

J. KLINGENSMITH.
CENTER REST FOR LATHES.

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UNITED STATES PATENT OFFICE.

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CENTER-REST FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 410,901, dated September 10, 1889.

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To all whom it may concern:

Be it known that I, JOSEPH KLINGENSMITH, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Centering-Rest for Lathes, of which the following is a specification.

My invention particularly relates to that class of lathes used for light work by jewelers, watch-makers, &c.; and the objects of my improvements are, first, to provide a simple and efficient means for automatically centering the article to be operated upon in the lathe; second, to provide simple and efficient means whereby light articles—such as balance-staffs, lever-staffs, pinions, &c., for watches or similar parts of other light machinery—may be turned, pivoted, or trued, or otherwise manipulated, without waxing or shellacing, as now commonly practiced by jewelers and watch-makers; third, to provide simple, efficient, and self-adjusting means for holding the article to be operated upon true to the center and at the same time in position to be operated upon at any part of its surface, except that part held in the head-stock, fourth, to provide a center on the tail-stock of the lathe which shall support the article to be manipulated and shall at the same time afford a rest for the tool used in the operation. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the centering-rest. Fig. 2 is a vertical section on the axis of the centering-rest. Figs. 3, 4, 5, and 6 are vertical transverse sections in the planes indicated by the broken lines V V, W W, X X, and Y Y, respectively, and looking in the directions pointed by the arrows. Fig. 7 is a side view of the tail-stock of a lathe, showing the centering-rest in position.

Similar letters in all the figures refer to the same parts.

One of the principal purposes of my invention being to dispense with the process of waxing or shellacing, as commonly used by watch-makers and others, I will now, in order to fully exhibit the scope of my invention, explain the process of waxing. For example, supposing it is desired to turn a pivot on one

end of a balance-staff, the pivot on the other end being already completed, the process is as follows: A face-plate having in its face a conical recess with its apex in the axis of the lathe is secured to the head-spindle of the lathe, and the conical recess is filled with melted wax. While the wax is still warm the finished end of the balance-staff is inserted through the wax until the point of the pivot rests in the end of the conical recess. The lathe is then revolved and the balance-staff revolves with it. The projecting end of the staff, supported on the finger-nail or a piece of peg-wood steadied by the T-rest, is carefully moved up or down until the axis of the staff coincides with the axis of the lathe, and is held in that position until the wax hardens and secures it.

In practice it is often necessary to make more than one attempt before the staff is accurately centered, in which case the wax is remelted and the operation above described repeated.

Furthermore, after the staff is finished by this process it is necessary to remove the wax and cleanse the staff. The process requires a skillful operator and is troublesome, uncertain, and by using my device the same work may be neatly, expeditiously, and more accurately performed by an unskilled operator.

The centering-rest, as clearly shown in the drawings, is for a part of its length (indicated by A) cylindrical, the other part B of its length being slightly tapering or conical. For convenience, I will designate the cylindrical part A as the head and the part B as the shank. I prefer a taper shank, though a shank of other form may be used without affecting my invention.

The head A is pierced by a vertical transverse hole C, and a longitudinal slit or saw-cut D in the axis of the head A extends from the hole C through the end of the head, dividing the head into two parts or jaws a' . The purpose of the hole C and slit D is to give springiness to the jaws a' , and the form and size of the hole C may be varied according to the springiness required for the jaws. The jaws a' may be forced apart by an article inserted through the hole in the end of the head, and

will spring together to hold the article so inserted.

The form of the end or face of the head is clearly shown in Figs. 1 and 3. This end consists of two quarter-elliptical lugs a^2 , integral with and on top of the jaws a' . This end is pierced by a longitudinal hole a^3 on the axis of the head, having its front end slightly rounded, as shown in Fig. 2, to guide the article which may be inserted through it, as heretofore described, and prevent cutting.

The upper surfaces of the jaws a' are in an inclined plane transversely horizontal and longitudinally inclining downward from a point in the axis at the rear of the head to a point a little below the hole a^3 in the front of the head. The object of this arrangement is to give good clearance for the article inserted through the hole a^3 and afford ample room for the use of a tool in working the under side or end of a small article.

The jaws a' extend transversely some distance on either side of the axis of the head and afford a convenient tool-rest, which dispenses with the use of a T-rest and is not affected in its relative position to the work by variation in the motion of the work, since any pressure which might tend to force the work out of line moves the rest uniformly in the same direction, so that the relative position of the tool to the work remains unchanged.

The part a^1 of the head A is made slightly rounding on its front edge, so as not to interfere with the use of tools.

The top of the hole a^3 is made a little larger than the slot D, so as to permit the use of a tool from above in turning a small pivot or other similar work; but sufficient stock is left on the upper ends of the lugs a^2 to guide the work and prevent springing when the tool is used from below.

The shank B is tapering, so as to be easily centered and to fit lathes of different sizes.

The operation of my device is as follows: The tapering shank B is inserted in the tail-stock of the lathe, as shown in Fig. 7. One end of the article to be worked is inserted in and centered in any suitable chuck in the

lathe-head, the tail-stock is then moved toward the head until the other end of the article sufficiently enters the hole a^3 in the end of the head, and the jaws a' clasp and guide the article. The tail-stock is then secured in place, the lathe revolves, and by means of a tool resting on the edges of the jaws a' the operator shapes the work as may be desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a center-rest for lathes, the combination of the tapering shank B with the head A, pierced by a transverse hole C, having a longitudinal slit D and spring-jaws a' , substantially as shown and described, and for the purpose stated.

2. In a center-rest for lathes, the combination of the shank B, the split head A, and the jaws a' , forming a tool-rest, substantially as shown and described, and for the purpose stated.

3. In a center-rest for lathes, the combination of the shank B with the split head A, having its upper edge a^1 rounded, substantially as shown and described, and for the purpose stated.

4. In a center-rest for lathes, the combination of the shank B, the head A, pierced by the transverse hole C, and the spring-jaws a' , having inclined upper faces, substantially as shown and described, and for the purpose stated.

5. In a center-rest for lathes, the combination of the shank B with the split head A, having spring-jaws a' , supporting lugs a^2 , pierced by an axial hole a^3 , substantially as shown and described, and for the purpose stated.

6. In a center-rest for lathes, the combination of the shank B, the split head A, pierced by a transverse hole C, the spring-jaws a' , having inclined edges, and the end lugs a^2 , pierced by an axial hole a^3 , substantially as shown and described, and for the purpose stated.

JOSEPH KLINGENSMITH.

Witnesses:

HENRY KLAHOLT,
JOHN J. HARDIN.