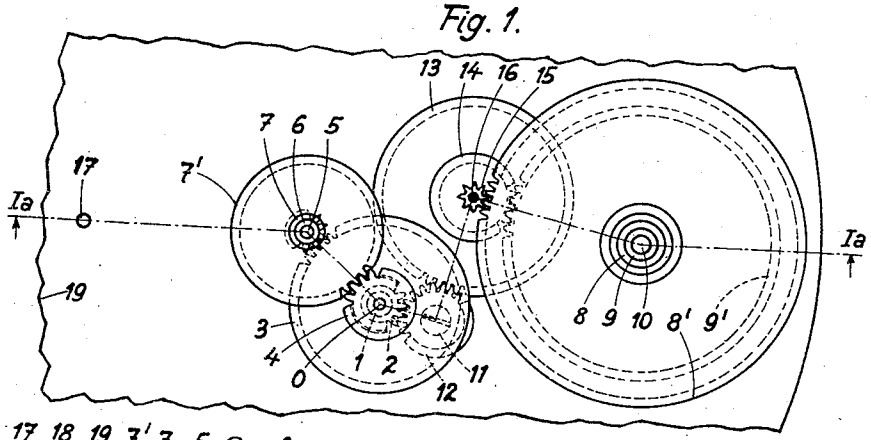
Jan. 9, 1940. H. AEBERHARDT 2,186,159

WATCH MOVEMENT

Filed March 17, 1937 2 Sheets-Sheet 1

Fig. 1.



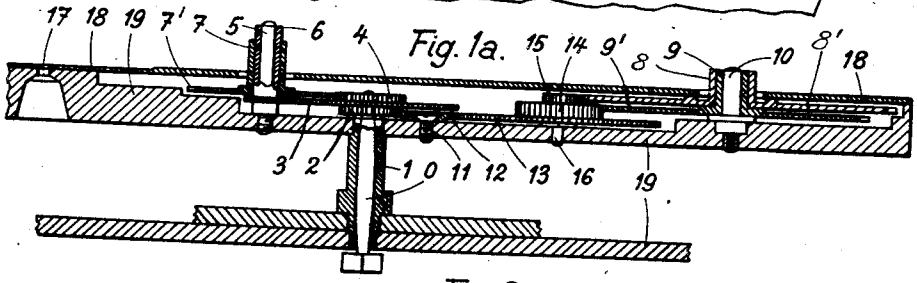
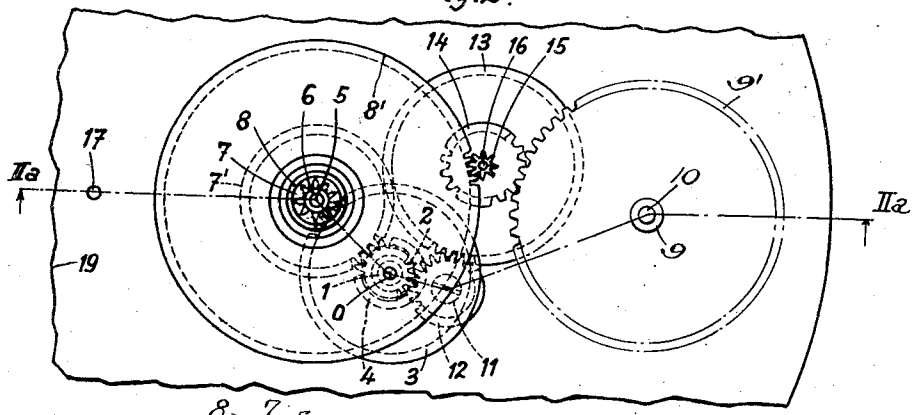


Fig. 1a.

Fig.2.



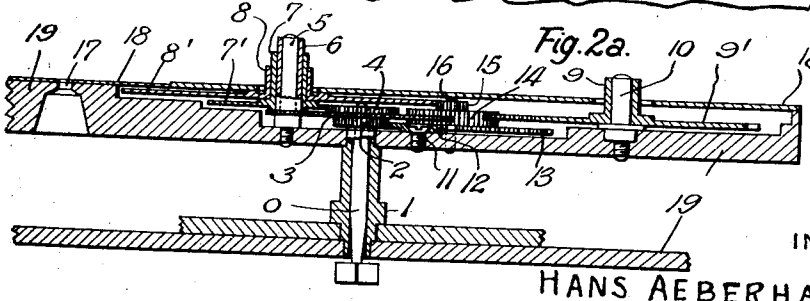


Fig.2a.

INVENTOR

HANS AEBERHARDT

By Young, Emery & Thompson

ATTYS.

Jan. 9, 1940. H. AEBERHARDT 2,186,159

WATCH MOVEMENT

Filed March 17, 1937 2 Sheets-Sheet 2

Fig. 3.

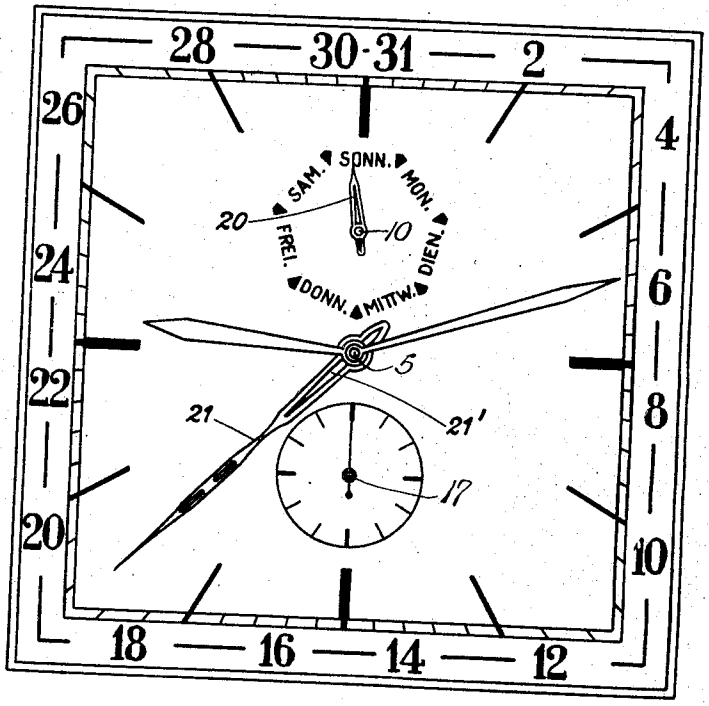
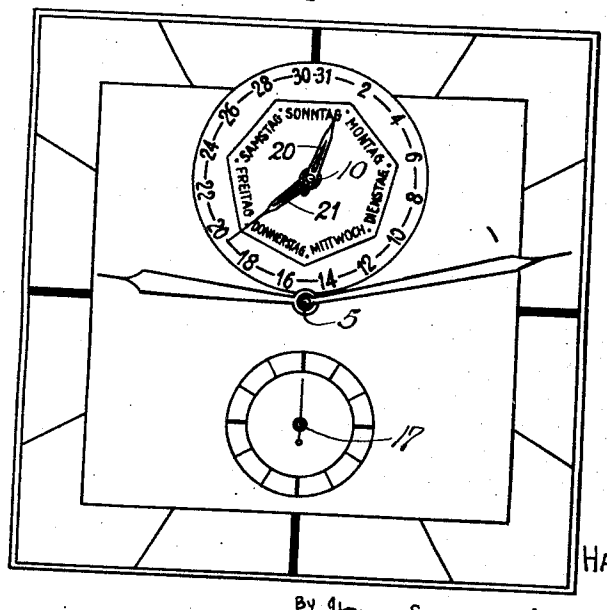


Fig. 4.



INVENTOR

HANS AEBERHARDT

By Young, Emery & Thompson ATTORNEYS

Patented Jan. 9, 1940 2,186,159

UNITED STATES PATENT OFFICE

2,186,159

WATCH MOVEMENT

Hans Aeberhardt, Bienne, Switzerland

Application March 17, 1937, Serial No. 131,527
In Switzerland March 21, 1936

4 Claims. (Cl. 58—58)

The present invention relates to a movement for calendar watches having a continuously moved date gear wheel. According to the invention the minute work is operated by gear wheels supported by a pin which is mounted within a hollow shaft driven by the barrel. These gear wheels include a pinion meshing with a gear wheel, which on its other side meshes with a further gear wheel provided with a pinion imparting to the date gear wheel a continuous rotation.

In ordinary watches the minute work is always mounted on the staff of the center gear wheel, except in the system Roskopf. Also according to the present invention the minute work is not directly operatively connected to the center gear wheel, but to an intermediate gear wheel which transmits the movement from the barrel to the center wheel. This intermediate gear wheel ensures a several days movement and besides a rapid and exact setting of hands, time and date.

The annexed drawings show two embodiments of the object of the invention, but only those parts which are needed for an understanding.

Figs. 1 and 1*a* are plan and section of a first embodiment where the calendar wheels are eccentrically arranged, the section being taken on the broken line I*a*—I*a*.

Figs. 2 and 2*a* are plan and section of a concentric arrangement of the date wheel, the section being taken on the broken line II*a*—II*a* in Fig. 2.

Fig. 3 shows a dial where the weekdays' hand is arranged eccentrically and the month days' hand centrically.

Fig. 4 shows an arrangement of hands corresponding entirely to the arrangement of Fig. 1.

According to Figs. 1, 1*a*, 2, 2*a* driving pinion 1 meshes with a barrel (not shown). Within the sleeve of this pinion 1 a staff 0 is held, which will be taken along by said pinion and which by means of gear wheels 2, 3 and 4 fixed thereto moves the whole minute and calendar work. The gear wheel 4 meshes with the hour gear wheel 7' and pinion 2 meshes with the idler gear 12 pivoted to a screw 11. A cannon 7 is carried by the hour gear wheel 7'. Gear 3 itself drives the cannon pinion 6 pivoted to a staff 5 arranged and fastened at the center of the movement. The idler gear 12, serving also for the time setting, moves the calendar driving gear wheel 13 to which is rigidly attached a large pinion 14 and a small pinion 15. Pinion 14 drives the weekdays' gear wheel 9' and the sleeve 9. Pinion 15 meshes with the date gear wheel 8, 8' (monthly days 1–31). The date gear wheel 8' could also be located at the center of the movement, as shown in Fig. 2. If the staff 16 of the gear wheels 13, 14, 15 as shown in Fig. 1, is at an equal distance from the staffs 5 and 10, the date gear wheel 8, 8' could be placed at will either in the position as shown in Fig. 1, or in the central position as shown in Fig. 2. If staff 16 is unequally distant from the staffs 5 and 10 a change of position of the date gear wheel into the center is not possible.

The staff 10 of the date gear wheel may be located also at another place than at the one shown.

The time setting by means of idler gear wheel 12 is made possible, due to the fact that idler gear wheel 12 meshes with pinion 2, and pinion 4 which is fast to this pinion 2 meshes with the hour gear wheel.

In the drawings the place of the seconds' gear wheel staff is marked with 17, the dial with 18 and the plates with 19.

In the Figures 3 and 4 the weekdays' hand is marked with 20 and the dates' hand with 21. This latter hand is attached easily and adjustably by hand to the cannon portion 8 of the date gear wheel 8'. As shown in the drawings, the required resiliency of hand 21 has been obtained by a slot in the hand itself. Such a slot could also be provided for the hand 20.

Both Figs. 3 and 4 show dials for auto car or standard clocks and have the circular movements attached to their backside.

In Fig. 3 the weekdays' hand 20 is eccentrically arranged, while the months' date hand 21 is arranged on the sleeve 8 of gear wheel 8' concentric with center staff 5, the graduations being marked on the square framing. The respective movement is like that shown in Fig. 2.

In Fig. 4 the weekdays' hand and the months' date hand are arranged eccentrically, which arrangement corresponds with the arrangement in Fig. 1.

In the working examples described the winding mechanism and the time and date setting mechanisms could be provided with a crown or with a key. The time setting with a crown by means of the idler gear wheel 12 or by means of a key engaged directly on a square headed of the staff 0 permits a quicker setting of the hands to time and date. By the fact that the minute work is operated by a transmission wheel meshing directly with the barrel the movement may be kept running for several days.

As regards the arrangement of the weekdays'

dial inside of the month days' dial, as shown, this arrangement could also be the reverse.

What I claim is:

1. In a movement for calendar watches, the combination of a plate and a center staff fast thereto, a cannon pinion and an hour gear wheel mounted on said center staff, a driving pinion arranged to be the driving member of the watch movement, a staff held in said driving pinion, an upper pinion and a minute gear wheel both fast to said driving pinion, said upper pinion being in mesh with said hour gear wheel and said minute gear wheel being in mesh with the cannon pinion, a lower pinion fast to said driving pinion, a calendar driving gear wheel, a staff for said calendar driving gear wheel, a small and a large pinion fast to said calendar driving gear wheel, an idler gear wheel, serving also for the time setting, pivoted to the plate and in mesh with said lower pinion of the driving pinion and said calendar driving gear wheel, a calendar wheel staff eccentrically positioned relative to the staff of the driving pinion and located at the same distance from the staff of the calendar driving gear wheel as the distance between the staff of said calendar driving gear wheel and the center staff, a weekdays' gear wheel in mesh with said large pinion, and a months' date gear wheel in mesh with said small pinion, both said weekdays' and said months' date gear wheels being pivoted about said calendar wheel staff.

2. In a movement for calendar watches having a calendar wheel, the combination of a plate and a center staff fast thereto, a cannon pinion and an hour gear wheel mounted on said center staff, a cannon sleeve carried by said hour gear wheel, a driving pinion arranged to be the driving member of the watch movement, a staff held in said driving pinion, an upper pinion and a minute gear wheel both fast to said driving pinion, said upper pinion being in mesh with said hour gear wheel and said minute gear wheel being in mech with the cannon pinion, a lower pinion fast to the driving pinion, a calendar driving gear wheel, a staff for the calendar driving gear wheel, a small and a large pinion fast to the staff of said calendar driving gear wheel, an idler gear wheel, serving also for the time setting, pivoted to the plate and in mesh with said lower pinion of the driving pinion and said calendar driving gear wheel, a calendar wheel staff eccentrically positioned relative to the staff of the driving pinion, a weekdays' gear wheel pivoted about said calendar wheel staff and in mesh with said large pinion, and a months' date gear wheel pivoted on the cannon sleeve of said hour wheel and in mesh with said small pinion.

3. In a movement for calendar watches, the combination of a plate and a center staff fast thereto, a cannon pinion and an hour gear wheel mounted on said center staff, a cannon sleeve carried by said hour gear wheel, a pinion arranged to be the driving member of the watch movement, a staff held in said driving pinion, an upper pinion and a minute gear wheel both fast to said driving pinion, said upper pinion being in mesh with said hour gear wheel and said minute gear wheel being in mesh with the cannon pinion, a lower pinion fast to said driving pinion, a calendar driving gear wheel, a staff for said calendar driving gear wheel, a small and a large pinion fast to said calendar driving gear wheel, an idler gear wheel, serving also for the time setting, pivoted to the plate and in mesh with said lower pinion of the driving pinion and said calendar driving gear wheel, a calendar wheel staff eccentrically positioned relative to said driving pinion staff and located at the same distance from the staff of the calendar driving gear wheel as the distance between the staff of said calendar driving gear wheel and the center staff, a weekdays' gear wheel in mesh with said large pinion and mounted on said calendar wheel staff, a sleeve carried by said weekdays' gear wheel, said cannon sleeve of the hour wheel and the sleeve of said weekdays' gear wheel forming mounts for a months' date gear wheel, and a months' date gear wheel in mesh with said small pinion and mounted on one of said mounts.

4. In a movement for calendar watches, the combination of a plate and a center staff fast thereto, a cannon pinion and an hour gear wheel mounted on said center staff, a driving pinion arranged to be the driving member of the watch movement, a staff held in said driving pinion, an upper pinion and a minute gear wheel both fast to said driving pinion, said upper pinion being in mesh with said hour gear wheel and said minute gear wheel being in mesh with the cannon pinion, a lower pinion fast to said driving pinion, a calendar driving gear wheel, a staff for said calendar driving gear wheel, a small and a large pinion fast to said calendar driving gear wheel, an idler gear wheel, serving also for the time setting, pivoted to the plate and in mesh with said lower pinion of the driving pinion and said calendar driving gear wheel, a calendar wheel staff eccentrically positioned relative to the staff of the driving pinion and located at the same distance from the staff of the calendar driving gear wheel as the distance between the staff of said calendar driving gear wheel and the center staff, a weekdays' gear wheel in mesh with said large pinion and mounted on said calendar wheel staff, said calendar wheel staff and said center staff also constituting months' date wheel pivots, and a months' date gear wheel in mesh with said small pinion and pivoted about one of said months' date wheel pivots.

HANS AEBERHARDT.