(No Model.)

S. W. WILCOX.

CENTERING DEVICE FOR BITS.

No. 568,932. Patented Oct. 6, 1896.

Fig. 1.

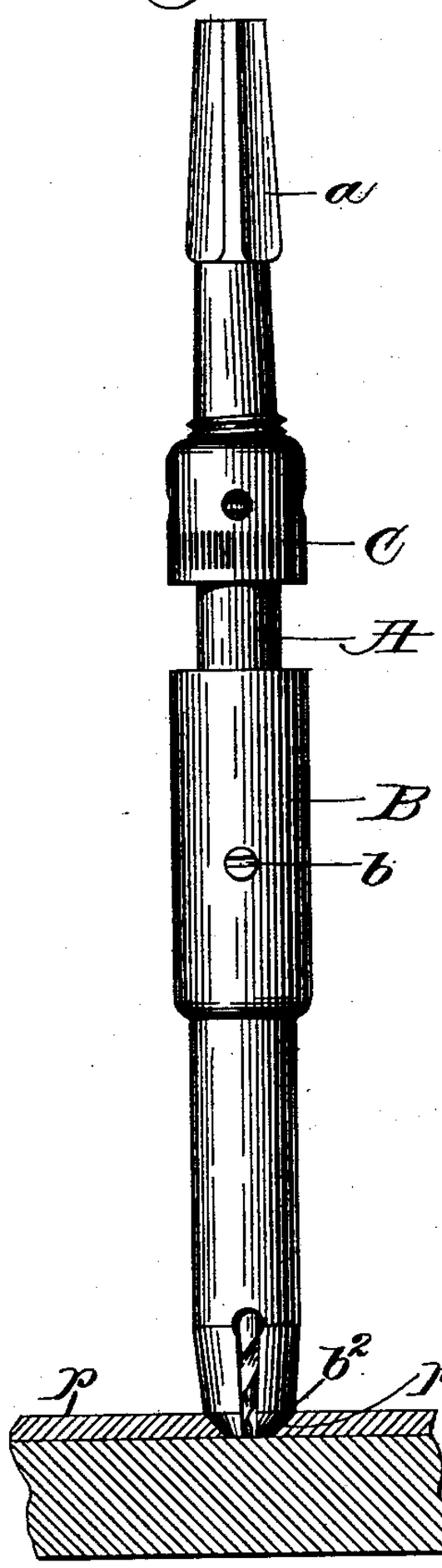
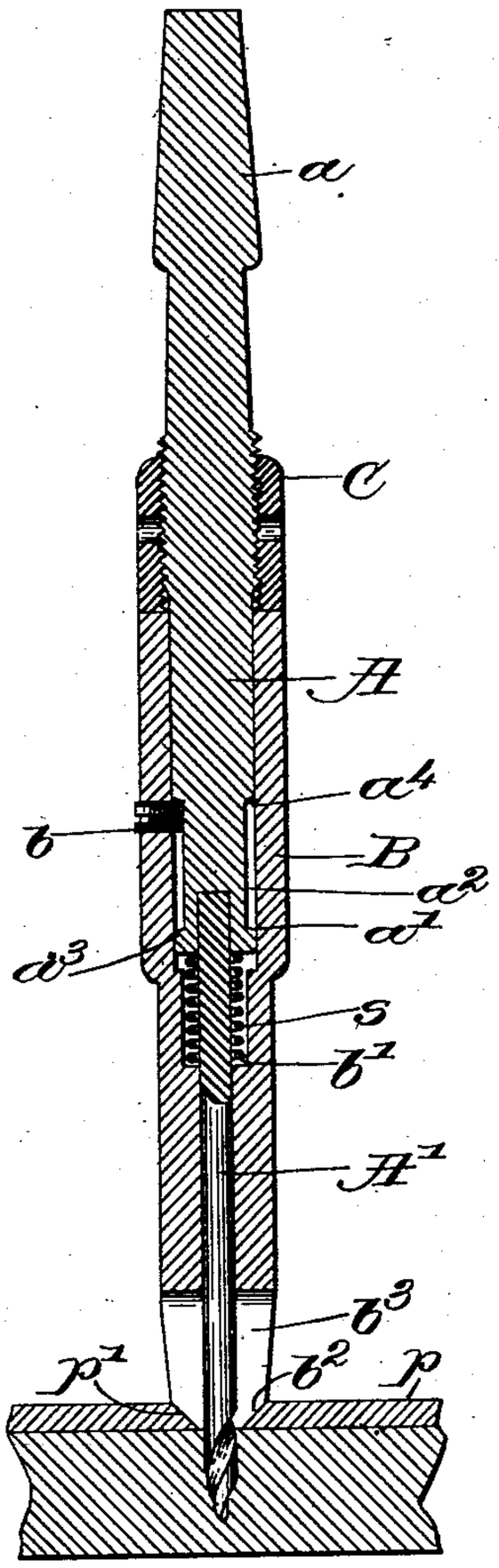


Fig. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL W. WILCOX, OF MENDON, MASSACHUSETTS.

CENTERING DEVICE FOR BITS.

SPECIFICATION forming part of Letters Patent No. 568,932, dated October 6, 1896.

Application filed April 1, 1896. Serial No. 585,724. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. WILCOX, of Mendon, county of Worcester, State of Massachusetts, have invented an Improvement in Centering Devices for Bits, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The object of my invention is to provide a centering-bit or bit attachment especially adapted to accurately center countersunk holes. In certain kinds of work it is also essential that the securing means should enter the material at a definite predetermined angle. For instance, in fastening metal plates onto a backing by screws the plate is drilled and provided with proper countersinks for the screw-heads, and in order that the latter shall rest flush with the surface of the plate when they are screwed home it is necessary that they shall be started exactly in the center of the countersunk hole and also accurately perpendicular to the plate, because otherwise the entire head, or at least one edge thereof, would project above the plate. At present this true centering depends upon the skill and judgment of the mechanic.

It is the purpose of my invention to provide a device for securing perfect centering automatically, and which at the same time insures the proper desired alinement of the screw or other securing means.

The details of my invention are fully set forth in the following description, reference being had to the accompanying drawings, illustrative of one form of my invention.

In the drawings, Figure 1 is a view in side elevation of my invention, showing the same applied to a countersunk plate preparatory to forcing in the gimlet or bit used. Fig. 2 is a central vertical section thereof, showing the bit as having bored the hole desired.

In the present embodiment of my invention, A designates the spindle or body portion of my invention, having preferably a shank a at its upper end, of an approved or desired shape, for use with the ordinary bit-brace or provided with other suitable means of rotation, and a socket or other holding means a' at its lower end to secure the prick-awl, gimlet, bit, or other suitable tool A'.

Surrounding the lower end of the body A is the centering member B, which is centrally perforated to accommodate the tool A', and is secured to the body A so as to permit the latter to turn freely therein and have a limited movement longitudinally thereof. This securing means is shown, in the present instance, as consisting of a screw-stud b, projecting from the member B into an elongated circumferential groove a^2 in the adjacent portion of the body A. In some instances it is desirable to omit the relative rotary movement, the members A and B then rotating together. A pocket b' is preferably formed in the member B to receive a coiled spring S, immediately below the body A, the spring surrounding the tool A' and bearing against the body A, tending thereby to separate the members A and B and maintain them in their normal position, Fig. 1, the stud b then engaging the shoulder a^3.

Other means for holding the members A and B together and for normally extending them may be provided, and, if preferred, the latter provision may be omitted. Also either of these may be located at any other suitable point in the length of the centering member.

In addition to the parts above described I usually provide a stop to limit downward movement of the body A relatively to the member B. This stop may be stationary, as indicated at a^4, being there shown as formed by the upper shoulder of the groove a^2, or the stop may be adjustable, as shown at C, in which latter case it consists, preferably, of the nut C, threaded on the body A and adjustable up and down thereon, c denoting wrench-holes for such adjustment, or the external surface thereof may be roughened to be operated by the fingers as a thumb-nut.

At its lower extremity or nose the centering member is beveled or otherwise shaped, as at b^2, to conform to the surface surrounding the point or center to be determined. In the present instance I have shown a metal plate p, provided with an ordinary countersink p', and accordingly the nose of the member B is conical at b^2, as shown, in order that the bit or tool A' may be directed perpendicularly to the plate p precisely at the center of the countersink. However, my invention is not restricted to this particular form or use, inasmuch as it may be used for starting a hole (by means of the bit A') at any other desired angle

besides the perpendicular, the nose being beveled to correspond in such case, or it may be shaped to direct the tool A′ to the very apex of a reëntrant angle, as in a corner, or, likewise, it may be readily adapted for a projecting angle, as a projecting corner, bead, or other surface. Therefore I desire it to be understood that by the terms "centering member" and "centering device" I include any of the above modifications. The nose is provided with proper slots or other apertures b^3 for the egress of the shavings turned out by the tool A′.

In use the attachment is fixed at *a* into a bit-brace, and the nut C is adjusted to suit the thickness of the material to be bored or to correspond to the depth to which it is desired to bore the hole. The nose of the member B is then placed in the countersink *p′* or other location, and at once automatically directs the point of the tool A′ to the precise center desired, the beveled surfaces b^2 fitting against the countersink *p′* and maintaining the tool in the desired perpendicular alinement. The tool is then forced into the backing, as shown in Fig. 2, until the stop C strikes against the upper end of the member B. The tool A′ is then withdrawn, and the spring S thereafter maintains the nose of the member B down over the point of the tool, protecting the same from injury.

My invention is not limited to the details of construction herein shown and set forth, as many changes in form, proportions, and relations of parts may be resorted to without departing from the spirit and scope of my invention.

What I claim is—

1. The herein-described device, comprising a body, carrying a tool, and a centering member surrounding the lower end of and movable longitudinally relatively to, said body, the lower end or nose of said member embracing said tool and provided with suitable side apertures for the egress of the shavings from the tool, substantially as described.

2. The herein-described device, comprising a body adapted to carry a tool, and a centering member supporting said body and movable longitudinally relatively thereto, the lower end or nose of said member being adapted to rest on the surface to be operated upon, and having one or more lateral apertures for the shavings, and an adjustable stop carried by said body and free to contact against said member to limit the movement of the tool, substantially as described.

3. The herein-described device, comprising a body, carrying a tool, a centering member mounted on said body, and movable longitudinally thereof, and an adjustable stop adapted to contact against the end of the centering member, to limit the said longitudinal movement of said member toward said body, the lower end or nose of said member embracing said tool, and having one or more lateral openings for the egress of the shavings, said end or nose being shaped to conform to the surface to be operated upon, substantially as described.

4. The herein-described device, comprising a body adapted to carry a tool, a centering member supporting said body, and embracing the tool at its lower end or nose, said end or nose being shaped to conform to the surface to be operated upon, and having one or more side apertures for shavings, a longitudinal groove in said body and a stud in said member, to hold said body and member together, a pocket in said member below the body and a spring therein tending to maintain said member and body extended, and an adjustable stop on said body free to contact with said member, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL W. WILCOX.

Witnesses:

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HORACE A. BROWN.