

L. COES.

Dies for Forging Wrench-Bars.

No. 144,832.

Patented Nov. 25, 1873.

FIG. 1.

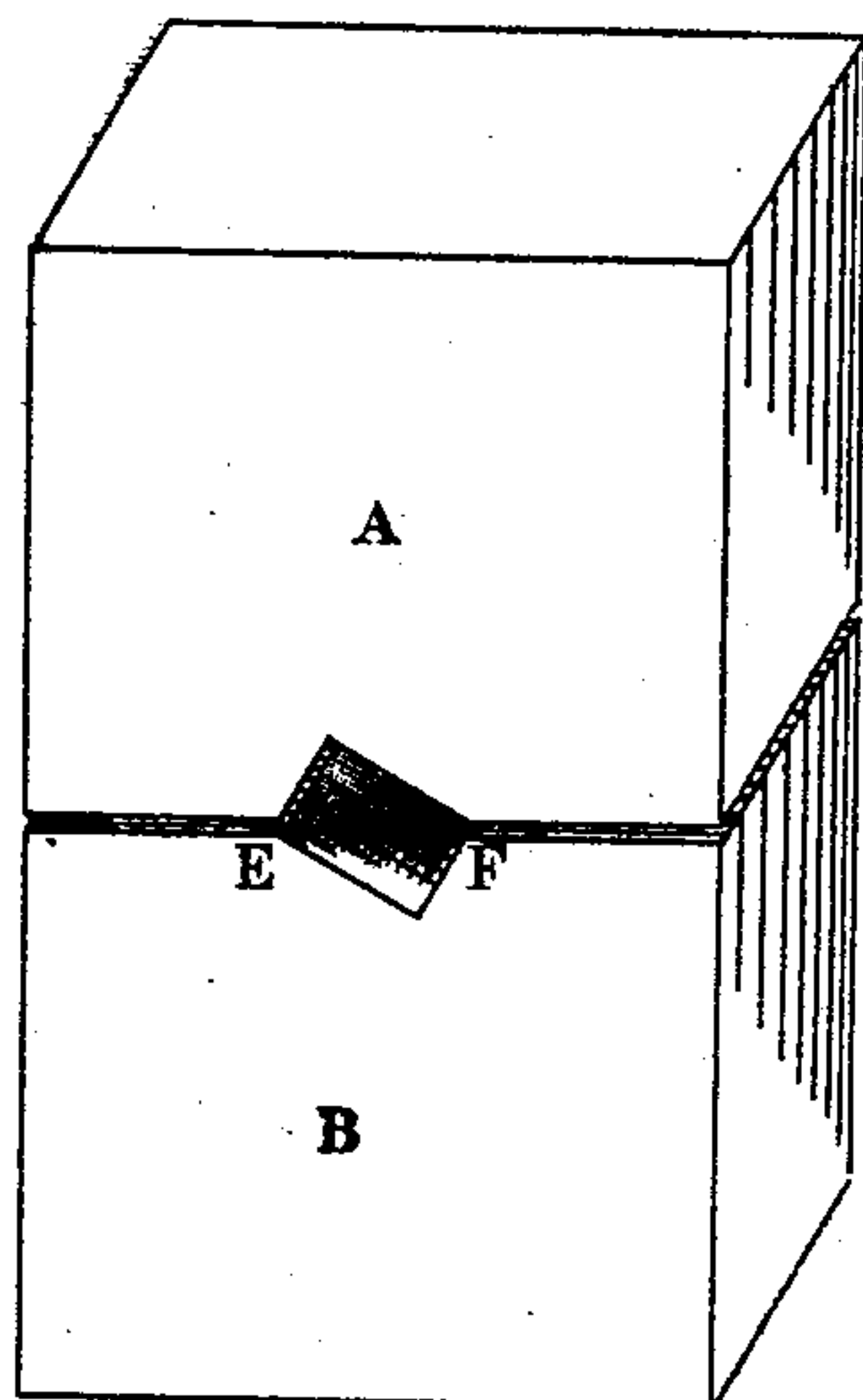
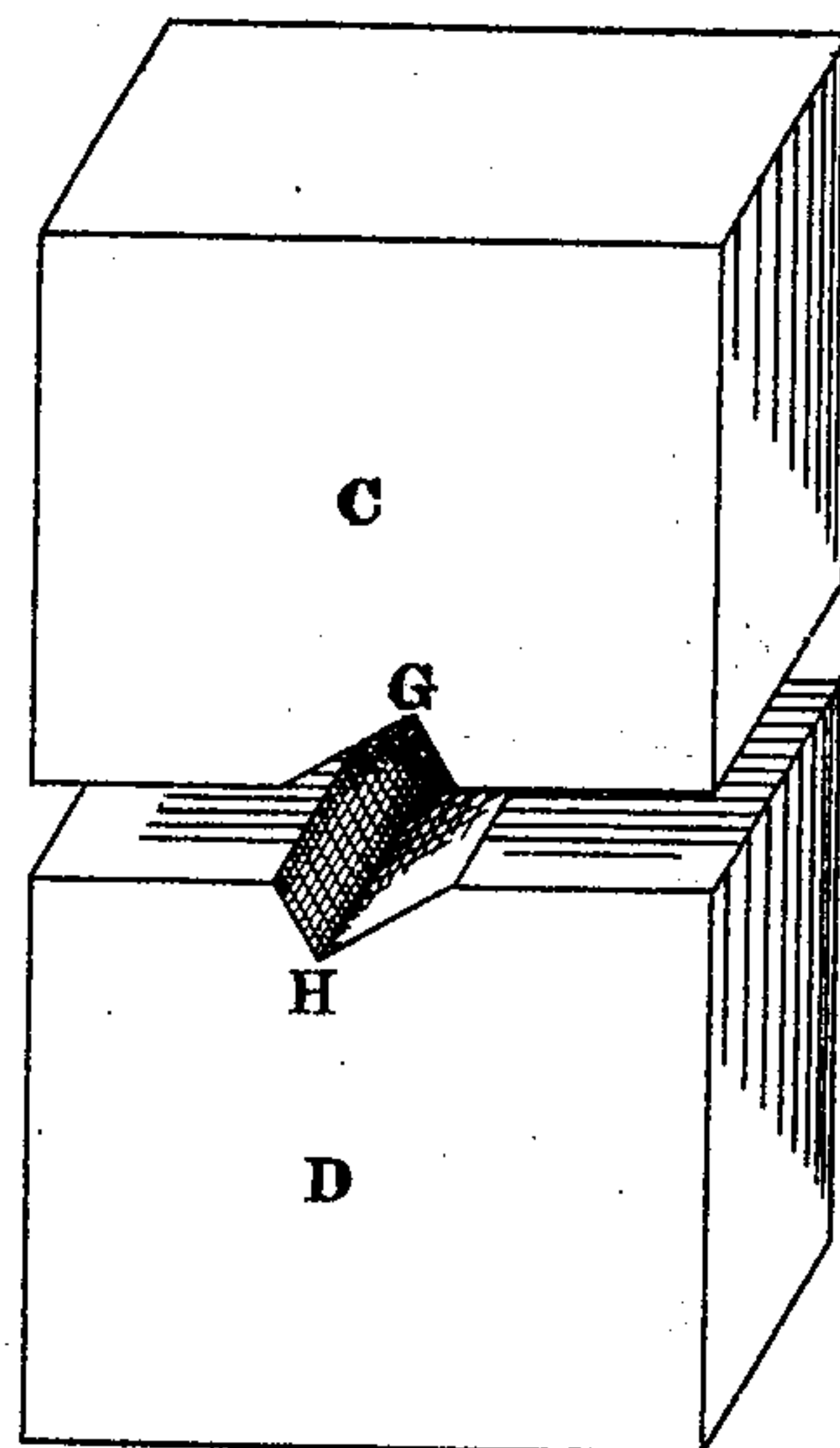


FIG. 2.



WITNESSES:

L. A. Stevens.

C. W. Stevens.

INVENTOR:

Loring Coes.

PER.

W. H. Stevens.

ATTY.

UNITED STATES PATENT OFFICE.

LORING COES, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN DIES FOR FORGING WRENCH-BARS.

Specification forming part of Letters Patent No. **144,832**, dated November 25, 1873; application filed October 9, 1873.

To all whom it may concern:

Be it known that I, LORING COES, of the city and county of Worcester and State of Massachusetts, have invented Dies for Forging Wrench-Bars, of which the following is a specification:

The object of my invention is to rapidly forge the parallel part of wrench-bars with true sides, square corners, and no fins, by means of swaging-dies used in a drop-press, hammer, or other suitable forging-machine.

The cross-section of that portion of a wrench-bar which is acted upon by these dies, A B C D, is in the form of a rectangular parallelogram. Longitudinally the sides of the bars are parallel till they approach the head, when they flare out a little, both to increase the strength and to fit the sliding jaw more closely at that point. To finish forging these bars, I use two pairs of dies having shaping-grooves cut across them, and matched, the upper to the lower die, so as to receive the bar corner-wise, as shown in the accompanying drawings. Dies A B have their grooves slanted to tip the bar corner-wise in one direction, and dies C D have a similar slant in the opposite direction for this purpose. When the bar is drawn to size by the use of dies A B alone, corners E F are driven out, forming fins between the faces of the dies; but by alternately changing the bar from dies A B to dies C D, the corners left at E F are driven in and squared by solid corners G H of dies C D, and vice versa. In this manner my dies will forge wrench-bars with perfectly full square corners without a fin.

To preserve the size more perfectly, I sometimes use more than one set of dies, two pairs of dies forming a set.

Figure 1 shows one pair, and Fig. 2 the other pair, of dies, to correspond as one set.

The grooves in the dies flare a little on the working side, to give increased thickness of bar near the head.

The necessity for this combination arises from the fact that a wrench-bar having unequal breadth of sides cannot be turned so as to bring all four corners into the corners G H of one pair of dies, C D, while holding the wrench-head in the tongs, unless the operator goes around the machine and works alternately at one side and the other; and, if he attempts to overcome the difficulty by changing his tongs from head to shank end of the bar, he will not only waste time, but find great difficulty in passing the head through the machine without spoiling it.

Besides the economy resulting from the use of my dies in rapidity of forging, there is a point of greater economy in the forging by this process, being so perfect that the bar requires no slabbing or other finishing to fit the sliding jaw; and, by doing away with slabbing the bars, I save the strongest part of the iron, which was formerly cut off to waste.

I claim—

The combination of the forging-dies described, having rectangular corner-grooves, the parallel sides of which are unequal in breadth, said dies being so associated and combined in pairs that the broad sides of the grooves in one pair shall slant to the right, and the similar sides of the other pair slant to the left, each for the purpose of welding in the fin left on the bar by the other, as shown and specified.

LORING COES.

Witnesses:

J. HENRY HOW,
I. S. MERIAM.