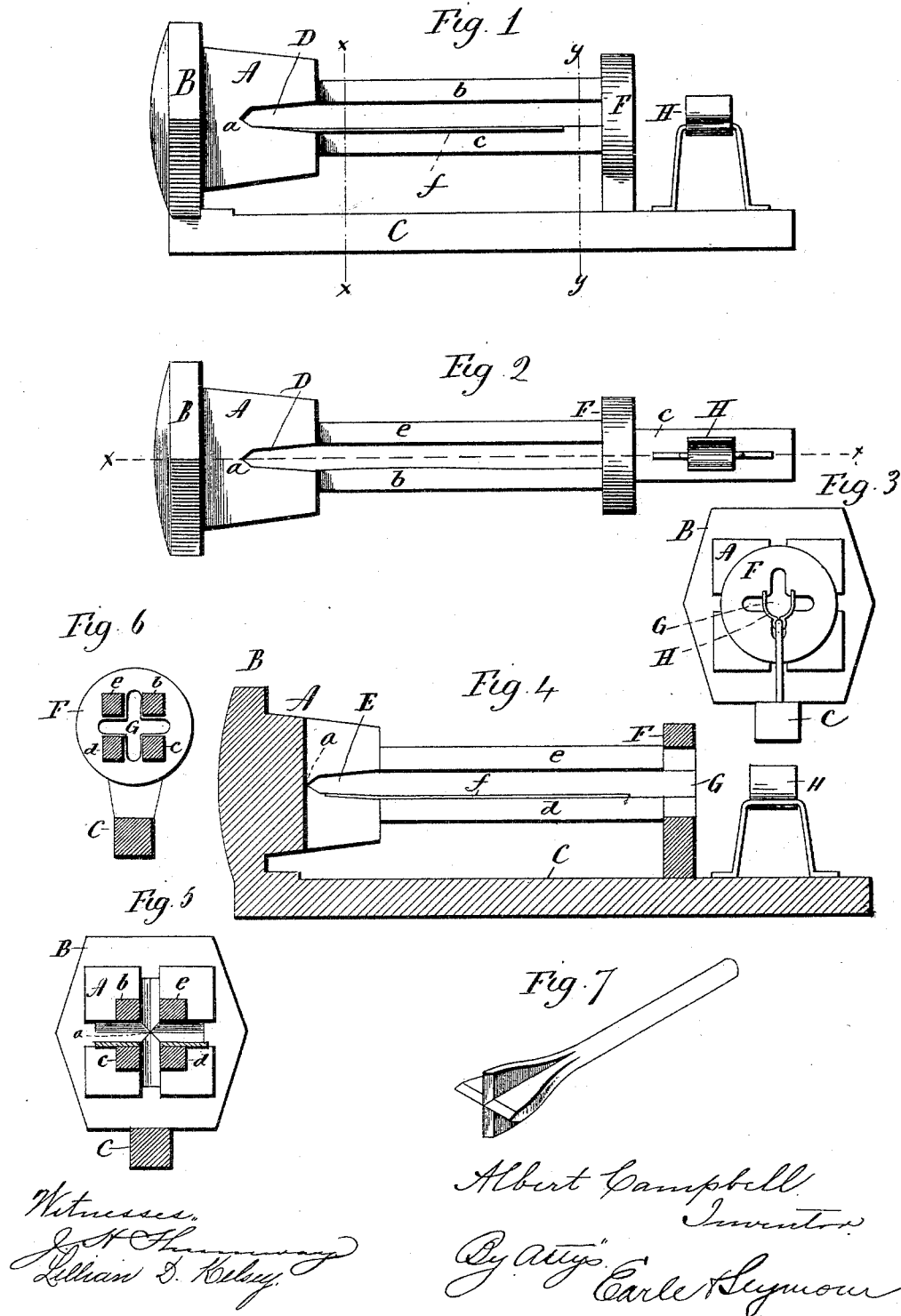


(No Model.)

A. CAMPBELL.
DEVICE FOR SHARPENING DRILLS.

No. 491,766.

Patented Feb. 14, 1893.



UNITED STATES PATENT OFFICE.

ALBERT CAMPBELL, OF BRANFORD, CONNECTICUT.

DEVICE FOR SHARPENING DRILLS.

SPECIFICATION forming part of Letters Patent No. 491,766, dated February 14, 1893.

Application filed September 12, 1892. Serial No. 445,670. (No model.)

To all whom it may concern:

Be it known that I, ALBERT CAMPBELL, of Branford, in the county of New Haven and State of Connecticut, have invented a new Improvement in Sharpeners for Rock-Drills; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the apparatus complete. Fig. 2, top view of the same. Fig. 3, end view looking from the right of Fig. 1. Fig. 4, longitudinal section cutting on line $x-x$ of Fig. 2. Fig. 5, a transverse section cutting on line $x-x$ of Fig. 1, looking toward the head. Fig. 6, transverse section on line $y-y$ looking toward the support F. Fig. 7, perspective view of a drill.

This invention relates to a device for sharpening or resetting the cutting edge of the drills used in drilling rock. Heretofore in the formation of these drills, and in the resetting of the edge, the drills are heated and hammered to the required shape, then hardened. In drills having several blades, as seen in Fig. 7, which represents a drill having a cutting edge in the form of a cross, so that four wings or blades project from a center, this method of setting is very difficult, and requires the best of skill.

The object of my invention is to provide a device by which drills of this character may be drawn or set to a sharp edge, even by unskilled workmen, but while specially applicable to this class of drills, the device may be employed with good results for the sharpening of drills having a single edge, and the invention consists in the device constructed as shown in the accompanying illustration and hereinafter described.

A, represents a head, which is supported upon a base B, this base being adapted to stand in a vertical position, so that the head projects horizontally therefrom, as seen in Fig. 1. From the base below the head, an arm C, projects parallel with the axis of the head.

The head A, is constructed with recesses D and E, the recess D, being transversely across the head, and the recess E vertically crossing the recess D, as clearly seen in Fig. 5. The

recesses open through the forward end of the head, and at that point the recesses are of a width somewhat greater than the thickness of the blade of the drill, but from the open end of the recesses in the head, the sides approach each other until they come together and form a sharp acute angle within the head, as at a . The shape of these recesses in longitudinal section, at or near the point where they come together, corresponds to the shape required for the cutting end of the blade of the drill. From the head each side of the recesses, bars extend longitudinally, and there being two recesses crossing each other in the head, there are four such bars $b c d e$. These bars extend to a support F, which projects upward from the arm C, and are there secured. The bars are parallel with each other, and distant from each other somewhat greater than the thickness of the blade of the drill.

Through the support F, is an opening G, in the shape of a cross, corresponding to the combined recesses of the head, and so that the blank for the drill, such as seen in Fig. 7, may be passed in through the opening G, in the support F, and between the bars $b c d e$, and guided thereby, the drill-blank may be forced forward, and so as to drive its blades into the recesses of the head. The drill having been brought to its preliminary shape, in the usual manner, its end is heated, and then while hot, the drill is introduced through the support F and forcibly driven into the head, and so as to drive the blades of the drill into the recesses of the head. The shape of the recesses in the head corresponding to the shape of the drill required, will set the heated end of the blades into a shape corresponding to the bottom of the recesses in the head, and that shape is the shape required for the finished drill.

The apparatus stands in a horizontal position, as seen in Fig. 1, so that the operator may readily throw the drill forward into the head, and the drill rebounding therefrom will be again thrown in, and so continuing until the required shape for the edge of the drill is produced. The scale which unavoidably forms upon the drill and flakes therefrom in the operation of setting, will drop into the recesses, but because of their horizontal position, and

their inclined shape, the flakes of scale will readily escape from the apex of the recesses so as not to interfere with the operation upon the drill. Forward of the support F, a rest H, is arranged, in which the rod of the drill may rest in the operation of shaping or swaging the head.

In operation the blades serve as guides to maintain the drill in its proper central position with relation to the head, so that no care is required in this respect on the part of the workman.

For a drill having a single edge or blade, the same apparatus may be employed, the drill being introduced through the support, will rest on the two lower bars, and thereby be guided into the recess in the head for an operation upon its edge, in like manner as that described for the cross-blade drill.

The width between the bars and the opening of the recesses into the head is of sufficient width for the thickest blade required. If thinner blades are to be used, thin plates are arranged upon the upper surface of the lower bars, such plates being represented at *f f*, Figs. 1 and 5. These plates will be of a thickness so as to bring the blade into a central position with relation to the apex of the horizontal recess in the head, and plates of various thickness may be employed to adapt the apparatus to various thicknesses of blades of drills.

In using the apparatus, it will be understood that the base B, will be set against something of sufficient solidity to support the apparatus in operation, as for illustration, the face of the rock in the ledge where the work is to be performed, so that the apparatus may be in convenient position for operation.

I claim—

1. The herein described apparatus for sharpening or setting rock-drills, consisting of the head A, supported in a horizontal position, the head constructed with recesses D E, opening through its face, and crossing each other, the said recesses extending into the head, the sides of the recesses coming together to form a sharp acute angle within the head, parallel guide-bars extending longitudinally from each side the said recesses, and substantially parallel with each other, the outer end of the said bars connected by a support F, having an opening through it corresponding to the recesses in the head substantially as and for the purpose described.

2. The herein described apparatus for sharpening or setting rock-drills, consisting of the head A, supported in a horizontal position, the head constructed with recesses D E, opening through its face, and crossing each other, the said recesses extending into the head, the sides of the recesses coming together to form a sharp acute angle within the head, parallel guide-bars extending longitudinally from each side the said recesses, and substantially parallel with each other, the outer end of the said bars connected by a support F, having an opening through it corresponding to the recesses in the head, with adjusting plates *f*, adapted to be arranged upon the upper surface of the two lower bars, substantially as and for the purpose described.

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

ALBERT CAMPBELL.

Witnesses:

WILLIAM MONK,
DANIEL W. BARR.