(No Model.)

H. JACOT-BURMANN.

STOP WATCH.

No. 489,255. Patented Jan. 3, 1893.

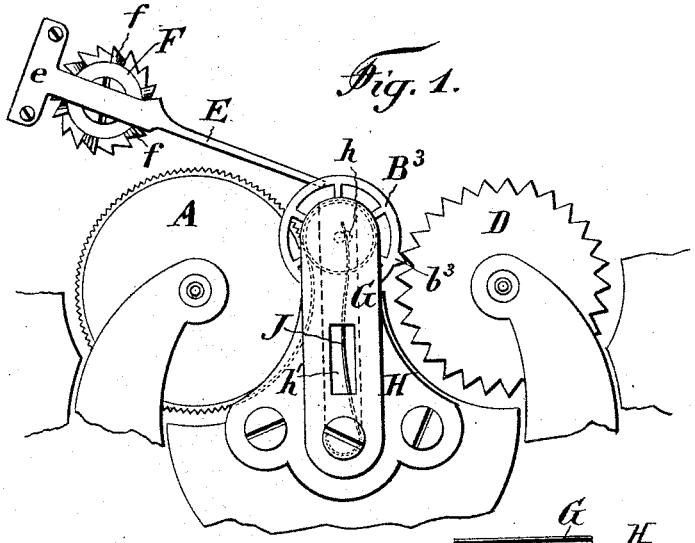

Fig. 1.

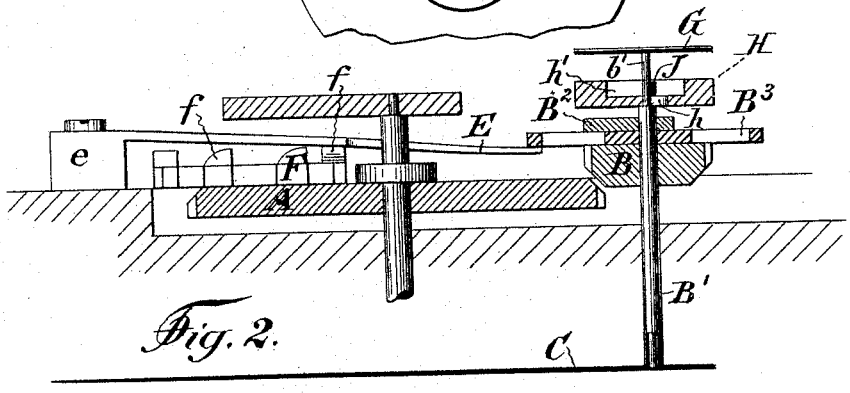

Fig. 2.

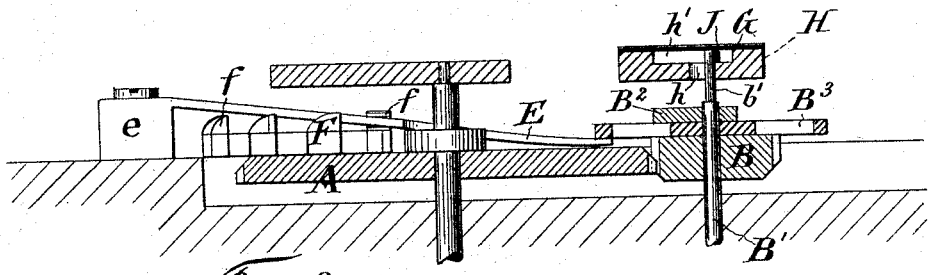

Fig. 3.

Witnesses
Chas. F. Smith
Geo. T. Pinckney

Inventor
Henri Jacot-Burmann
per Lemuel W. Serrell
Atty.

UNITED STATES PATENT OFFICE.

HENRI JACOT-BURMANN, OF BIENNE, SWITZERLAND.

STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 489,255, dated January 3, 1893.

Application filed September 19, 1892. Serial No. 446,278. (No model.)

To all whom it may concern:

Be it known that I, HENRI JACOT-BURMANN, watch manufacturer, of Bienne, Switzerland, have invented an Improvement in Stop-Watches, of which the following is a specification.

This invention relates to that class of stop watches in which the seconds hand is upon a central arbor, and an endwise motion is given to the arbor to connect the same with the rotating mechanism of the watch, and it is put out of gear by a similar movement in the opposite direction. In this class of watches an irregularity of movement arises from the action of the teeth as they are brought into gear in starting the hand. By the present improvement a very smooth and regular movement is obtained in connecting the independent seconds hand with the gearing.

In the accompanying drawings, Figure 1 is a plan on an enlarged scale of that portion of the stop watch mechanism to which the invention relates. Fig. 2 is a cross section with the parts in the position they assume when the seconds hand is at rest, and Fig. 3 is a similar view with the gearing connected. The parts in Figs. 2 and 3 are twice the dimensions of those in Fig. 1.

The wheel A is upon either axis of the ordinary watch works or mechanism and it is intended to give motion to the pinion B, the parts being so proportioned that the pinion B rotates once in a minute, and this pinion B is upon the arbor B′ that carries the independent seconds hand C. The arbor B′ carries the heart cam B^2 and also a wheel or disk B^3 provided with a tooth or projection b^3 to act upon the minutes-meter-wheel D; these parts however are of ordinary construction. The cam wheel F with the projection *f* is to be moved by a push button and receive a step by step motion as usual, and the spring E fixed at *e* to the watch plate is acted upon by the cam wheel F, and one end of this spring E is beneath the wheel B^3, and in the position of rest shown in Fig. 2, the end of the spring E has moved the wheel B^3 and its arbor so as to disengage the pinion B from the driving wheel A, the spring E resting upon one of the projections *f* of the cam wheel F. There is a spring G fixed to the bridge H and acting against the end of the arbor B′ to give motion to the same in the opposite direction to the movement received from the spring E, so that when the cam F is turned and the moving end of the spring E ceases to act upon the wheel B^3, the spring G gives to the arbor B′ and parts connected therewith an end movement to bring the pinion B into gear with the driving wheel A and cause the parts to assume the position shown in Fig. 3.

The peculiar feature of my invention relates to the construction of the parts which allows the pinion B to easily engage the wheel A. The pivotal end *b′* of the arbor B′ is within a slot *h* in the bridge H, and a spring J within a recess *h′* in said bridge presses the pivot *b′* in the direction of the wheel A. The contiguous edges of the teeth on the wheel A and pinion B are beveled or slightly conical, so that when the cam F is partially turned and the spring E draws away from the wheel B^3, the conical or beveled portions of the gear wheel and pinion come together by the action of the spring G, and the arbor B′ is slightly displaced laterally against the action of the spring J, the pivot *b′* moving in the slot *h* of the bridge H, thus insuring the proper engagement of the teeth of the wheel A and pinion B and preventing any false movement or looseness between such teeth, hence the seconds hand receives a smooth and regular movement. When the cam wheel F is again moved and one of its projections *f* acts upon the spring E, the wheel B^3 and the parts therewith connected return to the position shown in Fig. 2 and the movement of the seconds hand is stopped.

I claim as my invention.

In a stop watch the combination with the independent seconds hand and its arbor, of the pinion B and driving wheel A both provided with teeth and beveled or conical on their adjacent edges, the bridge having a slot for the pivot of the arbor, the spring J acting against such pivot, the spring G for giving an end movement in one direction to the arbor, and the cam and spring E for moving the parts in the other direction, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRI JACOT-BURMANN.

Witnesses:
E. IMER SCHNEIDER,
G. C. WEKLER.