

(No Model.)

C. E. JEWELL.

SPRING TOOTH HARROW.

No. 396,696.

Patented Jan. 22, 1889.

Fig. I.

Fig. 2.

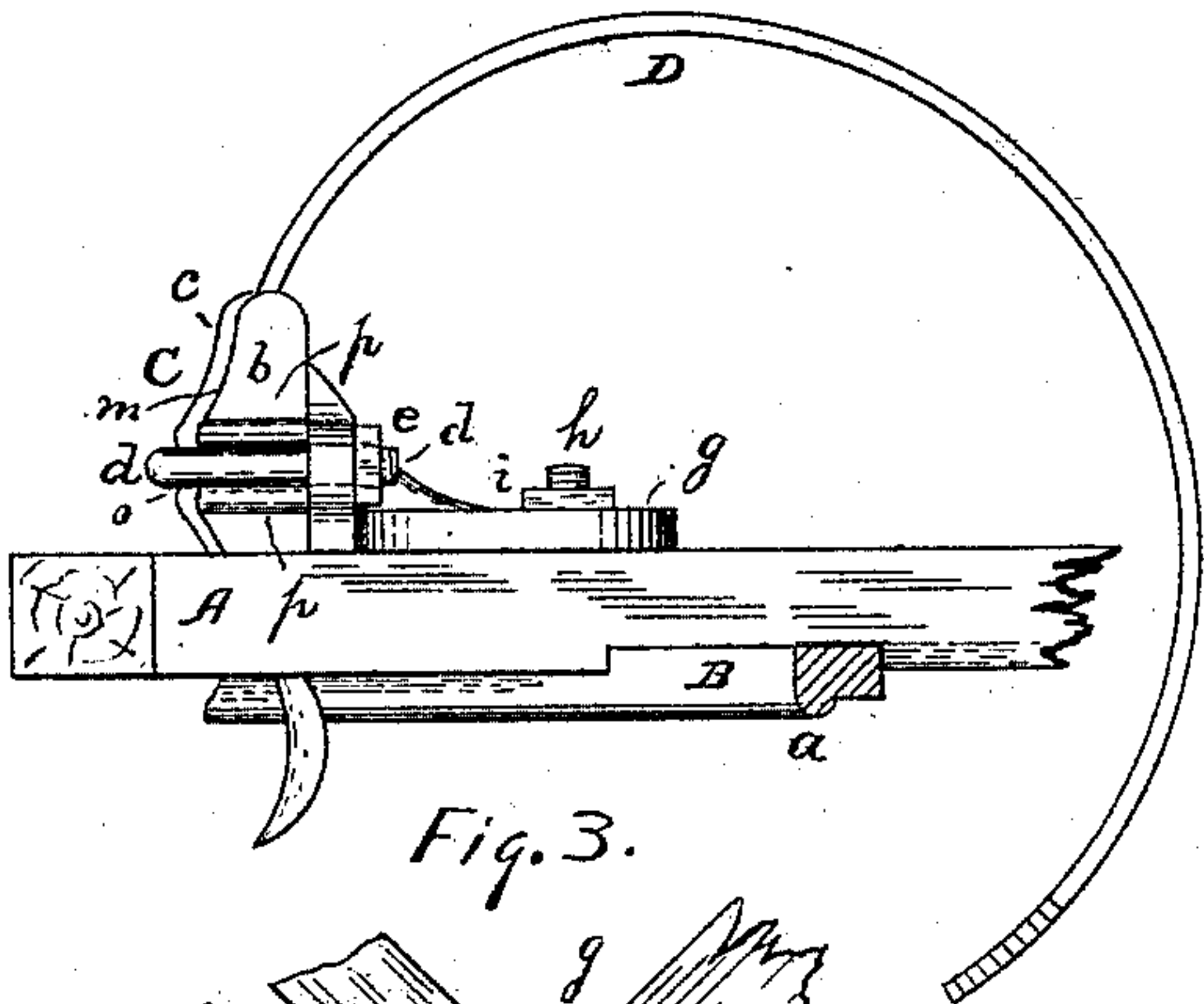


Fig. 3.

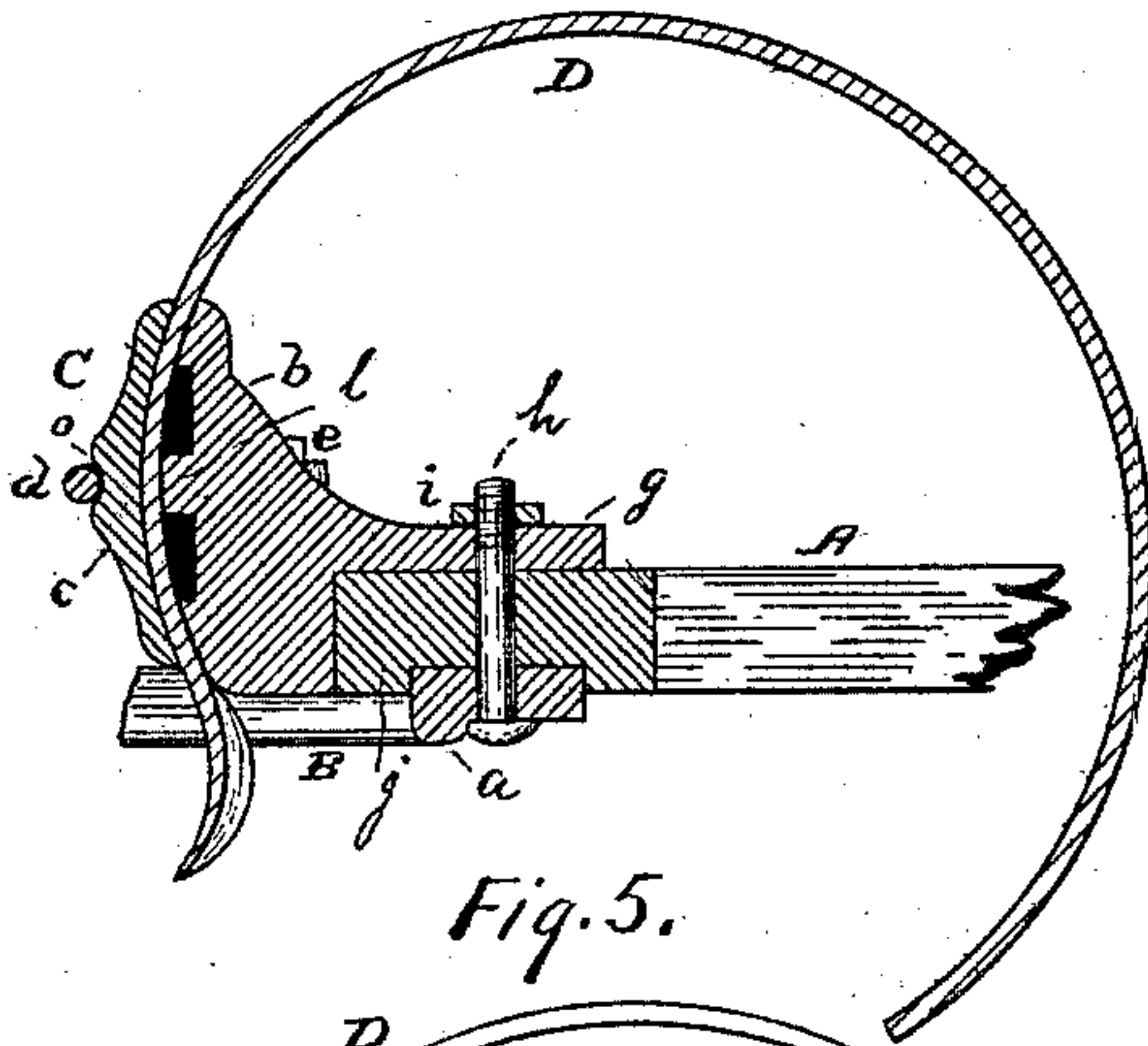


Fig. 5.

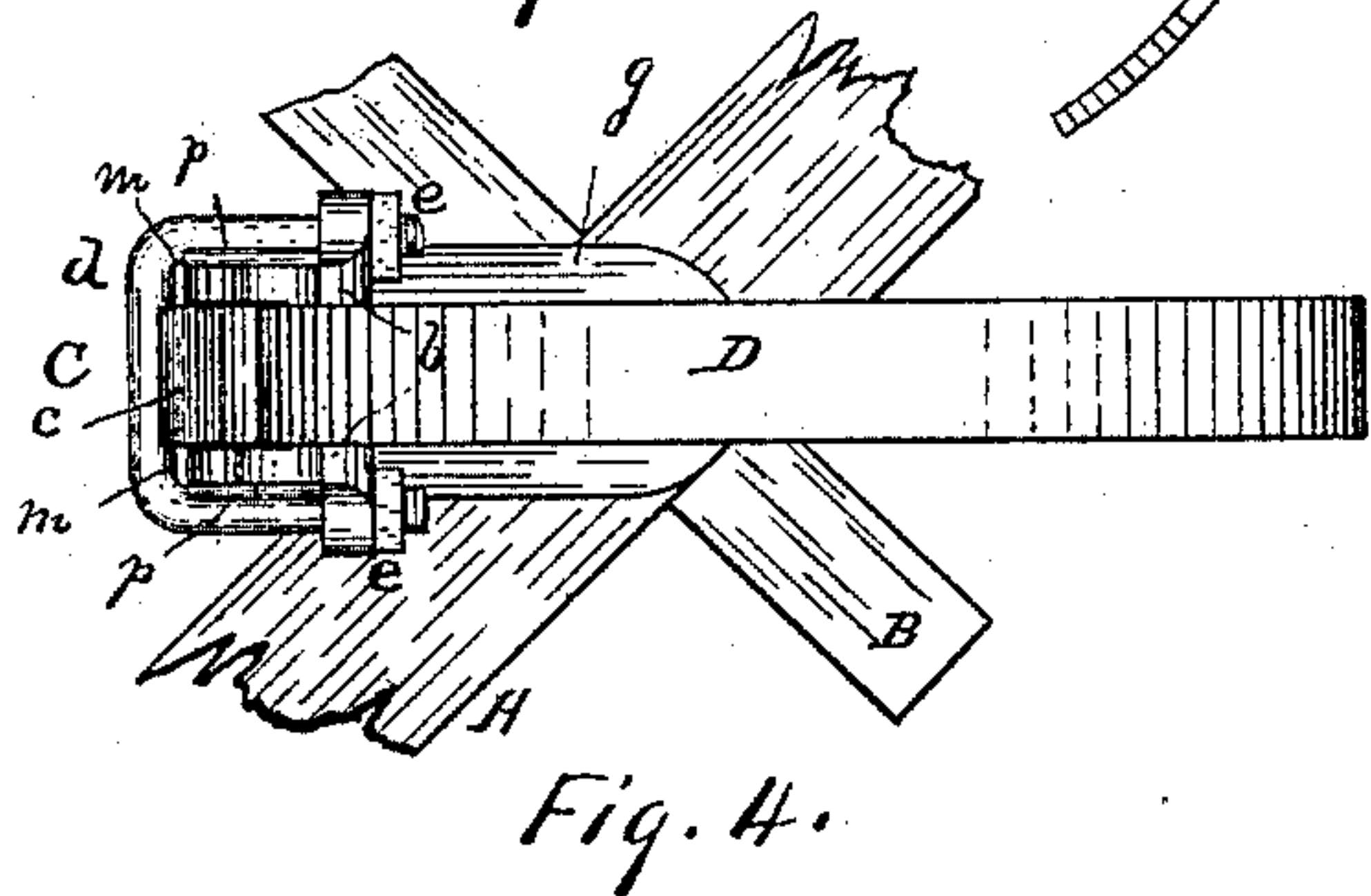


Fig. 4.

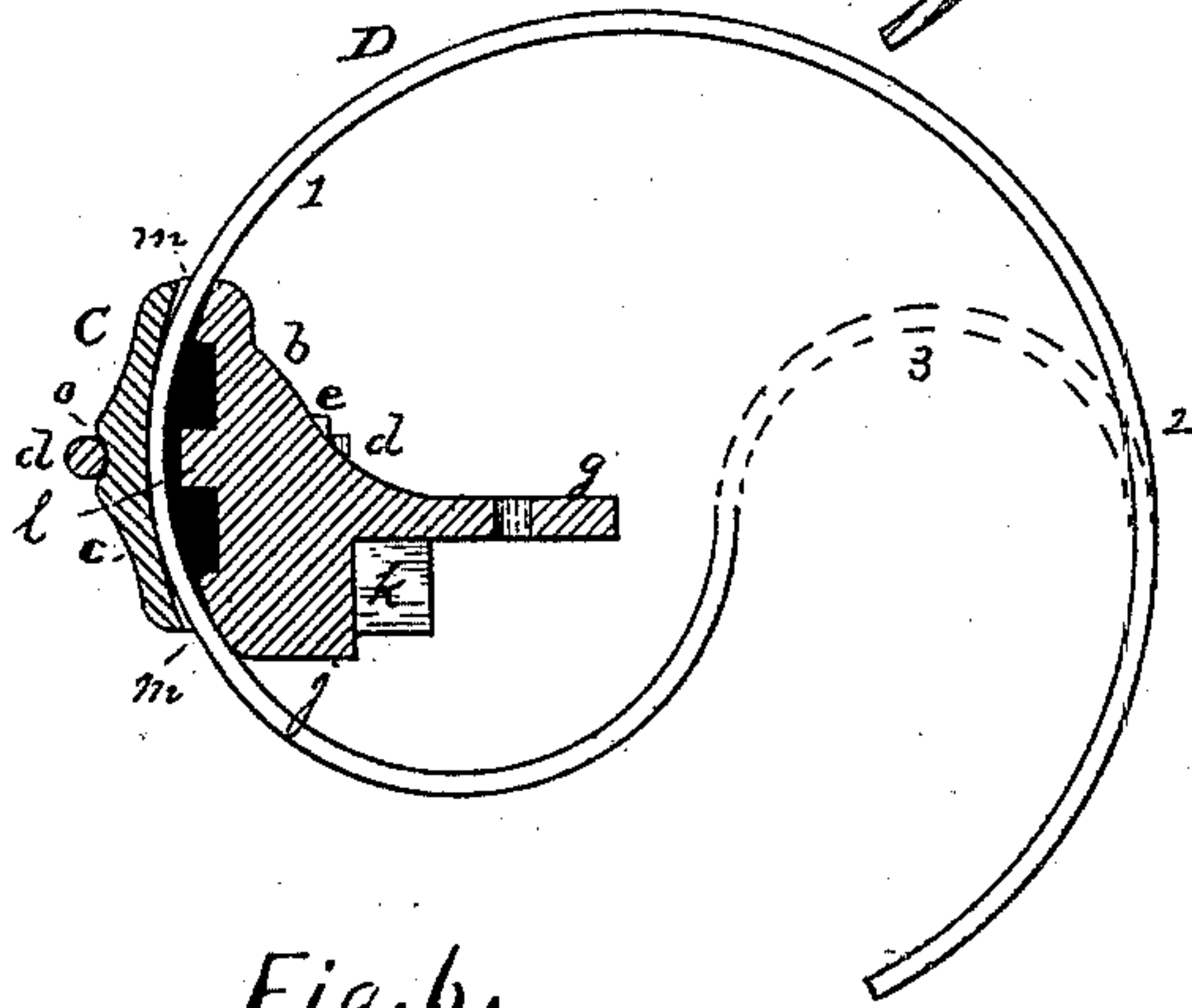


Fig. 6.

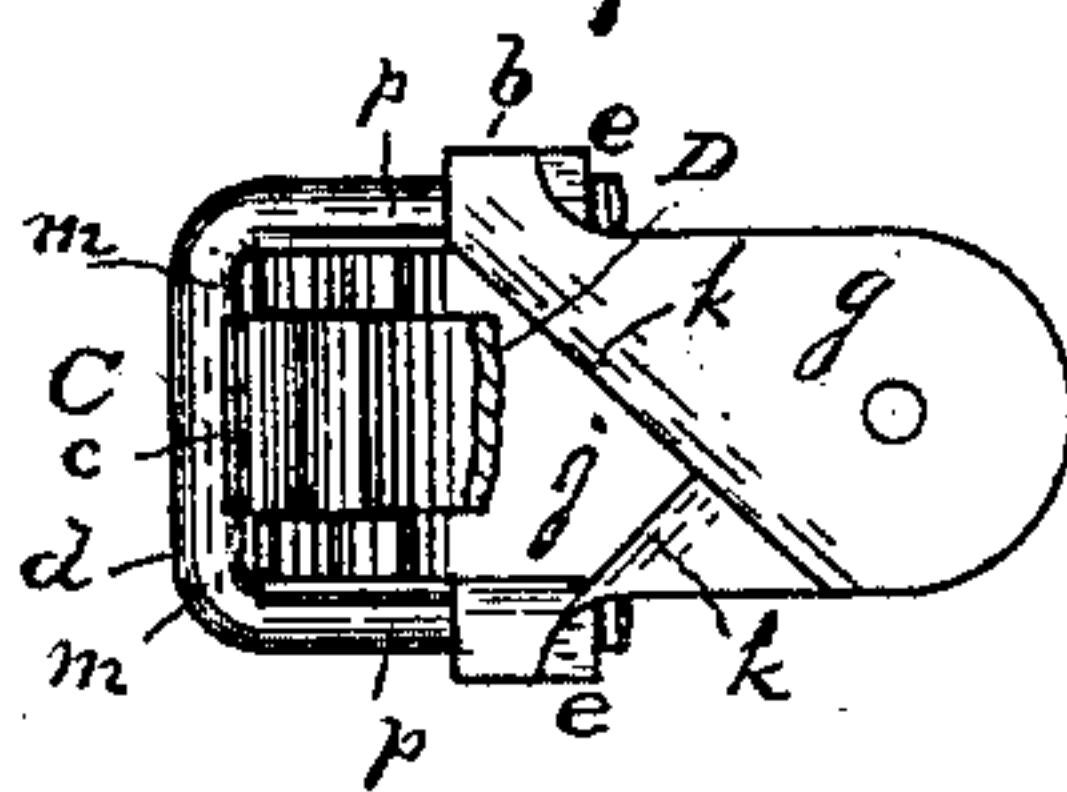
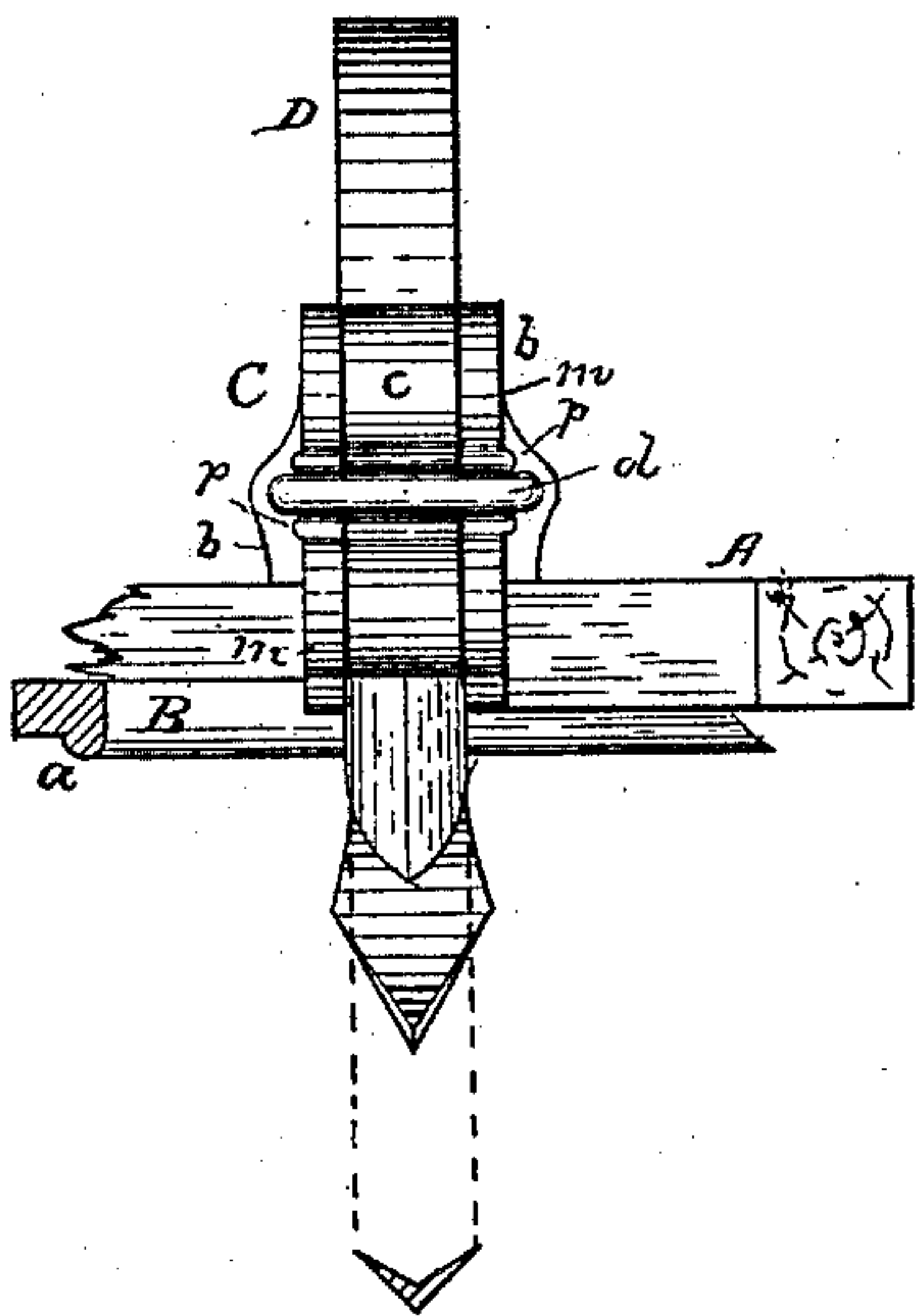
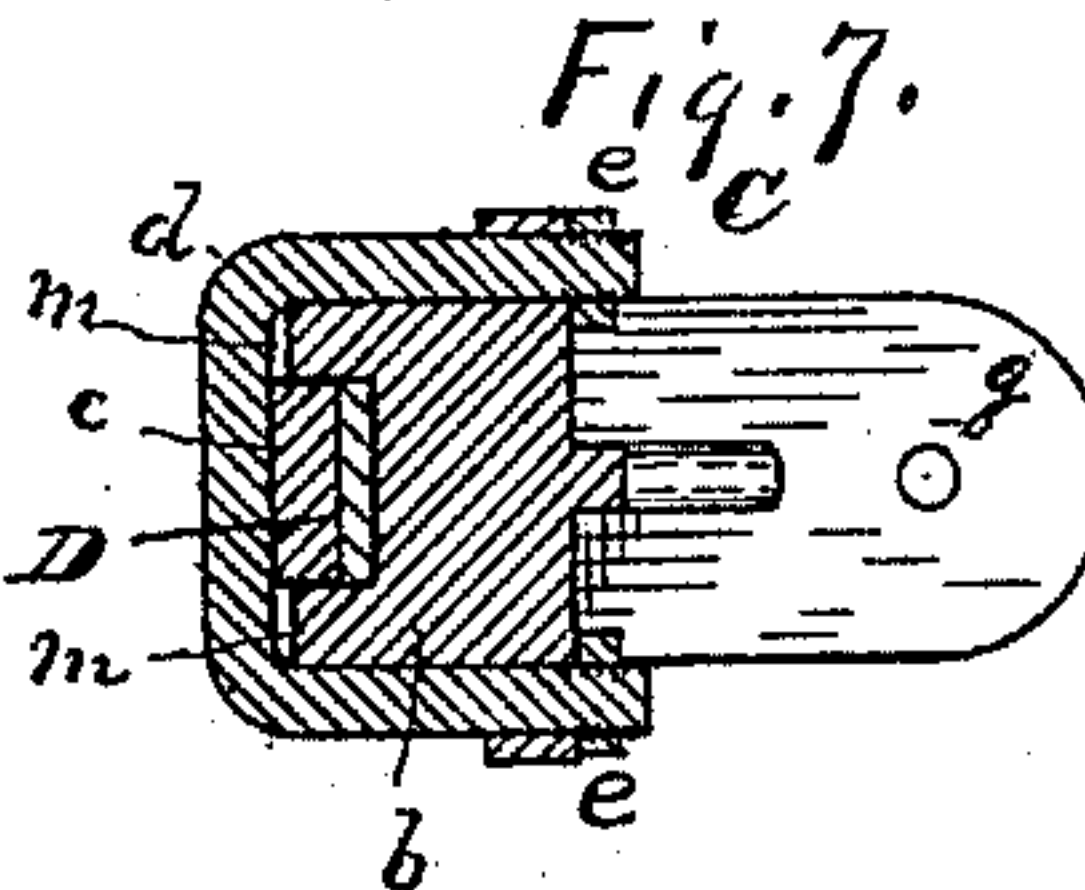


Fig. 7.



WITNESSES:

James C. Hallsted,
Louis W. Donnelly.

INVENTOR:

Charles E. Jewell

BY *F. F. Warner*

his ATTORNEY:

UNITED STATES PATENT OFFICE.

CHARLES E. JEWELL, OF AUBURN, NEW YORK, ASSIGNOR OF ONE-HALF TO
ALBERT M. NYE, OF SAME PLACE.

SPRING-TOOTH HARROW.

SPECIFICATION forming part of Letters Patent No. 396,696, dated January 22, 1889.

Application filed March 1, 1888. Serial No. 265,876. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. JEWELL, a citizen of the United States, and a resident of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Spring-Tooth Harrows, of which the following is a specification.

This invention relates to the means employed for connecting the spring-teeth to the frame-bars of spring-tooth harrows. My purpose is to provide an improved clamp or clip for connecting the upper ends of the springs to the harrow-frame.

The characteristic features of my invention are set forth in my claim; but to enable others familiar with the art more fully to understand the same, I will now proceed to describe my improvements with greater particularity, making reference in so doing to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved clip or clamp, showing its relation to the spring and frame. Fig. 2 is a vertical central section through the parts represented in Fig. 1. Fig. 3 is a top or plan view of the same. Fig. 4 is a front view thereof. Fig. 5 is a sectional detail, showing modifications in the form of the spring. Fig. 6 is a bottom view of the clamp or clip, and Fig. 7 is a central horizontal section through the clip.

Like letters of reference indicate like parts.

In the drawings, A and B represent the frame-bars. The bars A A, I make, by preference, of wood, and the bars B B of either steel or iron. In order to secure lightness as well as strength in the bars B B, I make them angular in cross-section or with a longitudinal rib, *a*, depending from one edge thereof. In practice a series of bars, A A, arranged parallel to each other, intersect a series of parallel bars, B B, and the frame thus made is usually centrally jointed, so as to be capable of adjusting itself to uneven ground; but as frames constructed in this manner are well known I have not attempted to illustrate the same fully.

C is the clip, and D is a spring-tooth secured to the frame by means thereof. The clip C consists of two parts, *b* and *c*, which I clamp

together about the upper part of the spring by means of a U-bolt, *d*, and nuts *e e*. The main or chief part of the clip *b*, the forward face of which I call the "spring-seat," is arranged vertically and has a horizontal arm or extension, *g*, to admit of its being attached to the frame, which attachment I make by means of a bolt, *h*, passing through the said extension, and also through the frame-bars at their point of intersection, the said bolt being secured by means of a nut, *i*. It will be perceived that the part *b* of the clip depends between the bars A and B at the angle formed at their intersection, and that the portion *j* extending between the said bars has beveled or angular sides or faces corresponding to the angle formed by the intersection of the said bars, as is clearly indicated at *k k*, Fig. 6. By these means the bars A and B are greatly braced or prevented from being drawn out of their proper relations to each other. It will also be perceived, especially on reference to Figs. 2 and 5, that the meeting faces or surfaces of the parts *b* and *c* of the clip are curvilinear. In Fig. 2 I have shown these parts as fully clamped or drawn together by means of the U-bolt *d* and its nuts, so as to retain the spring firmly in place; but by referring to Fig. 5, which shows the part *c* as not fully drawn to the part *b* or as not tightly clamping the spring in place, it will be perceived that the curvature of that part of the spring which is between the parts *b* and *c* is in a circle having a shorter radius than the circle in which the inner face of the part *c* lies. It will also be perceived that the part *b* is so formed that the said spring will bear on the outer ends only of the said part, and consequently that the spring, when fully tightened, will exert a yielding force or pressure against the part *c*. This pressure is felt by the bolt *d*, and as a result thereof the nuts *e e* are prevented from becoming loose.

I desire to state that in practice I may or may not use a central rest, *l*, to limit the inward movement of the spring D, or to furnish it with a seat or rest approximately between the upper and lower ends of the clip. To prevent the spring from moving or slipping laterally I make projecting ribs or flanges *m m*

on the part *b* of the clip, and these flanges I extend, by preference, far enough to overlap the edges of the part *c*, as is clearly indicated in Fig. 7, thus also aiding in retaining the part *c* in its proper place. The screw-threaded ends of the bolt or loop *d* pass through ears *n n*, projecting laterally from the part *b*, and the said bolt will thus, under ordinary circumstances, be sufficiently held in place; but to prevent any possibility of its sagging or being bent down in front I make a small depression, *o*, in the part *c*, and the end bar of the bolt lies in this depression. Small ribs or lugs *p p* on the sides of the part *c* will further aid in retaining the bolt in its horizontal position; but neither the depression *o* nor the ribs *p p* are absolutely essential, though preferable, for the purpose referred to.

The downward extension *j*, by fitting into the angle at the intersection of the frame-bars, not only prevents the said bars from being drawn or shifted from the angle at which they are set with relation to each other, but also, on that account, enables me to use comparatively light fastenings for securing the frame-bars to each other at their intersections.

In the drawings I have shown only one bolt for securing the clip to the frame-bars. This usually will be sufficient, as the clip bears against the forward edges or faces of the bars, and the same bolt will serve to fasten the bars together at any one intersection; but more than one bolt may be so employed, if deemed best.

It will be perceived that the spring *D* is capable of being adjusted vertically or in the direction of its length, so that its working end or point may be set to enter the ground to a greater or less extent. I do not, however, here intend to claim, broadly, a spring-tooth made and arranged to perform the function of a shoe or runner; neither do I here intend to claim, broadly, a tooth clamp or holder having a vertically-arranged portion constituting a seat for the upper part of the tooth.

It will be observed that the forward end of the clip curves or inclines downwardly and rearwardly from its central part, thus tending to cause the implement to ride free from obstructions and to some extent preventing clogging.

It is to be understood that as many springs and clips are to be employed as may be deemed expedient on any one frame, and, as the frames of implements of this class are well known, I have not here shown a complete frame or described the same particularly.

I have shown in the accompanying drawings various modifications or differences in the form or construction of the spring; but I do not here intend to be restricted to any particular feature relating to the spring or tooth, as the clips or clamps may be employed with springs or teeth varying in construction.

In practice I intend to make the part *b* of the clip in one and the same piece of cast metal.

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

A clip or clamp for fastening the teeth to the intersecting frame-bars of spring-tooth harrows, said clamp consisting of the seat portion *b*, having thereon a depending part, *j*, formed and arranged to enter the forward angles formed by the intersection of the said bars and to there bear upon the two bars forming said angles, respectively, and also having a horizontal extension or bar plate, *g*, all made in one and the same piece of cast metal, a detachable tooth-compressor, and fastenings for holding the said compressor against the teeth and for securing the said seat to the frame, substantially as specified.

Signed at Auburn, in the county of Cayuga and State of New York, this 20th day of February, A. D. 1888.

CHARLES E. JEWELL.

Witnesses:

JNO. G. HOSMER,

GERRIT LOUGHBOROUGH.