

(No Model.)

W. W. WHITE.
Dies for Compressing Fork Blanks.

No. 232,320.

Patented Sept. 14, 1880.

Fig. 2.

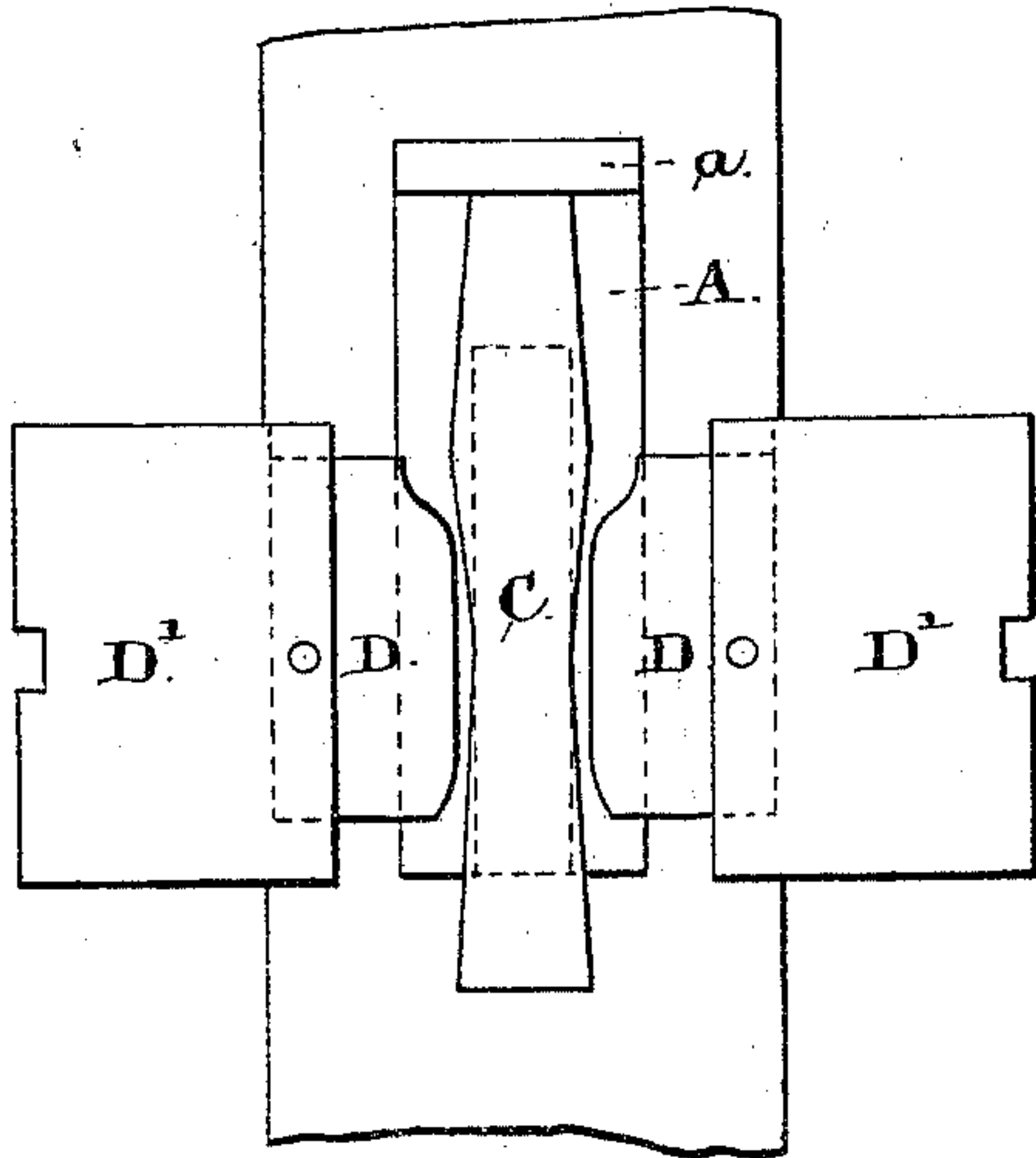


Fig. 1.

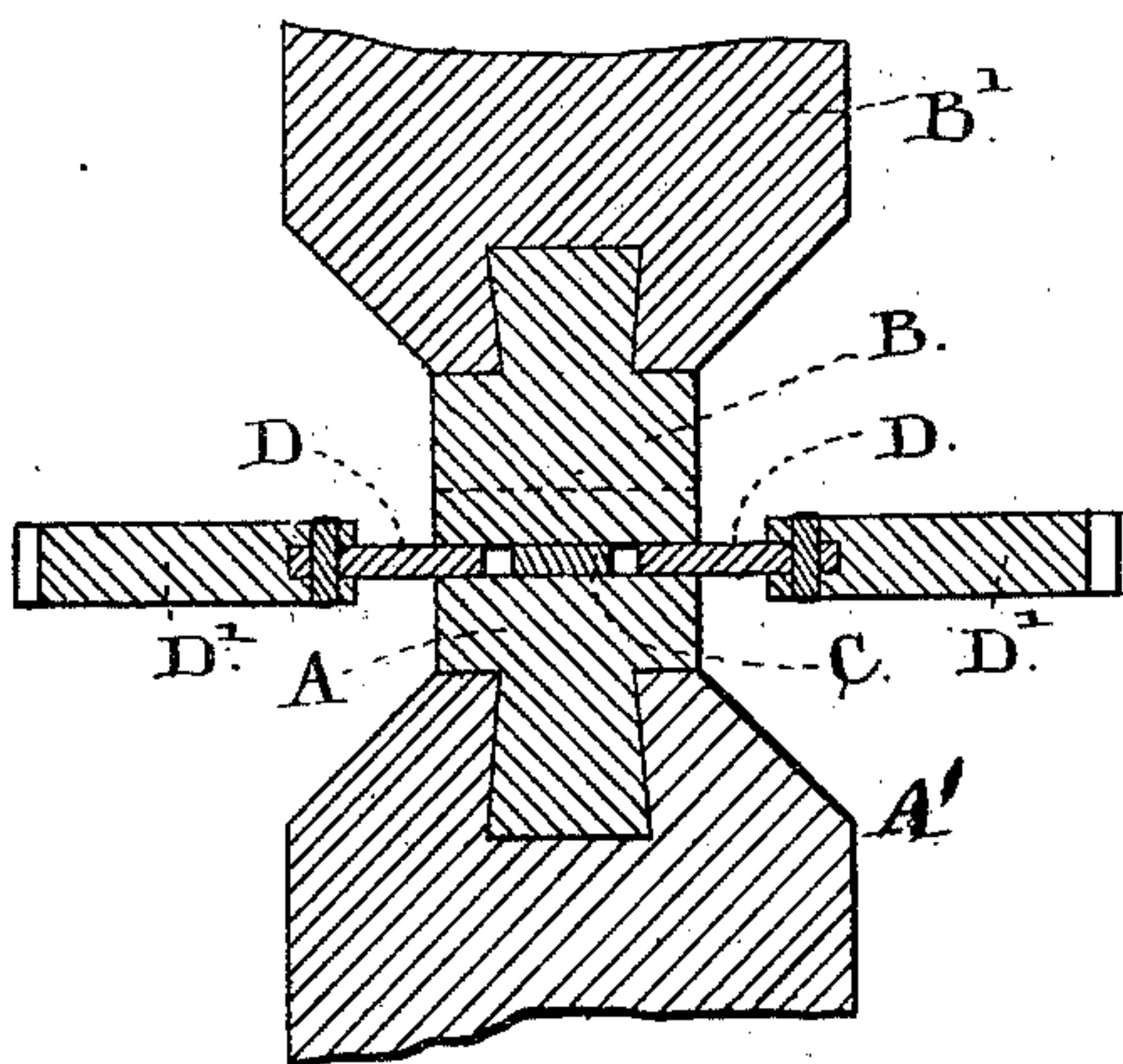


Fig. 4.

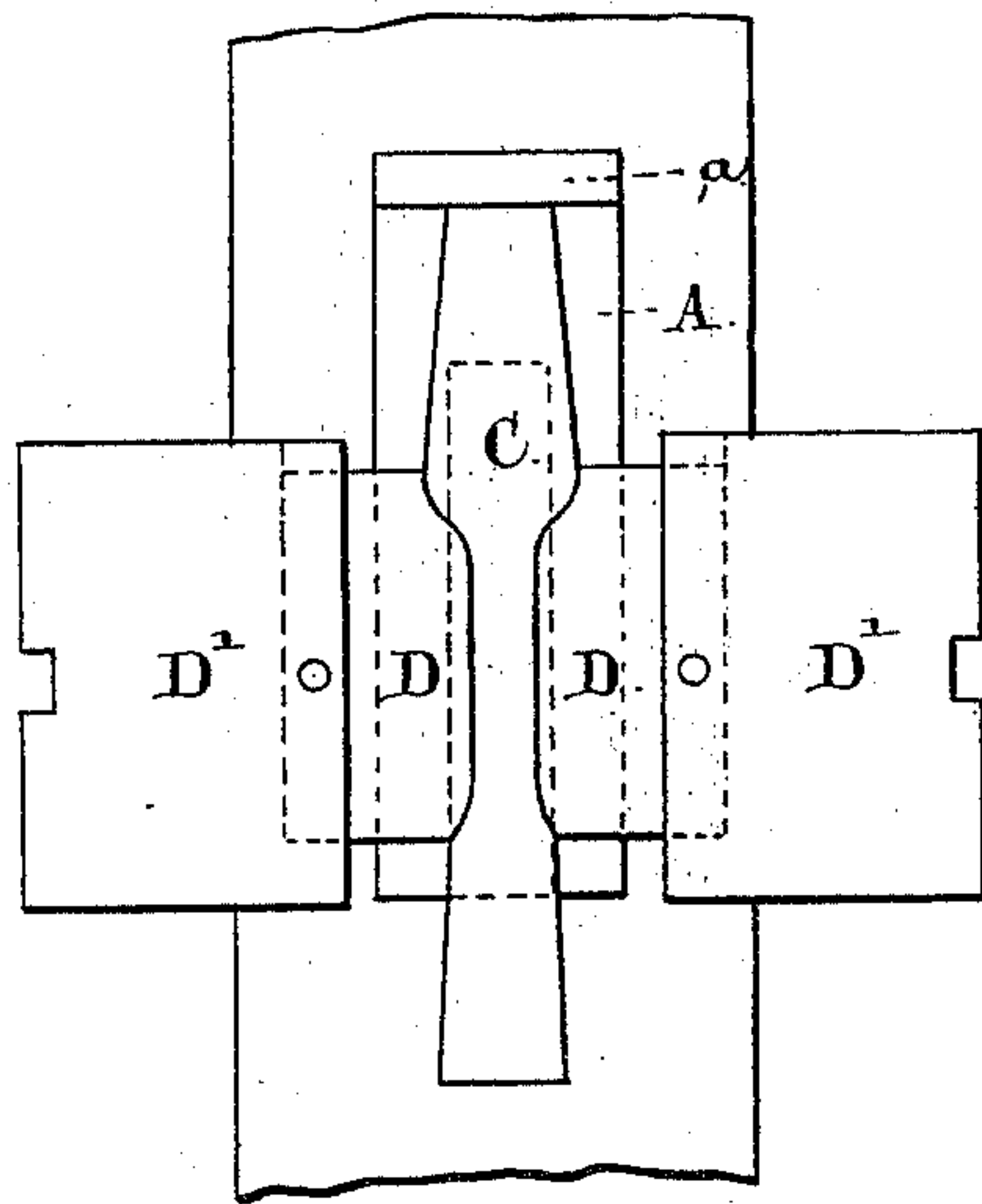
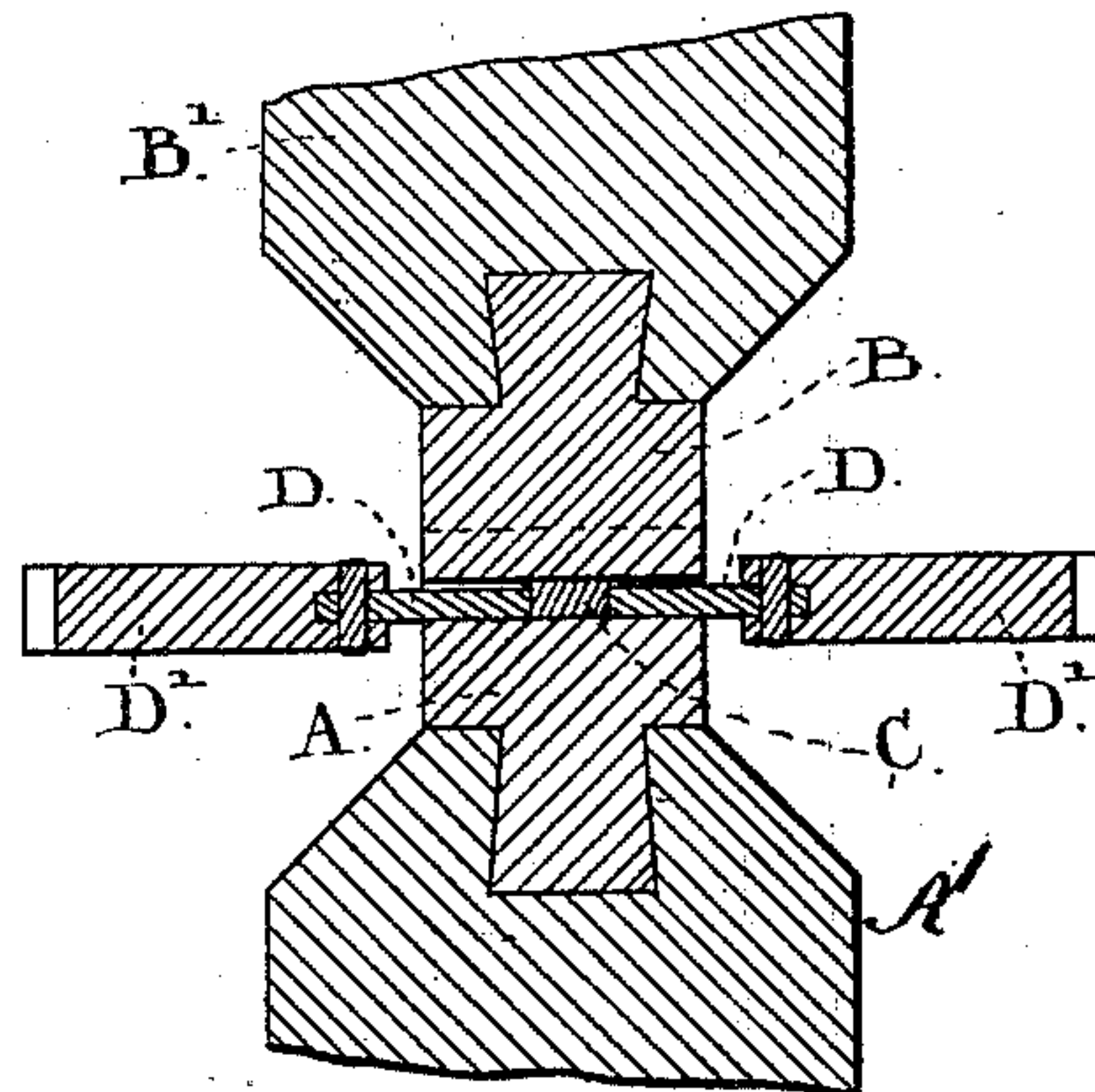


Fig. 3.



Witnesses:-

Louis M. F. Whitehead.
Fred Haynes

Inventor:-

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by his Attorneys
Brown & Brown

UNITED STATES PATENT OFFICE.

WILLIAM W. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO
ROGERS & BROTHER, OF SAME PLACE.

DIE FOR COMPRESSING FORK-BLANKS.

SPECIFICATION forming part of Letters Patent No. 232,320, dated September 14, 1880.

Application filed April 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Dies for Compressing Fork-Blanks and other Articles, of which the following is a specification, reference being had to the accompanying drawings.

This invention is more especially intended for carrying out the improvement in the manufacture of forks and spoons which is the subject of reissued Letters Patent No. 7,633, granted April 24, 1877, to Brown & Brothers, assignees of Le Roy S. White, said improvement consisting principally in the condensation of the metal in the shank of the fork or spoon by pressure applied in a lateral direction to the blank from which the fork or spoon is to be made.

The object of this invention is to provide a more effective means of producing such condensation of the metal than any heretofore adopted; and to this end it consists in a novel combination of four dies, two of which are employed to produce the lateral pressure and to reduce the width and change the form of the side profiles of the blank, and the other two of which are employed to confine the metal as much as necessary in a direction perpendicular to the faces of the blank during the compressing and condensing operation of the two first-mentioned dies.

In the accompanying drawings, Figure 1 is a transverse vertical sectional view of the four dies with a fork-blank between them, showing the dies as just about to produce the condensing operation. Fig. 2 is a plan of the lower confining-die, the two condensing-dies, and the blank corresponding with Fig. 1. Fig. 3 is a transverse sectional view of the four dies and the blank, showing the position of the dies after the compressing operation. Fig. 4 is a plan of the lower confining-die, the two condensing-dies, and the blank corresponding with Fig. 3.

A is a lower die, and B is an upper die, having faces which are horizontal, or nearly so, and flat or of other form to conform to the faces of the blank C, which is to be held be-

tween them during the lateral compressing and condensing operation.

The lower die, A, is provided with an upwardly-projecting stop, *a*, which may be of any suitable form to stop the end of the blank and regulate its position during the compressing operation. These dies A B, which are to act against the faces of the blank to hold it and confine the metal during the lateral compressing and condensing operation, have their faces considerably broader than the blank C, for the purpose hereinafter explained.

D D are the two compressing and condensing dies, which are of a thickness equal to or only just perceptibly less than that of the blank C. The edges of these dies are of the form of the profiles intended to be produced on their respective sides or edges of the blank C. The said dies D D are shown as secured in stocks D' D', which are intended to have a horizontal movement, so that the said dies will work between the dies A B, such movement being so limited in the backward or outward direction that the said dies never pass entirely out from between the dies A B, which have their faces so much broader than the blanks to be operated upon that all difficulty which might arise in re-entering the said dies D D between A B, if the former ever passed out from between the latter, is avoided.

As the machine by which the several dies A B D D are to be operated may be variously constructed, and as my invention relates to the dies themselves and is not limited to the construction of the machine for operating them, I have not considered it necessary to represent a machine. It may be sufficient to say that the lower die, A, may be stationary in a holder, A', provided on the bed of the machine, the upper die, B, may be secured in a plunger or follower, B', which receives a vertical motion in suitable guides, and the stocks D' D' of the dies D D may be secured in slides which advance toward and recede from each other, the several movements being obtained by cranks, cams, eccentrics, toggles, or other suitable devices commonly used for producing reciprocating movements and powerful pressure.

The operation of the dies is as follows: The upper confining-die, B, having been raised high enough to leave plenty of room for placing a blank by hand or otherwise on the face of the lower die, and the compressing or condensing dies D D having receded from each other far enough for the placing of the blank between them without their passing entirely out from between dies A B, the blank is inserted against the stop *a*, as shown in Fig. 2. The die D then descends to a position to clamp the blank firmly, and the dies D D advance toward each other between the dies A B, which serve as guides to sustain them in their operation of compressing and condensing the blank in a lateral direction, and giving their own profile form to its sides, as shown in Fig. 4. It is obvious that the lateral compression and reduction of the width of the blank must be accompanied by a thickening in a vertical direction, and hence that as the dies D D advance in their compressing operation the dies A B must, to some extent, recede from each other, or one of the latter, at least, must recede from the other.

It is also obvious that a strong pressure must be retained on the faces of the blank while it is compressed laterally; otherwise there would be no real condensation of the metal and the blank would be liable to buckle up.

In order to provide for this receding of the

dies A B, and yet retain the necessary pressure on the faces of the blank, very strong springs or elastic cushions might be applied behind the said dies; but this is found, in practice, to be unnecessary; for in the machine which I use, though its framing and other parts are very heavy and of great strength, the parts give or yield sufficiently to allow this yielding action of the dies A B, while holding the blank so securely as to enable the condensation to be effected by the lateral compression.

The dies A and B might both have movements each from and toward the other; but it is more convenient that A should be stationary and B only movable toward and from A.

The forms of the several dies may be varied to suit the forms of the spoons, forks, or other articles upon which they are to operate.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with the compressing and condensing dies D D, the confining-dies A B, said dies D D working between the dies A B, and all constructed and arranged to operate upon a blank, substantially as herein shown and described.

WM. W. WHITE.

Witnesses:

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