

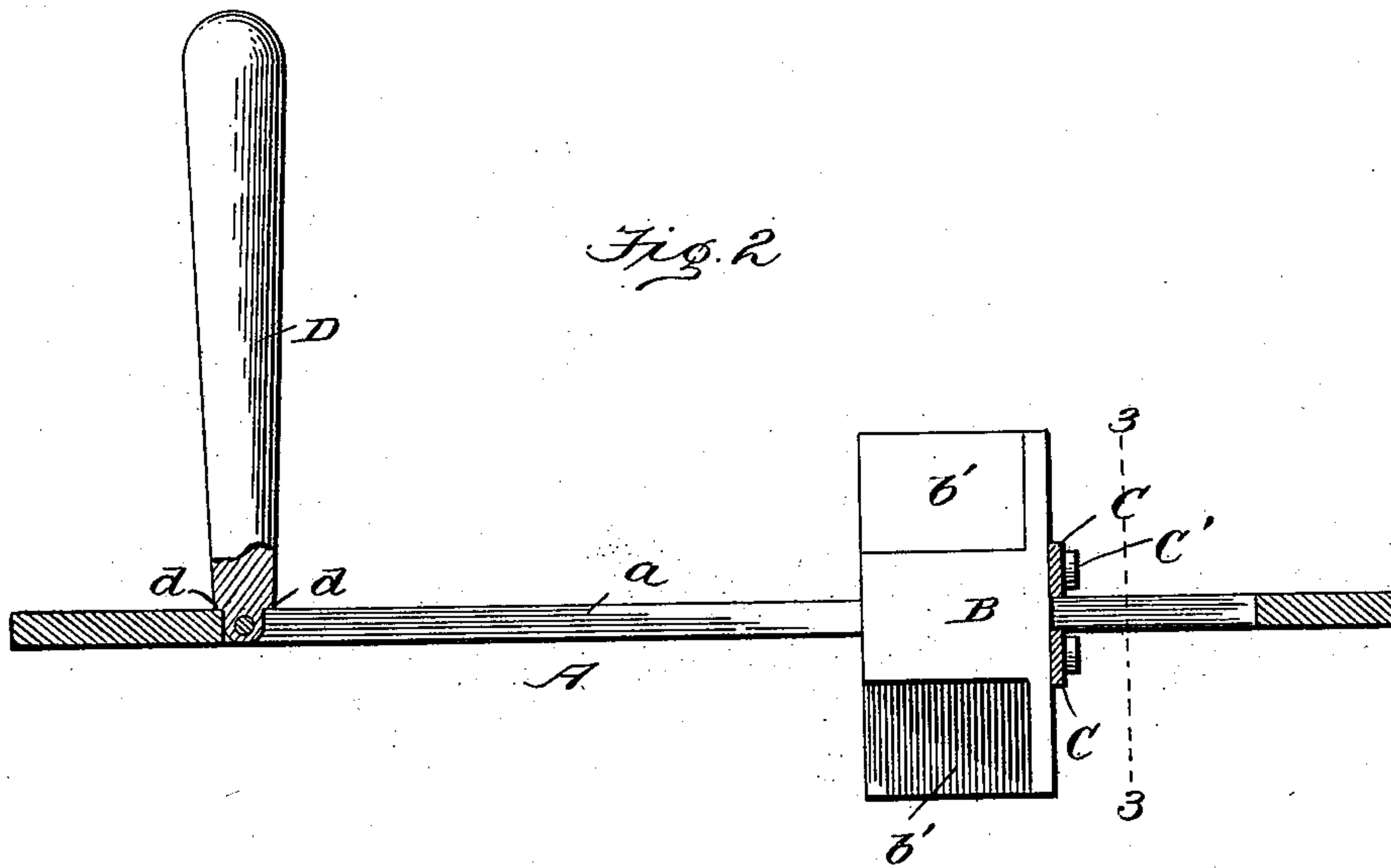
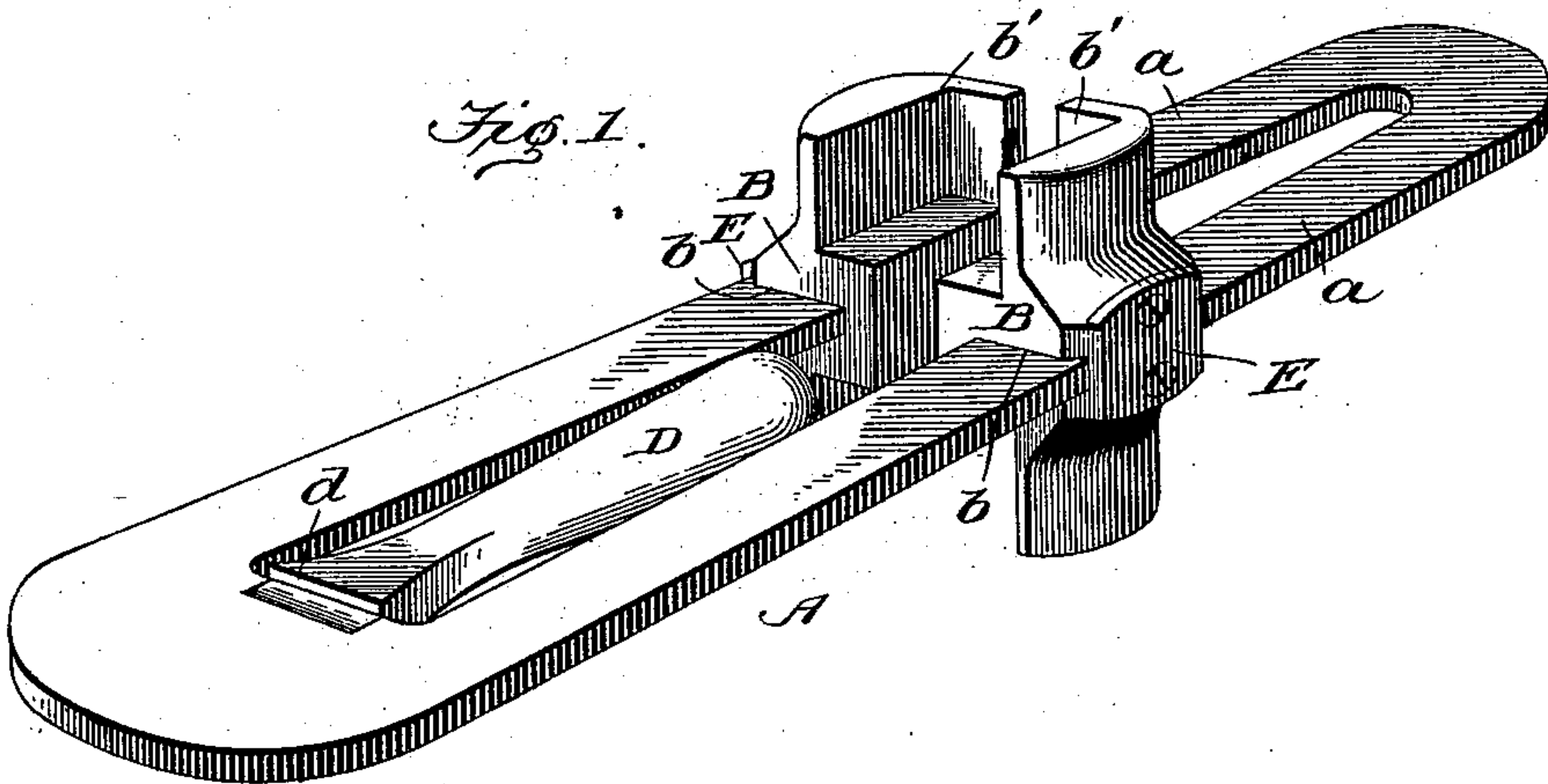
(No Model.)

2 Sheets—Sheet 1.

J. S. FOWLER.
WRENCH.

No. 549,871.

Patented Nov. 12, 1895.



WITNESSES:

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INVENTOR

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(No Model.)

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Fig. 3.

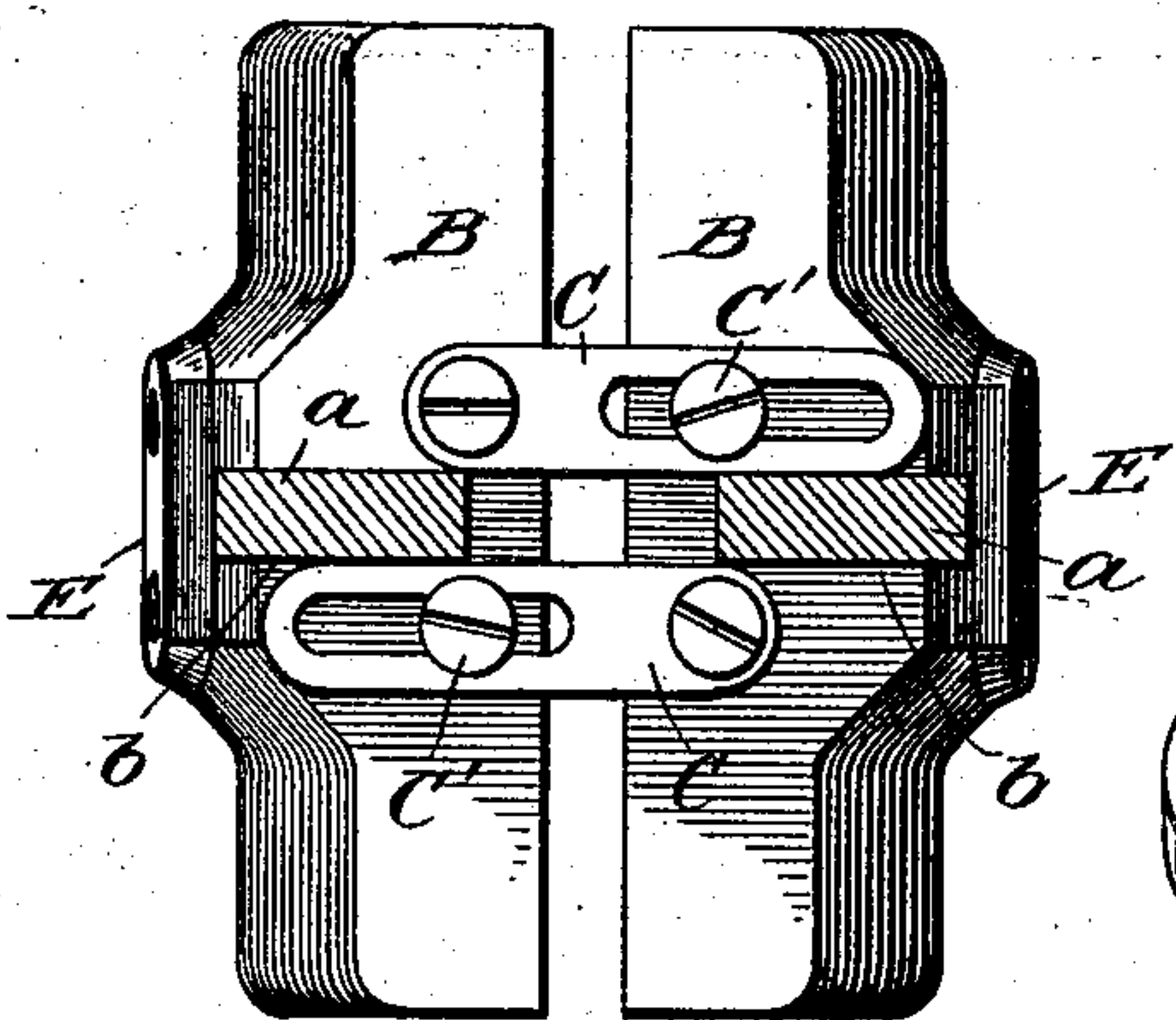


Fig. 4.

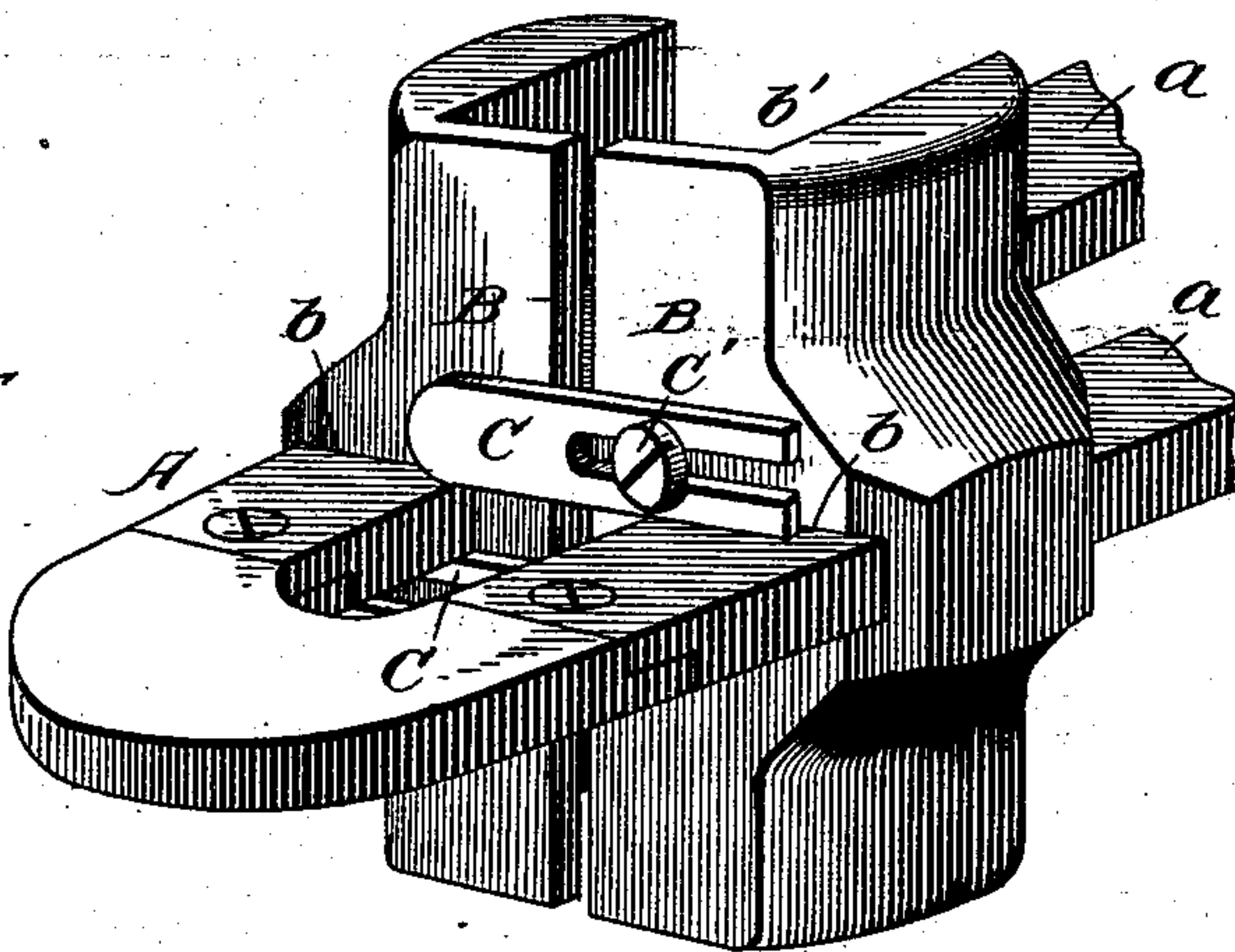


Fig. 5.

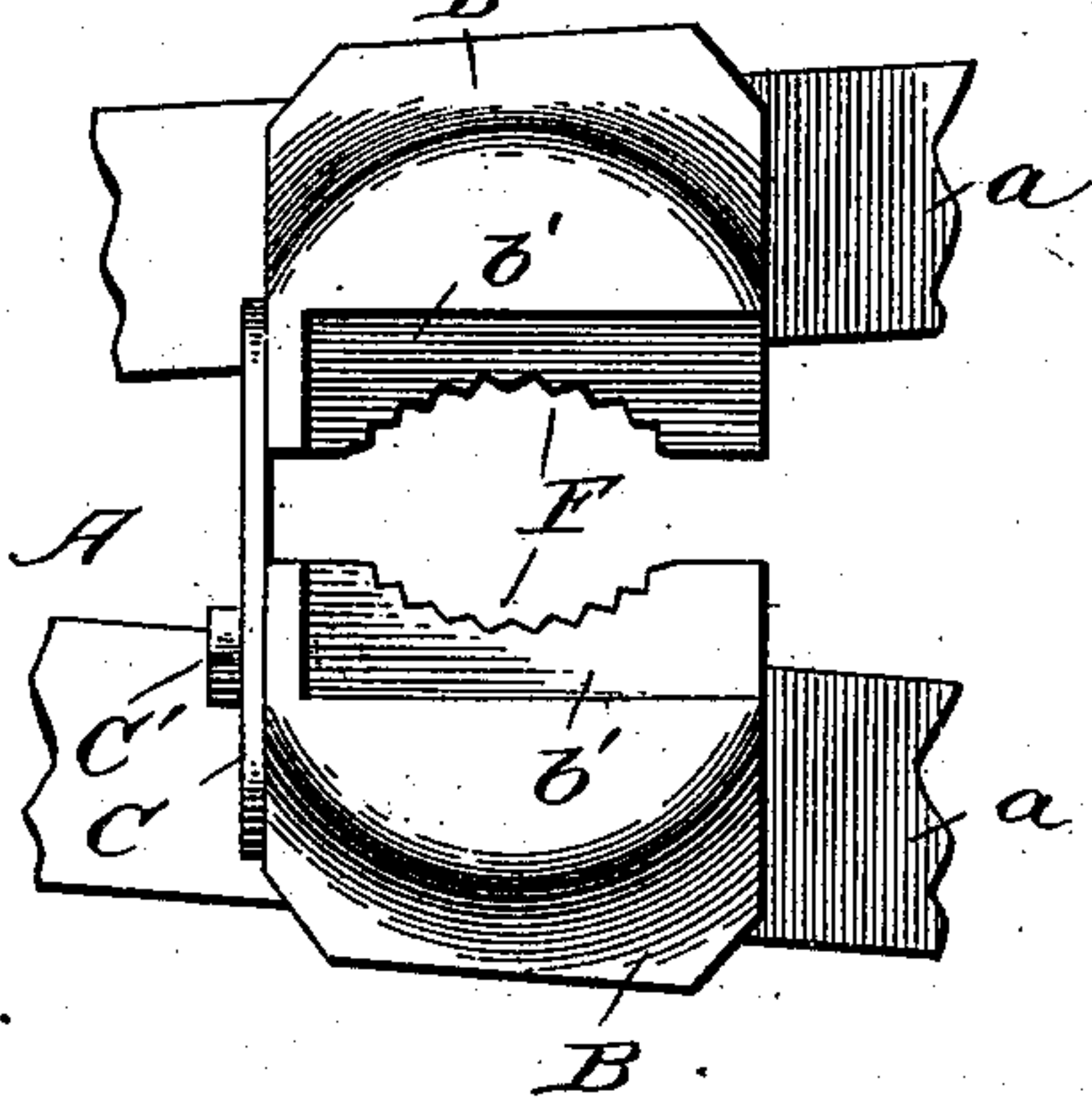
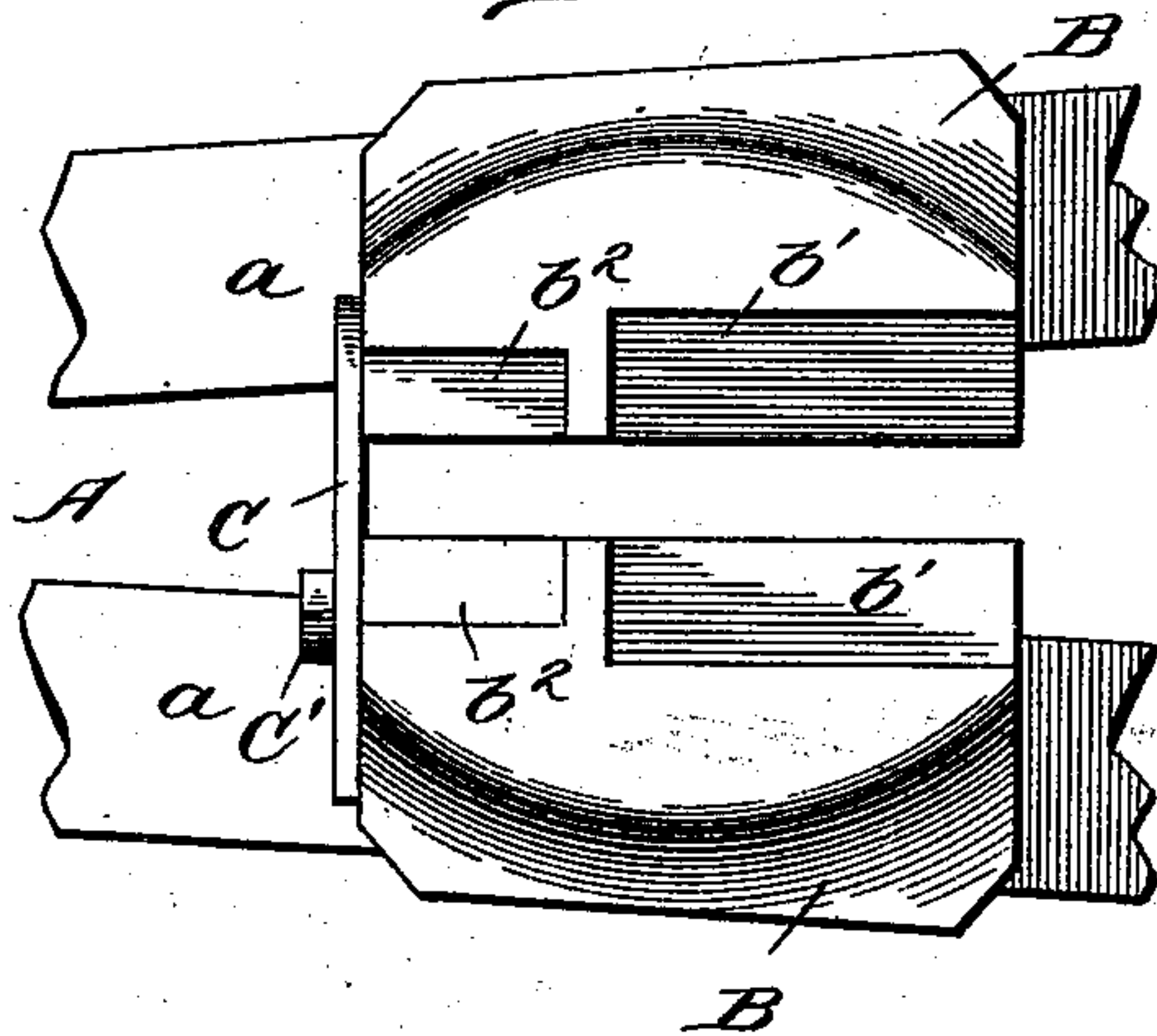


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES S. FOWLER, OF BOWERS, VIRGINIA, ASSIGNOR OF ONE-HALF TO
WILLIAM B. MATTHEWS, OF WASHINGTON, DISTRICT OF COLUMBIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 549,871, dated November 12, 1895.

Application filed June 13, 1895. Serial No. 552,701. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. FOWLER, a citizen of the United States, residing at Bowers, in the county of Southampton and State of Virginia, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to wrenches, particularly to that class thereof known as "sliding-jaw wrenches," and the principle is applicable to both nut and pipe wrenches, though preferably constructed as a nut-wrench.

The objects of the invention are, first, to provide a wrench which shall be exceedingly cheap, simple, and durable, and avoid the use of screw and ratchet attachments for adjusting the jaws; secondly, to provide a wrench having two sliding jaws which move in unison and clamp the object to be turned between them, and the same force which turns the wrench and object held therein is also utilized to clamp the jaws tighter upon the object, and, thirdly, to provide a wrench which will have a wide range of variation to suit any sized nut or pipe, and, also, to provide a wrench which will occupy very little space when not in use.

With these objects in view the invention consists, broadly, in the employment of an open wedge-shaped shank or frame, and the sliding jaws arranged upon the side members of said shank or frame and adapted to slide in unison thereon whereby as said jaws are slid toward the narrow end said jaws approach each other and recede as they are moved toward the broad end.

The invention consists, also, in arranging in combination with the wedge-shaped shank or frame and jaws, before referred to, a handle attached to said shank or frame at the broad end, said handle being preferably reversible and foldable, so that the wrench can be used either as a right or left hand wrench or upon either side.

The invention consists, also, in the peculiar manner of constructing and combining the various parts, all of which will be fully de-

scribed hereinafter, and pointed out in the appended claims.

In the drawings hereto annexed and forming a part of this specification, Figure 1 is a perspective view of the wrench, the handle being shown as folded within the shank or frame. Fig. 2 is a central longitudinal sectional view, the handle being shown turned up for use. Fig. 3 is a transverse vertical sectional view taken on the line 3 3, Fig. 2. Fig. 4 is a detail perspective view showing a slight modification. Fig. 5 shows the device constructed for use as a nut and pipe wrench combined, and Fig. 6 shows the jaws formed with double recesses in each face.

In the practical embodiment of the invention a main shank or frame A is employed, said shank or frame being wedge-shaped and open, as shown, the narrow end being arranged uppermost. This shank or frame is made of stout flat metal, preferably of cast-steel, and movable upon the side members *a a* are the sliding jaws B B, said jaws being shaped alike—that is, grooved upon their exteriors, as at *b*—to receive the side members *a* and recessed at *b'* upon their interiors to receive the nut or other object to be turned. Each of the jaws B has a slotted guide-lug C upon its upper face, which coacts with a guide pin C' upon the upper face of the opposite jaw, and by means of this connection the two jaws slide up and down in unison, and consequently approach and recede with regularity, so that there is no binding upon the side members of the shank or frame.

A handle D is pivotally attached to the shank or frame at its broad or lower end, by means of which the wrench is revolved to turn the object held between its jaws, and it will be noticed that the power being applied to the lower or broad end tends to force the jaws toward the upper or narrow end, and as said jaws are forced in this direction they must approach each other on account of the incline or obliquity of the side members *a a* upon which they slide, and to guard against any displacement of said jaws a guide-plate E is attached to the exterior of each jaw and covers the groove in which the side member slides.

The handle D is preferably pivoted to the

shank or frame upon the interior and is reversible, so that the wrench can be used upon either side, and it will be noticed that each jaw is double—that is, recessed upon each side to receive a nut—and by making these recesses of different sizes a wide range of variation is attained. The handle D is also formed with a lug or enlargement *d* upon each side near the inner end, the purpose of which is to hold the handle at a right angle to the wrench when turned outward or ready for use, and when not in use said handle is folded into the open shank or frame, and thus occupies very little space when not in use.

The guide-plates E are not absolutely essential; but it is preferred to employ them in order to prevent any lost motion or binding of the parts. In Fig. 4 is shown a somewhat modified form of construction, in which the plates E are dispensed with and the jaw cast as an entirety; but in this construction the shank or frame is formed of two pieces instead of one in order to permit the jaws to be fixed upon the side members *a*. In Fig. 4 the guide lugs and pins are also formed integral with the jaws.

In Fig. 5 is shown a combination nut and pipe wrench, the interiors of the jaws being toothed as at F to bind against the surface of the pipe.

In Fig. 6 the jaws are shown as constructed with an extra set of recesses *b*², so that a greater variety of nuts can be accommodated.

The invention is not limited to the precise construction of the several elements—such, for instance, as the handle, guide lugs, pins, and plates; but all of said parts can be va-

ried without departing from the spirit or principle of the invention, which consists in the employment of an open shank or frame broader at one end than at the other, and the sliding jaws arranged upon the side members of said shank or frame and adapted to slide in unison.

Having thus described the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wrench, the open shank or frame broader at one end than at the other, the clamping jaws slidable thereon, and the handle pivoted to the said shank at its broader end, said handle being reversible and foldable, substantially as shown and described.

2. In a wrench, an open shank or frame constructed as described, the jaws slidable upon or within the said frame, and means for connecting the said jaws, substantially as shown and described.

3. In a wrench, an open shank or frame constructed as described, the jaws slidable thereon, and carrying the guide lugs and pins and the guide plates, all arranged substantially as shown and described.

4. In a wrench, an open shank or frame constructed as described, the jaws slidable thereon or therein, means for connecting the said jaws, and the reversible foldable handle pivoted to the broad end of the shank or frame, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES S. FOWLER.

Witnesses:

L. R. EDWARDS,
J. A. JACKSON.