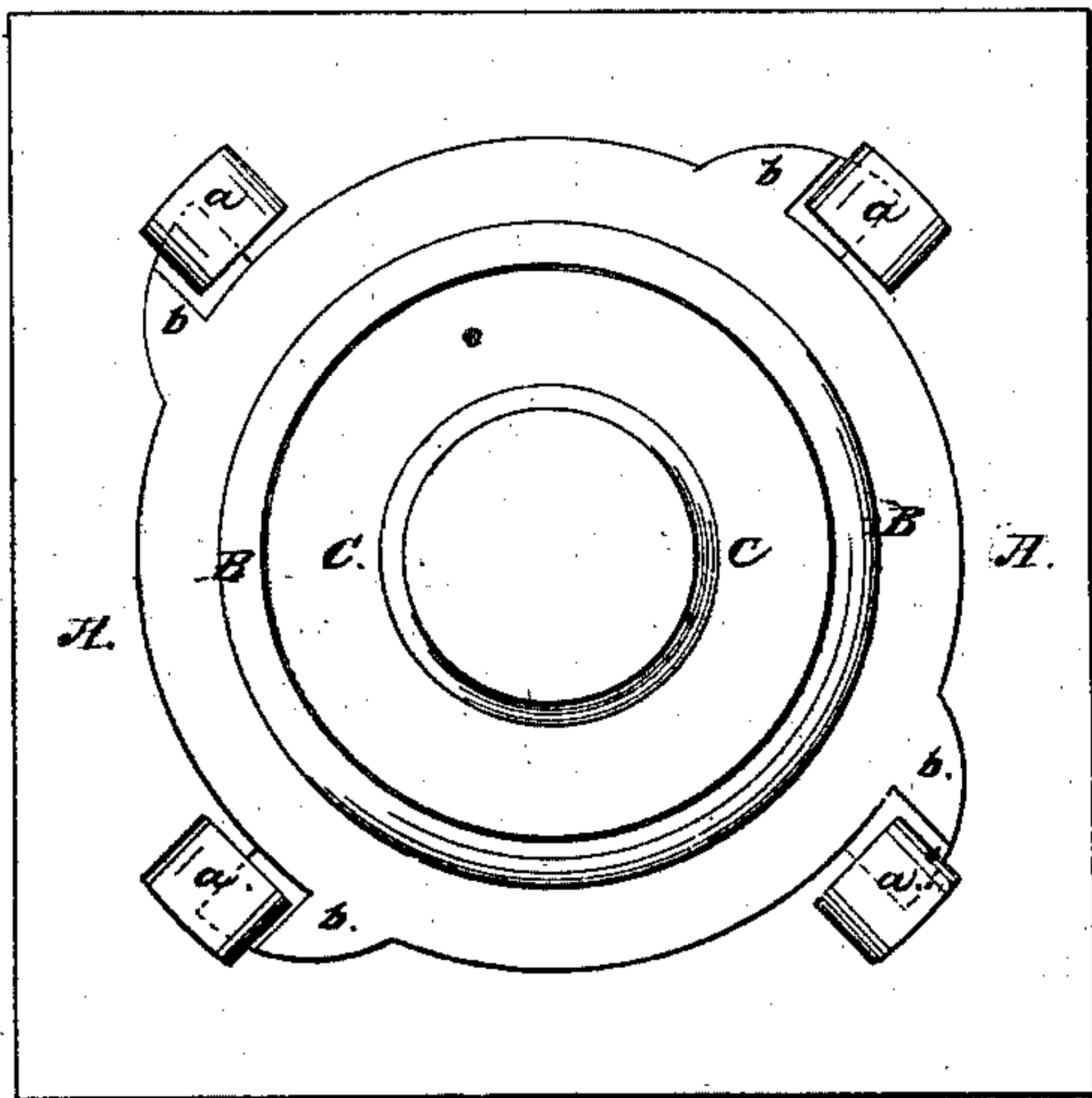


*S. R. Wilmot,*  
*Sheet-Metal Die.*

*N<sup>o</sup> 55,944.*

*Patented June 26, 1866.*

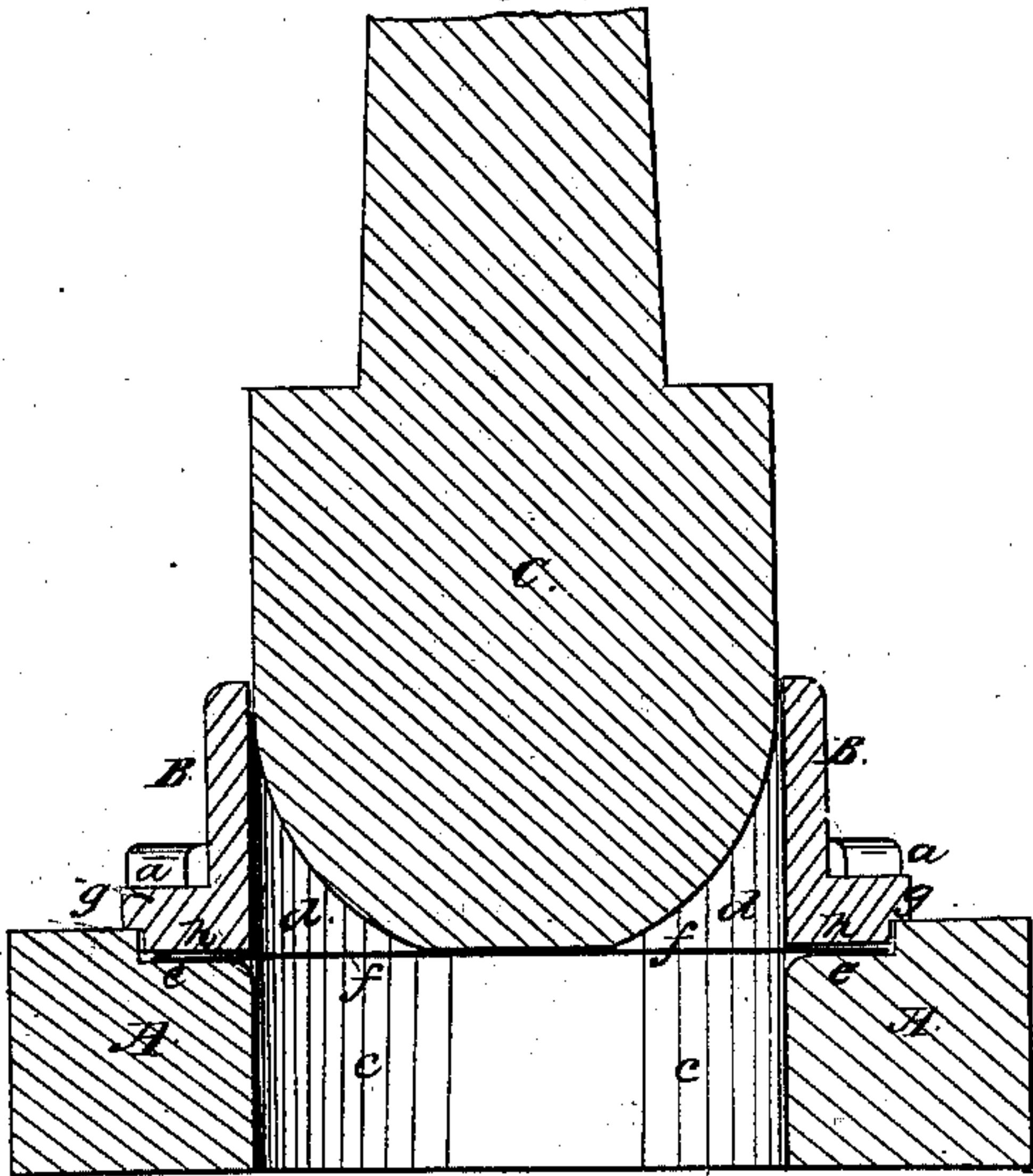
*Fig. 1.*



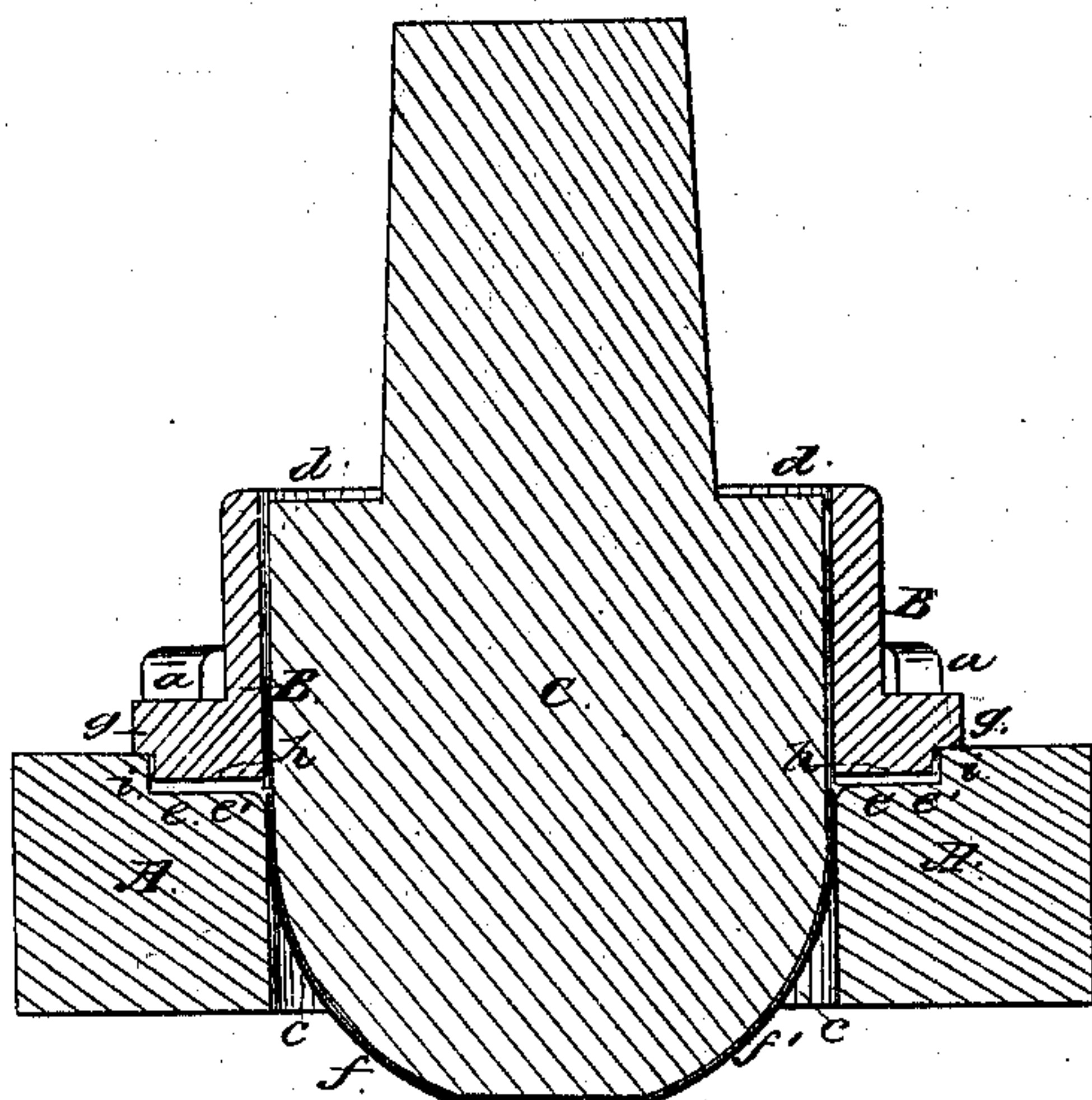
*Fig. 4.*



*Fig. 2.*



*Fig. 3.*



*Inventor:*

*S. R. Wilmot*

*McDermott & Co. Attys.*

*Witnesses:*

*J. M. Combs*  
*W. H. L. L. L.*



# UNITED STATES PATENT OFFICE.

SAMUEL R. WILMOT, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN DIES FOR CUPPING AND RAISING ARTICLES OF METAL.

Specification forming part of Letters Patent No. 55,944, dated June 26, 1866.

*To all whom it may concern:*

Be it known that I, SAMUEL R. WILMOT, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Dies for Cupping or Raising Articles of Metal; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan or top view. Fig. 2 is a central vertical section, showing the position of the dies at the commencement of the operation of cupping or raising the article to be made. Fig. 3 is a central vertical section, showing the position of the same when such cupping or raising is completed. Fig. 4 is a detached view, showing the manner in which the blank-holder is secured to the base or bed plate of the apparatus.

Similar letters of reference indicate corresponding parts in all the figures.

This invention is designed for making lamp-bodies and similar articles of a cup or inverted-cup shape from disks or blanks of sheet metal.

It consists in the attachment of a blank-holder, which holds the disk or blank in position during the cupping or raising operation, directly to the bed-plate or fixed die of the press, whereby all trouble is avoided by the springing of the press in producing heavy pressure.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A is the base or bed-plate of the apparatus in which the female die is formed and B is the blank-holder, which is secured upon the said bed-plate by means of hooks *a*, formed upon the upper surface of the bed-plate and catching over inclined lugs or ears *b* projecting laterally from the blank-holder, as will be presently more fully explained.

Formed in the center of the bed-plate A is a large vertical cylindrical hole, *c*, which forms a portion of the female die, while immediately over it, in the blank-holder B, is a vertical hole, *d*, of corresponding size and shape.

C is the male die, the lower end of which is rounded or convex to correspond with the interior of the article to be made, and which is se-

cured upon the lower end of a suitable plunger or equivalent device, and receives an up-and-down movement in the large cylindrical holes in the bed-plate and blank-holder through the agency of a screw or hydraulic press, or by any suitable means, the said holes being of greater diameter than the moving male die C by at least twice the thickness of the blank.

Formed in the upper surface of the bed-plate A, around the upper end of the hole *a*, is an annular rabbet, *e*, in which are placed the edges of the circular disk or blank *f*, as shown in red lines in Fig. 2, the central portion of the blank being thus placed over the said hole *a*.

Around the lower portion of the holder is an annular rim, *g*, which rests upon the upper surface of the bed-plate, while projecting downward from the bottom of the said holder into the rabbet *e* is an annular shoulder, *h*, there being a space, *e'*, between the lower surface of the said shoulder *h* and the horizontal surface of the rabbet *e*. This space *e'* somewhat exceeds the thickness of the blank, and receives the circular edge of the blank when placed in the rabbet, as just set forth, and as more clearly represented in Fig. 2.

Projecting laterally from the sides or edges of the rim *g*, at suitable points thereon, are strong lugs or ears *b*, which are somewhat thinner at their straight or forward edges than at their rearmost portions, or, in other words, have their upper surfaces inclined, so that when they are forced underneath the hooks *a*, formed solidly upon the bed-plate, as hereinbefore mentioned, they will force the blank-holder firmly down upon the bed-plate and securely hold it in place during the operation of the apparatus, the lugs being brought under or away from the hooks *a* by turning the blank-holder around in one direction or the other, according as it is desired to lock it fast upon the bed-plate or remove it therefrom. The blank *f* being placed in the dies with its edges in the space *e'* between the horizontal surface of the rabbet *e* and the under side of the shoulder *h*, as represented in Fig. 2, and as hereinbefore fully explained, a downward movement is communicated to the moving die C by means of a screw, a hydraulic press, a drop or other suitable means, on which the



male die C forces the central portion of the blank downward into the hole *c*, the cylindrical sides of the said hole at the upper end thereof forcing the outer portions of the blank into close contact with the die C as it descends, and thus causing the said blank to be gradually fitted upon the same, as shown in red lines in Fig. 3, the edges of the blank being drawn inward equally on all sides from the space *i* between the holder and the bed-plate or female die until the blank is closely fitted upon the said die, and thus shaped into the article desired. The vertical width of the space *e'* being arbitrary and fixed, and somewhat greater than the thickness of the blank, allows the edge of the said blank to pass out therefrom with comparative ease at the same time that it prevents the said edge from buckling or being drawn out unequally at opposite sides of the die C, the increased vertical width of the said space *e'* also allowing the metal to increase in thickness as it is forced in upon itself in being

compressed around the sides of the said male die C, which takes place in a greatly increased degree when the articles to be cupped or raised are of large size. By this means the binding of the blank between the holder and the fixed die is entirely avoided, while the holder, being attached directly to the bed-plate of the apparatus, is not liable to be disarranged in any way by the springing or giving way of the press in exerting the powerful pressure required in working the dies, as just set forth.

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

The attachment of the blank-holder B directly to the bed-plate or fixed die A, substantially as herein set forth, for the purpose specified.

S. R. WILMOT.

Witnesses:

D. W. KISSAM,

H. DWIGHT STANLEY.