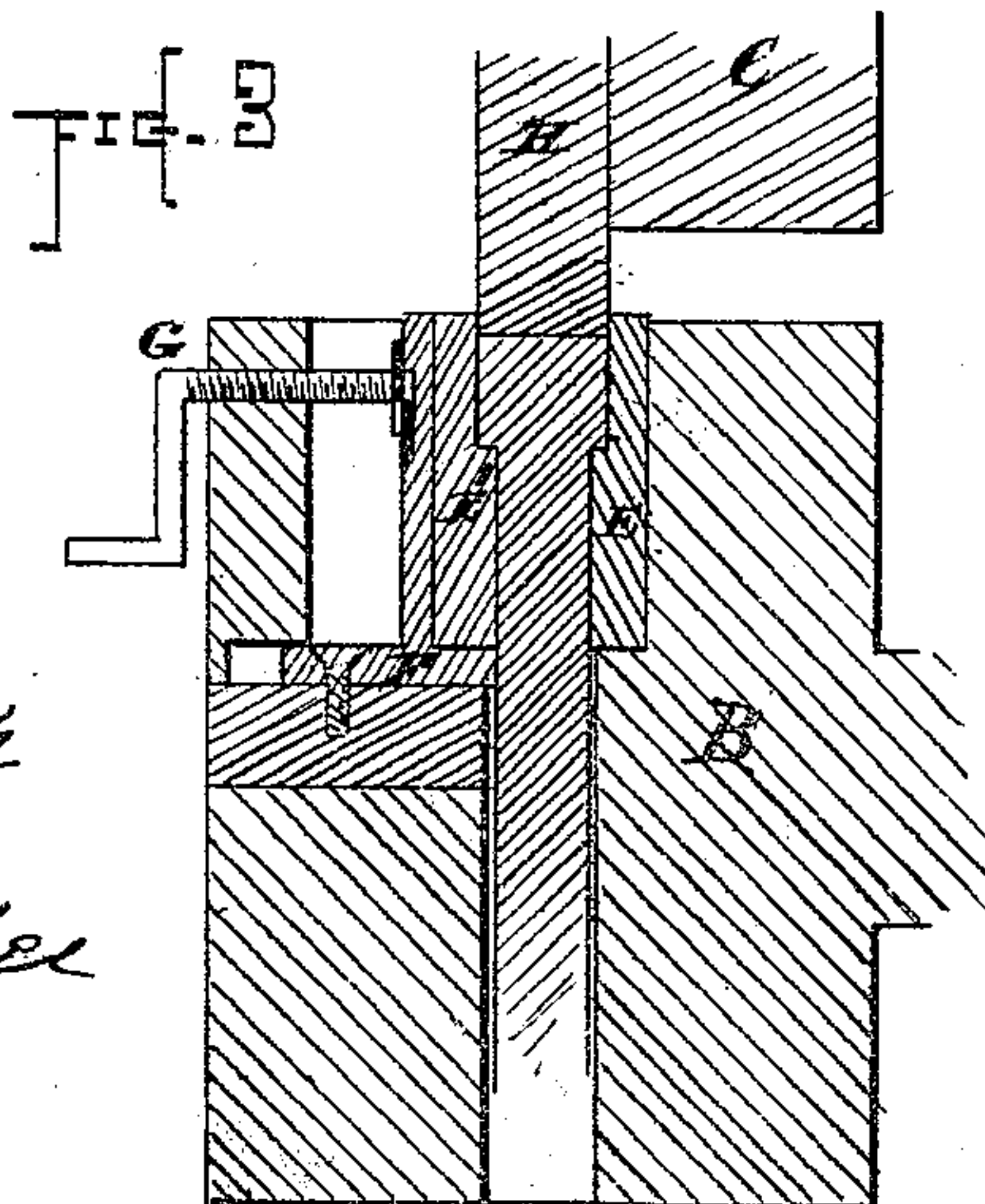
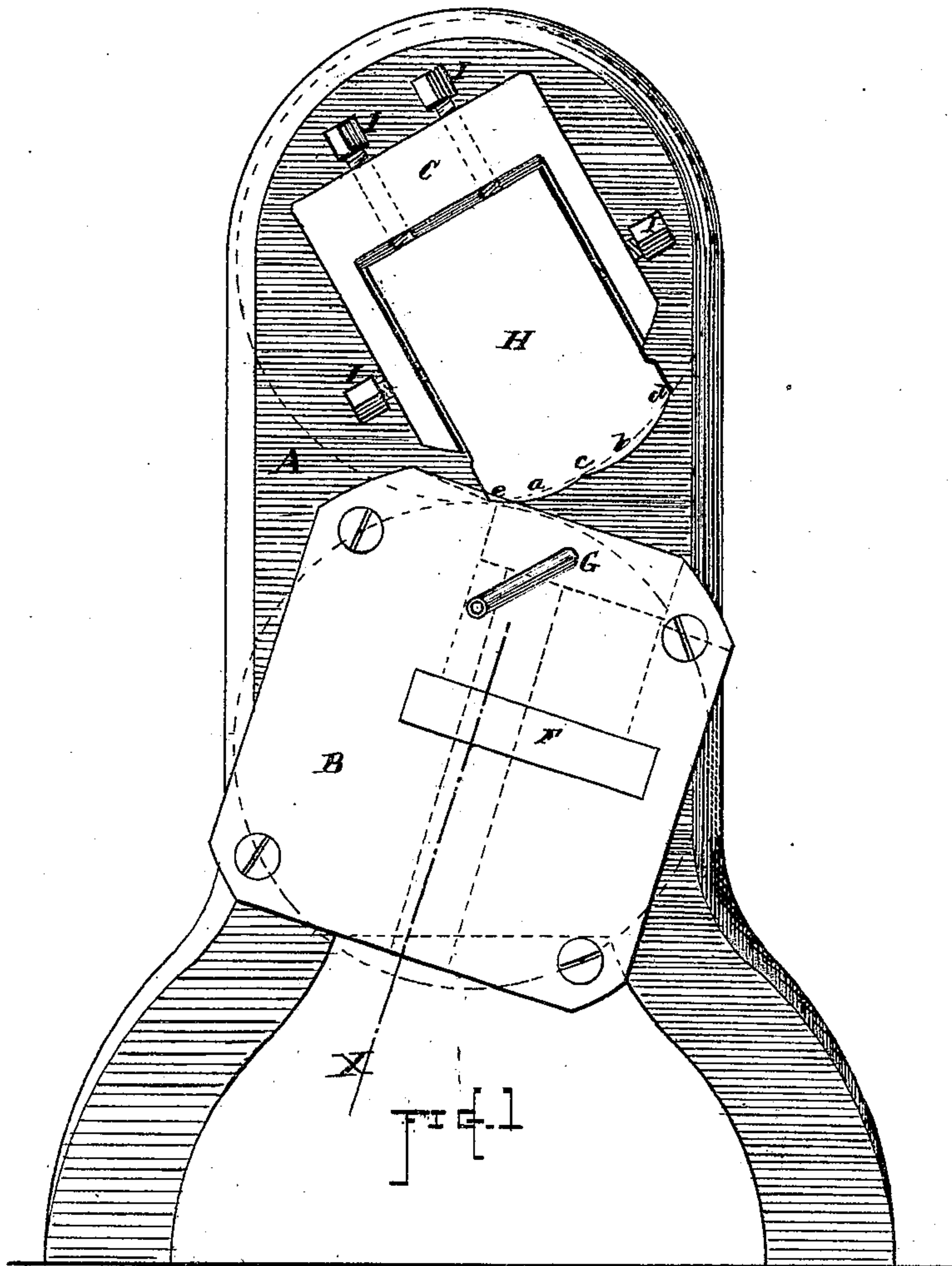


A. G. COES.

Improvement in Machines for Forming Wrench Bar-Heads.

No. 128,118.

Patented June 18, 1872.



Witnesses

Inventor

Chas. Burlingh

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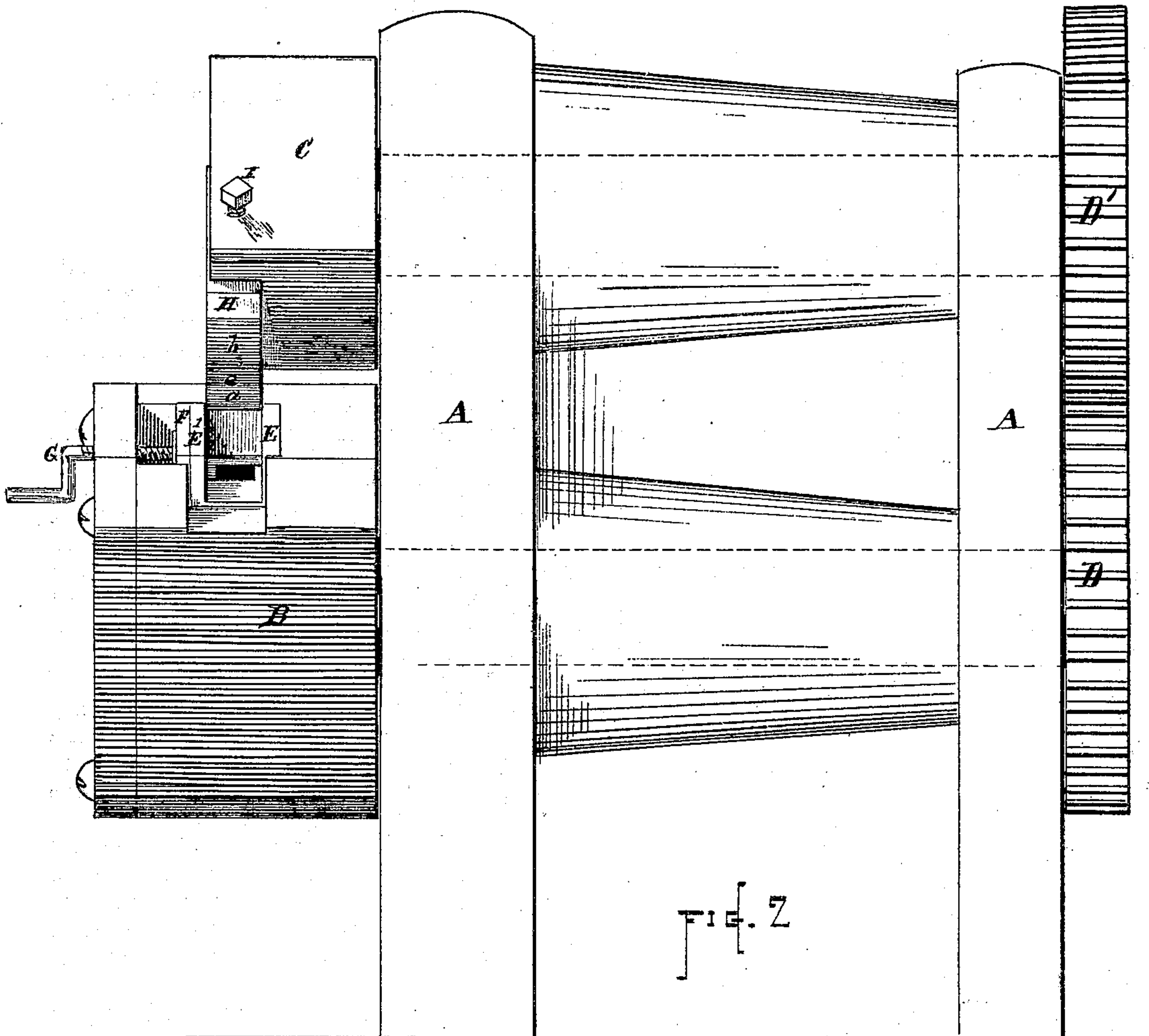


FIG. 4

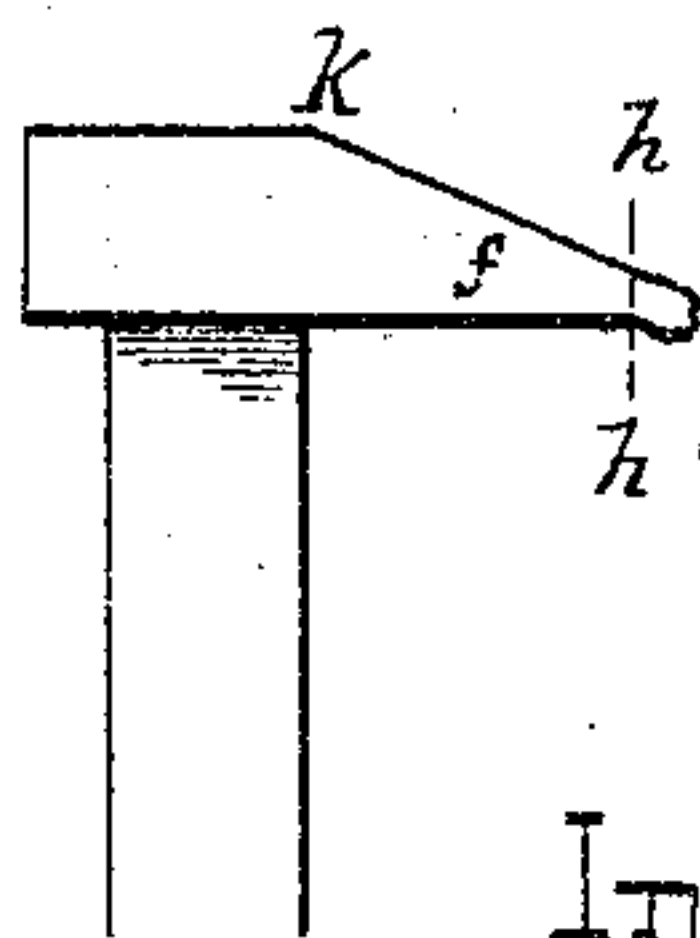
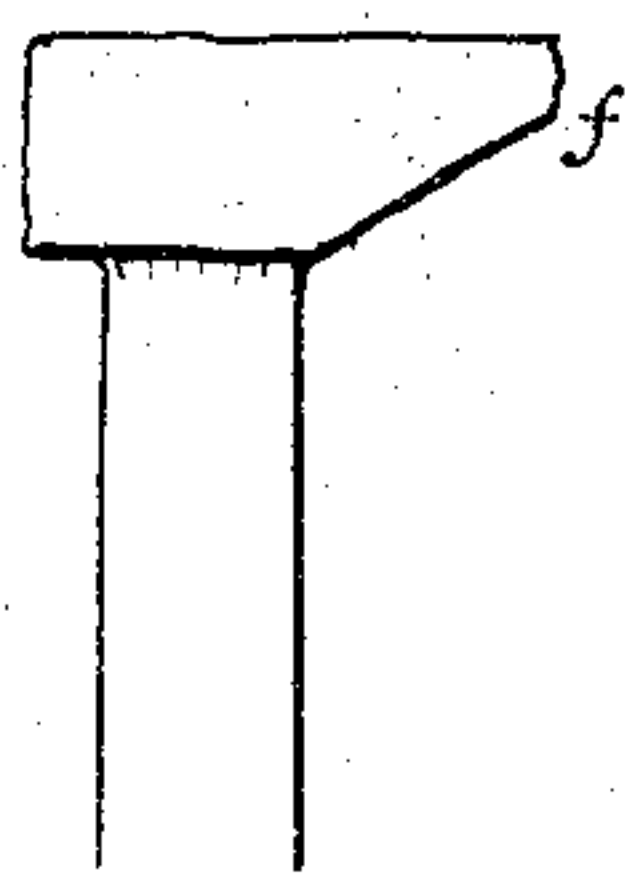


FIG. 5

Witnesses

Inventor

Chas. H. Burleigh  
Thos. H. Dodge

Avery G. Coes



# UNITED STATES PATENT OFFICE.

AURY G. COES, OF WORCESTER, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR FORMING WRENCH-BAR HEADS.

Specification forming part of Letters Patent No. 128,118, dated June 18, 1872.

*To all whom it may concern:*

Be it known that I, AURY G. COES, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for forming Wrench-Bar Heads; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 represents an end view of my improved machine for forming wrench-bar heads. Fig. 2 represents a front view of the same. Fig. 3 represents a transverse section of the forming-dies at line X, Fig. 1, with the wrench-bar in the dies. Fig. 4 represents the form of the wrench-bar head before passing the dies; and Fig. 5 represents the form of the head after passing through the machine.

The nature of my invention consists in certain improvements in mechanism for forming the heads of wrench-bars, as hereinafter described.

In the drawing, the part marked A represents the frame, which supports two horizontal shafts having die-supporting heads B and C at one end, while their opposite ends are connected to each other by a pair of spur-gears, D D', of equal size, so that both of the shafts will revolve with a uniform motion. A suitable driving-gear may be meshed with one of the gears D D', or one of the shafts may be extended and a pulley arranged thereon to receive a driving-belt; or any other suitable mechanism may be used for imparting motion to the shafts and die-supporting heads B C. The lower head B is fitted with clamping-dies, composed of the parts E E', which are formed of the proper shape to embrace the bar, and the sides and back of the wrench-head. One part, E, of the clamping-die is set into the head B in a stationary position, while the other part, E', is held upon an adjustable slide, F, which can be moved in or out by a screw, G, arranged through the outer part of the head B, as illustrated in the drawing. The outer end of the screw G is provided with a crank or hand wheel, by means of which it can be easily operated for clamping or loosening the die to

hold or release the wrench-bar, as desired. The upper head C is furnished with the forming-die H, which is constructed of the form shown in the drawing, and is set into a recess formed in the head C, where it is retained in position by means of the adjusting-screws I. The lower end or working-surface of the die H is made with two arched portions, *a b*, having a depression, *c*, between them. The curve of the arched portions *a b* extends from front to rear, the line of the faces being straight laterally. The several extremities *c*, *d*, and *e* of the die-faces are so constructed and adjusted that they will all three coincide, or nearly coincide, with a single arc of motion around the axis of the upper shaft, while the position of the wrench-bar is so adjusted in the clamping-die E E' that the point of contact between the head and the die H will be as nearly as possible in a plane centrally between the axis of the two shafts, the two tangential arcs of motion being equal to each other, so that the die and head of the wrench-bar will roll upon each other with a uniform motion and thus prevent any wrinkling or undue straining of the metal as the heads are drawn out and rolled into form.

The head of the wrench-bar having been partially formed, as shown in Fig. 4, is placed within the clamping-dies E E', the bar extending down through an opening in the central part of the supporting-head B. The lower edges of the head rest upon the shoulders *m m* of the dies, as indicated in Fig. 3. The dies are then closed by the screw G, so as to firmly embrace the bar and sides of the head, thereby securing it rigidly in position. The machine is then put in motion, and the action of the curved faces of the die H bends down the forward part *f* of the head and draws or rolls it out into the form shown in Fig. 5. After it has passed under the die it is removed by loosening the screw G. The rough end is trimmed off at the dotted line *h h*, Fig. 5, by a subsequent process. The die H can be adjusted by means of the screws I, so as to roll the front ends of the heads of greater or less thickness, or to vary the position of the angle *k* at the upper part of the head, as desired.

The dies can be removed from the support-

ing-heads and replaced by dies of different sizes for forming the heads of different-sized wrench-bars.

Having described my improved machine for forming wrench-bar heads, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

The combination, with the revolving sup-

porting-heads B C, of the clamping-die E E' and forming-die H, substantially as and for the purpose stated.

AURY G. COES.

Witnesses:

THOS. H. DODGE,  
CHAS. H. BURLEIGH.