

No. 648,357.

Patented Apr. 24, 1900.

A. D. FIELD.
PROCESS OF MAKING BUCKLES.

(Application filed Dec. 4, 1899.)

(No Model.)

Fig. 1.

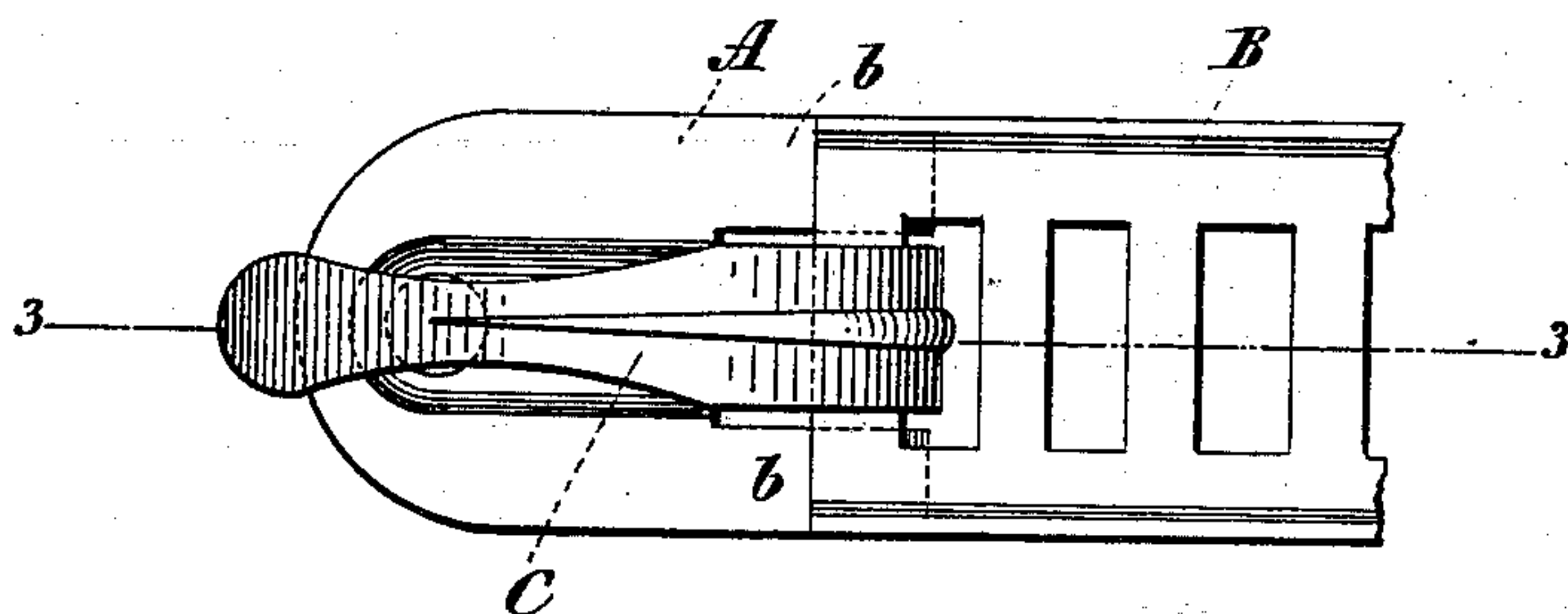


Fig. 2.

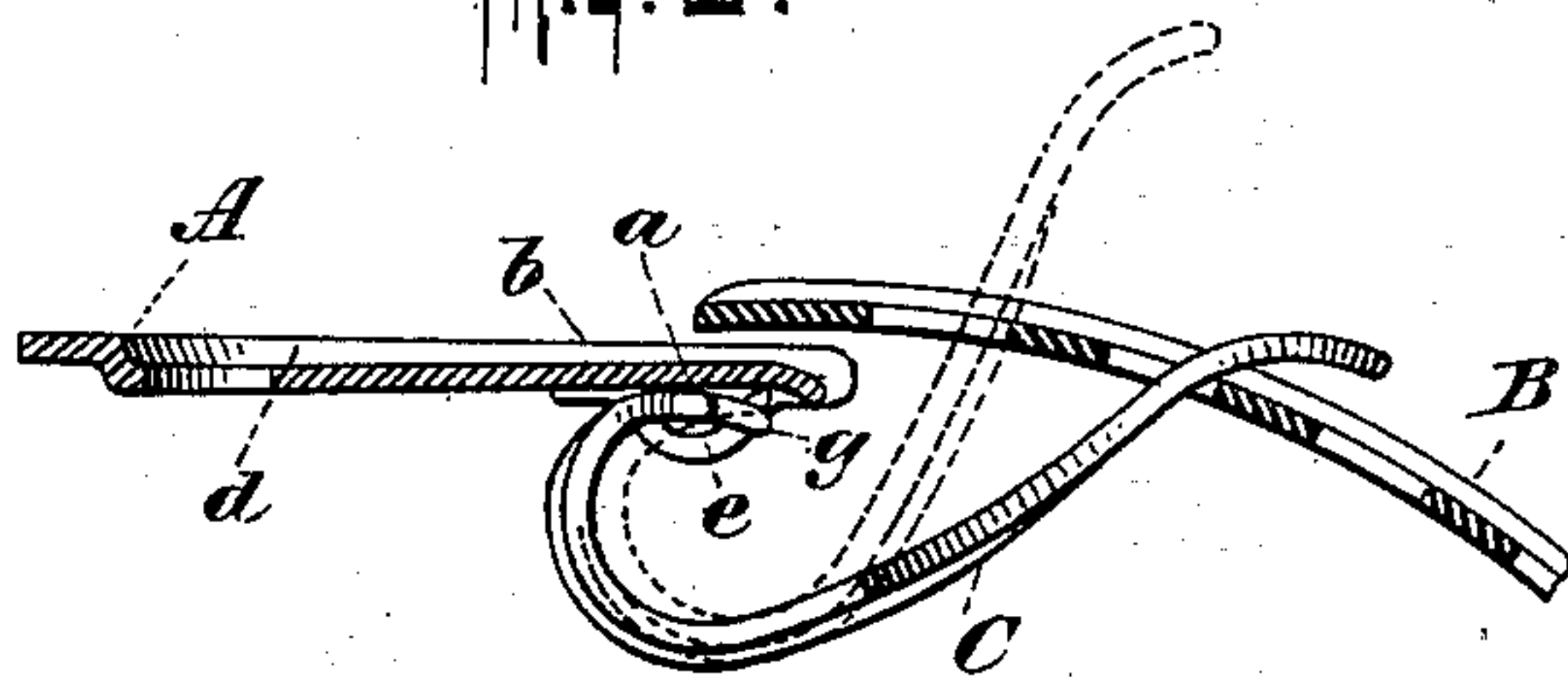


Fig. 3.

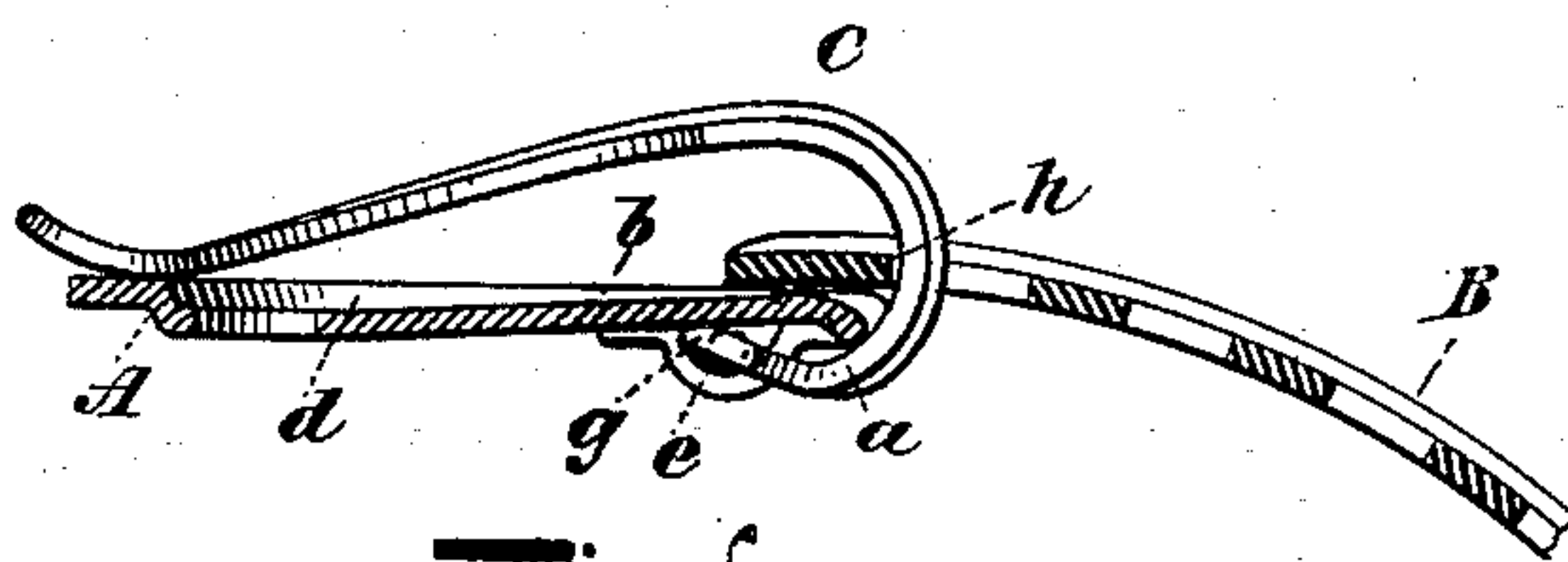
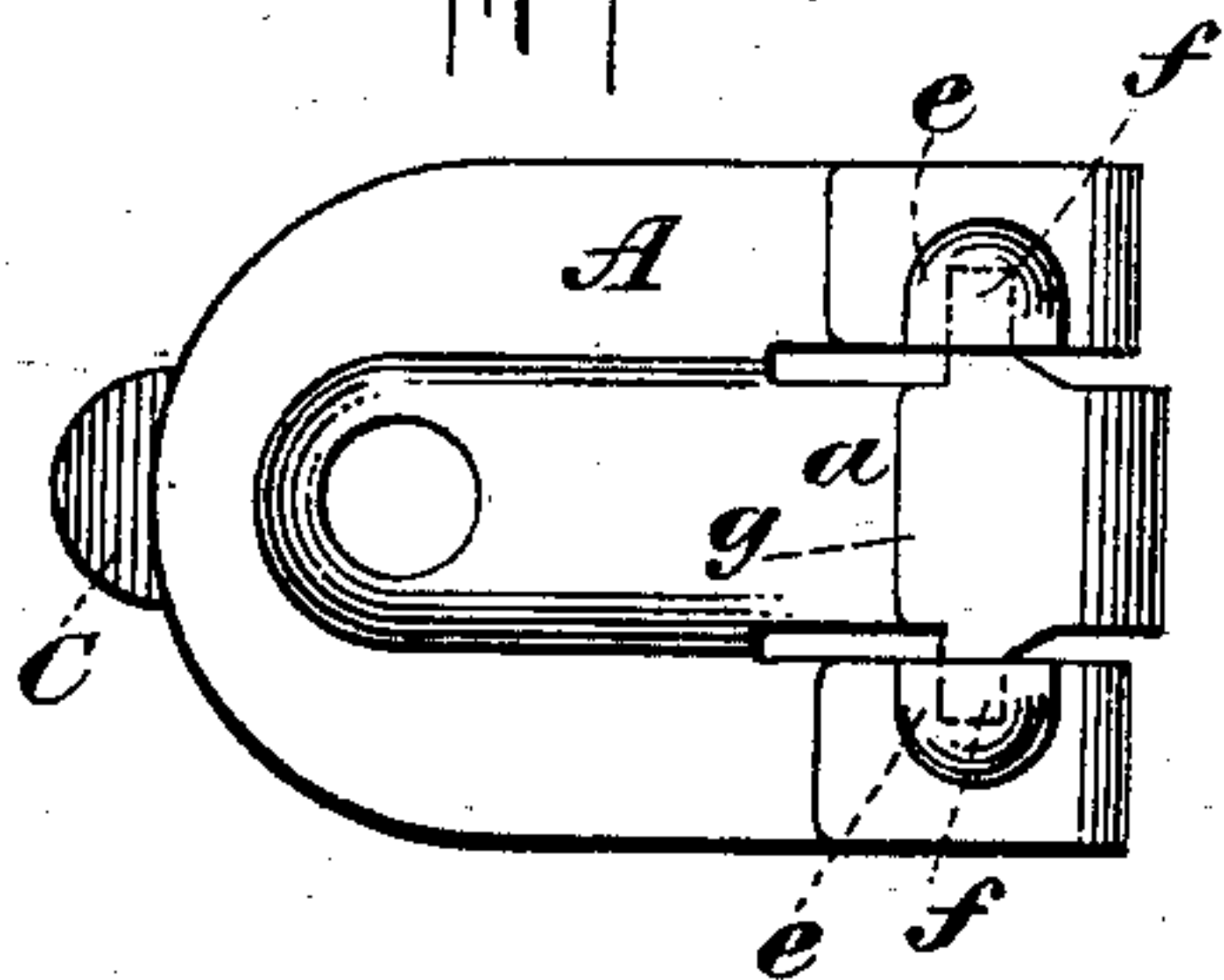


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT D. FIELD, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE SHOE
HARDWARE COMPANY, OF SAME PLACE.

PROCESS OF MAKING BUCKLES.

SPECIFICATION forming part of Letters Patent No. 648,357, dated April 24, 1900.

Original application filed January 14, 1898, Serial No. 666,618. Divided and this application filed December 4, 1899. Serial
No. 739,134. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. FIELD, a citizen of the United States, residing at Waterbury, New Haven county, State of Connecticut, have invented a new and Improved Process of Making Buckles, of which the following is a specification.

My invention relates to processes for making buckles, and more particularly to the class known as "shoe-buckles."

Heretofore in the manufacture of buckles of the character to which my invention relates it was necessary because of the construction of the buckles to submit them to several operations in assembling the parts or in uniting the tongues to the body-plates. It has also been found impossible heretofore to produce a buckle which would have any considerable tension of the spring exerted upon the tongue to hold it rigidly against movement when the tongue is in the locked position and to have the tongue relieved of all tension of the spring, so as to be adapted to vibrate freely when the tongue is in the unlocked position, which are features greatly desired in shoe-buckles, for reasons which will hereinafter appear.

The object of my invention is to overcome the disadvantages heretofore found in making buckles and to provide a simple process whereby efficient buckles can be manufactured at small cost and wherein the parts can be assembled at one operation.

To these ends my invention consists in the process of making buckles, which is hereinafter described, and pointed out in the claims.

In order that a thorough understanding of the process may be arrived at, I make reference to the accompanying drawings, wherein like reference characters designate corresponding parts in various views, and wherein—

Figure 1 is a plan view of a buckle with its cooperating fastening-loop made in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same, showing the tongue in the unlocked position. Fig. 3 is a longitudinal sectional view on the line 3-3 of Fig. 1, showing the parts in the locked

position. Fig. 4 is a face view of the buckle with the fastening-loop removed.

In the drawings the body-plate A is preferably, though not necessarily, made of a single piece and is struck up or formed with a central spring *a*, separated from the side arms *b* by the slits *c*. The entire central spring *a* is preferably depressed below the upper surface of the body-plate, as indicated at *d*, so as to throw the spring below the upper surface of the buckle and not to present any abutment or contact edge which will extend into the path of the fastening-loop B when the latter is moved in the act of locking and unlocking the buckle. The side arms *b* afford bearings for the pivots of the vibrating tongue C. The bearings are preferably formed by striking up a pocket or recess *e* in each of the arms *b* and turning the free ends of the arms back upon themselves, thus forming pockets which are adapted to surround the pivots *f* of the hook-like take-up tongue C and prevent the tongue from being disconnected from the body-plate. It will be observed that by forming the bearings or pivots of the take-up tongue in the manner described the pockets *e* are extended below the lower surface of the body-plate and below the lower face of the central spring *a*, so that the axis of the pivots of the tongue is below the central spring *a*, notwithstanding said spring is depressed below the upper surface of the body-plate. The tongue C is provided with a finger *g*, which radiates from the axis of the pivots *f*. This finger extends toward the inner portion or lip of the tongue in such a manner that the said finger will be out of contact with and relieved from all strain of the spring *a* when the tongue is in the releasing position. (Represented in Fig. 2.) In this figure it will be observed that the tongue is entirely free to vibrate from the full-line position to the dotted-line position before any tension is exerted by the central spring *a*. This enables the wearer of the buckle to readily place the fastening-loop B over the end of the tongue and to move the tongue to the position represented in Fig. 3 to tighten the parts and to lock the buckle by exerting but little pressure, while the

tongue C is entirely free from the strain of the central spring *a* when the tongue is in the open position. It will be observed that the opposite is true when the tongue is in the locked position. (Represented in Fig. 3.) In this position the central spring exerts its greater force to maintain the tongue against movement, and no movement of the tongue can take place in this position without overcoming the tension of the spring.

The supporting portion *h* of the take-up tongue C extends forward of the pivots thereof when the tongue is closed, so that when strain is exerted thereon by the fastening-loop it will be a drawing strain in almost direct line with the pivots of the tongue.

From the foregoing it will be seen that there are many structural advantages of a buckle made in accordance with my invention, but that in addition to these structural advantages there are advantages in the manufacture by which I am enabled to produce a better buckle at considerably less cost than heretofore. In shoe-buckles heretofore made it has been found necessary to submit the buckles to some four or five and in some cases to as many as ten operations in order to complete them. Thus it was necessary, among other things, to assemble the parts while the tongue was under pressure of the spring after the hardening or tempering of the spring. It will be readily understood that any attempt to temper the spring in a position when it exerts pressure would result in the loss of the pressure thus exerted when the metal is heated to a sufficient degree to bend, so that an insufficient amount of pressure or a lack of all pressure is afterward obtained when the buckle is in use, and the tongue therefore could not be held secure against movement in the locked position. Such buckles would therefore be unreliable and inefficient. In accordance with my process and the invention disclosed herein I am enabled to assemble the parts with the tongue in the position shown in Fig. 2, wherein there is no tension whatever exerted by the as yet untempered spring *a*. The ends of the arms *b* are turned so that the pockets *e* will inclose the pivots *f* of the tongue. I now temper the

body-plate of the buckle and its spring. Thus it requires but one operation to assemble the parts and another to produce the finished buckle by tempering. It will therefore be seen that by my invention I produce a better buckle than heretofore at less expense. I wish to state that after the parts are assembled as in Fig. 2 and while the spring is free from strain I temper those parts which I wish to harden. I make, by preference, the body-plate A and its spring *a* of tempering metal. The tongue C, I prefer to make of non-tempering metal, but it could also be made of tempering metal. The essential point of the invention is the tempering of the unstrained spring after the parts are assembled, and this constitutes a most important feature of my invention. It will be clear that by assembling the parts before tempering I am able to bend the body-plate A so as to form the pivot-receiving pockets therein, which I could not properly do after spring-tempering. By tempering the parts after assembling the same I am able to have the spring *a* of one piece with the body-plate.

The present application is a division of my application, Serial No. 666,618, filed January 14, 1898.

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

1. The process of making hinged spring-buckles which consists in first forming, assembling and securing together the body-plate and tongue and in then tempering the spring of said body-plate.

2. The process of making hinged spring-buckles which consists in first forming, assembling and securing together the body-plate and tongue and in then tempering said body-plate and its spring.

3. The process of making buckles which consists in first assembling and securing together the body-plate and tongue and in then tempering the spring of said body-plate when the spring is free from tension.

ALBERT D. FIELD.

Witnesses:

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