(No Model.)

J. R. PARSONS.

JEWELING TOOL.

No. 292,676. Patented Jan. 29, 1884.

Fig. 1.

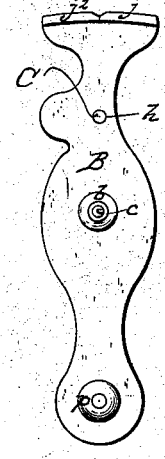


Fig. 3.

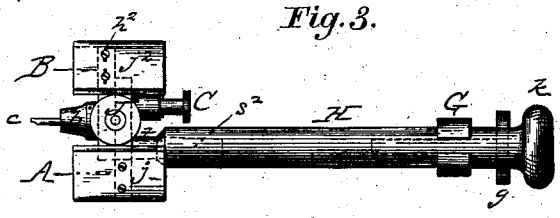


Fig. 2.

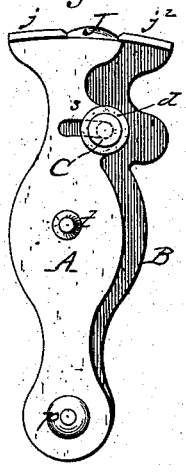


Fig. 4.

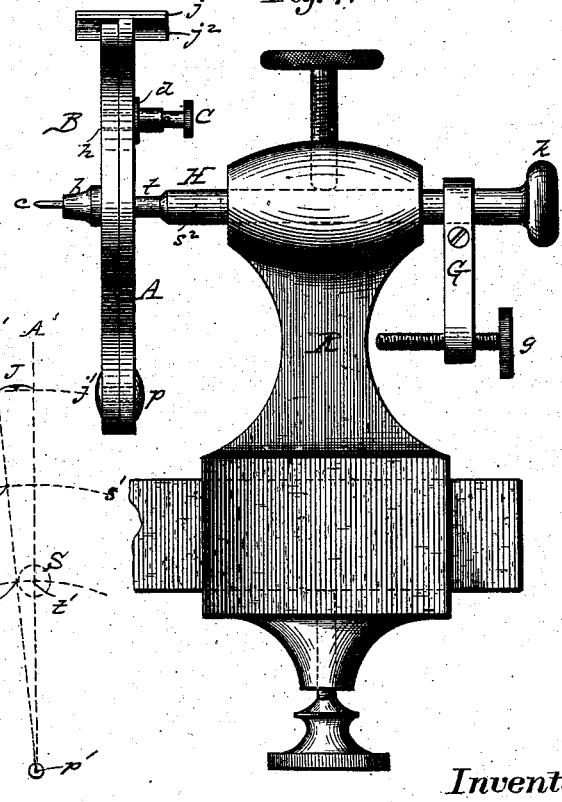
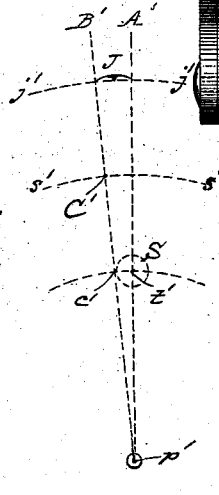


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES R. PARSONS, OF LA PORTE, INDIANA.

JEWELING-TOOL.

SPECIFICATION forming part of Letters Patent No. 292,676, dated January 29, 1884.

Application filed August 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. PARSONS, a citizen of the United States, residing at La Porte, in the State of Indiana, have invented a new and useful Improvement in Jeweling-Tools, of which the following is a specification.

This invention relates to watch-makers' tools or devices for jeweling watches and fitting screw-heads, arbors, and the like, which operations demand the utmost accuracy and uniformity of result, while at the same time it is desirable to perform them as expeditiously as possible, and without the aid of complicated apparatus. Heretofore various tools and devices for this work have been made and used, including what are termed "caliper-rests" for watch-makers' lathes. The latter are very expensive in their construction, and for this reason many jewelers cannot afford to use them; otherwise they are all that could be desired, except in the direction of simplicity. The caliper principle, which distinguishes the devices last named and is the quality which renders their work correct and satisfactory, is the basis of my present invention. Said principle may be said to consist in the use of the jewel, screw-head, or arbor end, which is to be fitted as a gage by which to determine with the utmost exactness the diameter of the seat or pivot-hole cut for its reception. The cutting-bit or cutter is arranged parallel to the axis of the pivot on which the caliper-jaws open, and is attached to one of said jaws, or the part which carries the same, with its point exactly midway between said pivot and the head of said jaws, or the jaws proper within which the jewel screw-head or arbor is grasped. Owing to this location of the cutting-point it is moved from its normal position at the center of motion a distance equal to one-half of the diameter of the jewel, screw-head, or arbor end, accommodated by the opening of the jaws, and consequently the length of its lateral movement equals exactly the radius of the jewel, screw-head, or arbor end, and the circle which it describes is identical in diameter with that of the latter.

The present invention consists in a tool of great simplicity, embodying said principle, so as to fully utilize the same, while the tool is adapted to be used in ordinary back-rests on American as well as on Swiss watch-makers' lathes. In some cases it is accommodated by such ordinary back-rests as a substitute for the removable steel point with which the back-centers of such rests are furnished, and in other cases, where the back-centers have not removable points, my tool is substituted for the ordinary back-center. In every case the cost of the tool is trifling compared with that of said caliper back-rests, thus bringing the benefit of said caliper principle within the reach of every jeweler.

This invention consists more particularly, first, in a caliper jeweling-tool composed of two main parts united by a pivotal connection and adjusting device, and provided with a tang parallel to the axis of said pivotal connection projecting from one of said main parts at the "fixed center" of the tool, and adapted to attach the tool to such removable-point back-centers, or to a substitute back-center, a suitable cutting-bit or cutter being attached to the other of said main parts, so as to be in line normally with said tang.

This invention consists, secondly, in attaching one of the "jaw-plates" of my said caliper jeweling-tool by means of screws passing through slots, to facilitate adjusting the tool to perfect accuracy in fitting it to any lathe; and, thirdly, in a handle adapted to be used as a substitute for an ordinary back-center in a watch-maker's lathe, and provided with a socket at one extremity, to receive a tapering or screw-threaded tang on the tool proper, and with a perpendicular gage-bar traversed by a gage-screw parallel to the axis of said handle, for determining the penetration of the cutter of the tool, as hereinafter more fully set forth.

A sheet of drawings accompanies this specification as part hereof. Figure 1 of these drawings is a face view of my said caliper jeweling-tool closed or in normal condition. Fig. 2 is a back view of the same fully opened, with a large jewel between its jaw-plates. Fig. 3 is a top view of the same, as seen in Fig. 2, with its handle added. Fig. 4 is an edge view thereof as applied to the back-rest of a watch-maker's lathe, with said handle and

its appurtenances as a substitute for the ordinary back-center; and Fig. 5 is a diagram illustrating the caliper principle embodied in this tool.

Like letters of reference indicate corresponding parts in all the figures.

This jeweling-tool, or the tool proper, consists of two main parts, A B, the body of each being a flat bar of suitable metal. The parts A B are united near one extremity by a pivotal rivet or screw, *p*, and at their other extremity are provided with jaw-plates *j j²*, each attached to the upper end of its part of the tool and crossing the upper ends parallel to the "fixed axis" of the tool, while, together with the ends to which they are attached, said jaw-plates are concentric with the axis of said pivotal rivet or screw *p*. The inner edges of said jaw-plates are normally in line with the said axes, and one is unchangeably in this line. Said fixed axis of the tool is determined by a tang, *t*, projecting rigidly and fixedly from the body of said part A, midway between said axis of the pivotal rivet or screw *p* and said upper ends, to which the jaw-plates *j j²* are attached, and in a direct line extending from said axis last named to the inner edge of said jaw *j*. This tang may be tapering, as shown, or provided with a screw-thread, being in either case fitted to a socket in a handle, H, Figs. 3 and 4, or the socket, common to the back-centers of some watchmakers' lathes, which is ordinarily filled by a steel back-center point. In line with said tang *t*, in the normal condition of the tool represented by Fig. 1, said part B is provided on its face with a boss, *b*, provided with and adapted to receive and hold with steadiness a cutting-bit or cutter, *c*, of hardened steel. This bit or cutter may be of any ordinary or approved kind suited to its work. A slot, *s*, is cut in said part A, preferably between said tang *t* and the jaw-plates *j j²*, but not necessarily in this location, said slot being concentric with said axis of the pivotal rivet or screw *p*, and extending laterally outward toward that edge of said part A opposite the jaw-plate *j*, attached to said part A. A screw-hole, *h*, is tapped in said part B in line with the inner end of this slot, and a clamping-screw, C, passes through a clamping-disk, *d*, which may mask said slot, into and through the latter and into said screw-hole, so as to provide for clamping the parts together in different relations to each other, for the purpose of varying the eccentricity of the point of said cutting-bit or cutter *c*, and thereby determining the diameter of the jewel-seat, socket, or pivot-hole cut thereby. To provide for adjusting the tool so as to render the same perfectly accurate in fitting it to a given lathe, said jaw-plate *j²* is by preference attached to the upper end of the body of said part B by screws passing through screw-holes *h²*, elongated in the line of the motion of said jaw-plate as moved to form a space of less or greater width between the jaw-plates to accommodate a jewel, J, or a screw-head or arbor end between said jaw-plates, as seen in Figs. 2 and 3. After the jaw-plate *j²* is once adjusted, it will not be necessary to loosen it again, and in some makes of the tool this provision may not be necessary. The jaw-plate *j* is by preference attached by screws also, as seen in Fig. 3.

The parts A B, as regards their bodies and jaw-plates, have been made of one and the same pattern, apart from said slot *s* and screw-hole *h* in the respective parts. The parts may be of any preferred outline, affording suitable points and surfaces for the attachment of said tang *t*, boss *b*, and jaw-plates *j j²* in the relative positions aforesaid and the location of said pivotal rivet or screw *p*, as specified, and makers may use any preferred details of construction not inconsistent with the respective features of the tool hereinafter claimed. Said tang *t* is fitted, as aforesaid, to a socket, *s²*, in one end of a handle, H. (Seen in Figs. 3 and 4.) This handle is adapted to be inserted as a substitute for an ordinary back-center of given diameter, being cylindrical, apart from a knob, *k*, at its outer end, which facilitates pressing the cutter to its work. This knob may be formed on or attached in any approved way to the body of the handle. In addition to this knob, said handle is provided with a gage-bar, G, which has a clamp-collar at one end to provide for securing it upon the handle in proper position, and has a screw-tapped bore parallel to the bore of said collar, and consequently parallel to the axis of the handle, provided with an ordinary gage-screw, *g*, for determining the depth of cut by coming in contact with the rear surface of the back-rest R, an illustrated form of which is seen in Fig. 4.

The caliper principle, which is the basis of my invention, is illustrated by Fig. 5, in which A′ B′ represent the center lines of said main parts and the inner edges of said jaw-plates; *p′*, the pivotal axis; *j′ j²′*, the line of said jaw-plates; *s′ s′*, that of said adjusting-slot; C′, the center of said clamping-screw; *t′*, said fixed axis, and *c′* the cutting-point. Owing to this principle, said cutting-point of the bit or cutter *c*, being exactly half-way between said pivotal axis and said line of the jaw-plates, (which is that of the outer ends of the bodies of said parts A B, as exposed between the jaw-plates *j j²* when the latter are opened,) is moved a distance equal to the radius of a circle filling the space between the inner edges of the jaw-plates *j j²*, and a jewel, J, or a screw-head or arbor end, upon which said jaw-plates are closed, insures the cutting of a seat, socket, or pivot-hole of exactly the same diameter, as represented by the circle at S.

In operation, the watch-plate, being attached in customary manner to a face-plate carried by the live-center of the lathe, so as to rotate therewith, is adjusted so that the center of the seat, socket, or pivot-hole to be cut shall coincide exactly with the axis of said

live-center, and is then set in motion. The jeweling-tool having been set for the required cut, is now moved toward the work and the bit or cutter *c* fed into the watch-plate to the predetermined depth. The feed movement is accomplished and the tool is held against rotation in the example illustrated by the drawings by the hand of the operator applied to the knob *k*, and the feed movement is continued until it is stopped by the gage *g*, when the handle is drawn back and the watch-plate is adjusted for another operation or removed from the lathe.

Having thus described my said jeweling-tool, I claim as my invention—

1. A "caliper" jeweling-tool composed of two main parts, united by a pivotal connection and an adjusting device, and provided, respectively, parallel with and equidistant from the axis of said pivotal connection, with a cutting-bit or cutter and a holding-tang projecting in opposite directions, said tang forming the fixed axis of the tool and adapted to be inserted in an ordinary back-center, as a substitute for a removable center-point, or in a handle inserted as a substitute for the ordinary back-center, substantially as herein specified, for the purpose set forth.

2. In a caliper jeweling-tool constructed and operating substantially as herein described, a pair of jaw-plates at one extremity of the tool, one of said jaw-plates having elongated screw-holes to provide for adjusting the tool so as to render it perfectly accurate as applied to a given lathe, as specified.

3. The handle H, constructed with a knob, *k*, and a socket, s^2, at its respective extremities, and provided with a gage-bar, G, traversed by a gage-screw, *g*, substantially as shown, in combination with a caliper jeweling-tool, substantially as herein described, having a tang, *t*, fitted to said socket s^2, for the purpose set forth.

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