(No Model.)

G. W. CAMERON.

WATCHMAKER'S TOOL.

No. 509,594. Patented Nov. 28, 1893.

Fig. 1.

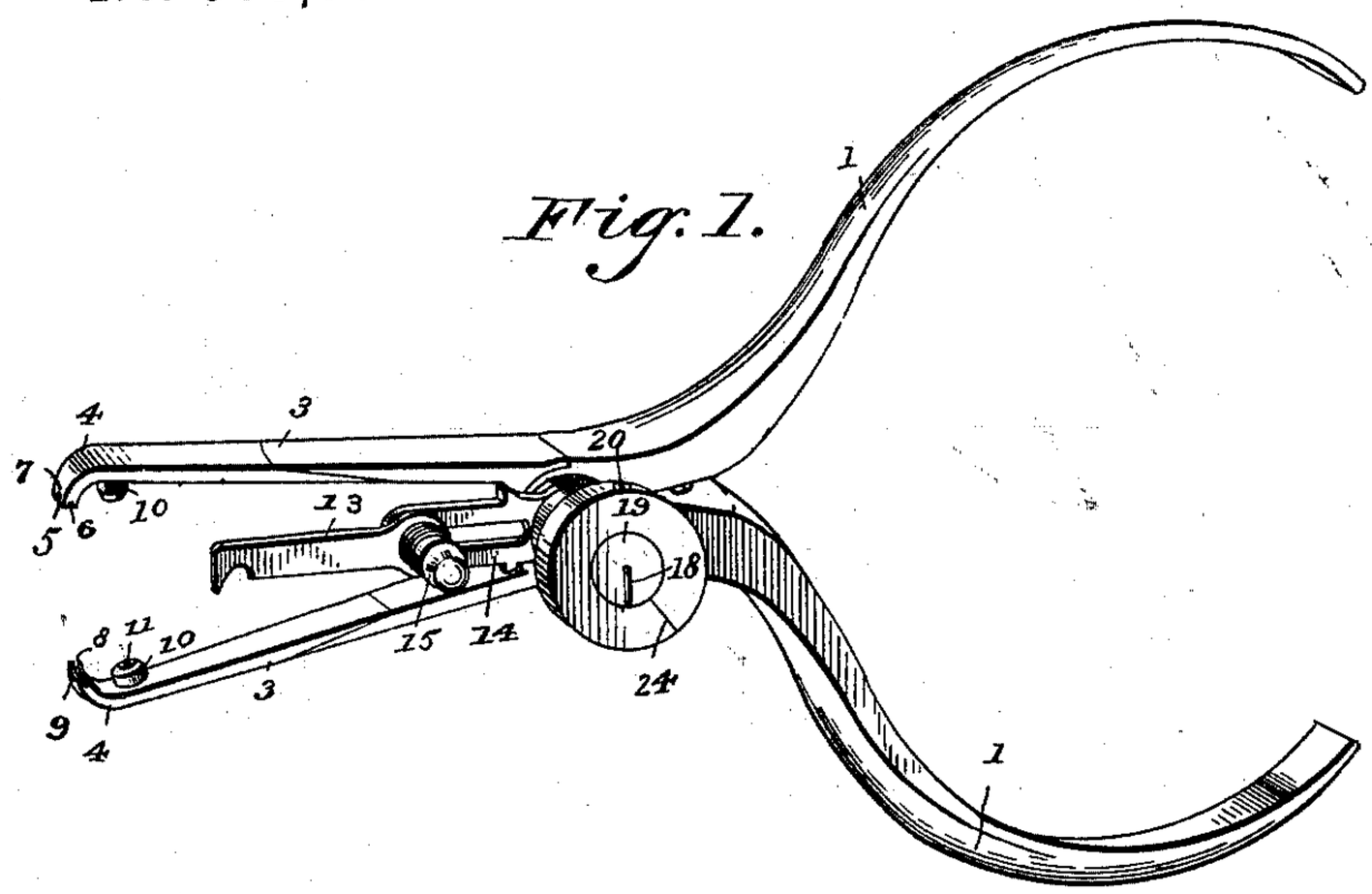


Fig. 2.

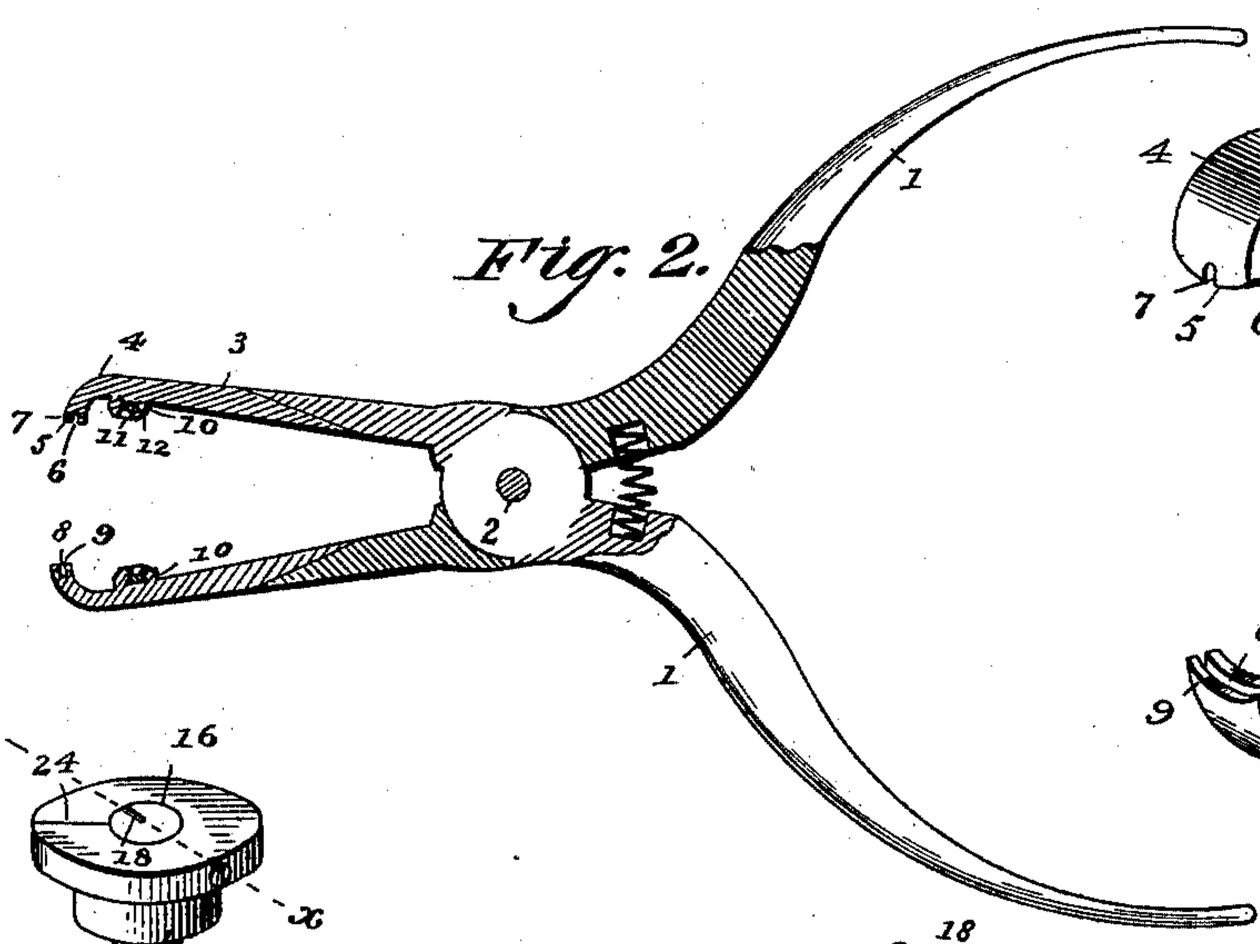


Fig. 5

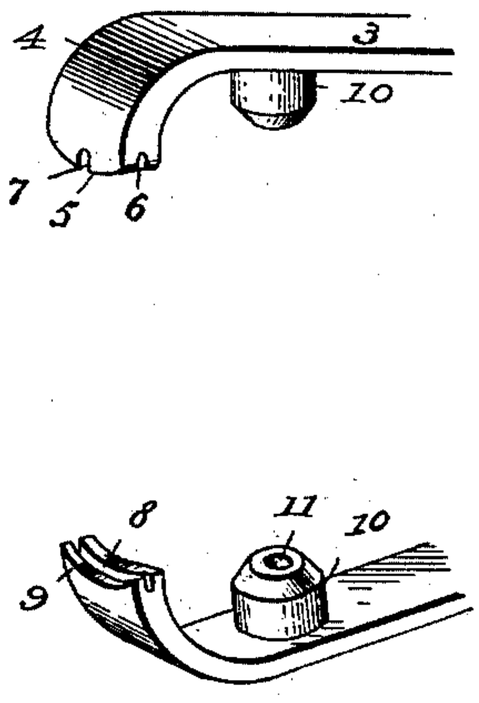
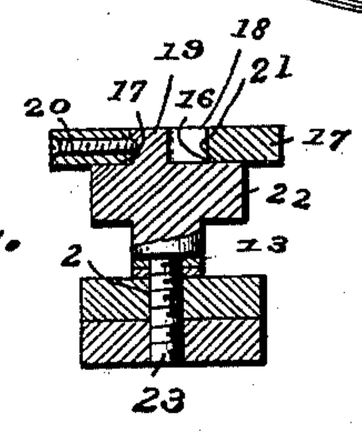


Fig. 3.

Fig. 4.



Witnesses
Julius Ueke
Chas. S. Hoyer.

Inventor
Geo. W. Cameron,
by C. H. Knowles
Attorneys

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE W. CAMERON, OF POPLAR BLUFF, MISSOURI.

WATCHMAKER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 509,594, dated November 28, 1893.

Application filed April 11, 1893. Serial No. 469,900. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CAMERON, a citizen of the United States, residing at Poplar Bluff, in the county of Butler and State of Missouri, have invented a new and useful Watchmaker's Tool, of which the following is a specification.

This invention relates to watchmakers' tools, and consists of truing calipers, balance wheel truing pliers, and beat indicator combined, and has for its object to provide a complete watchmaker's tool, that is so arranged that it can be used for either one purpose or the other without requiring manipulation of complex mechanism, and wherein the parts are simple and effective in their construction and operation.

With these and other objects in view the invention consists of the construction and arrangement of the parts as will be hereinafter fully described and claimed.

In the drawings—Figure 1 is a perspective view of an improved tool. Fig. 2 is a central longitudinal section of the same. Fig. 3 is an enlarged detail perspective view of the beat indicator disconnected. Fig. 4 is a section on the line *x*—*x* of Fig. 3. Fig. 5 is a detail enlarged view of the front ends of the jaws.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, the numeral 1 designates the handles that are pivotally connected at 2, and have their forward ends formed with jaws 3, whose extremities are curved inwardly as at 4 to provide engaging ends. In rear of the pivotal point of said jaws a spring is mounted between the handles to force the jaws normally apart from each other. The terminating end of the upper jaw is convexed in a transverse direction as at 5, and formed with a central transverse slot 6 that is intersected by a longitudinal slot 7, it being understood that the transverse slot 6 partakes of the convex contour of the said end in which it is formed. The lower jaw has its extreme terminating end concaved in a transverse direction, as at 8, and formed with a central slot 9 also extending transversely and partaking of the contour of the end in which it is formed. The said concave and convex faces as thus described are used for truing a balance wheel to round, and the shape of the said faces together with the slots as set forth permits, the grasping of the center bar of a watch balance in any part thereof and at whatever position it may be located between the said jaws. In rear of the said concave and convex engaging faces of the jaws, the latter are formed with oppositely positioned bearing cones 10 provided with cavities 11 and jewels 12, and by this means the pivots of any form of wheel or wheels may be received between the jaws.

To use the instrument thus far described, the wheel to be operated upon is placed within the tool so that the pivots thereof are positioned in the cones 10, and an adjustment is made of an indicator 13 which is of any preferred construction, but as shown consists of a slotted plate 14 having the indicator proper secured thereto in an adjustable manner by a set screw 15 or analogous clamping device. When the said indicator has been adjusted to the desired position, the trueness of the wheel is tried, is removed and grasped by the concave and convex faces of the pliers at the ends of the jaws thereof, the central transverse slots receiving the center bar of the wheel, and after it is so positioned the said wheel may be bent as desired, and the said operations become successive until the desired effect is obtained. During this operation in succession the indicator always remains in its desired position and is to be so held for evident and well known purposes.

To use the tool for beat block or indicator for retaining position of roller and hair-spring upon staff of balance wheel after they have been removed from the same, the balance wheel with hair-spring and roller table thereon is placed in an opening 16 in the center of a circular head 17 adjacent to which is a slot 18 that receives the roller-pin. This head 17 is mounted on a stud 19 by a set-screw 20, that passes through the said head from the periphery thereof, and engages a circumferential groove 21 in the said stud, it being seen that the opening 16 is formed directly in the stud 19, as is also the slot 18, and the set screw 20 holds the part 17 of the head on the said stud so that the latter can be rotated thereon. The stud 19 is shouldered as at 22 to form a seat for the head 17,

and the said head and stud form a set screw for securing the indicator in position, and at the same time providing a pivot for the jaws, as the stud 19 is formed with a screw shank 23 for the purpose stated. The head 17 is also constructed or provided with a line 24 that extends radially thereover, and after the balance wheel has been placed on the head and stud as set forth, the set screw 20 is loosened, and the head 17 which forms a table is turned until the line on the same comes directly under the hair-spring stud of the wheel, and the said set screw is then again tightened which holds the head 17 in its desired position. The opening 16 and slot 18 are described as being in the head 17 and also as formed in the end of the stud that projects through the said head, because the construction can be varied at the center if found desirable, and the head may be formed as a very narrow rim while the outer end of the stud can be extended or thickened transversely.

The tool herein set forth can be used readily for a poising tool and to adjust screws in the rims of balance wheels without marring the same, or it may serve for any other useful purpose that may be found convenient and desirable.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having described the invention, what is claimed as new is—

1. In a watchmaker's tool of the class described, the combination of a pair of pivoted jaws with outer curved ends, one of which has a convex face and the other a concave face, and each of said faces formed with a transverse slot, and cones opposingly situated on the inner sides of said jaws in rear of the said engaging faces, substantially as described.

2. In a watchmaker's tool, the combination of pivoted jaws having outer inturned curved ends, one of which has a convex, and the other a concave engaging face, and each face formed with a transverse slot, one of said faces having a slot longitudinally intersecting its transverse slot, and a cone on the inner side of each of said jaws in rear of the outer inturned ends and formed with cavities having jewels therein, substantially as described.

3. In a watchmaker's tool, the combination with suitable jaws, of a beat block or indicator consisting of a stud having an opening and a slot in the outer end thereof, and a head adjustably mounted on said stud and provided with a line thereon, said head being secured in position by a set screw, and the head and stud forming a thumb-screw for securing parts of the tool, substantially as described.

4. In a watchmaker's tool, the combination of pivoted jaws having outer inturned curved ends, one of which has a convex, and the other a concave engaging face, and each face formed with a transverse slot, one of said faces having a slot longitudinally intersecting its transverse slot, substantially as described.

5. In a watchmaker's tool, the combination with suitable jaws, of a beat block or indicator consisting of a stud having an opening and a slot in the outer end thereof, and a head adjustably mounted on said stud and provided with a line thereon, said head being secured in position by a set-screw, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. CAMERON.

Witnesses:

GEROASA L. JOHNSON,

LEE A. WALLACE.