

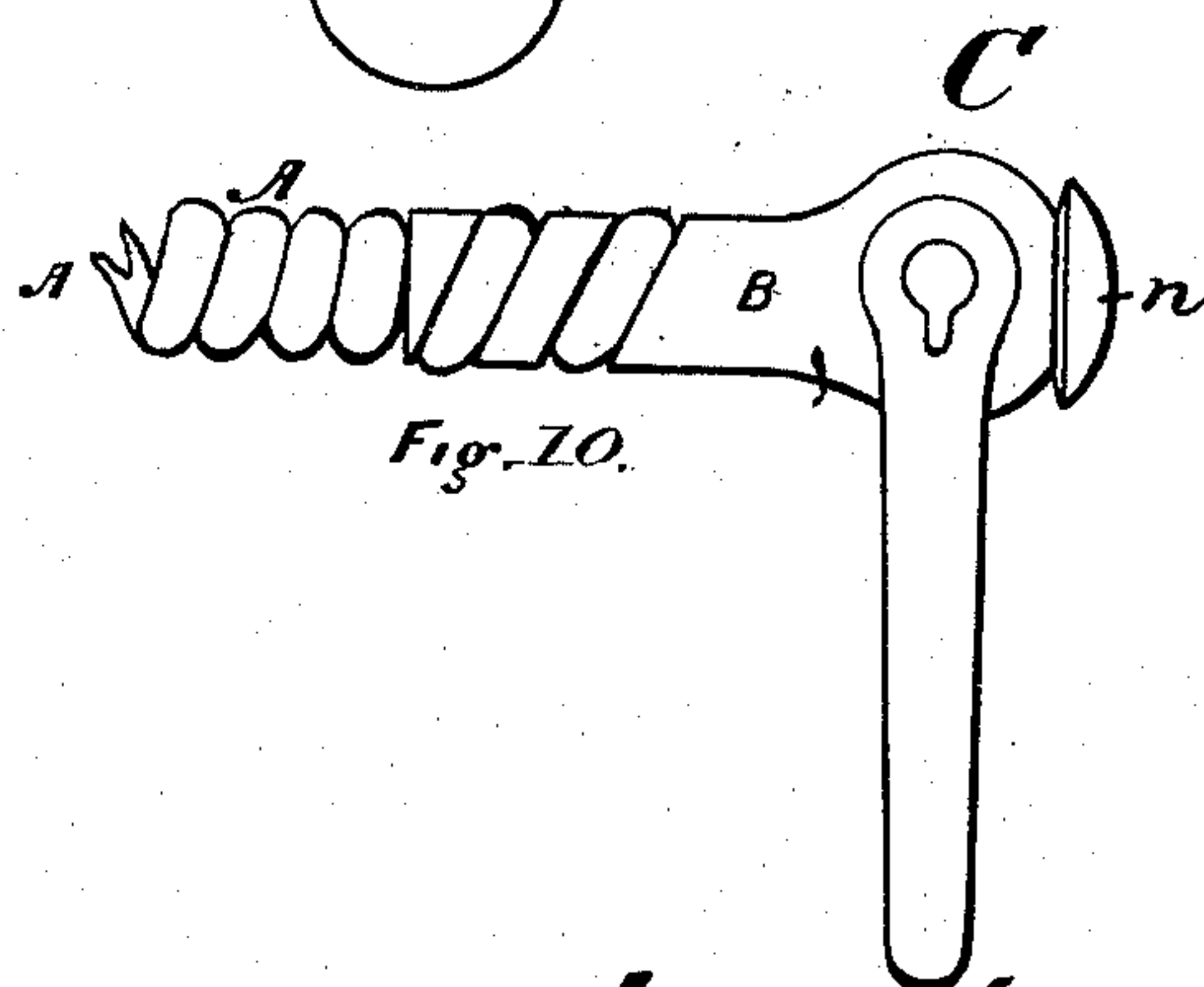
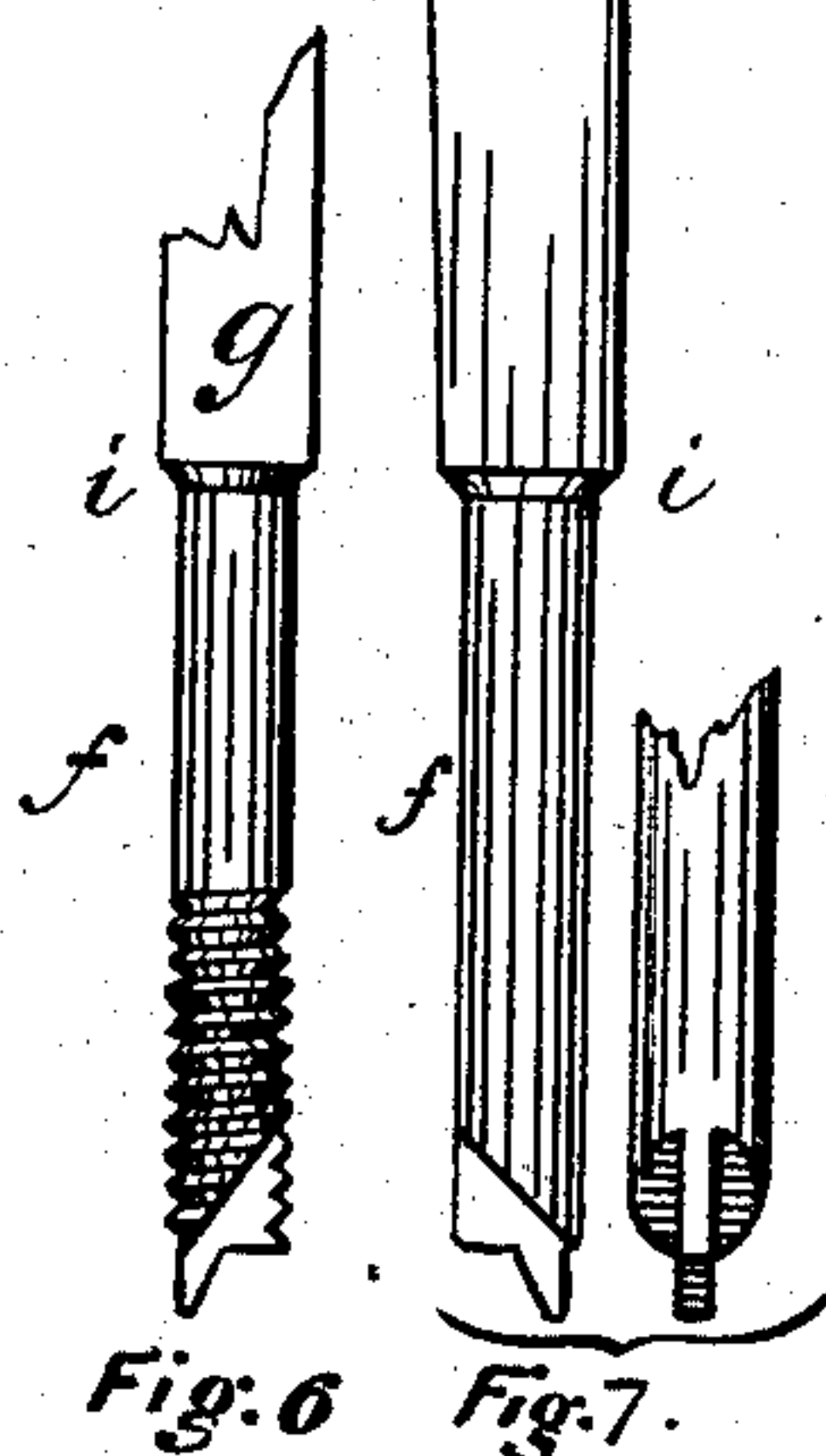
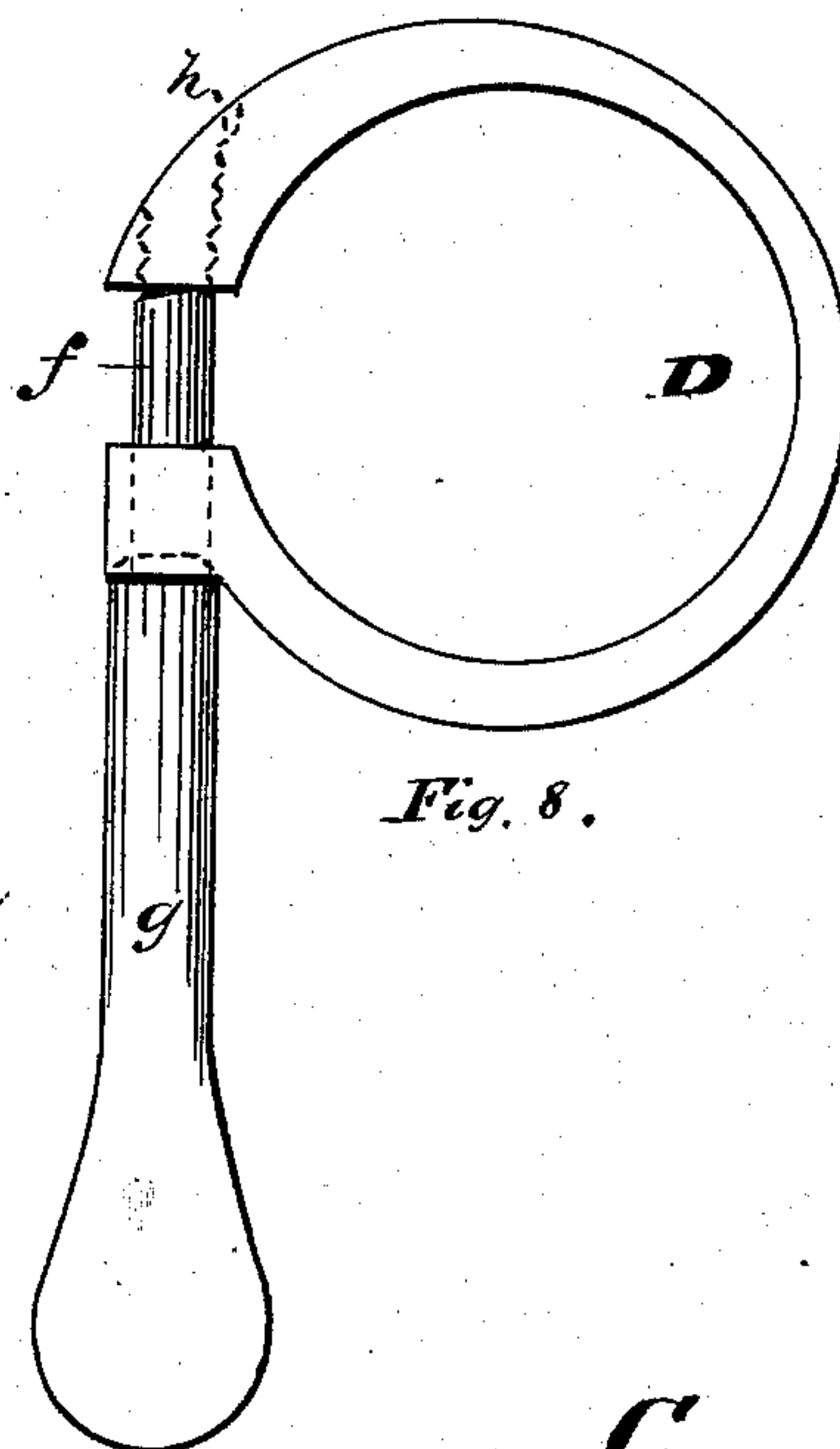
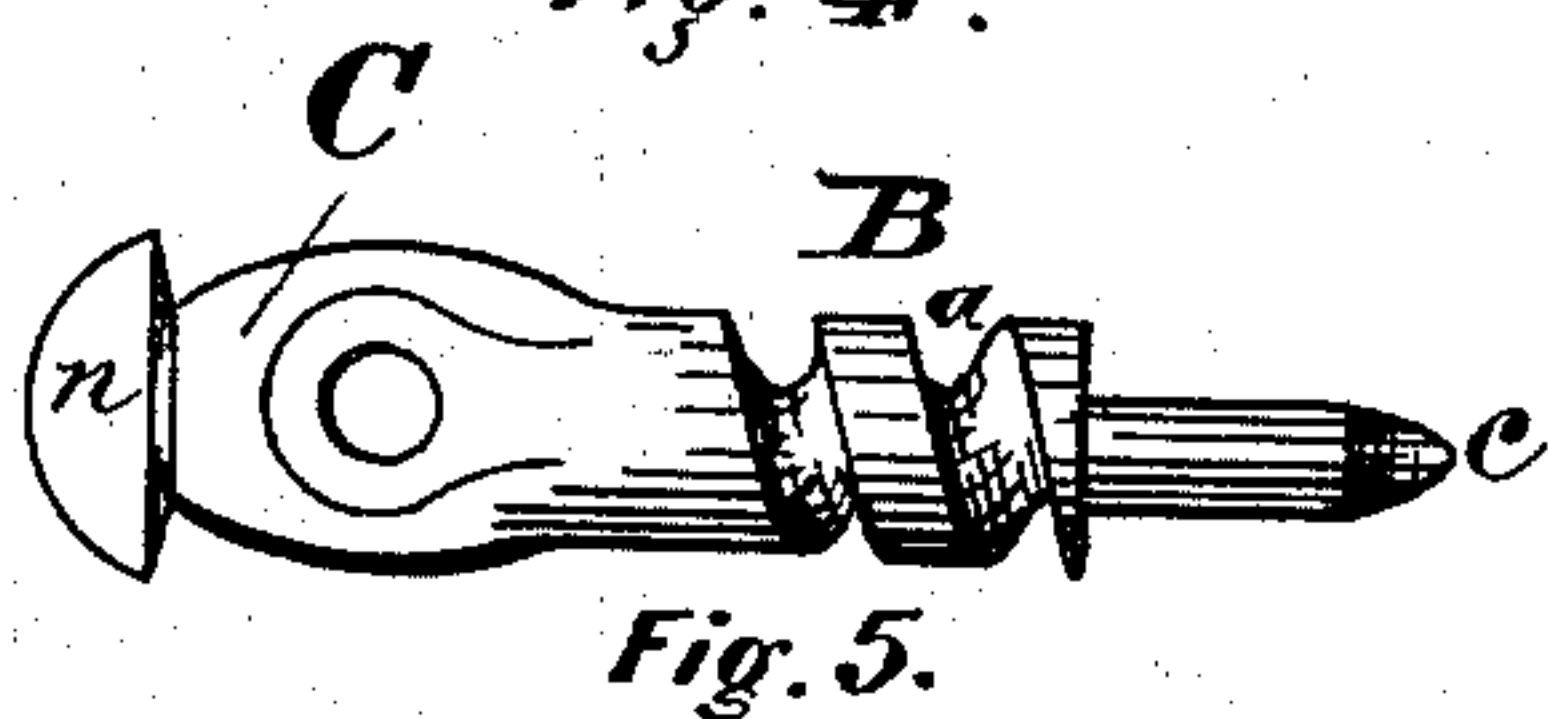
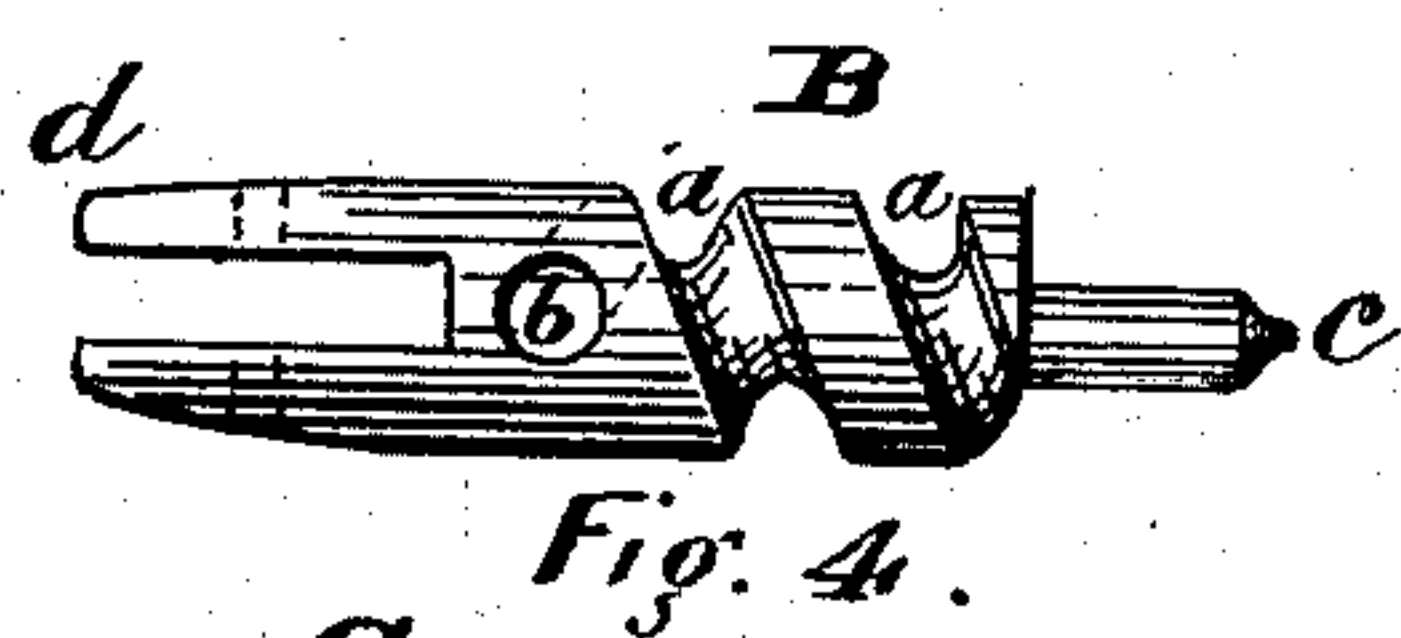
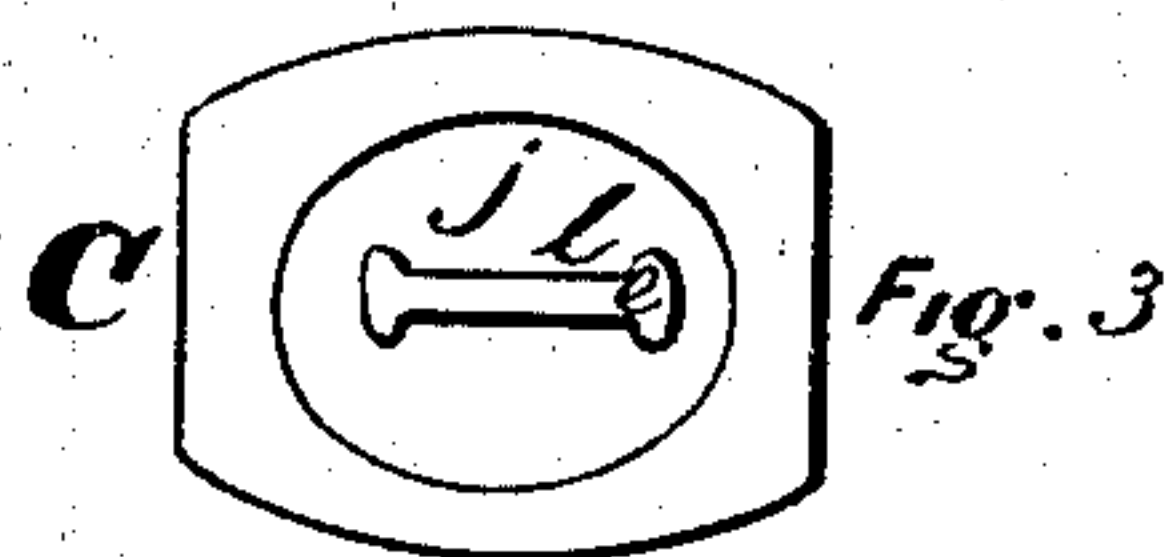
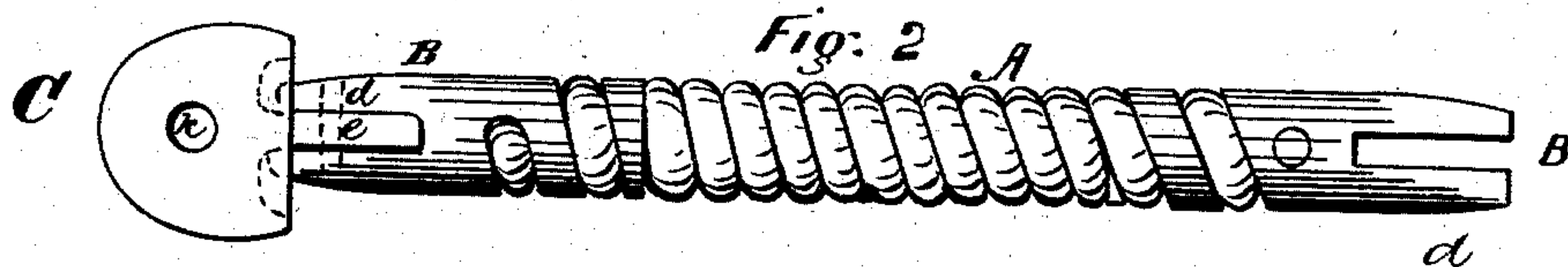
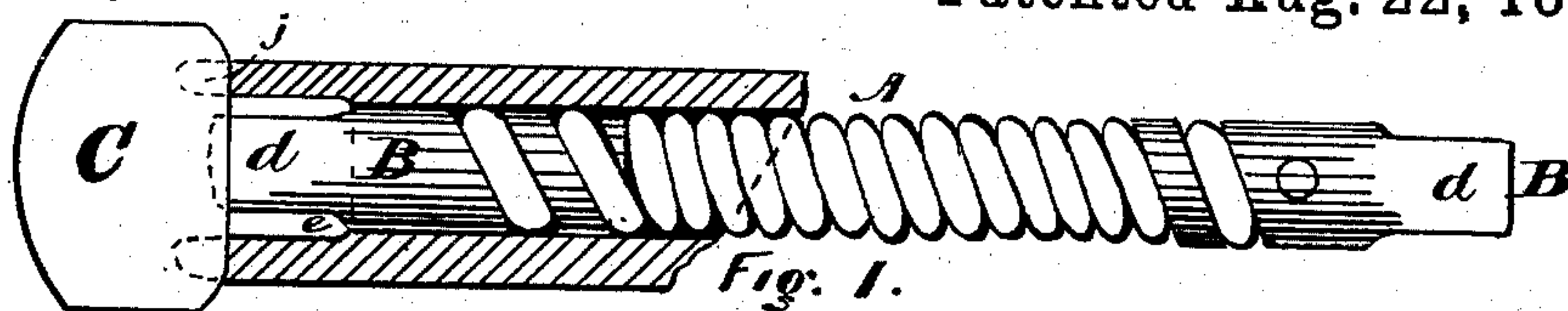
(No Model.)

H. S. SQUIER.

BRIDLE BIT.

No. 263,237.

Patented Aug. 22, 1882.



Attest:

Charles H. Puel
Chas. J. Winters

Inventor:

Horace S. Squier,
by

O. Drake, atty.

UNITED STATES PATENT OFFICE.

HORACE S. SQUIER, OF NEWARK, NEW JERSEY.

BRIDLE-BIT.

SPECIFICATION forming part of Letters Patent No. 263,237, dated August 22, 1882.

Application filed March 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, HORACE S. SQUIER, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bridle-Bits; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly, though not exclusively, to that class of bits having a flexible mouth-piece and composed in whole or in part of a single piece of wire, the mouth-piece being arranged in the form of a helix.

The object of the invention is to lessen the cost of construction, to impart increased strength to the bit, and to render the same in divers other respects more efficient and desirable.

It consists in the peculiar construction, combination, and arrangement of the several parts, all of which will be hereinafter more particularly described, and finally embodied in the claims.

In the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the several figures, Figures 1 and 2 represent portions of a bit embodying my improvements, and the remaining figures, 3, 4, 5, 6, 7, 8, 9, and 10, show certain details and modifications of the invention, all of which will be hereinafter more fully and definitely described.

Heretofore it has been the custom, in some cases, to provide the helix with a core which passes entirely therethrough and connect the cheek-rings therewith. In this improvement the core is dispensed with, the necessity for its use being avoided.

In carrying out my invention I form the mouth-piece A of spring-wire arranged in the form of a helix, and in some cases secure the same permanently at each end to spirally-grooved shanks B, corresponding in size circumferentially with the said helix, the wire lying in said grooves *a*, its ends being firmly secured to the shanks by inserting them in an

aperture or perforation therein, as indicated at *b*, as will be understood by reference to Figs. 2 and 4. Said shanks B are or may be provided at their inner ends with a short stem, *c*, which penetrates the interior of the helix for a short distance and serves to facilitate the winding of the same, and their outer ends are grooved or are provided with jaws *d*, to which are secured heads C, carrying the rings or cheek-pieces D, said heads in such cases having a shank, *e*, which is riveted or otherwise secured to the aforesaid jaws *d*. The cheek pieces or rings, as shown in Fig. 8, which heretofore have been integral, are in two pieces or parts, and also of novel construction, the ring portion D forming one part and the beam *f* and cheek *g* the other part. The ends of said ring, the latter being open, are perforated to receive the beam which passes therethrough, and also through the said heads C, and is permanently secured therein in its proper position, it being prevented from turning by riveting or clinching its end, which is screwed in the cheek-ring, down into a groove, *h*, (see dotted lines in said Fig. 8,) formed in the outer surface of said ring. At the heel of said beam *f* is formed a shoulder, *i*, slightly tapering, which fits into a corresponding tapered recess countersunk or otherwise formed in the ring where the two parts intersect, thereby forming a neat finish and limiting the distance to which the shank will penetrate the ring, and so forth, as will be readily understood. The end of the shank which is riveted or clinched, as above described, should be reduced in size or otherwise shaped, as indicated in Figs. 6 and 7, to conform to the groove or recess *h*, which it is designed to fill, as will be obvious. The above-described rings and cheeks are well adapted to bits of various styles, as will be evident.

When it is desired to cover the mouth-piece with rubber or other flexible material, as indicated in Fig. 1, as the bits may be used with or without such covering, the heads should be recessed, as shown in said Fig. 1 and at *j* in Fig. 3, to receive and protect the ends of said covering, as well as to make a neat finish.

The spirally-grooved shank and head may be formed of one piece of metal and be provided with an eye, *k*, for the reception of the cheek ring or beam, and with a flange or cap,

n, if required, integral with said head or screwed or riveted thereon, to cover the ends of a rubber covering when the latter is used, as indicated in Figs. 5, 9, and 10. In cases where the head and shank are formed integrally, as above described, the latter is provided with a recess, *l*, upon each side to receive the jaws of the mouth-piece *d* and prevent any lateral motion of the same, the jaws and shank being also firmly secured together by means of rivets.

I am aware that wire arranged in the form of a helix, both with and without a core passing through the same, has been made heretofore; also, that bits having spirally-wound wire mouth-pieces ending in a loop at each end to connect with the rein-rings are not new; and, also, that separate heads, in connection with bits having mouth-pieces other than those made of coiled wire, have been heretofore in use; but both are open to objections, which my improvements are designed to overcome.

I am also aware that uniting a helix and cheek pieces or rings by means of a screw-cut shank corresponding in size with the interior of said helix and screwed and soldered therein is not new, and hence I do not claim either of these features, broadly; but

What I claim, and wish to have secured by Letters Patent of the United States, is—

1. In a bit, the combination of the helically-formed wire mouth-piece, the head carrying the cheek-rings, and a bar or piece separate from but adapted to connect said head and helically-formed wire mouth-piece, for the purpose set forth.

2. In a bridle-bit having a mouth-piece composed of a single piece of spring-wire arranged in the form of a helix, the combination, with the said mouth-piece, of spirally-grooved shanks corresponding in size circumferentially therewith and rigidly secured thereto, heads *C*, rigidly secured to said shanks, and cheek-pieces movably but permanently secured to said heads, substantially as and for the purpose set forth.

3. In a bridle-bit having a mouth-piece composed of a single piece of spring-wire arranged in the form of a helix, the combination, with said mouth-piece, of spirally-grooved shanks corresponding in size circumferentially there-

with, and provided with a stem, *c*, and heads *C*, and cheek-pieces *D*, all the parts being permanently secured together, substantially as shown and described, for the purposes set forth.

4. In a bit having the mouth-piece composed of a single piece of spring-wire arranged in the form of a helix, the combination, with said mouth-piece, of spirally-grooved shanks *B*, corresponding in size circumferentially with said helix, and cheek pieces or rings, the several parts being arranged and operating substantially as and for the purposes set forth and shown.

5. The combination, in a bridle-bit, of the open rings *D*, having apertures through their ends, and the cheek-bar and shank formed from one piece of metal and adapted to be permanently connected with said mouth-piece and ring, substantially as and for the purposes shown.

6. In a bridle-bit, the combination, with the cheek pieces or rings and helix, of the heads provided with the shanks having the recesses, and the spirally-grooved shanks having the jaws *d*, the parts being arranged to operate as herein described, for the purposes set forth.

7. In a bridle-bit, the cheek-ring provided with the recess or groove in the outer surface to receive the riveted or clinched end of the beam, whereby the latter is prevented from turning in said cheek-ring, as and for the purpose set forth.

8. In a bridle-bit, the combination, with the helix, of the head provided with the flange or cap *n*, as and for the purpose set forth.

9. In a bridle-bit, the combination of the cheek-ring provided with the tapered or countersunk recess, and the bar and beam provided with the correspondingly-tapered shoulder, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of February, 1882.

HORACE S. SQUIER.

Witnesses:

OLIVER DRAKE,
CHAS. T. WINTERS.