E. L. MANCHESTER & J. A. BOLEN.

Dies for Ornamenting Balance-Cocks for Watches.

No. 156,227. Patented Oct. 27, 1874.

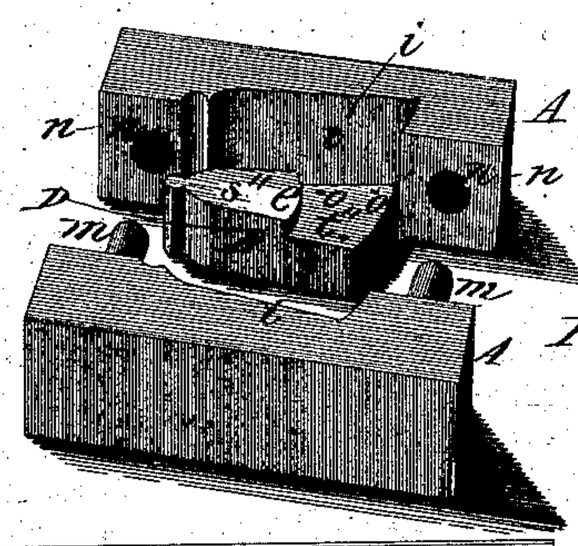

Fig. 1

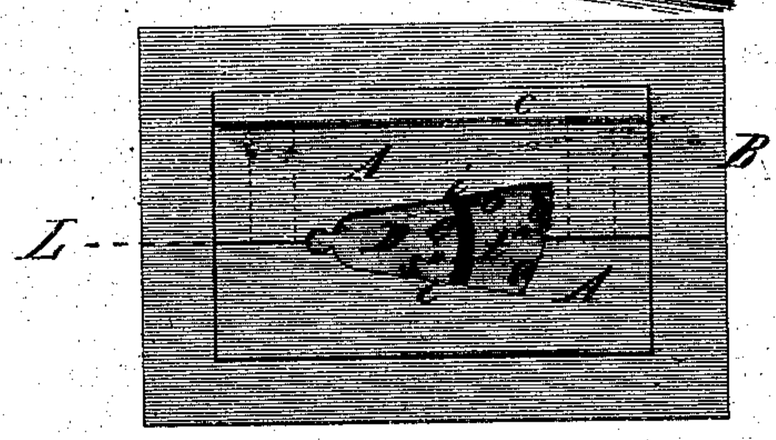

Fig. 2

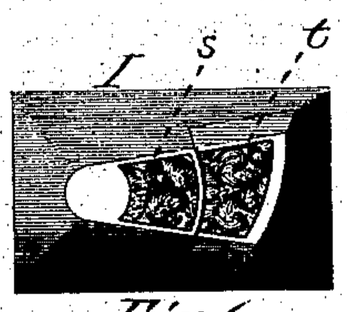

Fig. 6

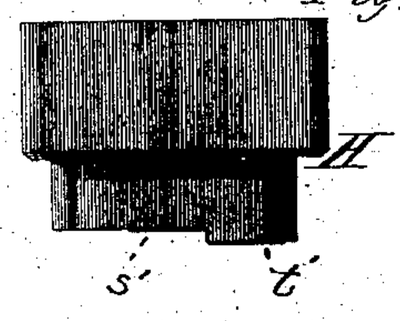

Fig. 4

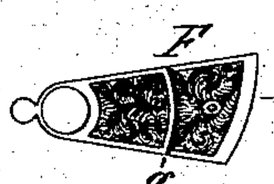

Fig. 7

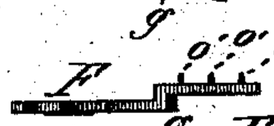

Fig. 8

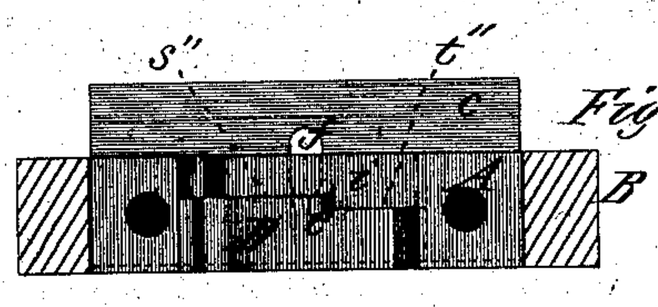

Fig. 3

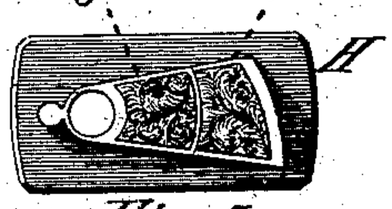

Fig. 5

Witnesses,
C. E. Buckland.
M. J. Foley

Inventor,
Eugene L. Manchester.
John A. Bolen.
By J. A. Curtis.
their Atty.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE

EUGENE L. MANCHESTER AND JOHN A. BOLEN, OF SPRINGFIELD, MASS.

IMPROVEMENT IN DIES FOR ORNAMENTING BALANCE-COCKS FOR WATCHES.

Specification forming part of Letters Patent No. **156,227**, dated October 27, 1874; application filed September 5, 1874.

To all whom it may concern:

Be it known that we, EUGENE L. MANCHESTER and JOHN A. BOLEN, both of Springfield, in the State of Massachusetts, have invented new and useful Improvements in Dies for Ornamenting the Balance-Cocks of Watches; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view of the bed and the counter-die used to hold the bed in place, and to keep the metal of the balance-cock from spreading. Fig. 2 is a plan view of the same placed together and secured by a collar and wedge. Fig. 3 is a vertical section through the collar at line L, the line of contact of the two parts of the counter-die, showing one of the parts and the bed in position. Fig. 4 is a side view of the die. Fig. 5 is a reverse plan view of the die. Fig. 6 is a plan view of the hub from which the die is made. Fig. 7 is a plan view of a balance-cock ornamented by our improved method; and Fig. 8 is a side view of the same.

Our invention relates to an improved method of ornamenting the balance-cocks of watches; and it consists of a die having a face corresponding in form to that of the balance-cock, and having the desired ornamentation wrought thereon; and afterward hardened and secured in a suitable press, and operating in combination with a bed having its upper face formed to correspond with the form of the balance-cock, and having holes made therein in which to insert the pins made upon the under side of the balance-cock, so that the latter, placed upon the bed, and both held firmly in place, will receive its ornamentation at once by bringing down the die upon the balance-cock with great force.

In the drawings, D represents the bed, which is of the same general form as the balance-cock of a watch, having two plain flat surfaces, s'' and t'', with a step, *e*, dividing them; and the surface t'' is provided with small holes *o*. This bed D, in order to be more firmly held in position, we place between the two parts of a counter-die, A, having a portion of each part cut away at *i*, of the same form as a part of the bed, so that when both parts of the counter-die are put together the cavity i' will just receive the bed, and also the die above. One part of the counter-die is provided with steady-pins *m*, and the other part with holes *n*, to receive the pins; and to hold these parts of the counter-die in place with the bed D between, we inclose the whole with a collar, B, and insert a wedge, *c*, into a space between the counter-dies and the collar, left for that purpose, to crowd the two parts of the counter-die together, as shown in Fig. 2. The die is produced by first making a hub, I, of steel, shown in Fig. 6, which is the reverse of the die, having the part *s* of its face made the highest, and the part *t* depressed; and both these parts of the face have the proper design for ornamentation engraved thereon, as shown in Fig. 6, when the metal is soft or in its natural state, and the hub is then hardened or tempered. The die H, having the same form as the general outline of the balance-cock, but with its face just the reverse of the hub, and the same as the face of the balance-cock, is forced with great power, while soft, against the engraved face of the hub I, and thereby receives a perfect imprint of the engraving or ornamentation on the face of the hub, as shown clearly in Fig. 5. The die H is then tempered or hardened, and is then ready for use.

A plain balance-cock, which is usually made of brass or other similar metal, is placed upon the bed D, with the pins o' inserted in the holes *o* in the face of the bed, which permits the balance-cock to have a good firm bearing upon the bed, and the latter is held in a firm position, preferably by the counter-die A A and collar B; and the die H is then forced down upon the balance-cock with great power, and the imprint of the ornamentation in the face of the die is made upon the balance-cock, as shown in Fig. 7. The cock is then removed and a plain one substituted for ornamentation, and so on.

In the manufacture of watches, it has always been the practice to engrave the balance-cock by hand, which is an expensive and slow process, but by the method of ornamenting herein described it is done very rapidly, and at trifling expense.

It is possible that, in practice, it may be found that, with the bed D fixed in a firm immovable position, it may not be necessary to use the counter-dies A, unless it shall seem necessary to keep the metal of which the balance-cock is composed from spreading laterally, in which case they may be used; and may be held in place by any convenient means which will readily suggest themselves to any ordinary mechanic.

We are aware that various articles have been ornamented by means of a die and counter-die, and we do not claim that feature as applied to other articles, or in general; but it has not been deemed practical heretofore, on account of the peculiar form of the balance-cock, and having the pins made thereon, to ornament them by any other method than by engraving, but which we do accomplish practically and successfully in the manner above described.

Having thus described our invention, what we claim as new is—

As a means of ornamenting the balance-cocks of watches, the die H, having the ornamented design wrought upon its face, and the bed D, having the plain faces s'' and t'' and step e, and provided with the holes o, said bed being arranged to receive the balance-cock to be ornamented.

EUGENE L. MANCHESTER.
JOHN A. BOLEN.

Witnesses:
T. A. CURTIS,
C. E. BUCKLAND.