

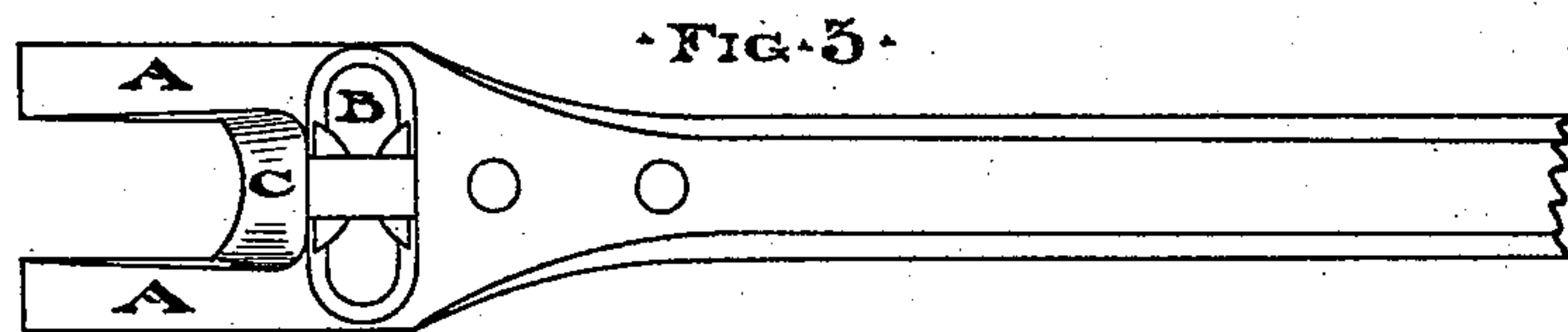
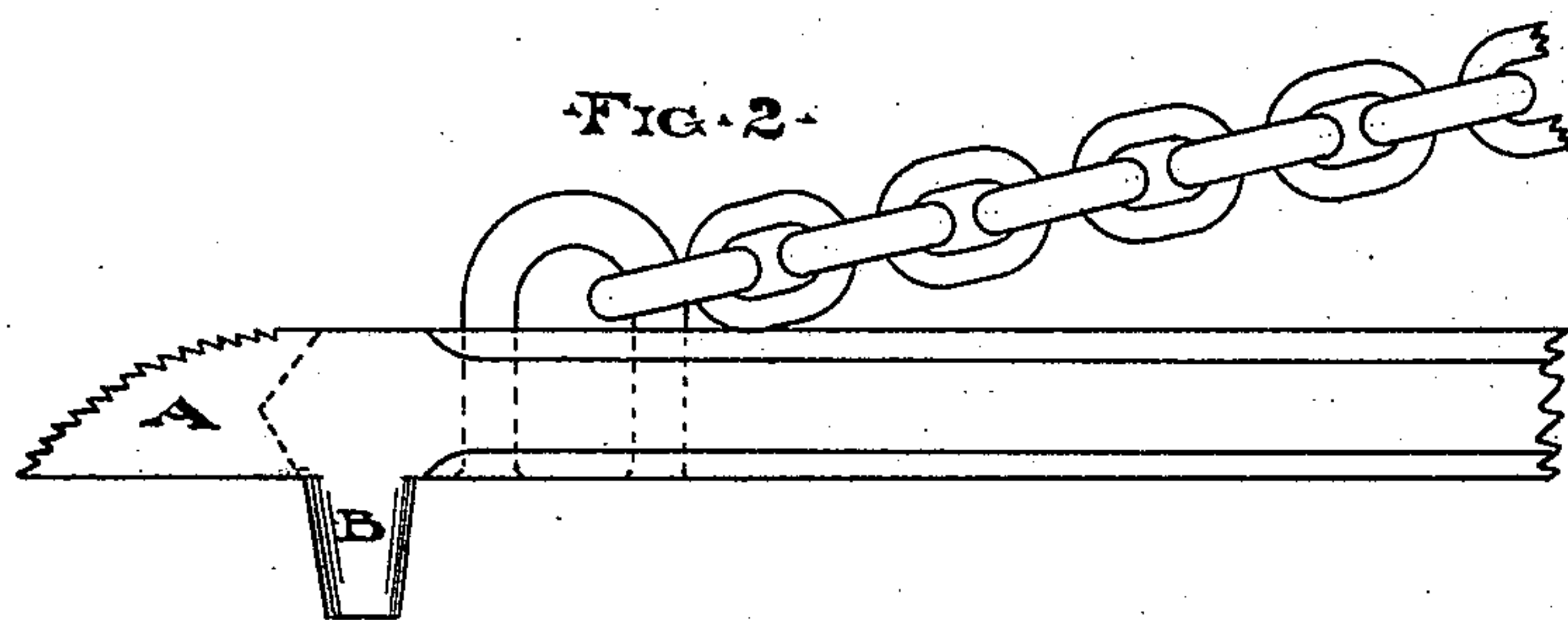
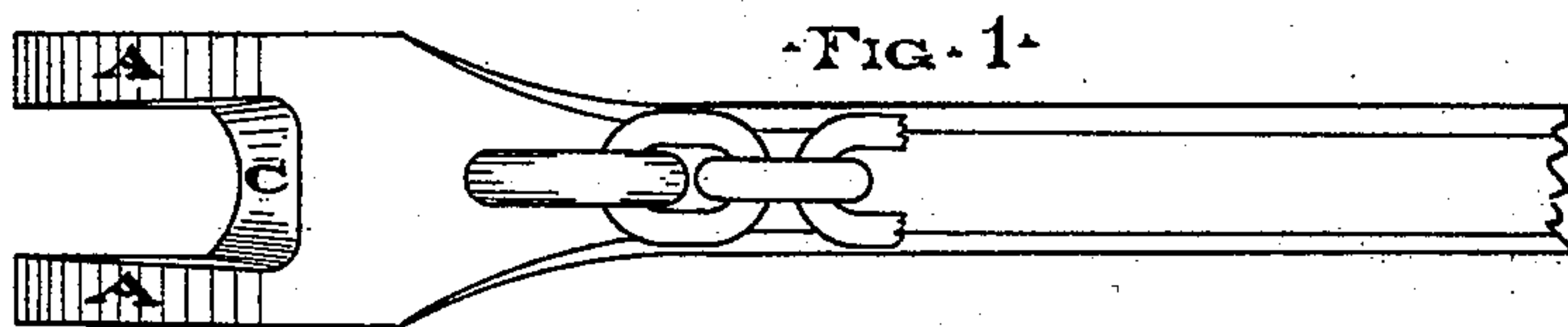
(No Model.)

2 Sheets—Sheet 1.

S. FAWCETT & H. F. SMITH.
DIE FOR MAKING PIPE WRENCHES.

No. 464,352.

Patented Dec. 1, 1891.



WITNESSES.
William F. Morse
Frank Sharp

Samuel Fawcett INVENTORS
Henry P. Smith

(No Model.)

2 Sheets—Sheet 2

S. FAWCETT & H. F. SMITH.
DIE FOR MAKING PIPE WRENCHES.

No. 464,352.

Patented Dec. 1, 1891.

Fig. 4.

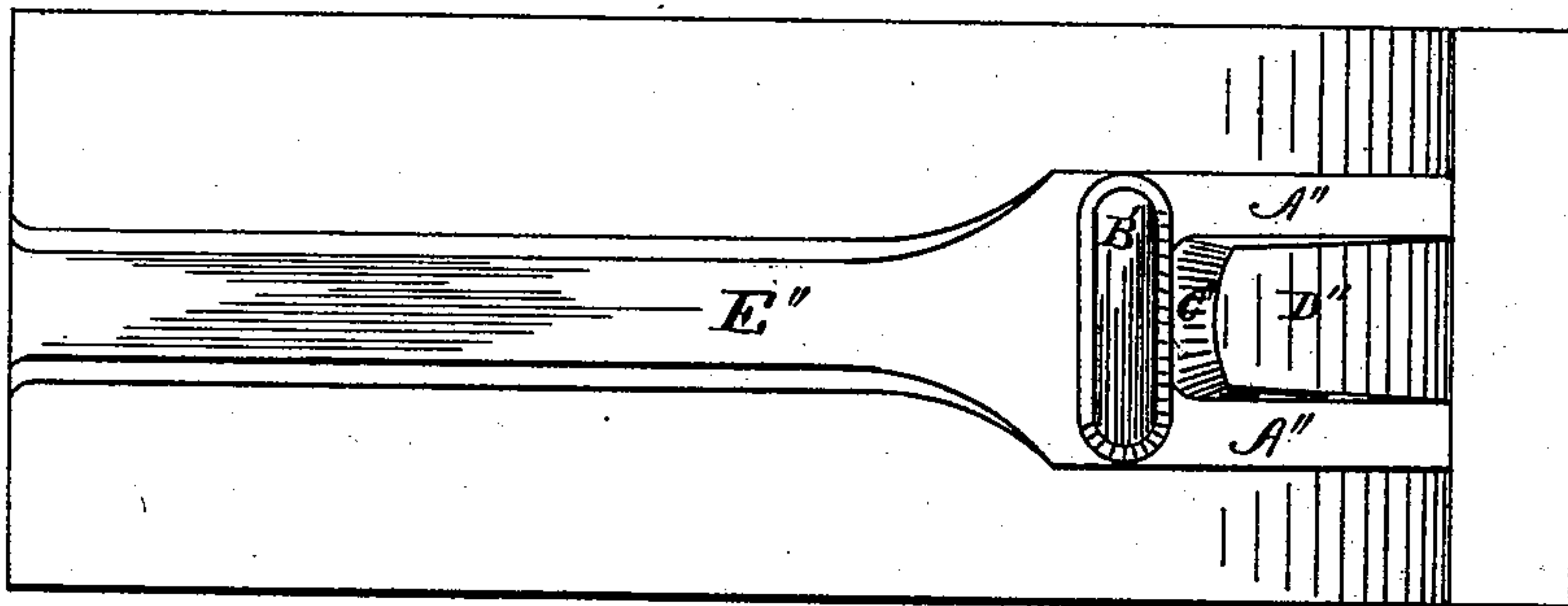


Fig. 6.

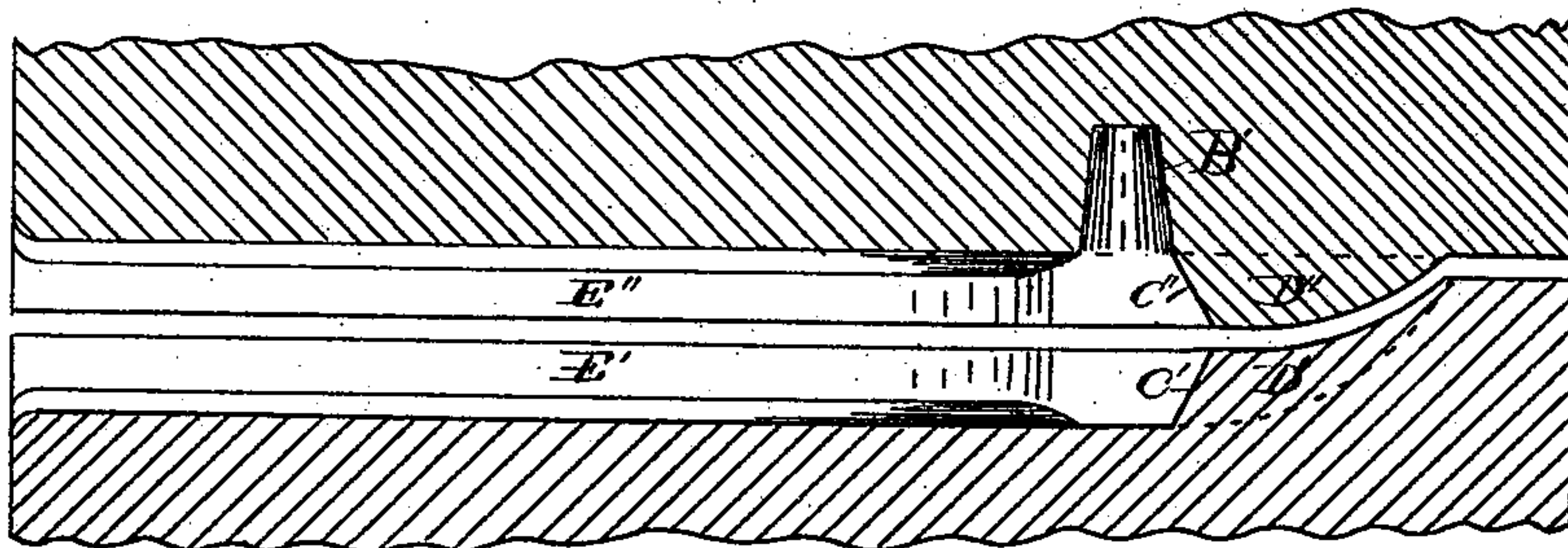
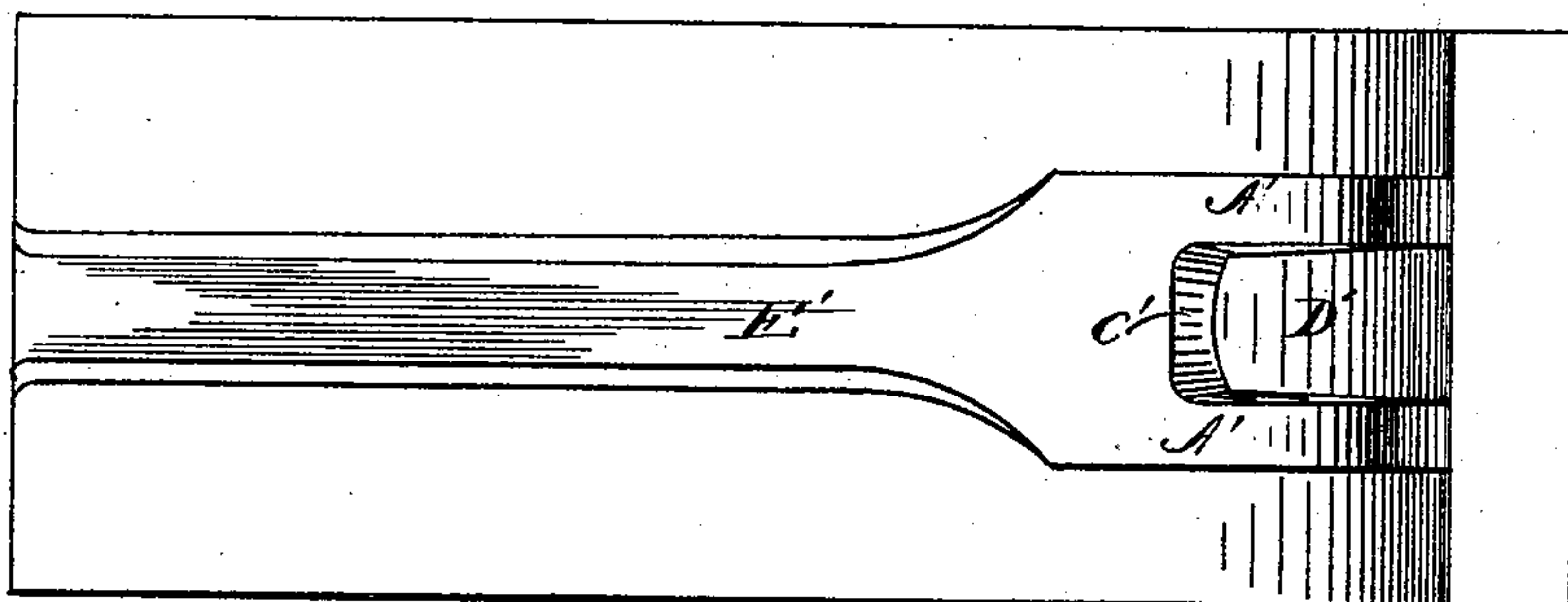


Fig. 5.



WITNESSES.

Alvan Macaulay
Thomas Durant

INVENTORS.

Samuel Fawcett and
Henry F. Smith.
By *Church & Church*
Their ATTORNEYS

UNITED STATES PATENT OFFICE.

SAMUEL FAWCETT AND HENRY F. SMITH, OF ROCHESTER, NEW YORK.

DIE FOR MAKING PIPE-WRENCHES.

SPECIFICATION forming part of Letters Patent No. 464,352, dated December 1, 1891.

Application filed April 24, 1891. Serial No. 390,347. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL FAWCETT and HENRY F. SMITH, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dies for Making Pipe-Wrenches; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

Our present invention has for its object to provide improved dies for making chain pipe-wrenches, whereby practically the whole of the wrench may be made at a single operation; and to these and other ends it consists in certain improved construction hereinafter fully described, the novel features being pointed out in the claims.

In the drawings, Figure 1 is a bottom plan of a complete wrench; Fig. 2, a side elevation, and Fig. 3 a top plan view, of the same; Fig. 4, a plan view of the face of the upper die; Fig. 5, a plan view of the face of the lower die; Fig. 6, a longitudinal sectional view of the two dies when brought together.

Similar letters of reference in the several figures indicate similar parts.

In Figs. 1, 2, and 3 are shown views of the complete wrench made by our dies, E representing the operating-handle; A, the serrated steel-faced jaws at the forward end; B, the hub or projection on the side opposite the serrations on the jaws, and C a small fillet or web formed on the body and serving to connect the jaws A A by a firm connection. The hub B is, after being formed in the dies hereinafter described, slotted, as shown, for the engagement of the links of a chain F, attached to the wrench by a staple G, as usual.

The manner of using the wrench is well known and needs no further description.

Heretofore this form of wrench has been made by taking a bar of iron and welding the steel jaws A separately thereto; but such a proceeding is not only expensive, but produces an inferior article, and we find that by the use of our improved dies the whole wrench-body can be easily and cheaply formed by a single operation. The lower die shown in Figs. 5 and 6 is provided with the recess E', for the handle portion of the wrench, the curved recesses A' A' at the forward end and

the convex projection D' between the latter having the inclined rear side C' for forming one side of the inclined rib or web C between the jaws. The upper die is provided with the recess E'' E'', corresponding to part E' in the lower die, the recesses A'' A'' for the straight part of the jaws A A, the recess B' for forming the projection B, and the projecting portion D'', concave on its outer surface to correspond with the part D' on the lower die and having the rear side inclined at C'' to form the other side of the web or rib C. The faces of the dies are preferably curved, as shown, so that the parting line will extend approximately through the center of the jaws A from the end. The inclined parts C' C'' could be omitted from the projections D' D'', if desired; but we prefer to form the inclined web C as shown.

The blank or billet of metal from which the wrench is formed is of the general shape of the article, and a small piece of steel is secured at or near the end, constituting a wearing-face for the jaws A A. Then the whole blank is heated to a welding heat, placed between the dies, which are in a suitable hammer or press, and by a few blows the wrench is formed, the metal flowing into recess B' and the steel face being welded into position on the jaws A. The metal between the jaws A is then trimmed out, leaving the web C, which materially strengthens them, and the slot is cut in the projection B, the jaws A serrated, and the staple and chain attached in the usual manner.

We claim as our invention—

1. The herein-described dies for forming wrenches, having the recesses A', A'', E', E'', and B', and the projections D' D'', substantially as shown.

2. The herein-described dies for forming wrenches, having the recesses A', A'', E', E'', and B', and the projections D' D'', with the inclines C' C'' thereon, substantially as shown.

3. The herein-described dies for forming wrenches, having curved faces and the recesses A', A'', E', E'', and B', and the projections D' D'', substantially as shown.

SAMUEL FAWCETT.
HENRY F. SMITH.

Witnesses:

WILLIAM F. MORSE,
FRANK SHARP.