

No. 746,137.

PATENTED DEC. 8, 1903.

A. O'BRIEN.
COMBINED DIE AND REAMER.

APPLICATION FILED MAY 31, 1902.

NO MODEL.

Fig. 1

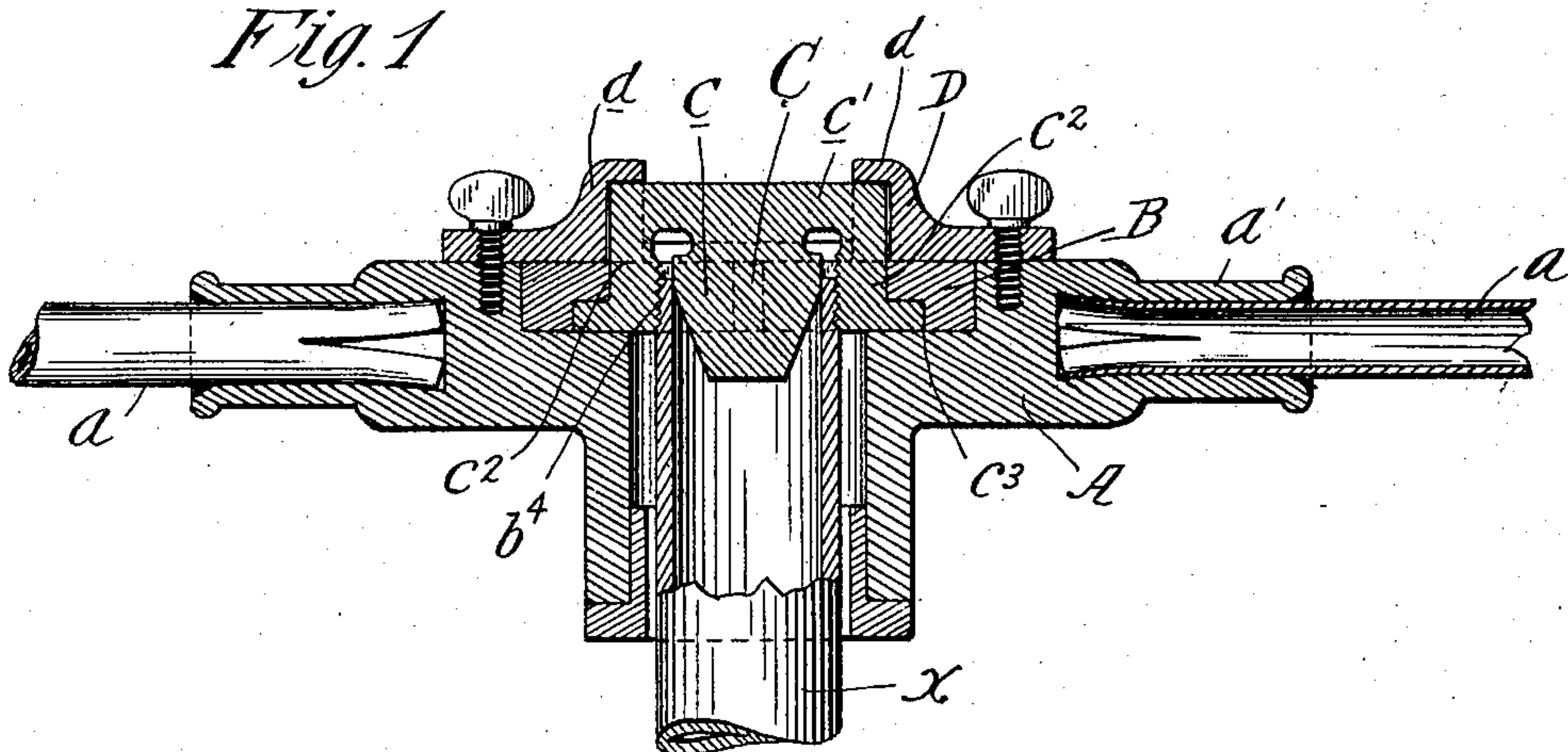


Fig. 2.

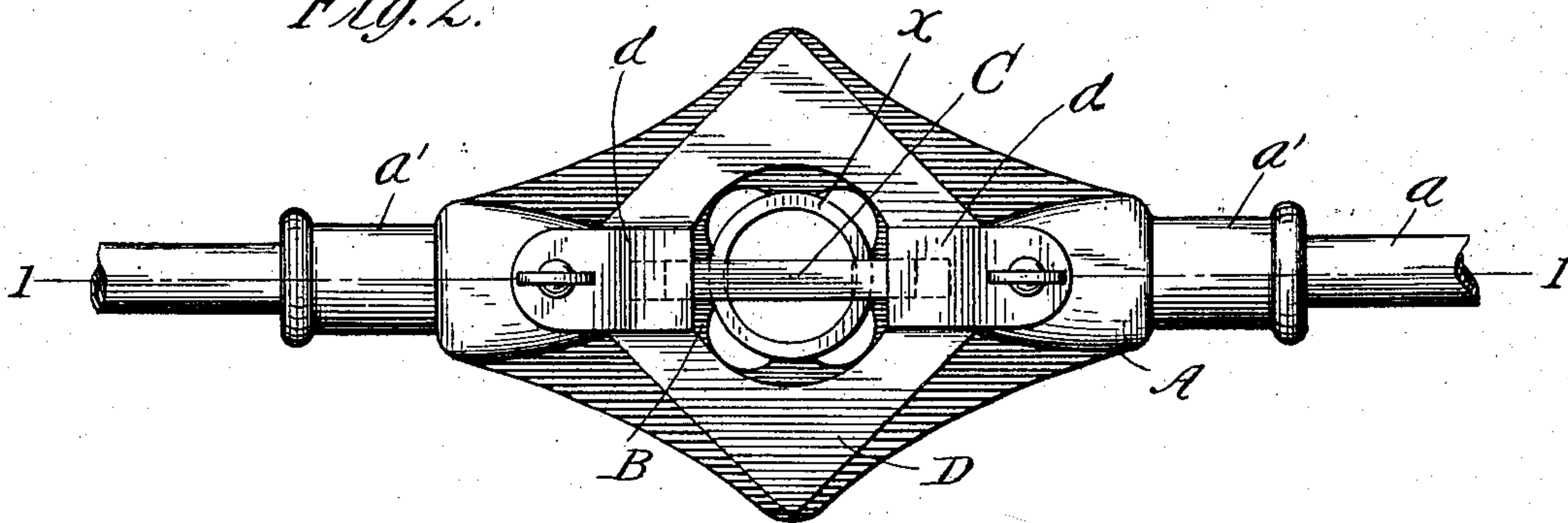


Fig. 4.

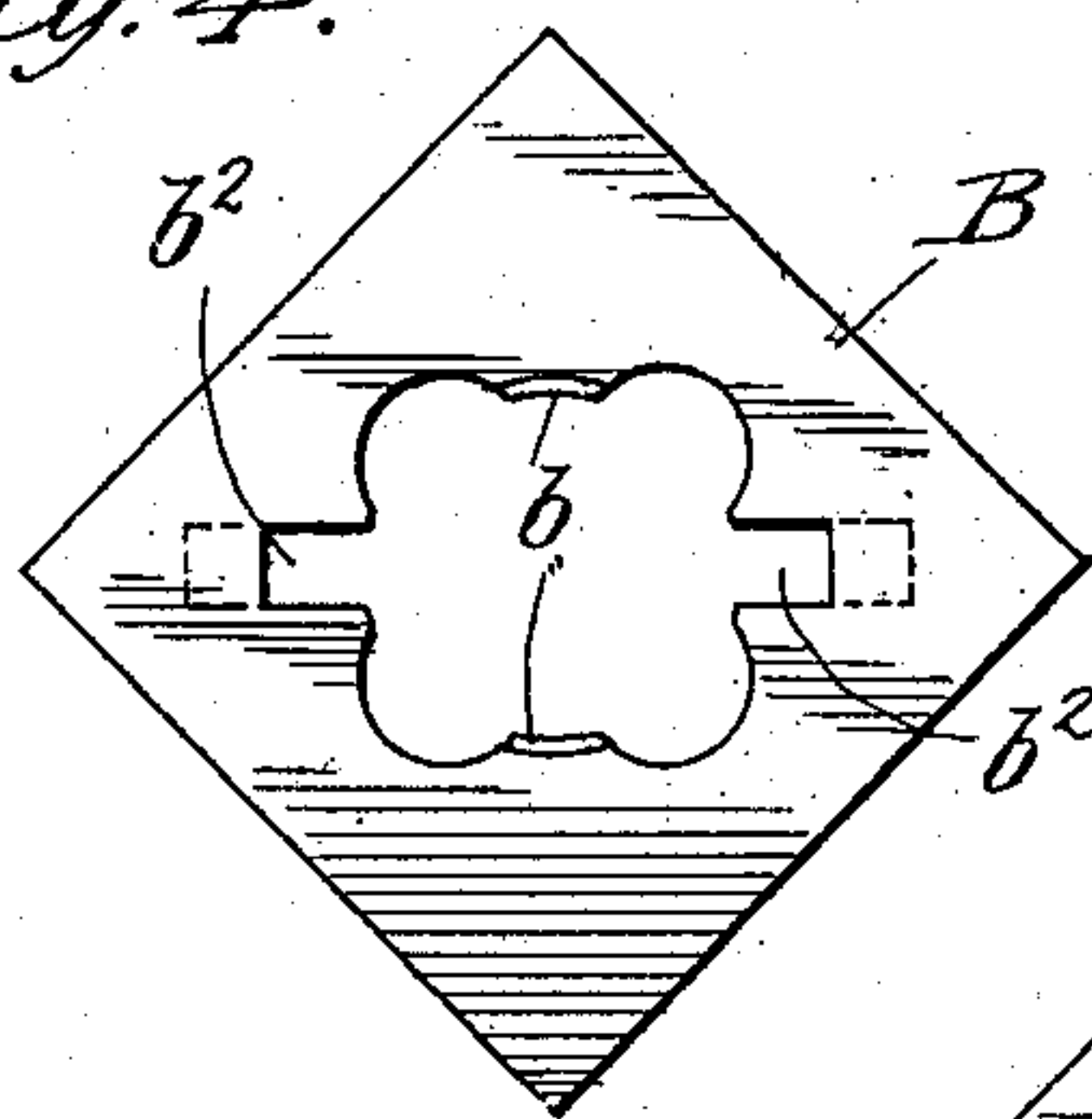


Fig. 3.

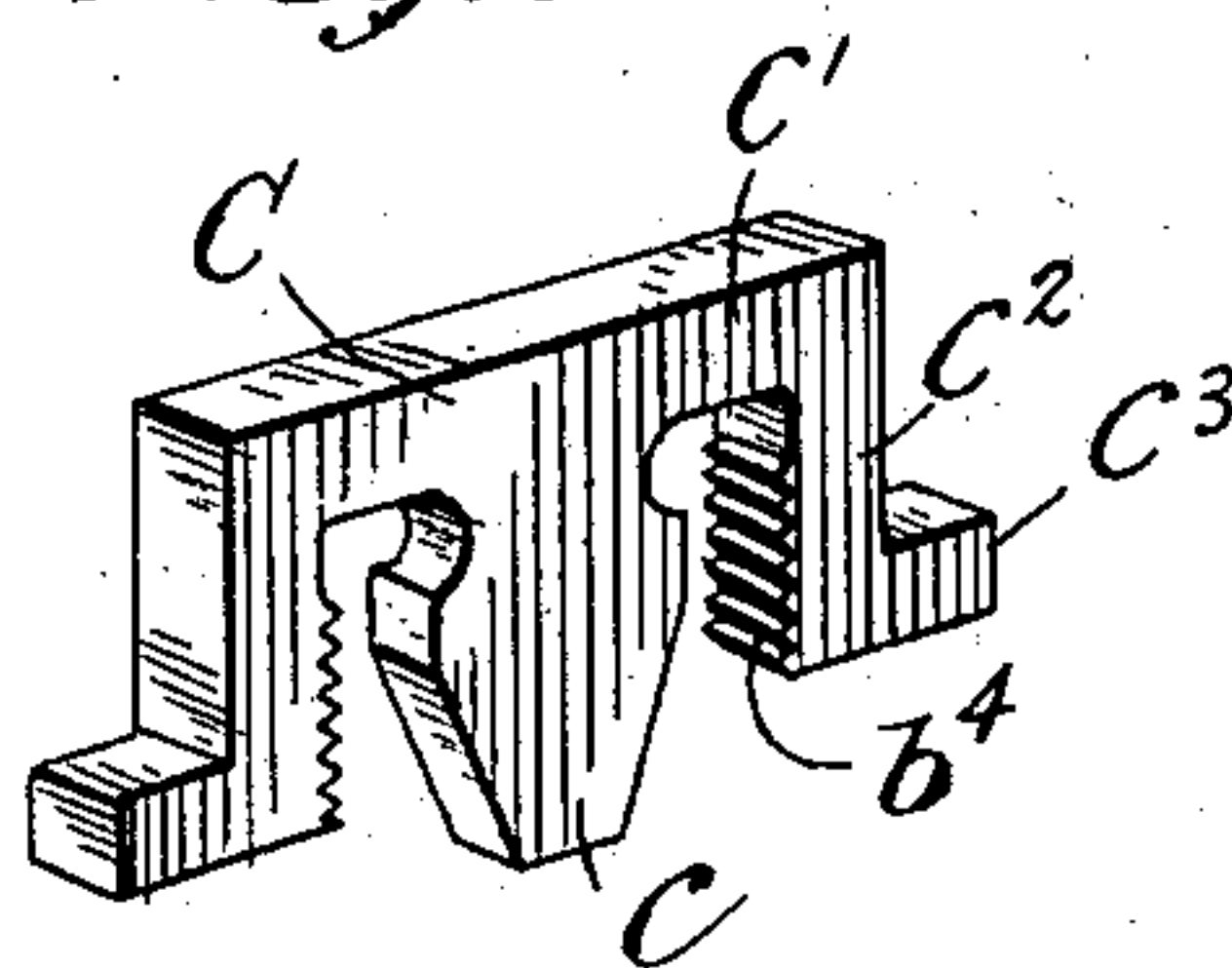
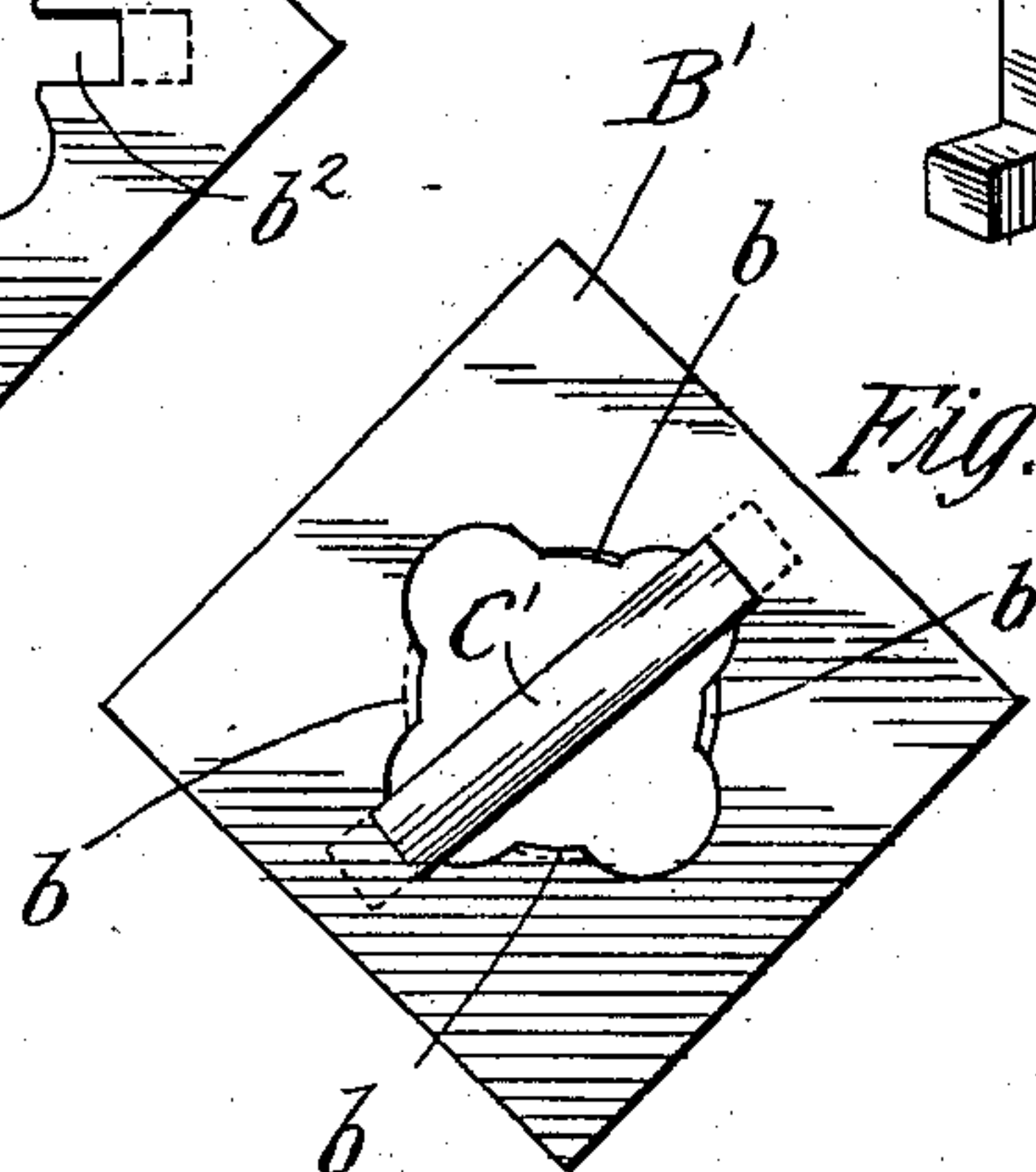


Fig. 5



Witnesses.
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UNITED STATES PATENT OFFICE.

ARTHUR O'BRIEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO ARTHUR H. RUGG
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COMBINED DIE AND REAMER.

SPECIFICATION forming part of Letters Patent No. 746,137, dated December 8, 1903.

Application filed May 31, 1902. Serial No. 109,619. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR O'BRIEN, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Die and Reamer; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in combined pipe dies and reamers.

The object of the invention is to provide a simple, durable, and inexpensive device adapted for simultaneous use in a die-stock for reaming the bore of the pipe during the operation of threading the same.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a vertical longitudinal section of a die-stock provided with a device embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a perspective view of the reamer, showing the same removed from the die. Fig. 4 is a top plan view of the die fitted to receive the reamer. Fig. 5 is a top plan view of the die and reamer, showing a slightly-modified adjustment of the reamer.

As shown in said drawings, A indicates a pipe-die stock, of the usual or any desired construction, provided with handles or levers a , which, as shown, consist of sections of pipe slit longitudinally at the inner end and adapted to be forced into oppositely-disposed sockets in the arms a' of the die-stock.

Said stock is provided with a seat in its top in the usual manner, adapted to receive the angular die B or B', in which the reamer C is adapted to be rigidly but removably secured.

A die-plate D is secured on the stock by means of set-screws or other suitable means and engages over the die and reamer in position to hold the same in place during the operation thereof. Said die may be of any desired type or construction and, as shown, consists of a rectangular mass of steel or other suitable metal apertured centrally and

provided on diametrically opposite sides with threading-cutters b . Said die is notched at b^2 on opposite sides and provided with recesses in its bottom, as shown in Figs. 1 and 4, to receive the reamer, the top of which rigidly engages therein and extends upwardly through the die. Said reamer, as shown, comprises a central blade c of steel, which tapers downwardly toward its extremity and near its upper end has parallel sides providing four cutting edges. The maximum width of said blade is approximately equal to the interior diameter or bore of the pipe to be reamed. Integral with the plate C at its upper end is a bar c' , which extends transversely of the blade and is provided with downwardly-extending arms c^2 , which fit closely in the notches b^2 in the die. Laterally-directed projections c^3 are provided at the lower ends of said arms which engage in the recesses beneath the die, as shown in Fig. 1. As shown, said blade at its top is cut away to provide a recess above the cutting-blade, so that when the bore of the pipe has been reduced to its normal size the reamer will cease cutting. As shown in Figs. 1 and 2, the die-plate is provided on its upper surface with projections d , which are recessed on their inner side to register with the notches b^2 in the die and which fit closely over the arms c^2 of the reamer. Obviously, if preferred, the inner sides of the arms c^2 may be provided with thread-cutters b^4 to aid in producing the thread, as shown in Figs. 1 and 3, or the cutters thereon may be omitted and the inner surfaces of any desired shape and set back in the die sufficiently to avoid contact with the pipe during the threading operation. It is also obvious that, if desired, the recesses to receive the lateral projections may be provided in the bottom of the die-stock, in which case said recesses may be omitted from the under side of the die.

The operation is as follows: The die, of any desired type, may be provided with a reamer of the class described, which may be either engaged in the die or partly engaged in the die and partly in the stock. In pipes in which no internal lip exists the reamer serves as a guide and will do no cutting. In the event, however, of the pipe having been cut

off with the effect of producing the usual in-
turned lip, owing to its taper, the reamer will
not begin to cut until after the die is firmly
engaged on the pipe. After the cutting be-
5 gins it will continue until the pipe is restored
to its normal bore and will then cease. Owing
to the construction described and the taper
of the blade *c* the reaming is performed very
gradually as the thread is cutting, thus ne-
10 cessitating the expenditure of very little ad-
ditional work in performing both operations
simultaneously.

Obviously many details of construction
may be varied without departing from the
15 principles of this invention.

I claim as my invention—

1. The combination with a pipe-die, of a
reamer carried thereon, lateral arms thereon
adapted to engage under the die and a plu-
20 rality of cutting edges adapted to ream the
interior of a pipe simultaneously with the
threading of the exterior thereof.

2. The combination with a pipe-die hav-
ing oppositely-disposed laterally-extended
25 notches therein, of a reamer engaged in said
notches and beneath the die comprising a
downwardly-extending tapered bit axially
disposed with respect to the die and adapted
to ream the interior of the pipe during the
30 threading operation.

3. The combination with a pipe-die hav-
ing laterally-disposed interior notches, of a
reamer having downwardly and laterally bent

arms removably engaged in said notches and
a blade extending downwardly and axially of 35
the die and adapted to ream the pipe simul-
taneously with the threading thereof.

4. The combination with a die having op-
positely-disposed notches in its interior, of a
reamer provided with downwardly-project- 40
ing arms adapted to rigidly engage in said
notches and beneath the die and acting to ream
the pipe simultaneously with the threading
thereof.

5. A reamer-die of the class described com- 45
prising a tapered blade, a downwardly-ex-
tending integral arm on each side thereof,
thread-cutters on the inner side of each arm
and means for engaging said arms at their
extremity in a die-stock. 50

6. A reamer of the class described compris-
ing a blade tapered at its lower end and hav-
ing parallel cutting sides, providing four cut-
ting angles near its upper end, a die inte-
grally secured thereon, a laterally-disposed 55
die on each side thereof and spaced a dis-
tance therefrom to permit the threading of a
pipe simultaneously with the reaming of its
interior.

In testimony whereof I have hereunto sub- 60
scribed my name in the presence of two sub-
scribing witnesses.

ARTHUR O'BRIEN.

Witnesses:

C. W. HILLS,
ANNA B. HILLS.