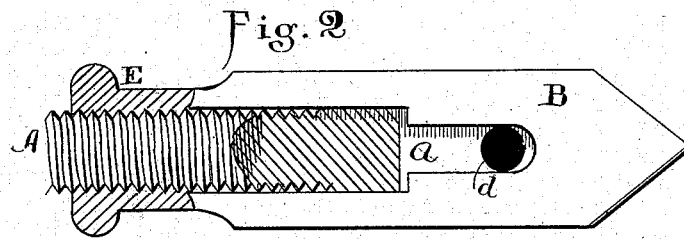
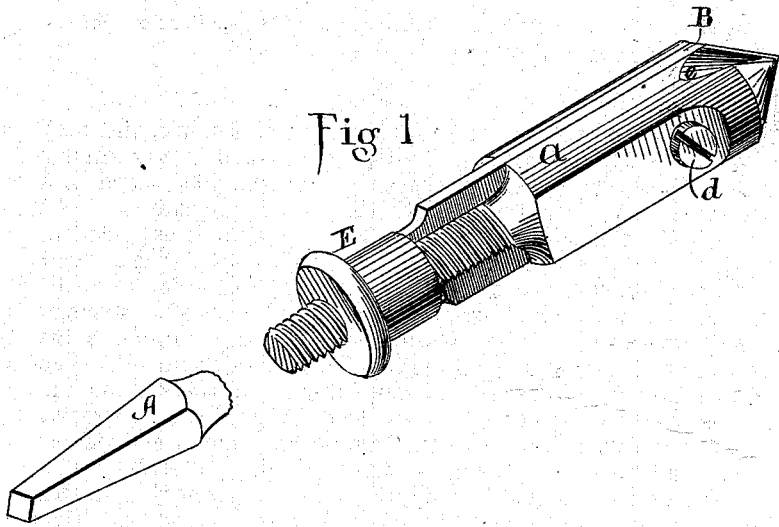


D. J. ADAMS.
COUNTERSINKS.

No. 186,513.

Patented Jan. 23, 1877.



Attest.
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UNITED STATES PATENT OFFICE

DUMMER J. ADAMS, OF KITTERY, MAINE.

IMPROVEMENT IN COUNTERSINKS.

Specification forming part of Letters Patent No. **186,513**, dated January 23, 1877; application filed January 5, 1877.

To all whom it may concern:

Be it known that I, DUMMER J. ADAMS, of Kittery, in the county of York and State of Maine, have invented a new and useful Improvement in Countersinks, of which the following is a full and clear description:

This invention relates to that class of tools used for forming conical seats for screw-heads, of which there are in use two classes, viz: those formed like a common drill, with two cutting-edges on opposite sides of the axis, and no intermediate points of bearing against the surface being acted upon; and those known as "burrs," consisting of a conical head, serrated, and presenting a large number of cutting-edges, but no other points of contact with the surface being acted upon. The first variety is operated with least power, but has the disadvantage of slight chatter or spring, and corresponding inaccuracy. When dulled, the form and cutting-edges are easily renewed. The second variety require a considerable expenditure of power, because so many cutting-edges are in action at the same time, and, when dulled, considerable labor is required to effect a resharpening. These burr-countersinks possess the merit of accuracy, because of the large number of points of support.

My invention combines the merits of both varieties above described, but dispenses with the defects of both.

It consists in a countersink with an adjustable bit, whereby the depth of cut may be regulated, and the bit removed for sharpening, and a stationary conical head to bear upon the surface of the countersink, whereby there are but two cutting-edges on opposite sides of the axis of rotation, and consequently all the facility of sharpening, &c., and a bearing-surface, to prevent chatter and secure accuracy.

That others may fully understand my invention I will particularly describe it, having reference to the accompanying drawing, wherein—

Figure 1 is a perspective view of my countersink. Fig. 2 is a longitudinal section of the same.

A is the shaft of my countersink, and may be provided with a head fitted to an ordinary bit-stock, or it may be otherwise fitted to a mandrel or other operative mechanism. At the opposite end is the cylindrical head *a*, with a conical point. This cylindrical head is slotted longitudinally, to receive the bit B, which is kept accurately in place by means of a screw, *d*, which passes through said shaft A, and through a slot in the said bit. The lower end of the bit B is bifurcated, and the shaft A rests in said bifurcation, as shown, so, that, while the bit may move endwise, it is prevented from moving laterally. The shaft A is provided with a screw-thread and a nut, E, which traverses thereon, to drive the bit B forward, when desired, and to sustain it against the pressure encountered during use. The forward end of the nut E is cupped, so as to receive within its periphery the lower ends of the bit B, to prevent them from springing aside on account of pressure against the point of said bit.

By this simple arrangement I adapt my bit to use either in wood or metal, though it is particularly adapted to the latter.

Clearance-ways *e* are filed in each side of the conical point of the head *a*, parallel with, and immediately in front of, the cutting-edges of the bit B.

When in use, the bit is so set that its cutting-edges project beyond the conical surface *a* a distance just equal to the practicable depth of cut. The forward pressure is then sustained by the conical part of the head *a*, instead of upon the cutting-edges, and the latter are not subjected to any strain or pressure except that incident to the operation of cutting. This secures a smooth cut without chatter, and symmetrical in form. To drive this countersink requires no more power than to drive an ordinary flat drill.

The bit B may be readily sharpened without removal from the head *a*, it being only necessary to loosen the screw *d* and advance the edges beyond the conical part of *a*, so that it may be applied to a grindstone.

The screw *d* unites the separated parts of the head *a*, and clamps them against the sides

of the bit B, so as to keep the same firmly in place. When worn out, said bit may be replaced by a new one.

Having described my invention, what I claim as new is—

1. A countersink provided with a slit conical head, *a*, and a slit bit, B, longitudinally adjustable in said head, and a transverse binding-screw, *d*, substantially as set forth.

2. A shaft, A, with an external screw-thread and nut, E, and provided with a slit conical head, combined with a slit movable bit, B, adjustable longitudinally by the operation of said nut E, substantially as set forth.

3. A countersink having a shaft, A, adapted to be attached to an ordinary bit-stock, lathe-chuck, or other suitable driving apparatus, an external screw, and a nut, E, thereon, a slit conical head, *a*, with clearance-ways *e*, a slit movable bit, B, and a transverse binding-screw, *d*, as set forth.

DUMMER J. ADAMS.

Witnesses:

JOHN WENTWORTH,
ENIN I. WILSON.