2

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CHRONOGRAPH-WATCH WITH INDEPENDENTLY MOUNTED CHRONOGRAPH MECHANISM

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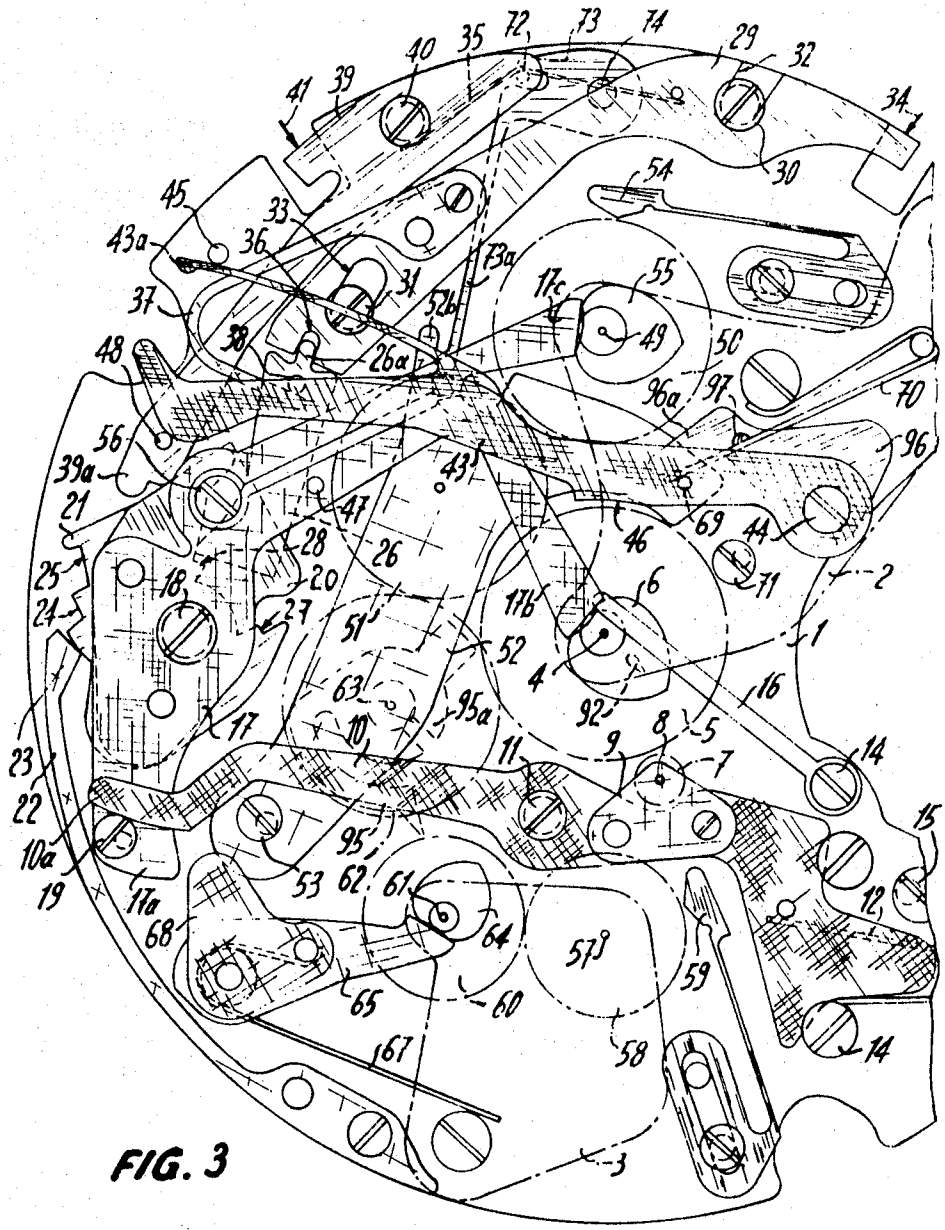

FIG. 3

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CHRONOGRAPH-WATCH WITH INDEPENDENTLY MOUNTED CHRONOGRAPH MECHANISM

Filed Sept. 18, 1968 4 Sheets-Sheet 4

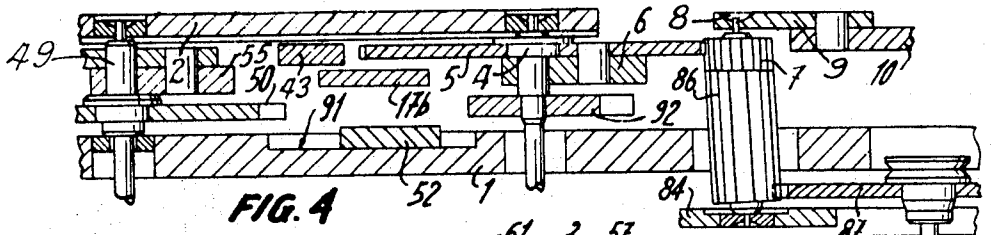


FIG. 4

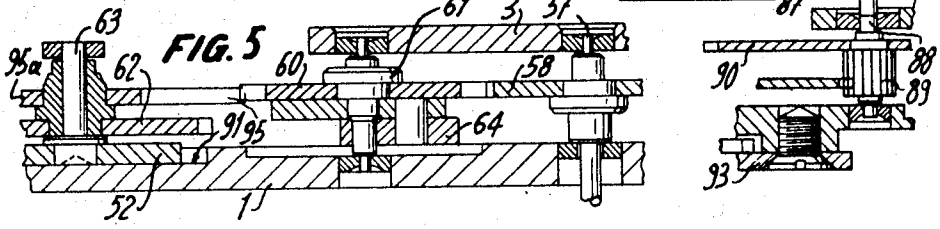


FIG. 5

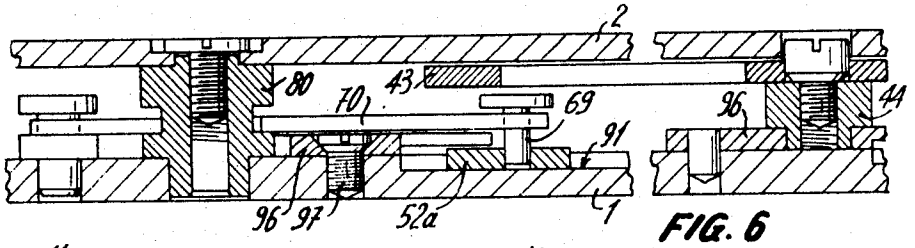


FIG. 6

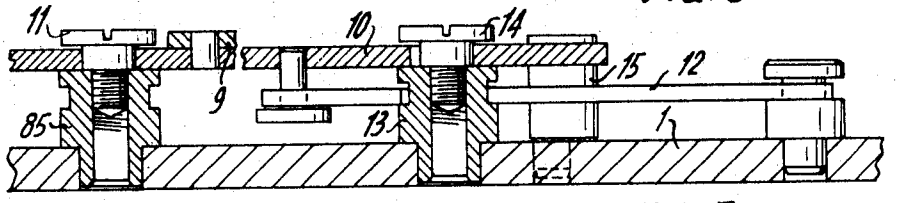
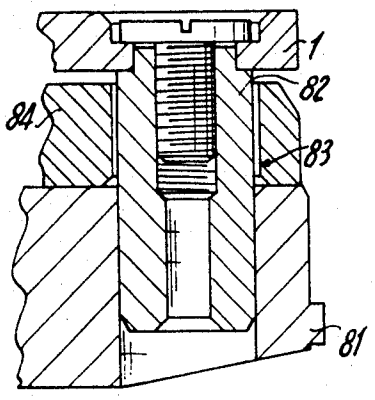


FIG. 7

FIG. 8



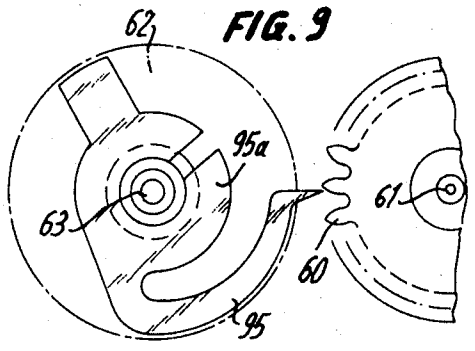


FIG. 9

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CHRONOGRAPH-WATCH WITH INDEPENDENTLY MOUNTED CHRONOGRAPH MECHANISM

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Claims priority, application Switzerland, Sept. 22, 1967, 13,386/67
Int. Cl. G04f 7/04
U.S. Cl. 58—59 27 Claims

ABSTRACT OF THE DISCLOSURE

A chronograph-watch with the elements of the chronograph mechanism carried by a frame independently of the clockwork.

The present invention relates to a chronograph-watch characterised by the fact that almost all elements of the chronograph mechanism are carried by an independent frame which is removably secured to the frame of the clockwork.

The drawings show, by way of example, one embodiment of the invention.

FIG. 1 is a plan view of a watch showing the chronograph mechanism in its rest position.

FIG. 2 is a view similar to that of FIG. 1, in the running position of the chronograph.

FIG. 3 is a view similar to FIGS. 1 and 2, in the return to zero position of the chronograph.

FIGS. 4 to 7 are sectional views along lines IV—IV, V—V, VI—VI, and VII—VII, respectively, of FIG. 2.

FIG. 8 is a sectional view of a detail, at an enlarged scale, and

FIG. 9 is a plan view of a detail, at an enlarged scale.

The chronograph mechanism of the watch represented comprises a frame constituted by a base board **1** and by two bridges **2** and **3** secured to base board **1** by pillars **80** (FIG. 6).

The base board is secured directly to the base plate **81** of the clockwork of the watch by means of pillars **82**. One of these pillars **82** is represented in FIG. 8 as passing freely through a hole **83** provided in the gear train bridge **84** of the clockwork.

The axis of the chronograph wheel, designated by **4**, carries a chronograph wheel **5** as well as a return-to-zero heart **6**. The chronograph wheel **5** is driven, when the chronograph is running, by a driving pinion **7** (FIG. 4), the axis **8** of which is pivotally mounted between gear train bridge **84** of the clockwork and a small bridge **9** secured to a rocking lever **10**, hereafter called coupling rocking lever, pivotally mounted on a screw **11** screwed in a pillar **85** carried by the frame of the chronograph (FIG. 7). This coupling rocking lever **10** is submitted to the action of a return spring **12** which urges it into the position represented in FIG. 2 in which the driving pinion **7** is in mesh with the chronograph wheel **5**.

The axis **8** of driving pinion **7** carries a second pinion **86** (FIG. 4) in mesh with a driving wheel **87** which constitutes an output of the clockwork, mounted at the extremity of the axis **88** of the driving wheel and pinion **89–90** of the clockwork, which extends beyond the gear train bridge **84** of the clockwork.

The second pinion **86** is driven by and continuously in is only in mesh with chronograph wheel **5** when the chronograph is running, the disengagement of driving pinion **7** from chronograph wheel **5** being produced by an oscillating or rocking movement of the axis **8**, produced by the movements of the coupling rocking lever **10**.

It is to be noted that the toothing of driving pinion **7**, as well as the toothing of driving chronograph wheel **5** is very fine, with sharp teeth, permitting an easy coupling of the two elements.

The coupling rocking lever **10**, being relatively remote from the base board **1**, is carried by two pillars **13** each carrying a screw **14**, under the head of which slides the rocking lever. An eccentric abutting member **15**, carried by the base board **1**, limits the movements of the coupling rocking lever **10** produced by its return spring **12**. This abutting member allows adjustment of the working position of the coupling rocking lever **10** and, consequently, the degree in which driving pinion **7** is meshing with chronograph wheel **5**.

It is to be noted that coupling rocking lever **10**, with the elements carried thereby, while taking into account the force exerted thereon by its return spring **12**, is balanced with respect to its axis of rotation, so that any lateral shocks sustained would not produce any movement of the rocking lever and, consequently, any coupling of the chronograph. Such an uncoupling would be particularly disturbing, if the shock should occur in a direction substantially perpendicular to the handle of the chronograph, when, in such case, the shock would produce a sudden jump of the handle.

A blade spring **16** acts axially on a shoulder of chronograph wheel axis **4** for producing a friction which prevents any flapping movements of the handle of the chronograph.

The displacements of the coupling rocking lever **10** are produced by the return-to-zero hammer of the chronograph, designated by **17**, articulated at **18** on the chronograph frame. This hammer is provided with a heel **17***a* carrying an eccentric abutting member **19** acting on a shoe-shaped end part **10***a*, shoe-shaped, of the coupling rocking lever **10**, when the chronograph mechanism is in its rest position and in its return-to-zero position, for displacing the coupling rocking lever **10**, against the action of its return spring **12** and, thus, uncoupling driving pinion **7** from chronograph wheel **5**.

The return-to-zero hammer **17** of the chronograph is rigid with two superposed plates, one of which, designated by **20**, constitutes a distance-member, and the other of which, designated by **21**, is cut in such a way as to constitute a cam to coact on the one hand with a jumper **22** acting on three bearing surfaces **23**, **24** and **25** of this cam, for ensuring the stability of three distinct positions of the return-to-zero hammer, and on the other hand with a rocking lever **26**, called the reverse lever, serving to control the displacements of the hammer and acting alternatively on the two bearing surfaces **27** and **28** of the cam **21**.

The reverse lever **26** constitutes one of the two elements of a control lever of the return-to-zero hammer, the second element of which is constituted by a sliding member **29**, called, control lever, guided by two pins **30** and **31** passing through two elongated apertures **32** and **33**,

respectively, of this control lever **29**. The push-button which controls the running and the stopping of the chronograph, diagrammatically represented by the arrow **34**, acts directly on the control lever **29** for displacing it, by a movement of translation, against the action of a return spring **35**.

The extremity of the control lever **29** is provided with a notch **36** in which is engaged a finger **26***a* of the reverse lever **26**, under the action of a return spring **37** acting on a pin **38** carried by the reverse lever, this spring being, on the other side, secured to the control lever **29**. Owing to this arrangement, the reverse lever **26** is articulated on the extremity of the control lever **29**, while being yieldable by influence of return spring **37** in such a way as to bear on the two end surfaces of the control lever situated on both sides of its notch **36**.

A return-to-zero rocking lever **39** is articulated at **40** on the frame of the chronograph. The return-to-zero push-button, represented diagrammatically by the arrow **41**, acts on this rocking lever for rotating it in the counter-clockwise direction, against the action of the return spring **35**. The return-to-zero rocking lever **39** acts, by its end opposite to its pivotal point, on the cam **21**, rigid with the return-to-zero hammer **17**, for bringing this latter into the return-to-zero position (FIG. 3) in which its peen, designated by **17***b*, acts on the return-to-zero heart **6** of the chronograph.

It is to be noted that the return-to-zero rocking lever **39** is ended by a nose **39***a* arranged in such a way as to abut against a portion **21***a* of cam **21**, in case the return-to-zero rocking lever should be operated when the chronograph is running, thus preventing the return-to-zero hammer **17** from being brought into its working position at the wrong time.

Owing to the fact that the abutting bearing surfaces **27** and **28** of cam **21** are situated on both sides of the geometric axis passing through the center of articulation **18** of the cam and through the articulation point of the rocking reverse lever **26** on the control lever **29**, the reverse lever acts on the cam for displacing it alternatively in one direction and the other, according to the position in which it lies. When the chronograph is running (FIG. 2), the extremity of the reverse lever **26** acts, when a pressure is exerted on the return-to-zero push-button **41**, on the bearing surface **27** of cam **21** for rotating return-to-zero hammer **17** in the clockwise direction, until the extremity of the reverse lever abuts against a circular portion of cam **21** situated between its bearing surfaces **27** and **28**, that stops the displacement of the control lever **29** and of the reverse lever **26**. The cam **21** and the return-to-zero hammer **17** then occupy their intermediary position corresponding to the stopping of the chronograph.

During this movement of the control lever **29** and of the reverse lever **26**, the reverse lever rotates slightly around its point of articulation in the counter-clockwise direction. When the pressure exerted on the push-button **41** is released, the control lever **29** comes back into its initial position, under the effect of its return spring **35**. The contact between the extremity of the reverse lever **26** and cam **21** being then broken, the reverse lever is released and comes back, under the action of its return spring **37**, into its position in which it bears against the two terminal surfaces of the control lever **29** situated on both sides of the notch **36**.

Consequently, if a new pressure is exerted on the push-button **41**, the reverse lever **26** then acts on the bearing surface **28** of cam **21** for rotating this cam in the counter-clockwise direction until it abuts against the circular surface of the cam situated between the two bearing surfaces, thus bringing the chronograph back into its running position.

When a pressure is exerted on the return-to-zero rocking lever **39** while the chronograph is in its rest position (FIG. 1), the extremity of the return-to-zero rocking lever **39** acts on cam **21** for bringing the return-to-zero hammer **17** into its return-to-zero position (FIG. 3), in which the hammer is maintained by the action of the jumper **22** acting on the bearing surface **23** of cam **21**.

When the hammer occupies the return-to-zero position, a pressure exerted on the push-button **41** urges the reverse lever **26** to cooperate with the bearing surface **28** of cam **21** for producing the rotation of this cam and, consequently, of the hammer, in the counter-clockwise direction, that lifts the hammer and brings the chronograph back into its running position.

The chronograph mechanism comprises a brake lever **43**, articulated on a pillar **44** (FIG. 6), and which is provided with an elastic arm **43***a* bearing on a pin **45** carried by the base board **1**, this arm thus returning resiliently said brake lever into its working position (FIG. 1) in which its portion **46**, constituting a shoe, acts radially on the chronograph wheel **5** for stopping it.

When the chronograph is running, a pin **47** carried by the return-to-zero hammer **17** acts on the brake lever **43** for lifting it against the action of its elastic arm or return spring **43***a* and breaking the contact of its portion **46** with chronograph wheel **5**, thus releasing this latter.

When the chronograph is returned to zero, a pin **48** carried by the extremity of the return-to-zero rocking lever **39** acts on the extremity of the brake lever **43** for lifting it and releases chronograph wheel **5**, thus permitting return-to-zero hammer **17** to drive freely in rotation the axis of chronograph.

It is to be noted that, once the pressure exerted on the return-to-zero push-button **41** is released, after the return-to-zero operation, the brake lever **43** comes from itself back into its working position under the action of its return spring **43***a*. Consequently, when the chronograph is put in running condition by a pressure exerted on the push-button **41**, the brake lever **43** remains in its working position after the part **17***b* of the return-to-zero hammer **17** has left the return-to-zero heart **6**, the brake lever being lifted by the pin **47** of the hammer only at the end of the run of this latter, only when the driving of the chronograph is ensured by the meshing of driving pinion **7** with chronograph wheel **5**. The synchronisation of the two operations—meshing of driving pinion **7** with chronograph wheel **5** and releasing of this wheel by the brake lever **43**—is obtained while rotating the eccentric abutting member **19** constituting the control abutting member of the coupling rocking lever **10**.

The chronograph includes a minute counter, running at the rate of one revolution per 30 minutes, the axis **49** of which is pivoted between the base board **1** and the bridge **2** of the chronograph frame, and which extends through a tubular sleeve constituting the axis of rotation of the oscillating mass, eccentrically mounted, of the automatic winding device of the clockwork. This axis **49** carries a counter wheel **50** meshing with a first intermediary wheel **51** rotatably mounted on a rocking lever **52**, articulated on an eccentric member **53** carried by the base board **1** of the chronograph frame. This rocking lever **52** is located in a recess **91** provided in the base board **1** (FIGS. 4, 5 and 6). The axis of the chronograph carries a control finger **92** (FIG. 4), the angular position of which is adjustable, acting, once per revolution, on first intermediary wheel **51** for driving it for one tooth. The gearing ratio between wheels **50** and **51** being 1:1, counter wheel **50** is also driven step by step, for one tooth, a jumper **54** acting thereon for ensuring the stability of its rest position.

The axis **49** carries a return-to-zero heart **55** with which acts a second part, designated by **17***c*, of the return-to-zero hammer **17**.

It is to be noted that a screw **56**, with a conical head, screwed in the distance-member **20**, acts on part **17***c*, which is slightly resilient, of the hammer **17**, for deforming it slightly and thus adjusting exactly its position with respect to the peen **17***b*.

The chronograph includes a half-hours counter, rotating at the rate of one revolution per 12 hours, the axis **57** of which is pivoted between the base board **1** and the bridge **3** of the chronograph frame (FIG. 5) and which extends through an aperture provided in a circular ridge shown by the base board **1** of the clockwork, this circular ridge receiving the crown wheel rotatably mounted thereon. The axis **57** carries a wheel **58**, with which cooperates a jumper **59** meshing with a wheel **60** carried by an axis **61**, also pivoted between the base board **1** and the bridge **3**.

The rocking lever **52** carries a second intermediary wheel **62** meshing with the first one, the axis **63** of which carries a control finger **95** acting, once per revolution, on wheel **60**. This control finger **95** (FIGS. 5 and 9) is deformable so as its radial position, and consequently its engagement with the toothing of wheel **60**, can be adjusted. Its angular position is also adjustable, this finger being rigid with a split hub **95***a*, frictionally mounted on axis **63** of second intermediary wheel **62**.

The gearing ratio between wheels **58** and **60** being 1:1, the return-to-zero heart of the hours counter, designated by **64** (FIG. 5), with which cooperates a return-to-zero hammer **65**, is carried by the axis **61** of wheel **60** and not by axis **57** of the half-hours counter. The return-to-zero hammer **65** is articulated at **66** on the chronograph frame and is submitted to the action of a return spring **67** urging it against the return-to-zero heart **64**.

This hammer **65** is rigid with a control lever **68** with which cooperates heel **17***a* of the return-to-zero hammer **17**. When this latter occupies its two positions corresponding to the stopping and to the running of the chronograph (FIGS. 1 and 2 respectively), heel **17***a* acts on control lever **68** against the action of the return spring **67** for maintaining the hammer **65** removed from the return-to-zero heart **64**; when the return-to-zero hammer **17** occupies the return-to-zero position (FIG. 3), the control lever **68** is released and the hammer **65** acts on the heart **64** for returning the half-hours counter to zero.

The rocking lever **52** is provided with an arm **52***a* above which extends the extremity **96***a* of a small bar **96** secured to the base board **1** by a screw **97** and the purpose of which is, on the one hand, to hold the rocking lever upwardly (FIG. 6) and, on the other hand, to be used as a support for the pillar **44** on which is articulated the brake lever **43**. The arm **52***a* of the rocking lever carries a pin **69** on which bears a return spring **70** urging the extremity of the arm **52***a* against an eccentric abuting element **71** (FIGS. 1 and 2). When the rocking lever **52** occupies this position, first intermediary wheel **51** is situated on the way of control finger **92** of the chronograph, so that wheel **51**, and consequently the two counters, of minutes and of half-hours, are driven. By adjusting the position of the eccentric abutting member **71**, one may vary slightly the working position of the rocking lever **52** and, consequently, the engagement of the control finger **92** of the chronograph with wheel **51**. It is to be noted that, in the same way, but while acting on the eccentric member **53**, one may displace slightly the point of articulation of the rocking lever **52**, thus modifying the engagement of counter wheel **51** with wheel **50**. This last adjustment must be effected before the previously mentioned one.

The rocking lever **52** occupies its working position when the chronograph is running or stopped, the chronograph wheel **5** being not driven in this last case. During the return-to-zero operation, the return-to-zero rocking lever **39** operates, by means of a pin **72**, an intermediary lever or lever **73**, articulated at **74** on the chronograph frame and which acts, by the extremity of a resilient arm **73***a* of this lever, on a finger **52***b* of the rocking lever **52** for displacing this latter against the action of its return spring **70** and thus bringing the wheel **51** out of the way of the control finger **92** of the chronograph; likely, in this position, the control finger **95** of the intermediary wheel **62** does not come in contact with wheel **60**. Consequently, the return-to-zero of the two counters can be effected while the counters are free, without any risk of a control finger being sprung.

It is to be noted that, when the pressure exerted on the push-button **41** is released, after the return-to-zero operation, the rocking lever comes immediately back to its work position, under the effect of the return spring **70**, so that when the return movement of the rocking lever is effected, the hammers are still in contact with the return-to-zero hearts, maintaining strongly the indicators of the counters and of the chronograph, so that there is no risk that the return of the rocking lever produces a displacement of the indicators, as could occur if this return were to be effected while the contact between the hammers and the hearts was already broken.

It is also to be noted that the counters of minutes and of half-hours are situated on the same frame as the rest of the elements of the chronograph mechanism, all the elements, except for the oscillating driving pinion **7**, being thus carried by this frame, while in conventional chronograph mechanisms, the hours and minutes counters are generally mounted on the base plate of the clockwork, on the side thereof facing the dial.

A judicious arangement of the several elements of the chronograph, especially the position of the centers of rotation of the minutes counter **50** of the intermediary wheels **51** and **62** and of the driving wheel **60** of the counter of half-hours, and of wheel **58** of this counter, on a line having the shape of a crescent having for its center the center of the chronograph wheel **5**, has permitted this concentration of almost the totality of the elements of the chronograph on the same frame.

What we claim is:

1. In a chronograph-watch comprising:
- (1) a chronograph mechanism,
- (2) a clock mechanism,
- (3) a frame including a plate removably secured to the clock mechanism,
- (4) the elements of the chronograph mechanism being carried by the frame independently of the clock mechanism,
- (5) the chronograph mechanism including:
  - (a) a chronograph wheel,
  - (b) a minutes counter,
  - (c) an hours counter,
  - (d) a rocking lever mounting first and second intermediary wheels,
  - (e) a first finger,
  - (f) a second finger,
- (6) the first finger rotating with the chronograph wheel for operating the first intermediary wheel in the running position of the chronograph mechanism,
- (7) the second intermediary wheel actuating the second finger into operating a supplementary wheel meshing with the hours counter.

2. In the chronograph-watch as set forth in claim **1**, the clock mechanism including a base plate and the frame being supported by the base plate of the clock mechanism.

3. In the chronograph-watch as set forth in claim **2**, the frame being supported by pillars extending upwardly of the clock mechanism and being secured to the base plate of the clock mechanism.

4. The chronograph-watch according to claim **1** and characterized by the fact that it comprises a braking lever submitted to the action of a return spring which urges it against the chronograph wheel for stopping it, this braking lever being controlled, against the action of its return spring, on the one hand by a return to zero hammer of the chronograph indicator and on the other hand by a return to zero lever controlling this hammer, in such a way that this braking lever is put out of service by the return to zero lever when the return to zero is

effected and by the hammer when the chronograph is running.

5. The chronograph-watch according to claim 4, the arrangement being such that when the pressure exerted on the return to zero lever is released, the braking lever comes back to its working position under the action of its return spring.

6. In the chronograph-watch as set forth in claim 1, the clock mechanism including a second wheel and pinion and gear train bridge, the axis of the second wheel and pinion extending upwardly of the gear train bridge and carrying a wheel upwardly of the gear train bridge for driving the chronograph mechanism.

7. In the chronograph-watch as set forth in claim 6, with the driving wheel of the chronograph mechanism meshing with a pinion carried by an axis pivoted on the one hand on the gear train bridge of the clock mechanism and on the other hand on a coupling lever for the oscillation of the axis to bring the pinion into engagement with and to separate the pinion from the chronograph driving wheel, all of components of the chronograph mechanism except for the axis being exclusively carried by the frame.

8. In the chronograph-watch according to claim 7, with the upper bearing of the oscillating axis being carried by a bar secured to the coupling lever.

9. In a chronograph-watch according to claim 7, with the coupling lever being controlled by a return-to-zero hammer of the chronograph mechanism.

10. In a chronograph-watch according to claim 7, with the coupling lever being pivoted on a pillar secured to a plate of the frame and bearing on pillars also secured to the plate and held thereon by screws under the head of which it can slide.

11. In a chronograph-watch according to claim 7, with the coupling lever being balanced with respect to its center of rotation for precluding displacement of the coupling lever through lateral shock.

12. In a chronograph-watch according to claim 1, with a return-to-zero hammer of the chronograph mechanism being rigid with a cam cooperant with the control member of the hammer.

13. In a chronograph-watch according to claim 12, with a jumper cooperating with the hammer for main taining the hammer in one of a plurality of stable positions.

14. The chronograph-watch according to claim 1, and characterized by the fact that the spring acting on the reverse lever bears on the control lever.

15. In a chronograph-watch according to claim 12, with the hammer being controlled by a two-part lever with a first part being slidably mounted on the frame and with the other being subject to the action of a return spring for urging it in a determined position with respect to the first part, a cam being provided with two bearing surfaces situated on both sides of the geometrical axis connecting the articulation point of the hammer to the articulation point of the two portions of the lever, whereby, according to the position occupied by the hammer, the reverse lever acts respectively on one or the other of the bearing surfaces for displacing the hammer.

16. Chronograph-watch according to claim 15, displacements of the control lever of the hammer being limited by the reverse lever bearing against a bearing surface of the cam abutting against a surface of the cam situated between the two bearing surfaces of the cam.

17. The chronograph-watch according to claim 15, and characterized by the fact that the reverse lever acts, when the control lever of the hammer is actuated while the hammer occupies its position corresponding to the running of the chronograph mechanism, on one of the bearing surfaces of the cam for bringing it into an intermediary position corresponding to the stopping of the chronograph mechanism, with the reverse lever rotating, during the movement of the control lever, around its axis of articulation on the control lever, against the action of its return spring, the return spring returning the reverse lever into its rest position with respect to the control lever as soon as the pressure exerted on the control lever is released, with the reverse lever being then able to act on the second bearing surface of the cam when a new pressure is exerted on the control lever to bring the hammer back into its position corresponding to the running of the chronograph mechanism.

18. The chronograph-watch according to claim 17, a return to zero lever having a portion which encounters the hammer when the lever is operated while the hammer occupies its position corresponding to the running of the chronograph for stopping the return-to-zero lever and preventing its untimely operation.

19. The chronograph-watch according to claim 1, with a sliding gear lever carrying two intermediary wheels meshing one with another and with one being operated when the chronograph mechanism is in running position by a finger rotating with the axis of the chronograph mechanism and the other carrying a finger actuating the hours counter.

20. The chronograph-watch according to claim 19, the driving finger of the hours counter operating an intermediary wheel meshing with the wheel of the hours counter.

21. The chronograph-watch according to claim 20, the operating finger of the hours counter being adjustable radially and angularly with respect to its axis.

22. The chronograph-watch according to claim 20, with the wheel being cooperating with the operating finger of the hours counter rigid with a return to zero heart, and with the gearing ratio between the wheel and the hours counter wheel being 1:1.

23. The chronograph-watch according to claim 19, the sliding gear being partially located in a recess provided in the base board of the frame.

24. The chronograph-watch according to claim 19, the first intermediary wheel of the rocking lever being operated by the finger of the chronograph mechanism and meshing with the wheel of the minutes counter.

25. The chronograph-watch according to claim 24, the sliding gear being pivoted on the frame by means of an eccentric for permitting adjustment of its position for modifying the meshing of the first intermediary wheel with the wheel of the minutes counter.

26. The chronograph-watch according to claim 24, the rocking lever being submitted to the action of a return spring urging it in its position in which the finger of the chronograph axis cooperates with the first intermediary wheel as the rocking lever bears against an eccentric member carried by the frame, and which permits to modify the running position of the rocking lever and, consequently, the engagement of the finger of the chronograph axis with the first intermediary wheel.

27. The chronograph-watch according to claim 24, with the sliding gear being submitted to the action on the one hand of a return spring which urges it in its running position in which the finger of the chronograph axis cooperates with the first intermediary wheel, and on the other hand of an intermediary lever interposed between the rocking lever and a return to zero lever, with the operation of the return to zero lever producing by means of the intermediary lever a displacement of the rocking lever against the action of its return spring, to bring it into a position in which the first intermediary wheel is out of the way of the finger of the chronograph, the return of the rocking lever into its working position being effected as soon as the pressure on the return to zero lever is released, while the return to zero hammers

of the chronograph and counters indicators are still in contact with the return to zero hearts rigid with these indicators to prevent any untimely displacements of the indicators.

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