(No Model.)

W. C. SELLERS.

SWEEP SECONDS HAND TRAIN FOR CLOCKS.

No. 585,153. Patented June 22, 1897.

Fig. 1.

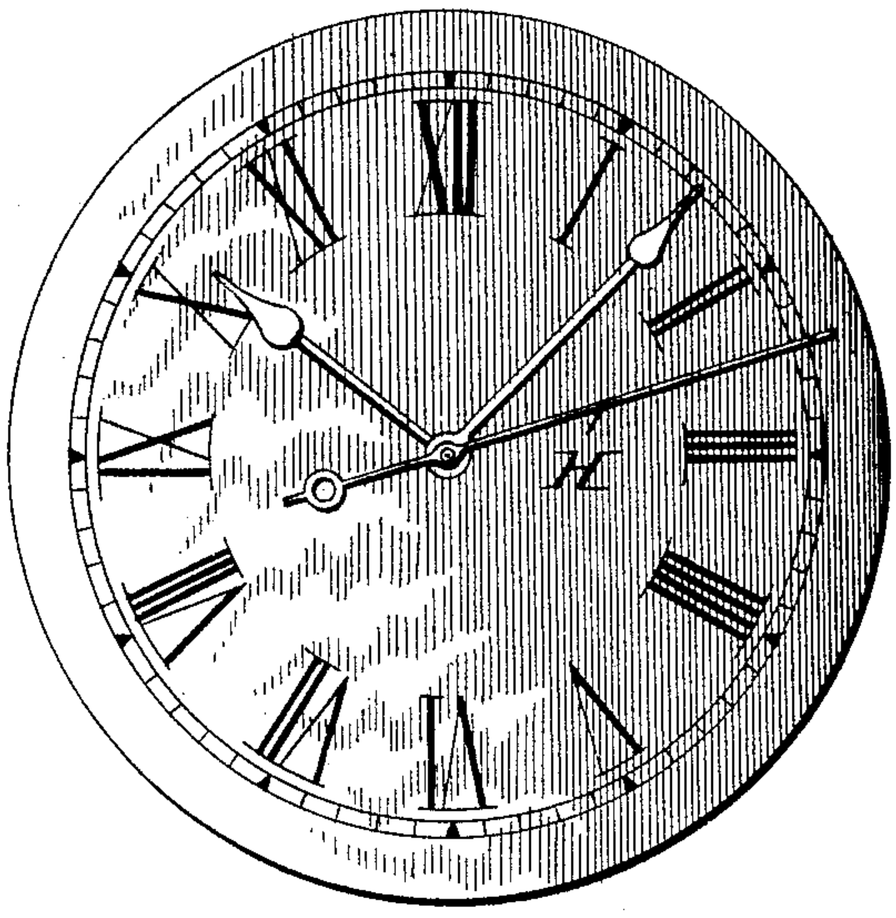


Fig. 2.

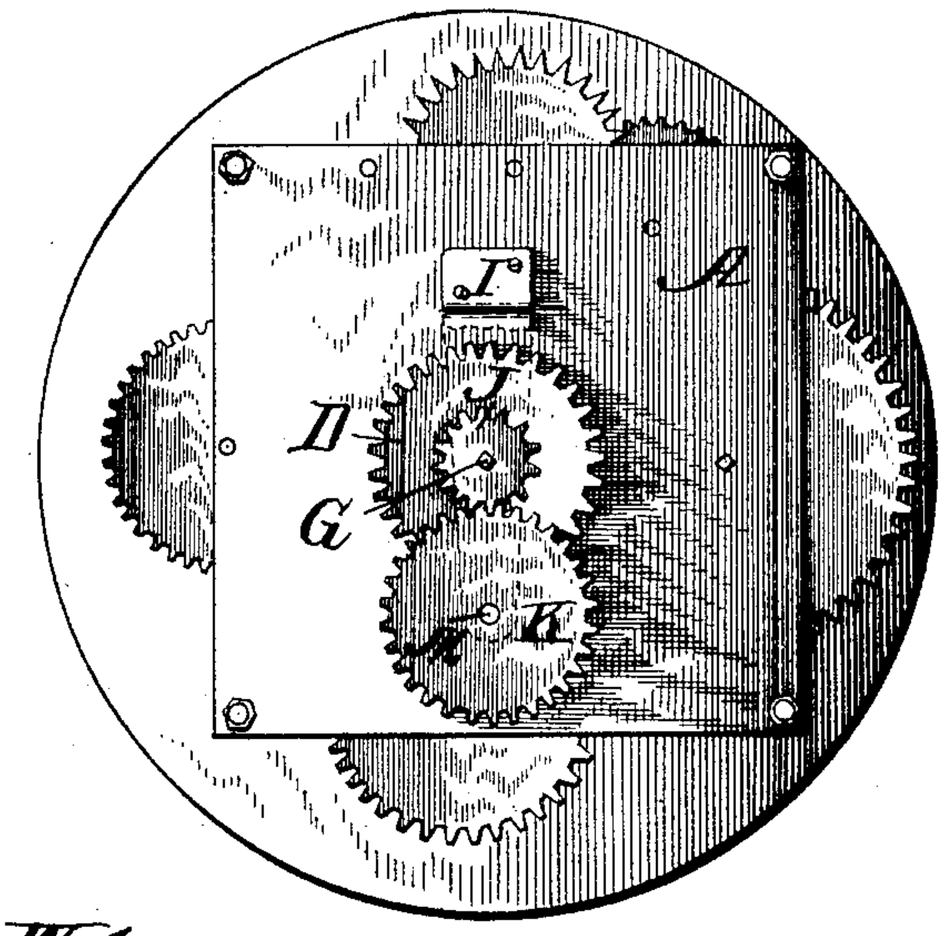
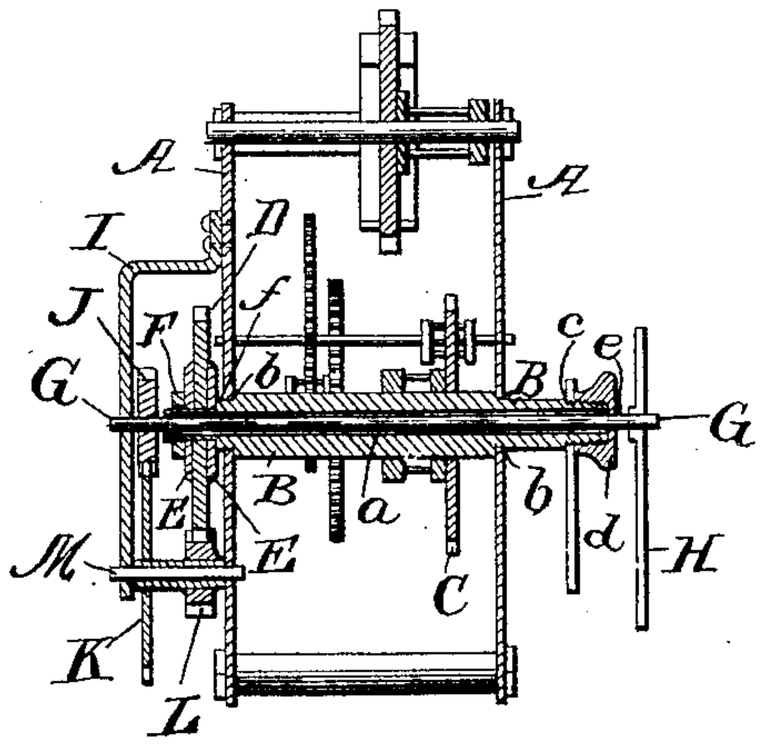


Fig. 3.



Witnesses:

J. B. McGirr.

Wm. Dawes.

Inventor:

William C. Sellers.

By Philip F. Larner.

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM C. SELLERS, OF MEDICINE LODGE, KANSAS.

SWEEP-SECONDS-HAND TRAIN FOR CLOCKS.

SPECIFICATION forming part of Letters Patent No. 585,153, dated June 22, 1897.

Application filed April 29, 1896. Serial No. 589,586. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. SELLERS, a citizen of the United States, residing at Medicine Lodge, in the county of Barber and State of Kansas, have invented certain new and useful Improvements in Seconds-Hand Movements for Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has special reference to what is known usually as a "sweep-seconds-hand movement for clocks," and it is designed to furnish such a movement which can be applied to clocks of various kinds, so as to be operated directly by the running-train, and at the same time the construction and arrangement of the parts are such that a clock embodying my invention can be set independent of the seconds-hand and the latter also set independent of the clock-movement.

To this end my invention consists, mainly, in providing a clock with a hollow central arbor mounted at both ends in bearings in the frame or casing, which arbor is revolved by the usual train mechanism, and within said hollow arbor revolves an independent shaft or spindle carrying on its outer end the seconds-hand. On the inner end of the hollow shaft is mounted a gear-wheel held in proper position by friction-plates, and said wheel is arranged to mesh with intermediate gearing connecting with the inner end of the seconds-hand shaft or spindle and so timed that as the hollow central arbor is revolved the seconds-hand shaft is also rotated, causing the seconds-hand to traverse the face of the clock at the correct speed. By the arrangement of the gear-wheel and friction-plates on the inner end of the hollow arbor the main movement of the clock can be set independently of the seconds-hand, a feature not possible in prior seconds-hand movements.

Referring to the drawings, Figure 1 represents in front view the face of a clock to which my invention has been applied. Fig. 2 is a rear view thereof, and Fig. 3 a vertical central section showing the operating mechanism.

It is to be understood that, as hereinbefore indicated, my invention is specially applicable to clocks and that it can be readily applied in all cases without change of the usual time-train mechanism. In the drawings I have illustrated a clock having a time-train mechanism of common form.

A represents the casing or frame of the clock.

B is the center shaft or arbor, which has bearings at each end in the casing or frame of the clock, and this shaft, it is to be understood, is in operation driven by the train mechanism of the clock, which communicates motion to the gear-wheel C on the central shaft.

In carrying out my invention the center arbor or shaft is made hollow or provided with a longitudinal central bore, as at *a*, which extends the entire length of said shaft. The shaft B at both ends, where each passes through the casing of the clock, is reduced in diameter, forming shoulders *b b*, resting against the casing to prevent the longitudinal movement of the shaft. At the outer or front end of the shaft is mounted the usual minute-hand, which bears against an additional shoulder *c* near the end of shaft and is held in position by a hollow cup-shaped nut *d*, which engages with a thread on the outer end of the shaft, and said nut is provided with an opening *e* through its cap. At its inner end said shaft is also reduced in diameter, forming a shoulder *f*, and on the shaft is mounted a gear-wheel D. Adjacent to said wheel and upon the shaft are placed friction-plates E E, one on each side of the wheel, of a size properly proportioned to the diameter of the wheel, against which the same are caused to bear by the adjustment of a nut F, which connects with a screw-thread formed on the inner end of the central shaft.

Within the central shaft or arbor B is mounted a spindle G, which has a bearing at the outer end thereof in the opening of the nut *d*, through which the spindle passes, and carries on its outer end the sweep seconds-hand H. The inner end of said spindle has a suitable bearing in a bracket I on the outer side of the clock-casing, and a pinion J is mounted on the spindle. This pinion is arranged to gear with an intermediate wheel K, carrying a pinion L on a counter-shaft M, mounted in the bracket I and casing A, and

the pinion L is in turn driven by the friction-wheel D on the central shaft B.

It is to be understood that the hour-hand is suitably mounted upon the outer end of the central shaft and operated in the usual manner by the time-train mechanism.

The gearing as employed by me is so timed that upon the rotation of the wheel C the hollow central shaft B, carrying the minute-hand, is caused to revolve at the proper speed for the movement of that hand. As said shaft revolves it also carries with it the wheel D, which in turn rotates the pinion L and gear-wheel K, meshing with the pinion J on the inner end of the spindle G, which, as it revolves, carries with it the seconds-hand H, the gearing referred to being so timed as to cause said hand to revolve around the face of the clock at the proper speed.

By the employment of the gear-wheel D upon the inner end of the hollow arbor and the contact therewith of the friction-plates E E, I am enabled in setting the clock to operate the seconds-hand movement independent of the hour and minute hands, and this feature constitutes an important element of my invention. In setting the clock it is simply necessary to take hold of the seconds-hand with thumb and finger and hold the same while the minute-hand is turned around the dial, it being understood that in all cases when setting the clock the hands are turned to the right. In setting the clock in the manner as described the wheel D, when the minute-hand is moved, remains stationary and the inner end of the central arbor B turns freely therein. As there is more friction on the hour and minute hands than on the seconds-hand the latter can be moved without holding the former.

I am aware that it has before been proposed to provide a watch with an attachment which embodied a hollow shaft with an interior spindle revolving therein and carrying a seconds-hand, and said shaft and spindle were operatively connected with the time-train of the watch by fixed mechanism, which in no manner permitted the setting of the seconds-hand independent of the hour and minute hands.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a sweep-seconds-hand movement for clocks, the combination with a central hollow shaft having independent bearings in the clock-frame, a seconds-hand shaft, a thumb-nut to secure the minute-hand in place, said nut acting as a bearing for the sweep-hand shaft which has its opposite end journaled in the frame, time-train mechanism connecting said shafts and comprising a gear on the inner end of said hollow shaft, held in position thereon by means of friction-disks, whereby the minute-hand can be moved or operated independently of the seconds or sweep hand, all substantially as and for the purposes set forth.

2. In a clock mechanism, the combination of a frame, a hollow arbor journaled therein and provided with a hand, a shaft passing concentrically through said arbor with a bearing at its inner end, a cap or nut on the outer end of the arbor, centering the shaft therein and forming the bearing for the outer end thereof, a seconds-hand on said shaft, and a time-train mechanism connecting the shaft and arbor, and comprising a friction-held gear, all substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM C. SELLERS.

Witnesses:
E. H. NIXON,
GEO. W. HORNEY.