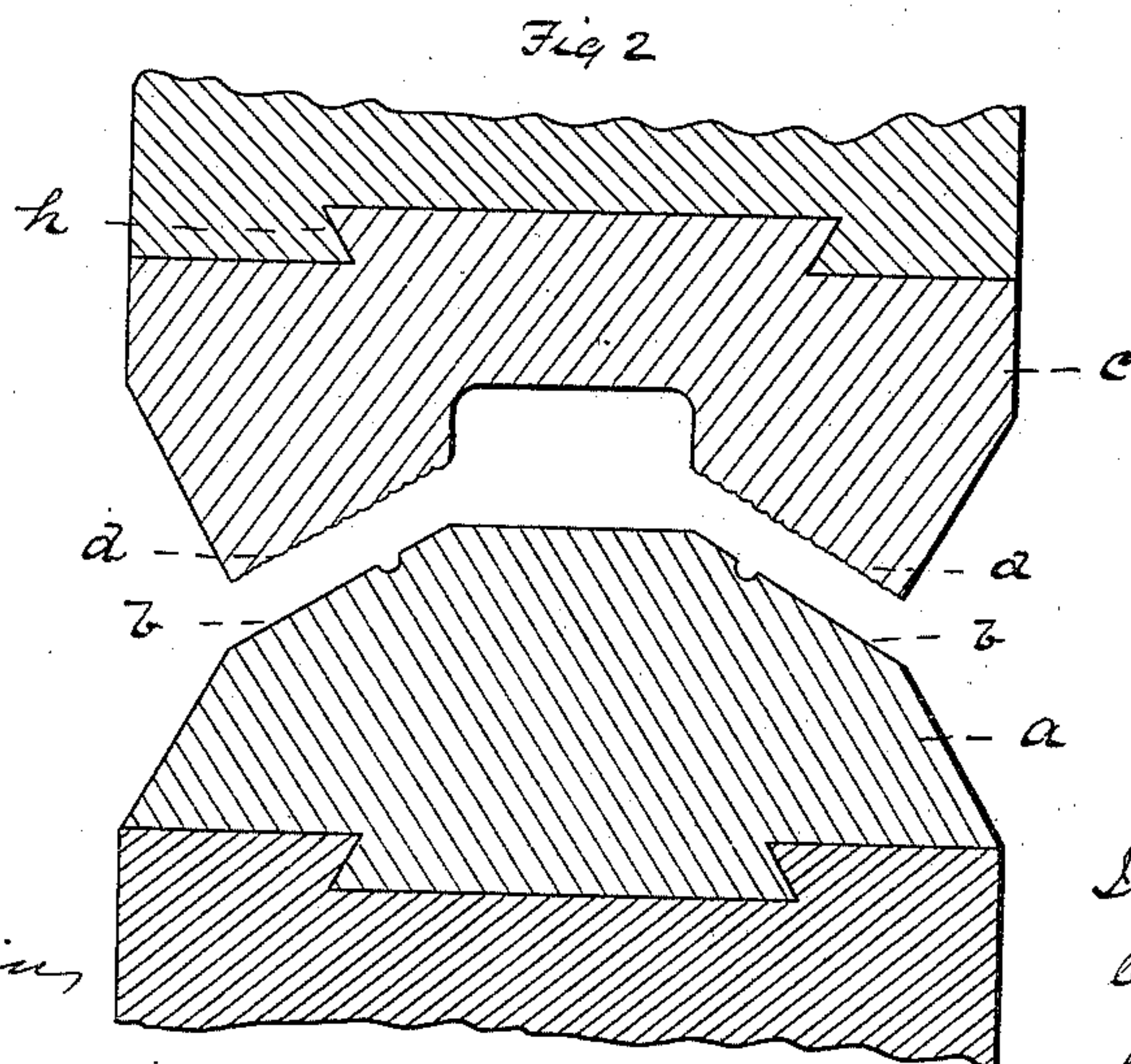
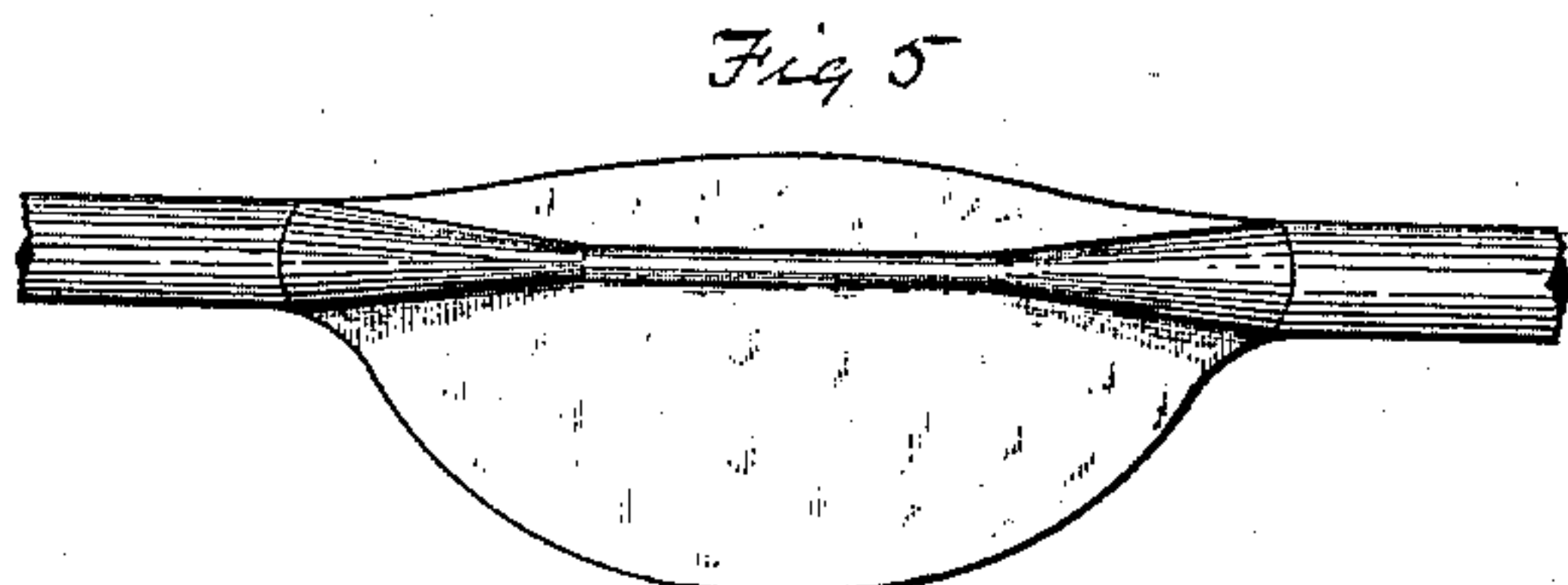
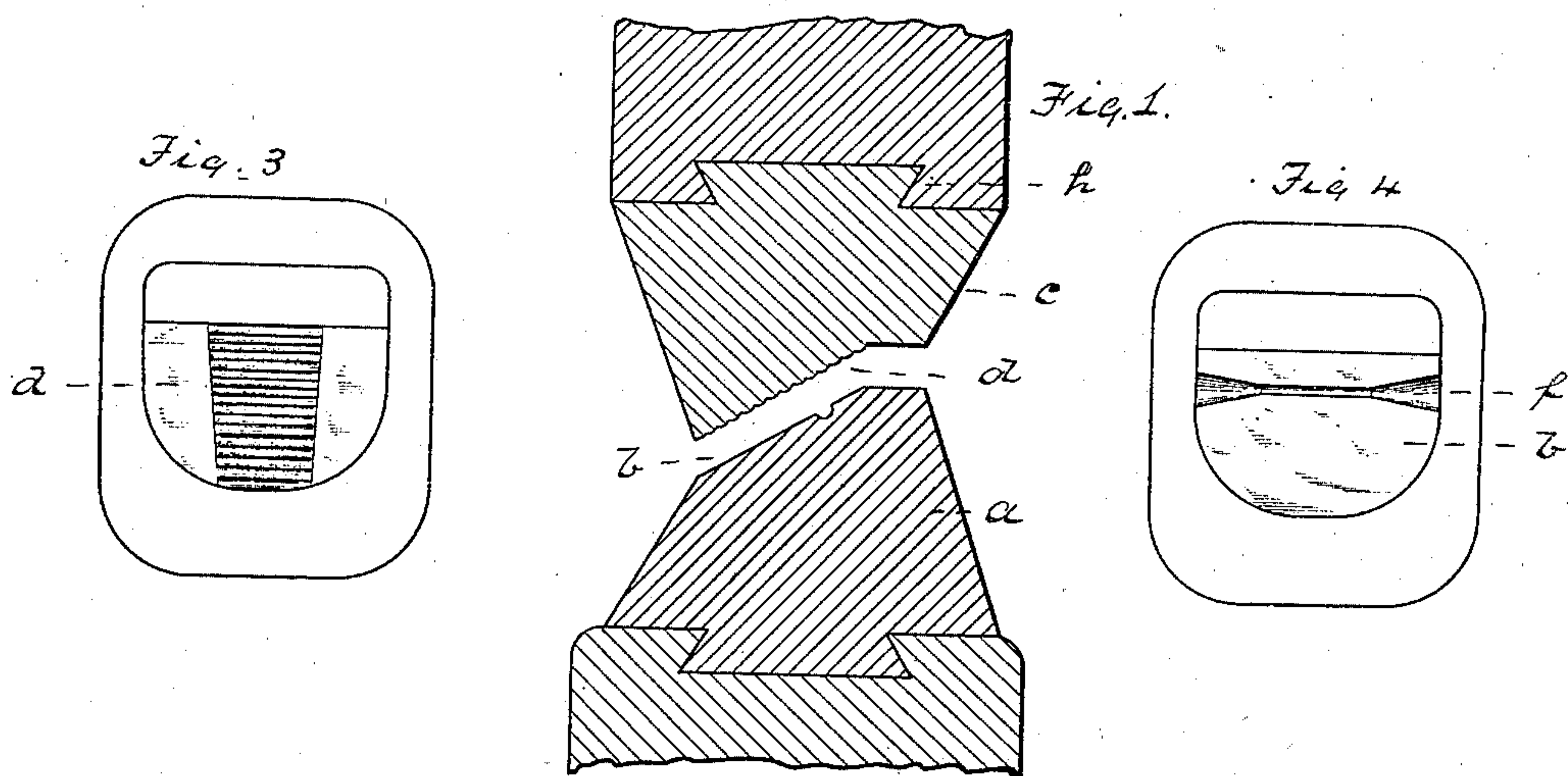


(No Model.)

I. K. CAMPBELL.
DIE FOR SINGLE TREE STRAPS.

No. 312,966.

Patented Feb. 24, 1885.



Witnesses.

J. A. Burns.
H. B. Cowin.

Inventor.

Irvine K. Campbell
by his attorneys
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UNITED STATES PATENT OFFICE.

IRVIN K. CAMPBELL, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO OLIVER BROTHERS & PHILLIPS, OF SAME PLACE.

DIE FOR SINGLE-TREE STRAPS.

SPECIFICATION forming part of Letters Patent No. 312,966, dated February 24, 1885.

Application filed October 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, IRVIN K. CAMPBELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Dies for Forming Single-Tree Straps; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical sectional view of my improved strap-forming dies. Fig. 2 is a like view of a modification thereof. Figs. 3 and 4 are views of the faces of the upper and lower dies. Fig. 5 is a plan view of the clip.

Like letters of reference indicate like parts in each.

The object of my invention is the forming of single-tree clips by dies in such a manner as to dispense with the handling, working, bending, and straightening which is now required in the usual manner of manufacture; and it consists in forming the clip by dies having faces inclined at an angle, as will herein- after more fully appear.

I will now describe my invention, so that others skilled in the art may manufacture and use the same.

In the drawings, *a* represents the lower die, secured to a suitable foundation or bed-plate having an operating-face, *b*, which, as shown, is inclined at an angle of about forty-five degrees or less with the line of the direction of the movement of the upper die, *c*, the operating-face *d* of which conforms to the face of the lower die extending at a like angle. Extending transversely across the operating-face of the lower die is a slight groove, *f*, deeper at its ends, of a less depth than the thickness of the bar from which the clip is formed. The remainder of the face of the lower die may be perfectly plain.

The operation is as follows: The metal bar from which the strap is to be formed, having been heated, is placed in the cavity *f* of the lower die, and the upper die, being connected by a dovetail, *h*, with a suitable hammer, is brought down upon the bar on the lower die; which bar is, by repeated blows of the upper die, flattened out laterally, producing a blank such as is shown in Fig. 5. This spreading of the metal, owing to the direction of the force of the blow of the die, is accomplished with-

out materially affecting the longitudinal dimensions of the bar from which the blank is formed.

By the foregoing operation, clips such as are used at the ends of single-trees are formed. Where, however, it is desired to spread the metal laterally in both directions to form a clip such as is used in the middle of the single-tree, I employ a die such as is shown in Fig. 2, the upper and lower dies having two operating-faces at opposite angles to each other, so that when the operation has been completed, in the manner described, by two of the meeting faces of the upper and lower dies, by moving the blank between the other faces of the dies, the metal is spread transversely in the opposite direction.

The purpose of the corrugations in the upper face of the die is to aid in the spreading of the metal without unduly flattening the same, and to produce corresponding corrugations on the face of the clip and without increasing the longitudinal dimensions of the blanks.

The advantages of my invention are, that single-tree clips can be manufactured by a single manipulation of the dies without any subsequent straightening or forming, and the corrugations on the face of the clip afford a better holding-surface.

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

1. In apparatus for forming single-tree clips and like articles, an upper and lower die having faces inclined at an angle to the direction of the blow of the die, substantially as and for the purposes described.

2. In apparatus for manufacturing single-tree clips and like articles, an upper and lower die, each having two separate operating-faces at opposite angles to each other and inclined at an angle to the direction of the line of movement of the upper die, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 30th day of September, A. D. 1884.

IRVIN K. CAMPBELL.

Witnesses:

W. B. CORWIN,

THOMAS W. BAKEWELL.