(No Model.) 2 Sheets—Sheet 1.

F. BOVET & A. E. BESSIRE.

STOP WATCH.

No. 396,914. Patented Jan. 29, 1889.

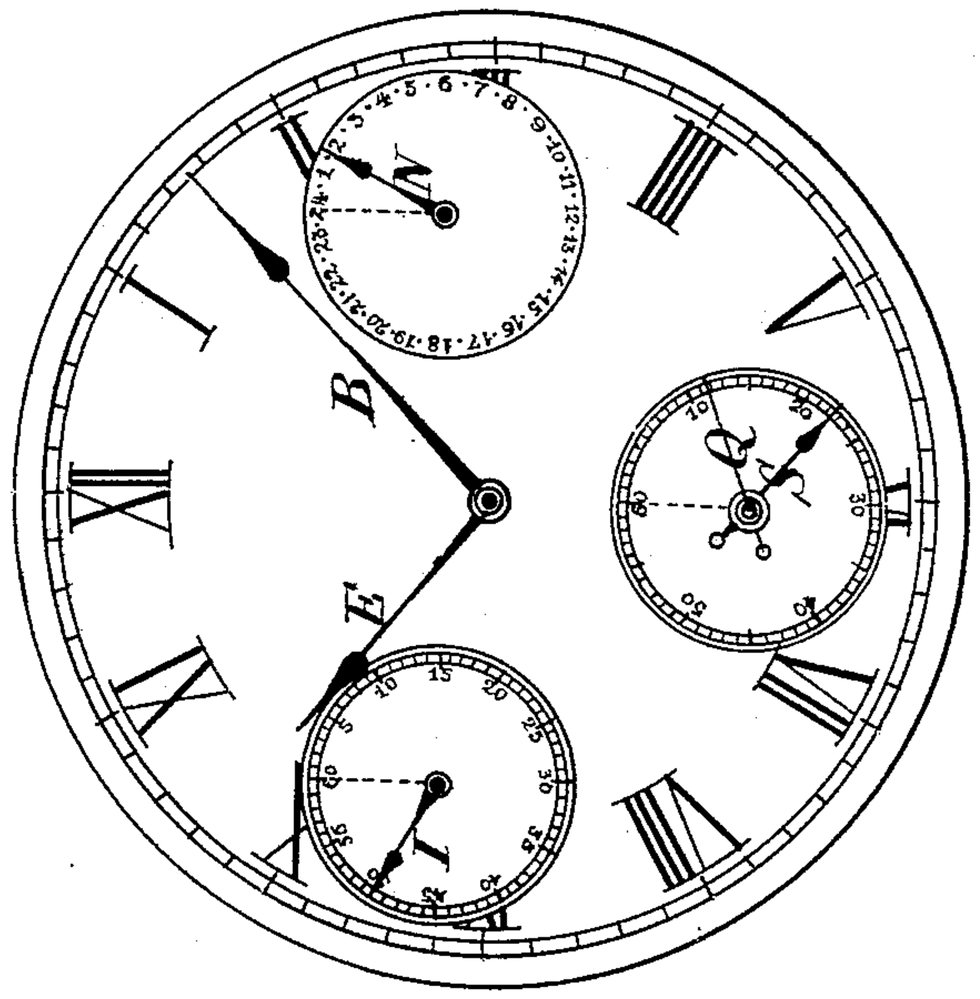

Fig. 2

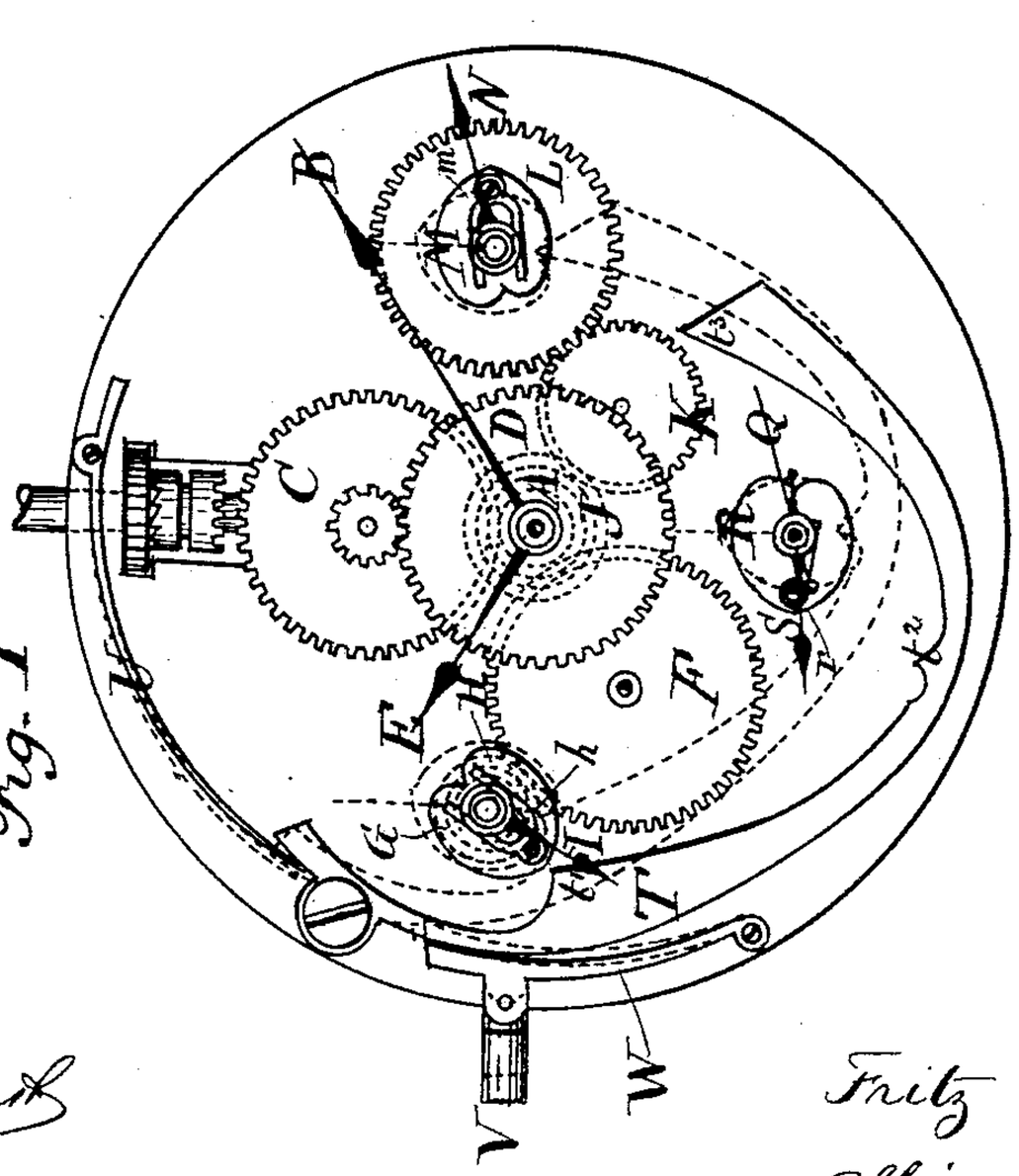

Fig. 1

Witnesses.
Chas. A. Smith
J. Stahl

Inventors
Fritz Bovet
Albin E. Bessire
per Lemuel W. Serrell
atty

(No Model.) 2 Sheets—Sheet 2.

F. BOVET & A. E. BESSIRE.

STOP WATCH.

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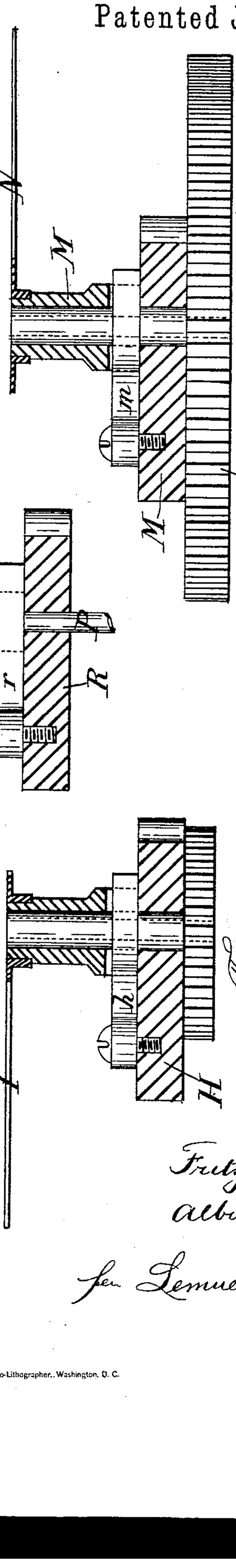

Fig. 5.

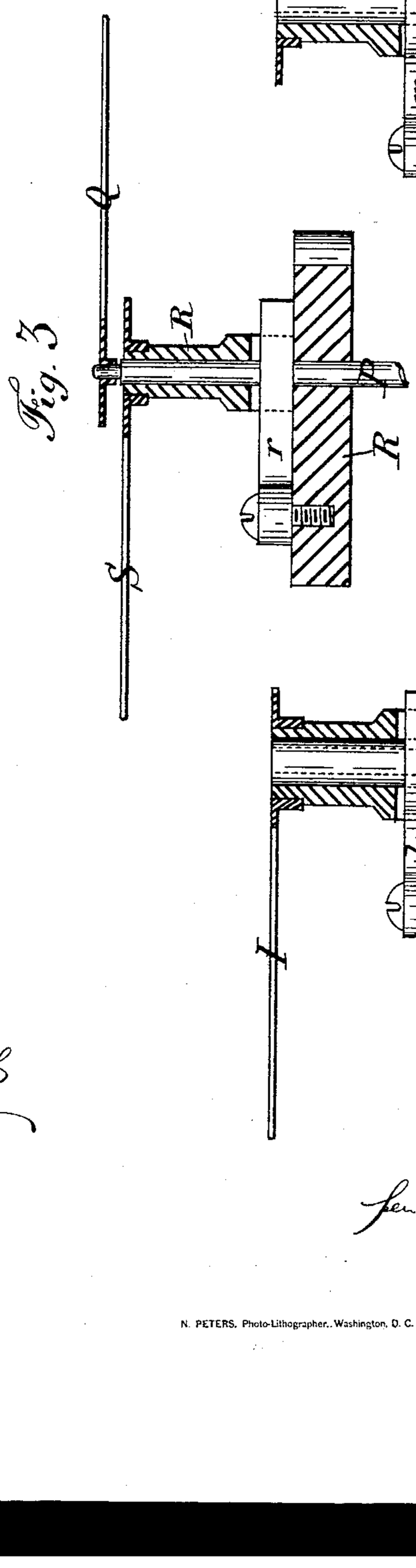

Fig. 3

Fig. 4

Witnesses
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UNITED STATES PATENT OFFICE.

FRITZ BOVET AND ALBIN ERNEST BESSIRE, OF BIENNE, SWITZERLAND, ASSIGNORS TO H. BOVET, OF SAME PLACE.

STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 396,914, dated January 29, 1889.

Application filed July 9, 1888. Serial No. 279,386. (No model.)

To all whom it may concern:

Be it known that we, FRITZ BOVET and ALBIN ERNEST BESSIRE, both watch-manufacturers, of Bienne, in Switzerland, have invented a new and useful Improvement in Watches, of which the following is a specification.

This invention consists in a mechanism for measuring and indicating the duration of an experiment, a race, a journey, or an observation of any kind from one second up to twenty-four hours, said mechanism being so arranged as to enable the same to be combined with watches of all kinds without greatly increasing their price.

In the accompanying drawings, Figure 1 shows the mechanism of the indicator as it would be seen after the dial has been removed. Fig. 2 shows the arrangement of the dial. Fig. 3 is a vertical section of the eccentric bearing the seconds-hand of the indicator; Fig. 4, a vertical section of the eccentric bearing the minute-hand of the indicator; and Fig. 5, a vertical section of the eccentric bearing the hour-hand of the indicator.

In all the figures the same letters refer to the same pieces.

A is the minute-pinion, disposed as usual and bearing the minute-hand B of the watch.

C is the minute-wheel work, and D the hour-wheel, both disposed as is usual in watches.

The pinion A, while gearing, as usual, with the wheel C, gears besides into a transmitting-wheel, F, which drives a pinion, G, bearing a heart-cam, H, to which is affixed the minute-hand I of the indicator. A wheel, J, which is affixed underneath wheel D, gears into another transmitting-wheel, K, which drives a wheel, L, bearing a heart-cam, M, to which is affixed the hour-hand N of the indicator. The number of teeth of all these wheels is calculated so as to have on the one side the hand I making one revolution in the hour, and on the other the hand N making one revolution in twenty-four hours.

The seconds are marked by a hand, S, the heart-cam R of which is placed upon the axis P of the third wheel of the watch-work.

The herein-described arrangement is enabled to act as a stop-watch or indicator by means of the combined arrangement of the heart-cams R, H, and M, and of the lever T, as will appear from the following description.

As shown in Fig. 3, the axis P of the third watch-wheel bears a fixed seconds-hand, Q, as usual in watches. Said axis carries also a heart-cam, R, to which is affixed a seconds-hand, S. The heart-cam R is free to turn upon the axis P; but it is provided with a little friction-spring, *r*, bearing laterally upon said axis P, so as to insure the heart-cam R turning with the axis P, but still able to be turned independently for the purpose of setting the hands S to 0. A similar disposition allows the minute-hand I and the hour-wheel N of the indicator to be set to 0. The heart-cam H, to which is affixed the hand I, is provided with a spring, *h*, bearing against the hollow axis of pinion G. The heart-cam M, to which is affixed the hand N, is provided with a friction-spring, *m*, bearing laterally against the hollow axis of wheel L. Now, the three heart-cams R, H, and M, may be acted upon by the three projections, t', t^2 and t^3, of a lever, T, so as to cause their hands S, I, and N, to be set to 0. The lever T is held in the position shown in full lines in Fig. 1 by means of a spring, U. By means of a push-piece, V, acting upon a transmitting-lever, W, the lever T can be thrown from the position shown in full lines in Fig. 1 into the position shown in dotted lines in said figure.

To measure the time by the herein-described indicator, the pusher V is pressed down and is released at the very moment the experiment or race begins. The three hands will then start from 0, and at the end of the experiment or race its duration can be read in hours, (up to twenty-four,) minutes, and seconds.

Having thus described our invention, we claim—

The combination of the heart-cams R, H, and M, with a lever, T, having three projections, t', t^2, and t^3, and with a spring, U, a pusher, V, and a lever, W, substantially as shown and described, and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRITZ BOVET.
ALBIN ERNEST BESSIRE.

Witnesses:
JOHANN WÄBER,
J. E. HINNEN.