

E. KELLER.

MACHINE FOR MAKING WATCH CASE RINGS.

No. 333,758.

Patented Jan. 5, 1886.

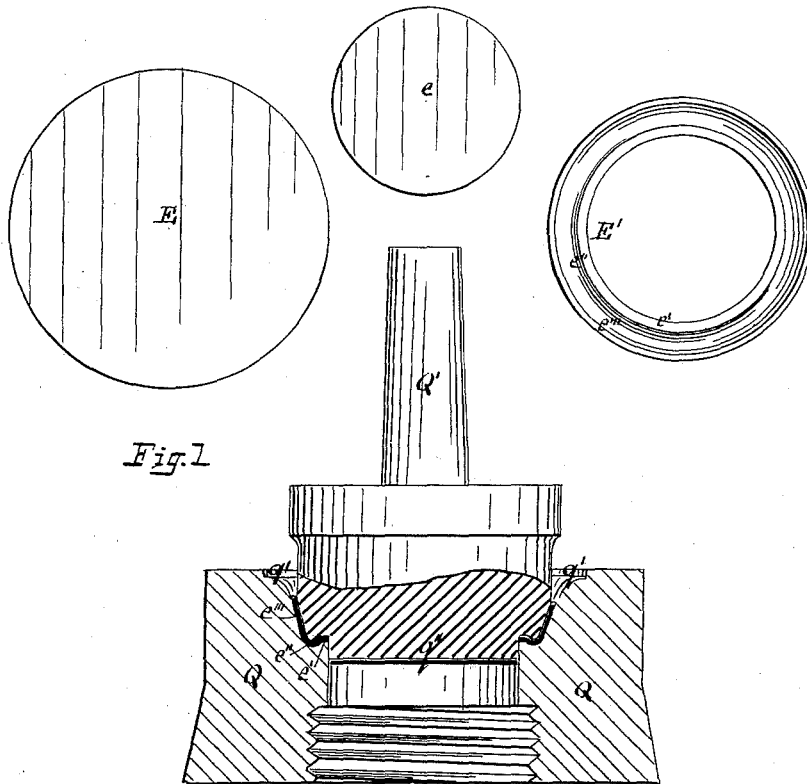


Fig. 1

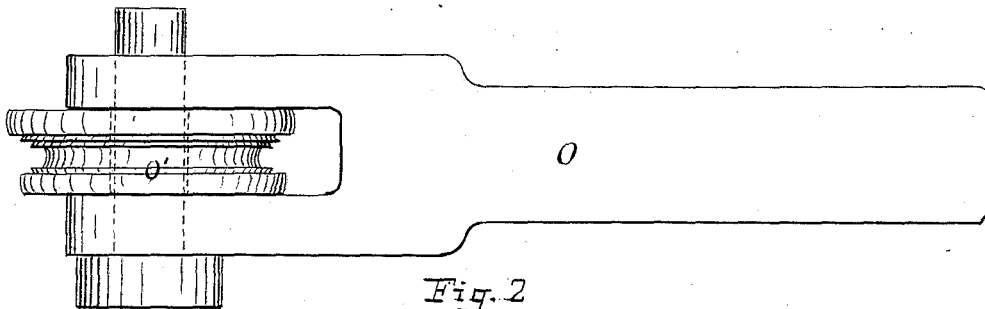


Fig. 2

Witnesses

Chas. H. Smith
J. Stacy

Inventor

E. Keller

per Lemuel W. Perrell

att'y

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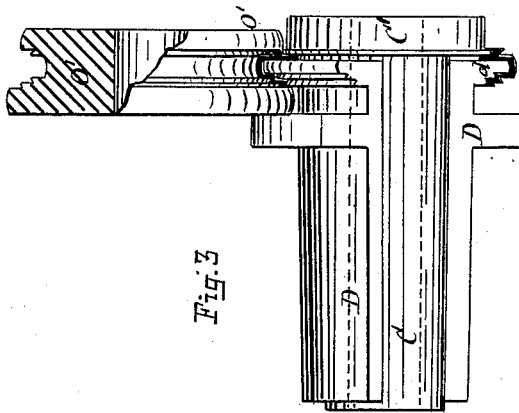


Fig. 3

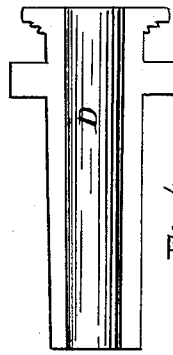


Fig. 4

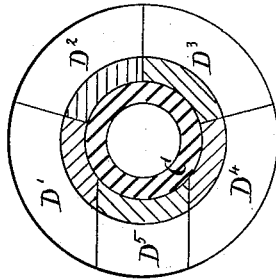


Fig. 5

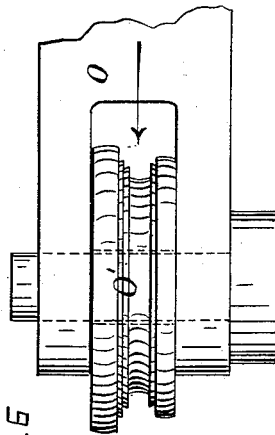
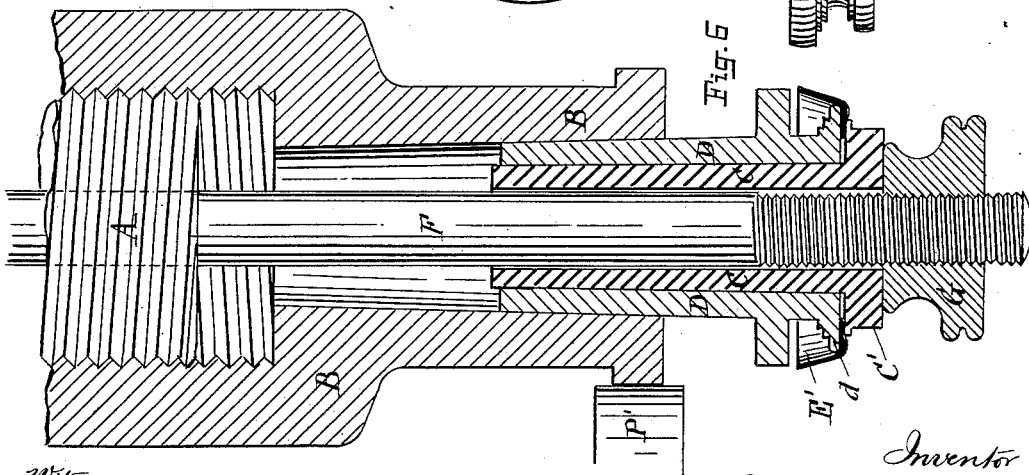


Fig. 6



Witnesses

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(No Model.)

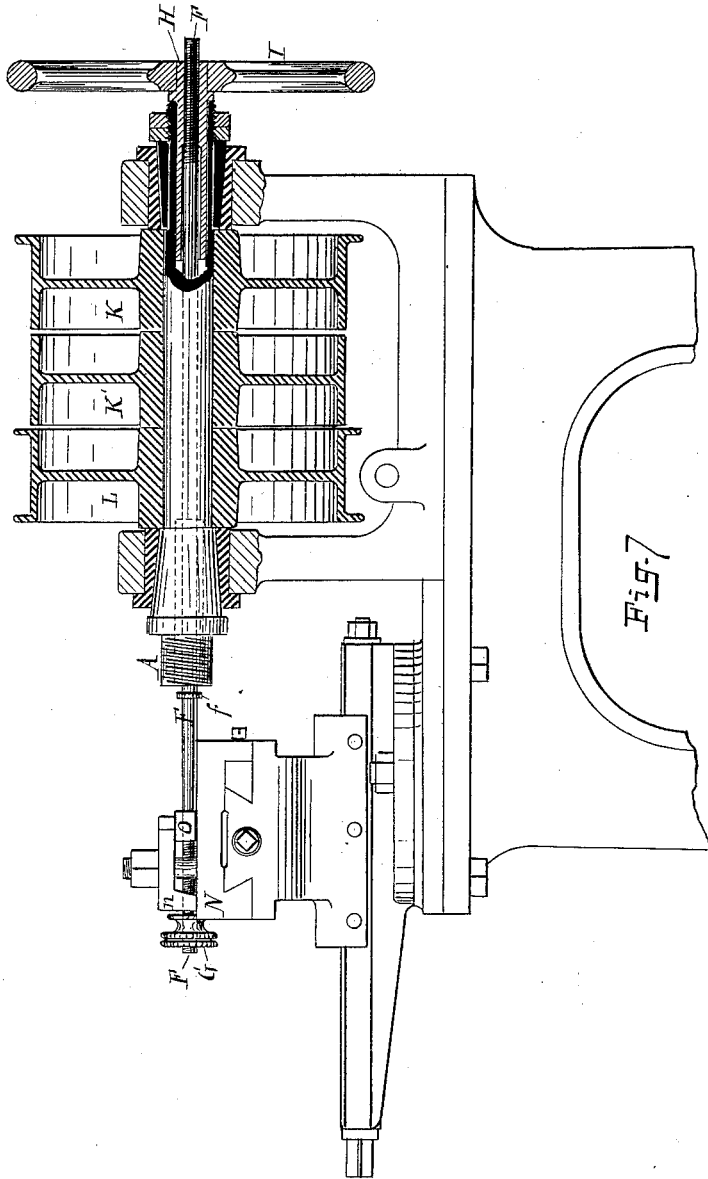
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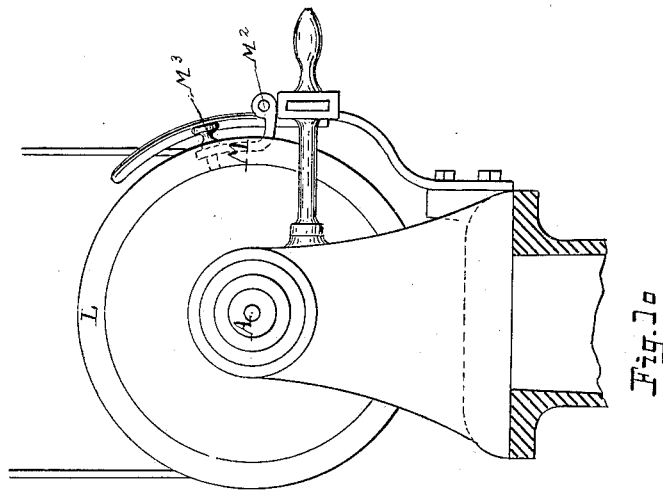
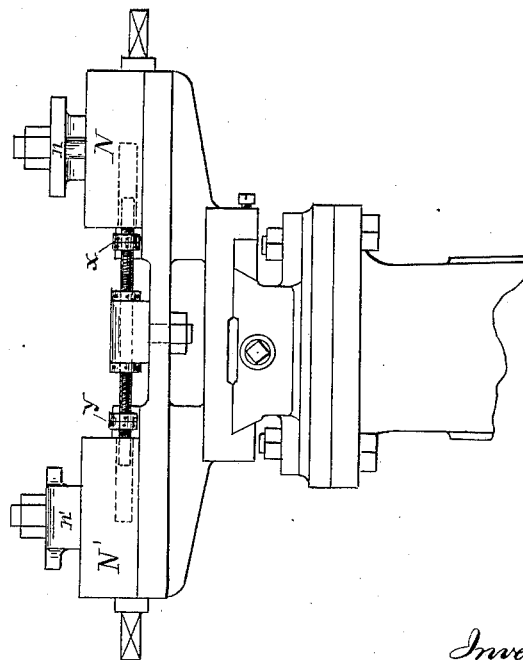


Fig. 9



Witnesses

Chas. N. Smith
J. Strick

Inventor

E. Keller
per Samuel W. Serrell
att

UNITED STATES PATENT OFFICE.

EDOUARD KELLER, OF BIENNE, SWITZERLAND, ASSIGNOR TO KELLER & GRURING-DUTOIT, OF SAME PLACE.

MACHINE FOR MAKING WATCH-CASE RINGS.

SPECIFICATION forming part of Letters Patent No. 333,758, dated January 5, 1886.

Application filed October 5, 1885. Serial No. 173,973. (No model.)

To all whom it may concern:

Be it known that I, EDOUARD KELLER, of Bienne, Switzerland, have invented an Improvement in Machines for Making Watch-Case Rings, of which the following is a specification.

The special feature of this invention relates to the construction of the divided mold or form upon which the metal blank is shaped to form the watch-case ring, and to the means for connecting this form to the main shaft of the lathe.

In the drawings, Figure 1 is a section, partly in elevation, representing the die and plunger for cutting out the blank and partly forming the watch-case ring. In this figure is also shown the metal blank, the piece that is cut from the same, and the partly-formed watch-case ring. Fig. 2 is a plan view of the tool that acts in connection with the divided mold to give the shape to the watch-case ring. Fig. 3 is a plan, partly in section, of the mold and tool. Fig. 4 represents the portion of the mold that is removed in Fig. 3. Fig. 5 is a transverse section of the divided mold and its supporting tube. Fig. 6 is a sectional plan of the divided mold, its tube, and the end of the revolving shaft. The pressing-tube is also shown in this figure. Fig. 7 is a side view of the lathe, partly in section. Fig. 8 is a plan view of the lathe. In Figs. 7 and 8 the divided form and its holder are not shown. Fig. 9 is an elevation of the front of the lathe. Fig. 10 is a transverse section of a portion of the main frame and elevation of the device employed for preventing the main shaft rotating when the blank is being secured to the form.

Referring to Figure 1, I will describe the manner of forming the blank for the watch-case ring.

Q represents a mold, and Q' a plunger, and these are shaped to produce the conical ring E'. The lower portion of the plunger is circular, and when the piece of metal E is placed in the mold and the plunger brought down the circular portion q cuts out the piece e, and the portion of the plunger above the cylindrical portion produces the bearer e', for supporting the watch-dial, the portion e², after-

ward changed to a beveled bearer for the bezel, and the conical portions e³, to form the other parts of the watch-ring. I remark, however, that the shape of the die and mold may be varied to suit the character of the watch for which the ring is intended.

A represents the main shaft of a lathe supported in bearings upon a frame secured to the main frame of the lathe. This shaft A is tubular, and upon its front end is secured the holder B in any desired manner, preferably by being screwed upon said shaft. The holder B is made with a central tapering opening in line with the axis of the shaft A, to receive the tapering tubular portion of the form d.

C is a cylinder forming a support for the form d, and the outer end of this cylinder is made as a flange, C', between which and the face of the form the ring-blank is clamped.

F is a rod passing through the cylinder C and through the tubular shaft A, and it is screw-threaded at both ends for the nuts G and H. The nut H is provided with a hand-wheel, I, and by rotating this wheel and nut after the ring-blank has been clamped between the flange C' and form d, as next explained, the tubular portion of the form d is drawn tightly within the holder B, so that it will revolve with said holder and its shaft A. The head of the form d is shaped to correspond with the shape to be given to the interior of the finished watch-case ring, and said form is made of several pieces. I have shown five, marked (D', D², D³, D⁴, and D⁵), the lines of separation being in the direction of the axis of said tubular form. One of these sections, D⁵, however, has parallel sides, and is of less diameter than the supporting tube.

To secure the ring-blank to the form the blank is put upon the support C with the portion e' against the flange C'. The parts of the form are then placed upon the support C with the face of the form against the inner part of e'. The inner end of the support C and divided form are now passed into the holder B, and the rod F, which had been drawn back, passed through the support C. By placing the nut G upon said rod F and screwing said nut tightly against the flange C', the ring-blank is firmly clamped between said flange and the face of the form,

and by rotating the nut H the tapering tubular portion of the form is drawn tightly within the holder B, so that it will revolve as one with said holder and its shaft.

5 The tool *o'*, for pressing the metal blank to the form, is shaped to correspond with the shape of the form, and it is fitted in a holder, *c*, secured to the slide-rest N by the clamp *n*. These parts are of usual construction, and the
10 operation of reducing the metal to shape upon the revolving form by the tool *o'* is the same as the ordinary metal-spinning operation.

P' is a roller in a holder, *p*, secured to the rest N' by the clamp *n'*, and this roller is
15 brought up and rests against the outer end of the holder B, as shown in Fig. 6, to prevent the holder being strained by the pressure of the tool *o'* in pressing the blank to shape upon the form. After the watch-case ring has been
20 rolled to its finished shape it is removed from the form by taking off the nut G, drawing back the rod F until clear of the tube C, and withdrawing said tube from the form. The section *d'* can now be easily removed and the
25 other sections of the form will then drop away from the watch-case ring. The nut H is made with a tubular extension passing within the hollow shaft A, to facilitate the partial withdrawal of the rod F.

30 To prevent the shaft A being rotated when the nut H is turned and the tool being clamped to the holder B, I provide a drum, L, secured to said shaft A, and in the periphery of said drum there are numerous holes.

35 M is an arm upon a shaft, M², having a pin,

M³, at its outer end. When this arm is turned to the position shown in Figs. 8 and 10, and the pin M³ entered in one of the holes in the drum L, said drum and shaft A will be kept
40 from rotating. The shaft M also carries the belt-shifter, and the latter is so located with reference to the arm M that the belt cannot be shifted from the loose pulley K' to the fast pulley K without first disconnecting M from L; hence all risk of the shaft A being revolved
45 while the drum L is being held is avoided.

I claim as my invention—

1. The combination, with the tubular shaft A, holder B, and supports for said shaft, of the tubular support C, having a flange at its outer
50 end, the tubular-divided form *d* surrounding said support C, the rod F passing through the support C, and the nuts G and H at the ends of said rod F, substantially as and for the purposes specified. 55

2. The combination, with the tubular shaft A, holder B, supports for said shaft, tubular support C, divided form *d*, rod F, and nuts G and H, of the drum L, fixed to the shaft A and having holes in its periphery, the shaft M², and
60 arm M, having a pin, M³, at its outer end, to enter one of the holes in the drum L, substantially as and for the purposes specified.

Signed by me this 5th day of September, 1885.

EDOUARD KELLER.

Witnesses:

FRITZ GRURING-DUTOIT,

E. IMER-SCHNEIDER.