(No Model.)

C. LOUDON.

WATCH MAKER'S TOOL.

No. 455,629. Patented July 7, 1891.

Fig. 1.

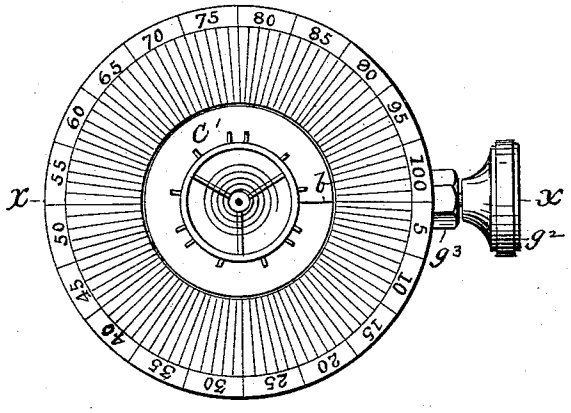


Fig. 2.

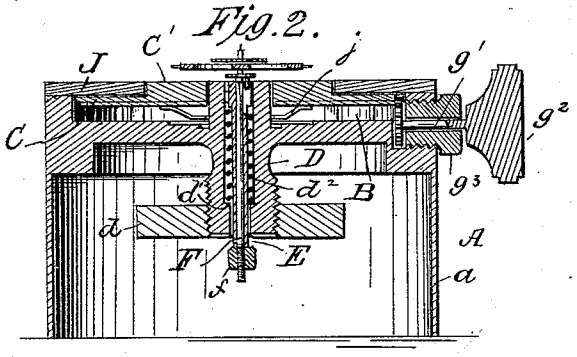


Fig. 3.

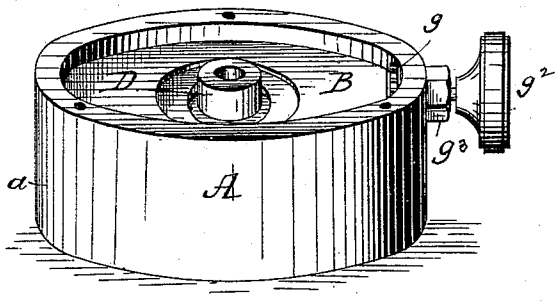


Fig. 4.

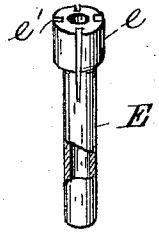
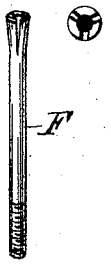


Fig. 5.



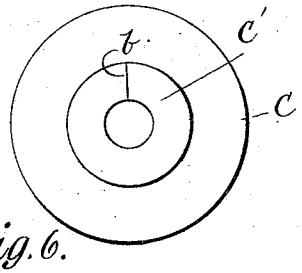


Fig. 6.

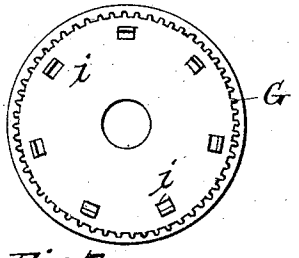
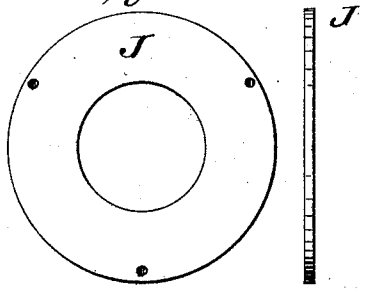


Fig. 7.



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UNITED STATES PATENT OFFICE.

CORNELIUS LOUDON, OF GORHAM, NEW YORK.

WATCH-MAKER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 455,629, dated July 7, 1891.

Application filed June 12, 1890. Serial No. 355,235. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS LOUDON, a citizen of the United States, residing at Gorham, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Watch-Makers' Tools or Gages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to watch-makers' tools or gages, and has for its object to provide a device for accurately locating the position of the hair-spring stud or fastening on the balance-wheel staff, whereby the roller-jewel will be in line with the lever, so that the watch will be in beat.

The improvement consists in the novel features and the peculiar construction of the parts, which will be hereinafter more fully described and claimed, and which will be shown in the annexed drawings, in which—

Figure 1 is a plan view of the gage. Fig. 2 is a cross-section on the line X X of Fig. 1. Fig. 3 is a perspective view of the stand or frame, the annulus and disk being removed. Fig. 4 is a perspective view of the chuck-spindle. Fig. 5 is a perspective and end view of a chuck. Fig. 6 is a top plan and bottom view of the index-plate. Fig. 7 is a plan and edge view of the graduated annulus.

The frame or stand A is supported on the depending rim *a* and has a depression or annular recess B in its upper side, in which is fitted the disk C, which is provided with the central raised portion C′, on which is the radial index-mark *b*. The tubular extension D projects above and below the said frame and is adapted to receive the tubular spindle E, in which is fitted the chuck F. The lower end of the tubular extension D is threaded and provided with slots, and on this threaded end is screwed the thumb-nut *d*, whereby the sections provided by the slots may be compressed to grasp the tubular spindle E to hold the same in a located position. The upper end of the tubular extension D projects through a central opening in the disk C and comes flush with the same. The disk C is provided on its under side with a toothed rim G, which meshes with the pinion *g* on the inner end of the shaft *g′*, which is provided on its outer end with a thumb-wheel g^2. This shaft *g′* is journaled in a plug g^3, which is screwed in an opening in a side of the said frame, the pinion being slightly smaller than the plug, so that it can pass readily through the said opening in which the said plug is screwed. The disk C is provided on its under side with feet *i*, which travel on the bottom of the recess B and steady the same.

The annulus J is secured to the frame and is centrally apertured to receive the raised portion C′ of the disk C, and is graduated from zero to 100, or any required number of degrees. This annulus overlaps the recess B and is fixed relative to the frame. The spring *j*, surrounding the upper end of the tubular extension D, rests on the bottom of the depression B and presses upward on the disk C with sufficient force to create a friction between the said disk C and the annulus J, whereby the disk C will not move too rapidly.

The tubular extension D is provided at the lower end of its bore with the stop *d′*, on which is supported the spring d^2, which surrounds the tubular spindle E, which spindle is provided with the head *e*, which fills the bore in the said spindle and rests on the upper end of the spring d^2. Slots or grooves *e′* are provided in the side of the head *e* parallel with the axis of the said spindle to receive the roller-jewel on the balance-wheel. These slots or grooves are of different widths and depth to receive different sizes of jewel-pins. The chuck F passes through the tubular spindle, and its lower end is threaded to receive the thumb-nut *f*, which obtains a bearing on the lower end of the said tubular spindle and serves as means to draw the chuck within the said tubular spindle and cause the sections at its upper end to come together to clamp the balance-wheel staff.

The operation of the invention is as follows: To locate the hair-spring stud or fastening accurately on the balance-wheel staff, the latter is fitted in the chuck F and clamped therein by turning the thumb-nut *f*. The tubular spindle is adjusted vertically in the tubular extension D to permit the balance-wheel to lie closely on the disk C, the roller-jewel entering one of the slots or grooves *e′*, and is clamped in the located position by screwing

up the thumb-nut *d*. The tubular spindle is turned in such a position that the roller-jewel will come directly opposite the thumb-wheel g^2 or the zero on the graduated annulus. The position of the fastening being different on the different makes of watches, is tabulated and ascertained on reference to said table. The disk is turned until the mark *b* thereon comes opposite the proper degree on the graduated scale, which is the correct position for the fastening or hair-spring stud.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a watch-maker's tool, the combination, with the frame having a recess in its upper side and having a tubular projection D, of a graduated annulus secured to the frame and projecting over the said recess a short distance, a rotatable disk centrally apertured to receive the end of the tubular projection D and having a portion C′ raised and provided with indicating-mark *b* and having its outer portion extending beneath the annulus J, means for rotating the said disk, and a chuck located in the said tubular projection, substantially as and for the purpose described.

2. In a watch-maker's tool, the combination, with the frame having a recess in its upper side and having a tubular projection D, of a graduated annulus secured to the frame and projecting over the said recess a short distance, a rotatable disk centrally apertured to receive the end of the tubular projection D and having a portion C′ raised and provided with indicating-mark *b* and having its outer portion extending beneath the annulus J, means for rotating the said disk, a spring mounted on the said tubular projection and adapted to press the disk against the under side of the said annulus, and a chuck located in the said tubular projection, substantially as and for the purpose described.

3. In a watch-maker's tool, the combination, with the frame having a recess in its upper side and having a tubular projection D, of a graduated annulus secured to the frame and projecting over the said recess a short distance, a rotatable disk centrally apertured to receive the end of the tubular projection D and having a portion C′ raised and provided with indicating-mark *b*, and having its outer portion extending beneath the annulus J and provided with a toothed rim, the shaft *g*′, journaled in the side of the frame and having a pinion which meshes with the said toothed rim and having a thumb-wheel, the spring *j* for pressing the disk against the said annulus, and the chuck located in the said tubular projection, substantially as set forth.

4. In a watch-maker's tool, the combination, with the frame having tubular projection D, the graduated annulus J, and the disk C, of the tubular spindle E, arranged within the tubular projection D, and the chuck F, located in the bore of the said tubular spindle, substantially as and for the purpose described.

5. In a watch-maker's tool, the combination, with the frame having tubular projection D, the graduated annulus J, and the disk C, of the tubular spindle E, arranged within the tubular projection D and having a series of grooves *e*′ of different widths in its sides to adapt the tool for different sizes of jewel-pins, and a chuck located in the bore of the said spindle, substantially as set forth.

6. In a watch-maker's tool, the combination, with the frame having tubular projection D, the graduated annulus J, and the disk C, of the tubular spindle E, arranged within the tubular projection D, the spring d^2, surrounding the tubular spindle and held between a stop on the said spindle and a stop on the tubular projection, and the chuck located within the said tubular spindle, substantially as and for the purpose described.

7. A watch-maker's tool comprising a frame having tubular projection D, which is exteriorly threaded at its lower end and having the shoulder *d*′ within its bore, the graduated annulus J, the disk C, the tubular spindle E, having head *e* and having grooves *e*′ of different widths in the sides of the said head, the chuck located in the said tubular spindle, the spring d^2, surrounding the tubular spindle and held between the head *e* and the shoulder *d*′, and the thumb-wheel *d* on the lower end of the said tubular projection D, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

CORNELIUS LOUDON.

Witnesses:
H. C. MAPES,
L. PHILLIPS.