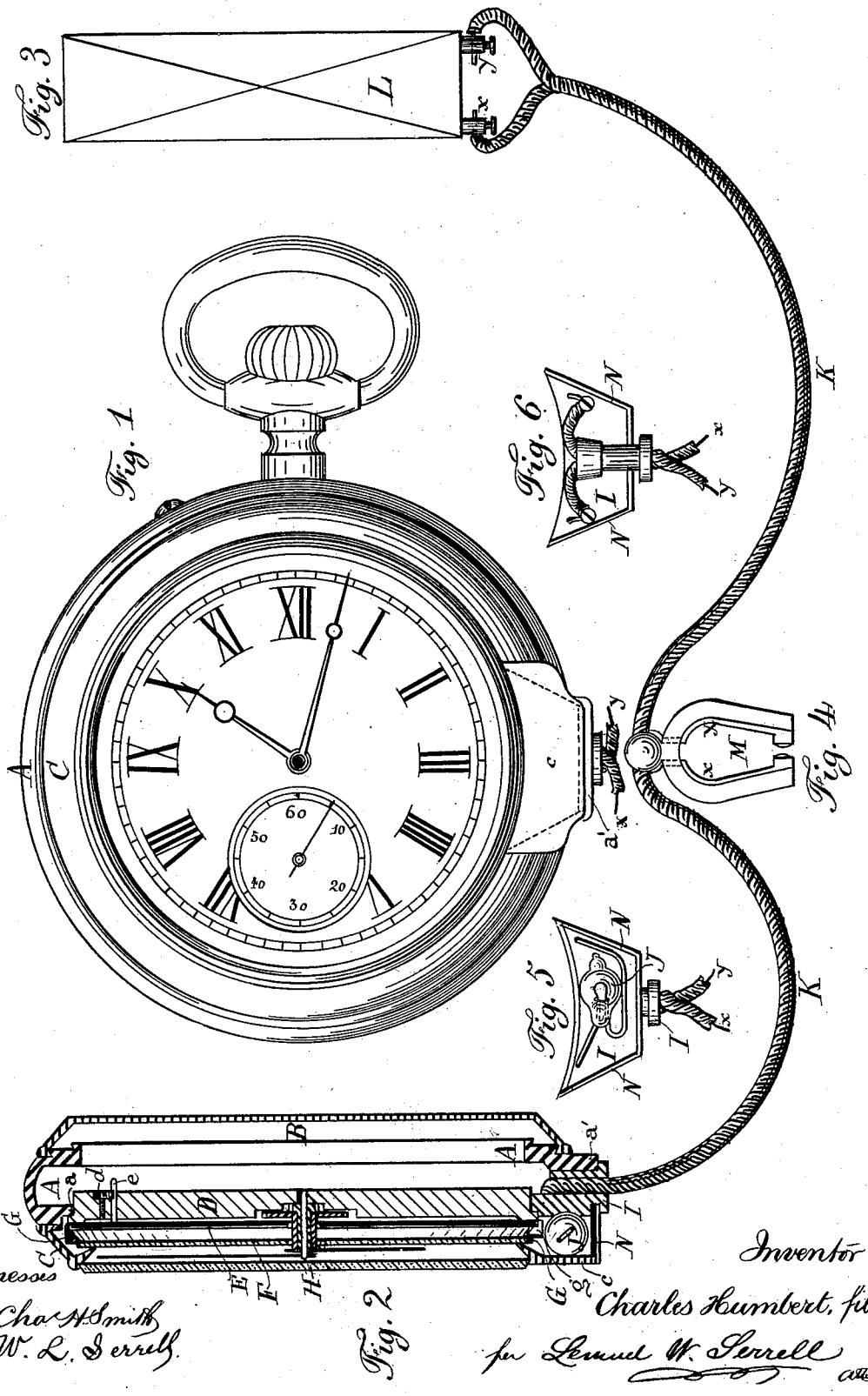
(No Model.)

C. HUMBERT, FILS.

TRANSPARENT DIAL FOR WATCHES.

No. 363,959. Patented May 31, 1887.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES HUMBERT, FILS, OF CHAUX DE FONDS, SWITZERLAND.

TRANSPARENT DIAL FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 363,959, dated May 31, 1887.

Application filed January 3, 1887. Serial No. 223,321. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HUMBERT, Fils, watch-manufacturer at Chaux de Fonds, in Switzerland, have invented a new and useful Improvement in Dials for Watches and Clocks of Every System or Dimension, of which the following is a specification.

The purpose of my invention is to have the dials of watches and clocks of every system or dimension illuminated in the darkness. I attain this result, first, by a special construction of the dial, and, secondly, by the combination of said dial with a source of light. In watches the latter is composed of an electric lamp acted upon by a portable battery.

In the accompanying drawings, Figure 1 is an outside view of a watch provided with my luminous dial. Fig. 2 is a cross-section showing the disposition of the parts composing the luminous dial, and showing also an electric lamp in the watch-case. Fig. 3 shows the electric battery intended to act upon said lamp. It may be a battery of any character, an accumulator, or other source of electricity. Fig. 4 shows an interrupter placed as a locket in the midst of the conductor K, which replaces a watch-chain, and which connects the battery L with lamp J. Fig. 5 is a top view, and Fig. 6 a back view, of the insulator I, which contains the electric lamp J and the reflector N.

In all the figures similar letters refer to similar pieces.

The center or ring A, as in ordinary watches, is made with the case-bottom B and glass-bezel C. The works, having the plate D, are affixed, as usual, to a bearing, *a*, of the watch-case center A.

Upon plate D there is affixed, by means of pins *e* and screws *d*, a polished plate or dial, E, without signs or divisions. A second dial, F, of rough glass, upon which are painted the signs and divisions of the hours, minutes, and seconds, is affixed upon a ring, G. The inner surface of the latter, which surrounds the space left between E and F, is polished and inclined toward the polished surface of E. The shafts of the hour, minute, and second hands pass through the dial E, the space between E and F, and the dial F, so as to have the hands moving between dial F and glass H.

The polished inner surface of G has the effect of distributing the light which enters through the opening *g* upon the whole surface of E and of eliminating the shadow projected upon E by the shaft of the hands. Now, it will be apparent that my luminous dial consists of a plane reflector, E, combined with a circular reflector, G, and a source of light, J, and a glass dial, F, in front of the reflector E, and bearing the signs and divisions of hours, minutes, and seconds, above which move the hands. According as said dial is intended for a watch or a clock, of whatever size or dimension, the proportions of the respective parts of my dial, as well as the distance between E and F and the number or kind of sources of light, will vary.

In watches the electric lamp J, which is affixed upon a piece, I, of insulating material, and provided with a polished reflector, N, is placed into an enlargement, *a'*, of the watch-case ring A and covered by a corresponding enlargement, *c*, of the glass-bezel, C. The lamp J is connected by means of two conducting-wires, *x* and *y*, which are inserted into a flexible cable, K, with the source of electricity, L. An interrupter, M, of any desired character, allows the bearer of the watch to close the current when he wishes to have the dial illuminated. In the drawings the interrupter M is composed of a piece of elastic insulating material formed as a horseshoe and bearing both ends of the interrupted wire *x*. By pressing upon the ends of the horseshoe the contact between the two ends of the interrupted wire *x* is established.

Having thus described my invention, what I claim is—

1. The reflector E, circular reflector G, and dial F, of rough glass or other proper material, bearing the divisions and signs of hours, minutes, and in some cases seconds, combined with a source of light projecting its rays into the space between the reflector E G and dial F through one or more openings, *g*, in the reflector G, substantially as shown and described, and for the purposes specified.

2. In watches, the combination of a dial with an electric lamp, J, within an enlargement of the watch-case, and having the opening *g*, the lamp being provided with a reflector, N, and connected to a source of electricity, L, by means of a flexible cable, K, and an interrupter, M, substantially as shown and described, and for the purpose specified.

CHARLES HUMBERT, FILS.

Witnesses:

ULYSSE HUMBERT BAUMZ,

ARNOLD CHATELIAN.