No. 742,077. PATENTED OCT. 20, 1903.

O. SOVELIUS.

AXLE OR SHAFT MARKER.

APPLICATION FILED JUNE 16, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

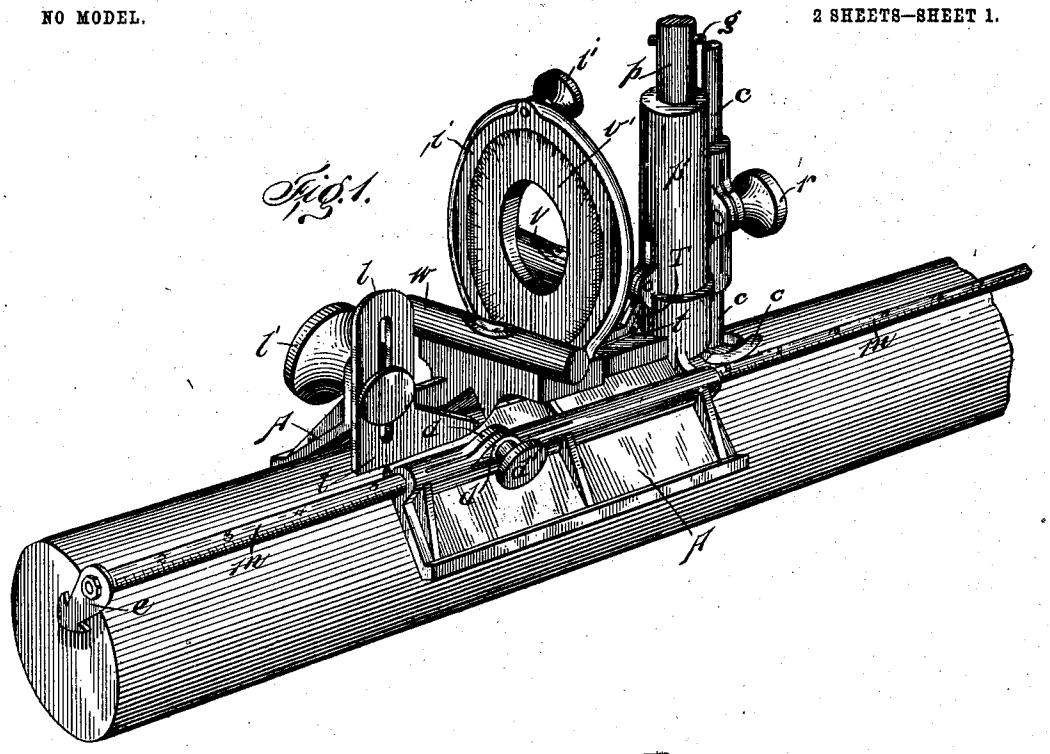
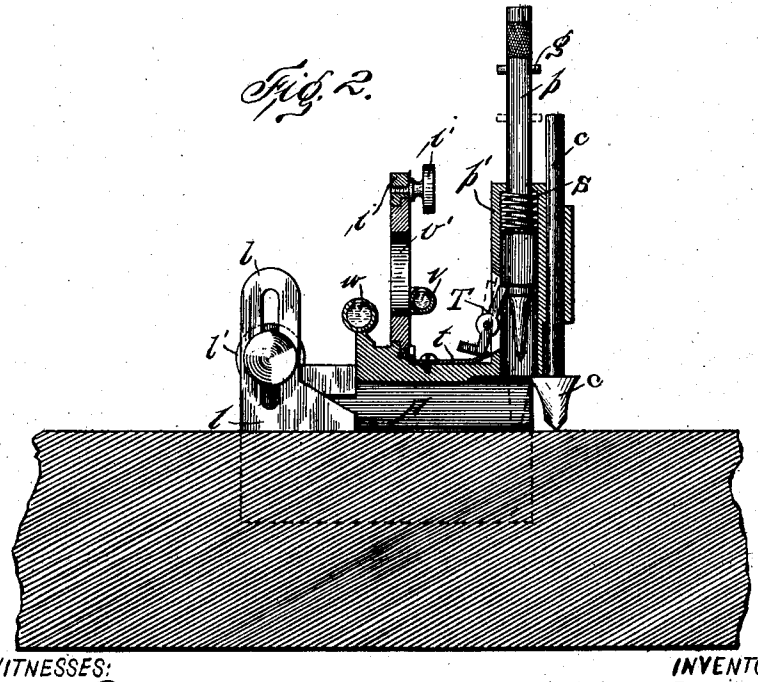


Fig. 2.



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NO MODEL. 2 SHEETS—SHEET 2

Fig. 3.

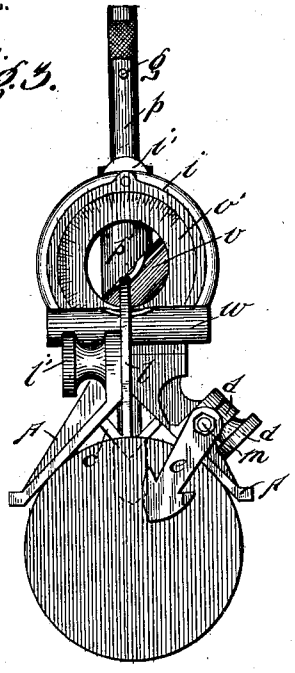


Fig. 5.

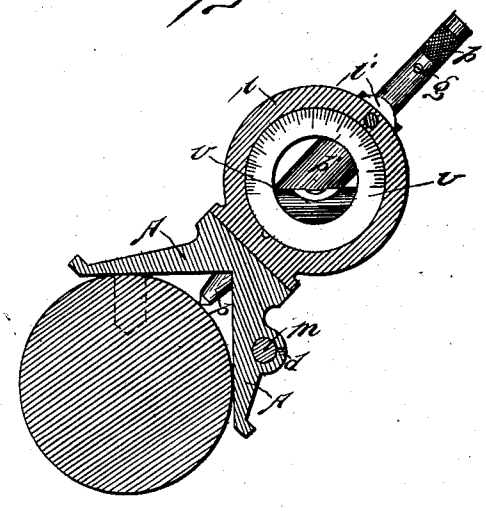
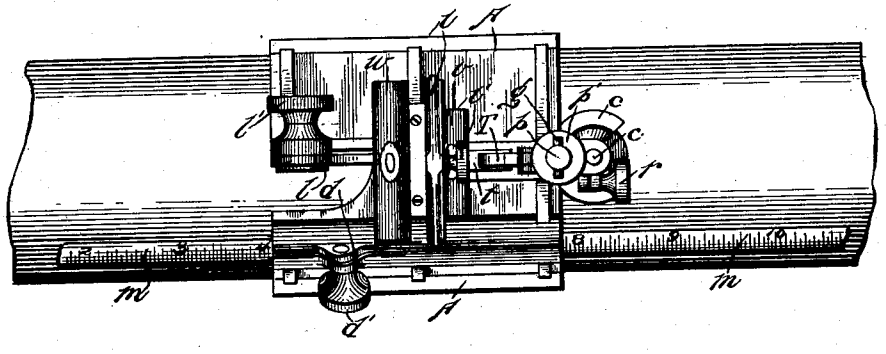


Fig. 4.



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UNITED STATES PATENT OFFICE.

OTTO SOVELIUS, OF HANCOCK, MICHIGAN.

AXLE OR SHAFT MARKER.

SPECIFICATION forming part of Letters Patent No. 742,077, dated October 20, 1903.

Application filed June 16, 1903. Serial No. 161,704. (No model.)

To all whom it may concern:

Be it known that I, OTTO SOVELIUS, a subject of the Grand Duke of Finland, Emperor of Russia, residing at Hancock, in the county of Houghton and State of Michigan, have invented a new and useful Improvement in Axle or Shaft Markers, of which the following is a specification.

The object of my invention is to provide a simple and convenient apparatus for marking axles, machinery-shafts, and other similar curved or round surfaces, so as to accurately lay off thereon the points and lines for the proper position and direction of the drill or planing-machine in boring, planing, and milling; and it consists in the novel construction and arrangement of parts, hereinafter fully described, and afterward pointed out in the claims.

Figure 1 is a perspective view of the device applied to a cylindrical shaft or axle. Fig. 2 is a vertical longitudinal section taken through the middle of the device. Fig. 3 is an end elevation. Fig. 4 is a plan view, and Fig. 5 is a vertical transverse section showing the method of finding any angle on the circular curve of the shaft.

In the drawings, A represents the main frame or base, which is constructed in the shape of a saddle which sits upon the curved surface of the shaft or axle, the lower plate-surfaces of the said saddle forming a dihedral angle into which projects the curved contour of the shaft. This saddle has formed on it on one side a straight horizontal guide-hole arranged longitudinally and parallel to the side of the saddle. In this guide-hole there slides longitudinally the measure-rod *m*, which has a rigid stop-arm *e* at one end projecting at right angles to the rod and designed to be set against the end of the shaft or axle when it is to be measured lengthwise to a certain point. This measure-rod is graduated along its length with one or more measuring-scales of any desired standard or unit of measurement, and this rod is made long enough to represent any convenient range for the instrument. The position of the rod in the saddle-guide is fixed to any adjustment by two pinching-lips *d d*, which are brought together upon the rod to hold it rigid by a set-screw *d'*, tapped through the lips.

At one end of the saddle-plate and rising vertically therefrom in a line dividing equally the dihedral angle of the saddle-plate there is a center-punch *p*, whose lower end is turned to a sharp point and which punch plays vertically in a vertical guide-barrel *p'*, cast with and forming a part of the saddle-plate. This center-punch is held up by a detent or bent trigger T, which is fulcrumed to the barrel and at its upper end plays through a slot in the barrel and engages a shoulder near the lower end of the punch to hold it up, the trigger being forced into engagement by the action of a small spring *t*. The upper part of the center-punch is made of a smaller diameter than the lower part, and between the shoulder formed at the two diameters and a corresponding shoulder in the upper end of the barrel there is a helical spring *s*, which forces the center-punch down with a marking blow whenever the trigger T is tripped. A cross-pin *g* prevents the center-punch from dropping out of the barrel.

In a parallel guide beside the vertical center-punch there is a center-finder *c*, to locate the center of a hole already bored. This consists of a vertical stem bearing on its lower end a conical foot or enlargement which will enter holes of different sizes and cause the longitudinal center of the stem to be always concentric with the hole irrespective of its size. This center-finder is held to its adjustment by a set-screw *r*.

On the middle portion of the saddle-plate are two spirit-levels *w* and *v*, both of which are arranged transversely to the saddle-plate. One of these, *w*, is fixed and the other one, *v*, is adjustable in a vertical plane at right angles to the saddle-plate. The adjustable spirit-level *v* is mounted on a rotary annular plate *v'*, which has a circular series of graduations around its circumference and which plate turns peripherally within an upright ring *i*, fixed rigidly to the saddle-plate in a vertical transverse plane. The rotary plate and spirit-level are fixed in their rotary adjustment by a binding-screw *i'*.

At the opposite end of the saddle-plate from the punch said saddle-plate is left open a short distance, and in this opening is adjusted a straight-edge *l*, whose plane bisects the dihedral angle of the saddle-plate in the middle.

This straight-edge has a vertical slotted portion which receives a clamp-screw l', passing through a lug of the saddle-plate, by which screw the straight-edge may be adjusted up or down to contact with the circumference of any size of shaft lying in the saddle-plate and which straight-edge always defines a plane passing through the center of the shaft.

The operation of my marker is as follows: If it be desired to drill a hole in an axle, shaft, or any other round-turned machine part, this hole must go or point exactly to the middle line of the axle. Suppose this hole is to be eight inches from the end of the axle or shaft. The axle will be fastened on the table of the drill and my marker will be placed upon or made to straddle the axle lengthwise. The center-punch p is drawn up to compress the spring and is locked in the elevated position by the trigger T. The measure-rod m is then slid lengthwise until its stop-arm e is against the end of the axle and the point of the center-punch is exactly eight inches from the said arm, which is easily determined by the scale on the measure-rod, as seen in Figs. 1 and 4. The saddle-plate is then adjusted sidewise until the spirit-level w shows that the center-punch is exactly vertical. The trigger is then sprung and the spiral spring forces the center-punch toward the axle with a blow which causes its point to make a mark on the axle eight inches from the end and in a line passing through the center of the axle. If the axle has already been marked as to length, the center-punch is placed at this mark, and the saddle-plate, together with the axle, is turned sidewise until the spirit-level w shows the desired vertical direction of the hole to be bored. If a hole has already been bored in a shaft or axle and a new hole is to be bored into the same at another point and a different angle, the center-finder c is placed in this hole, as in dotted lines in Fig. 3, and is screwed tightly to place by screw r. I then turn the rotary adjustable spirit-level v to indicate this angle and then turn the axle and saddle-plate together until the rotary adjustable spirit-level v shows level, and the axle being then fastened the vertical drill will form a hole at the desired angle to the first hole. If two or more holes are to be bored at any given angle—say forty-five degrees—after the axle has been fastened and one hole bored, as indicated in Fig. 3, and the center-punch has been again lifted and set, I then turn the spirit-level v to forty-five degrees away from the horizontal level, as in Fig. 3, and the saddle-plate is then slid around the axle, as in Fig. 5, until the spirit-level v shows the horizontal, and the center-punch will then point to the center forty-five degrees away from the center of first hole. The trigger T is then tripped to mark the position of this second hole. If a straight line lengthwise the axle is to be marked, the straight-edge l is adjusted down to contact with the axle and forms a guide for the sharp point of any marking-tool.

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

1. A marker for round surfaces, comprising a saddle-plate, a longitudinally-adjustable measure-rod, a vertical center-punch, and a spirit-level substantially as shown and described.

2. A marker for round surfaces, comprising a saddle-plate, a vertical center-punch, a spirit-level and a center-finder for previously-bored holes comprising a vertically-adjustable stem arranged parallel to the center-punch and bearing on its lower end a conical foot substantially as described.

3. A marker for round surfaces, comprising a longitudinal saddle-plate, having a longitudinal opening at its angle at one end, a spirit-level, and a straight-edge disposed in a vertical longitudinal plane and arranged in the open end of the saddle-plate and means for fixing the adjustment of the same.

4. A marker for round surfaces, comprising a saddle-plate, a spirit-level, a vertical spring-pressed center-punch arranged above the saddle-plate in a line bisecting its angle and a detent and trigger pivoted on top of the saddle-plate and engaging the lower portion of the center-punch for holding it up and tripping the same substantially as described.

5. A marker for round surfaces, comprising a saddle-plate having a dihedral lower angle, a horizontally-adjustable measure-rod, a vertical center-punch, a center-finder for holes, a rotary adjustable spirit-level and an adjustable straight-edge located in the middle line of the angle of the saddle-plate substantially as and for the purpose described.

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Witnesses:
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ARTHUR LUNDAHL.