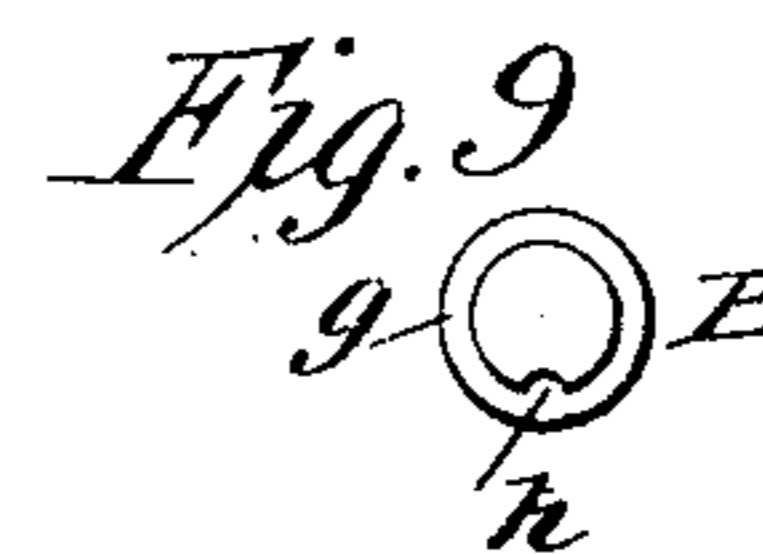
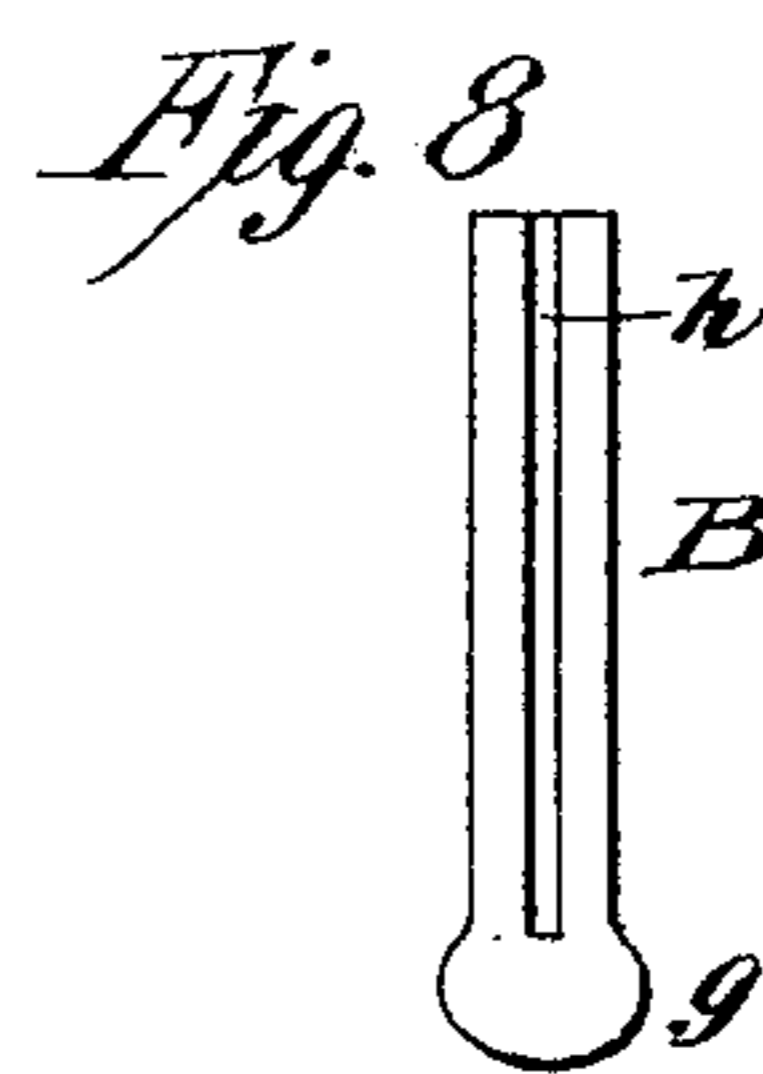
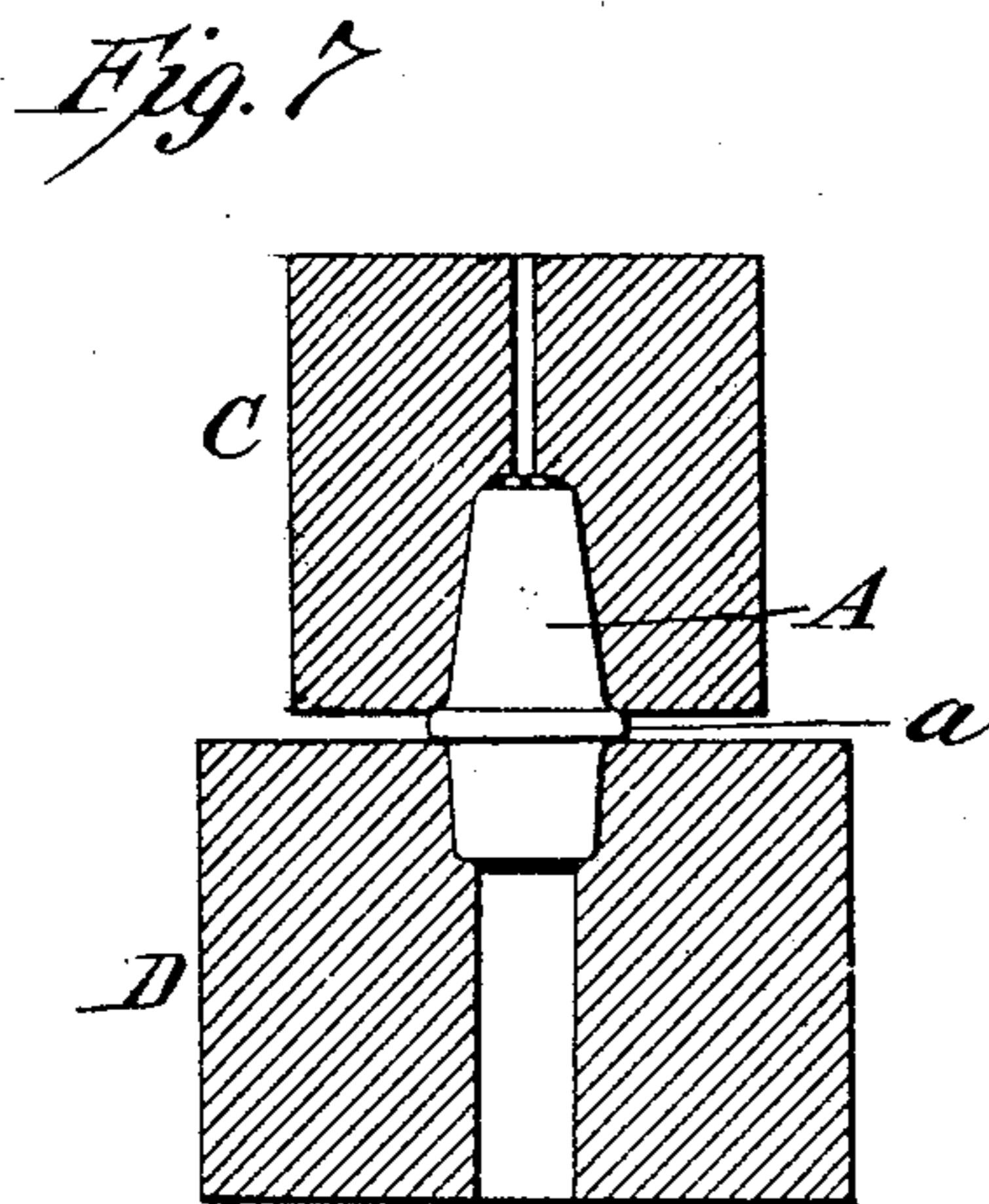
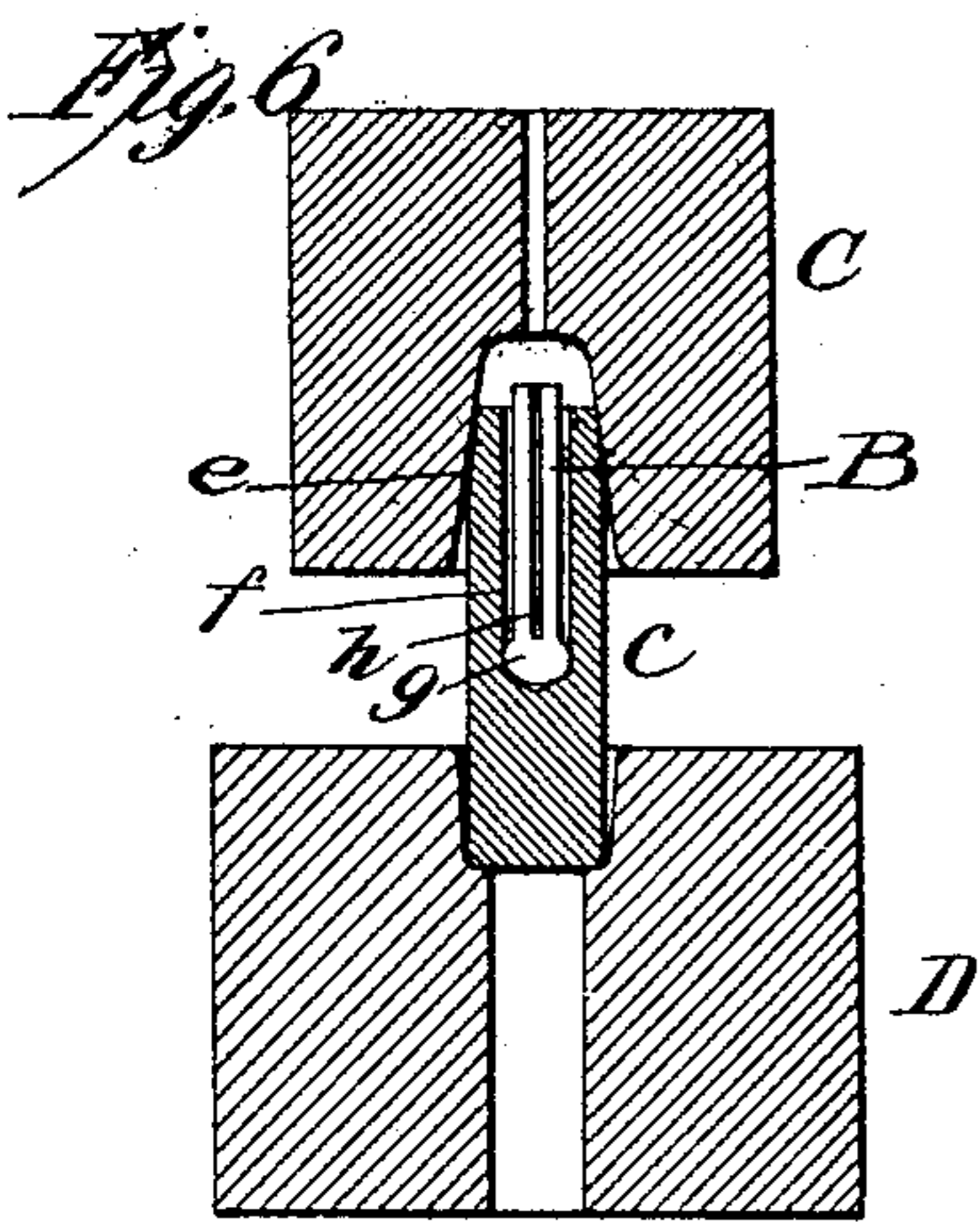
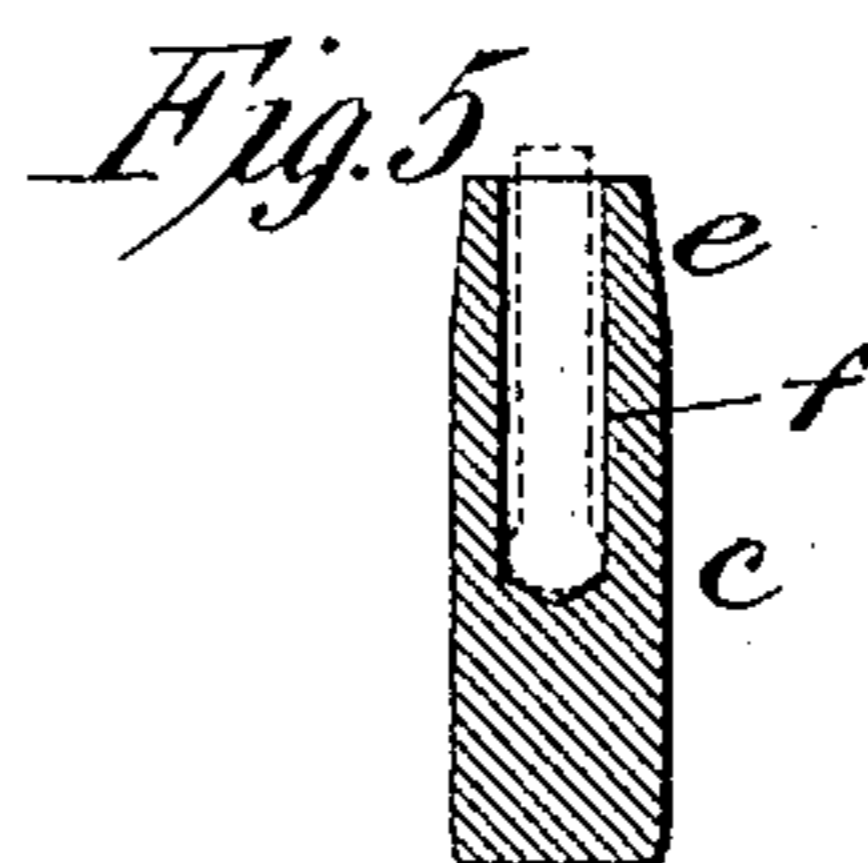
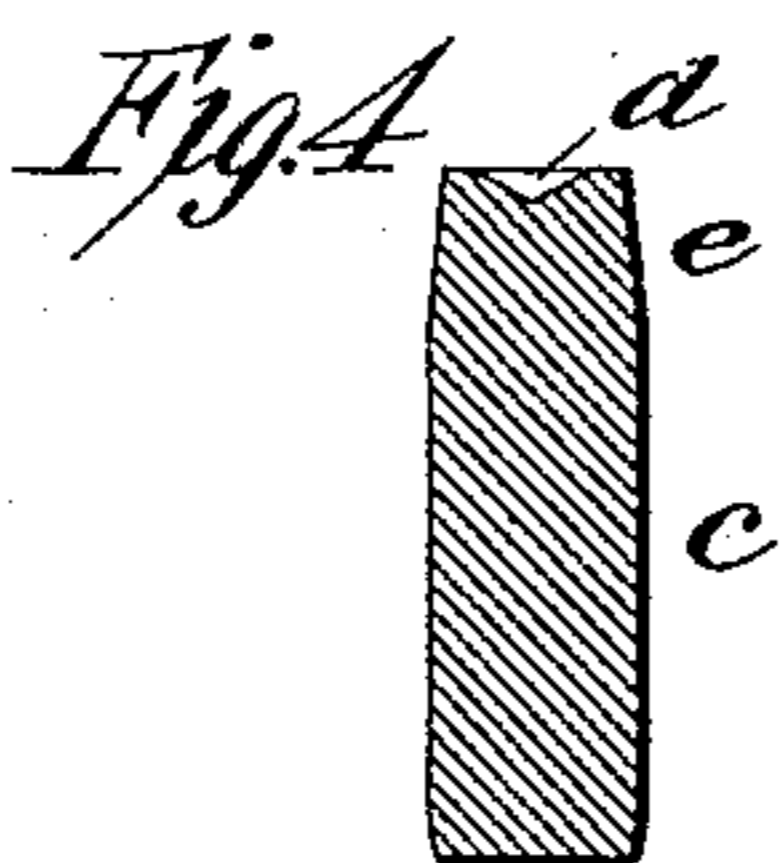
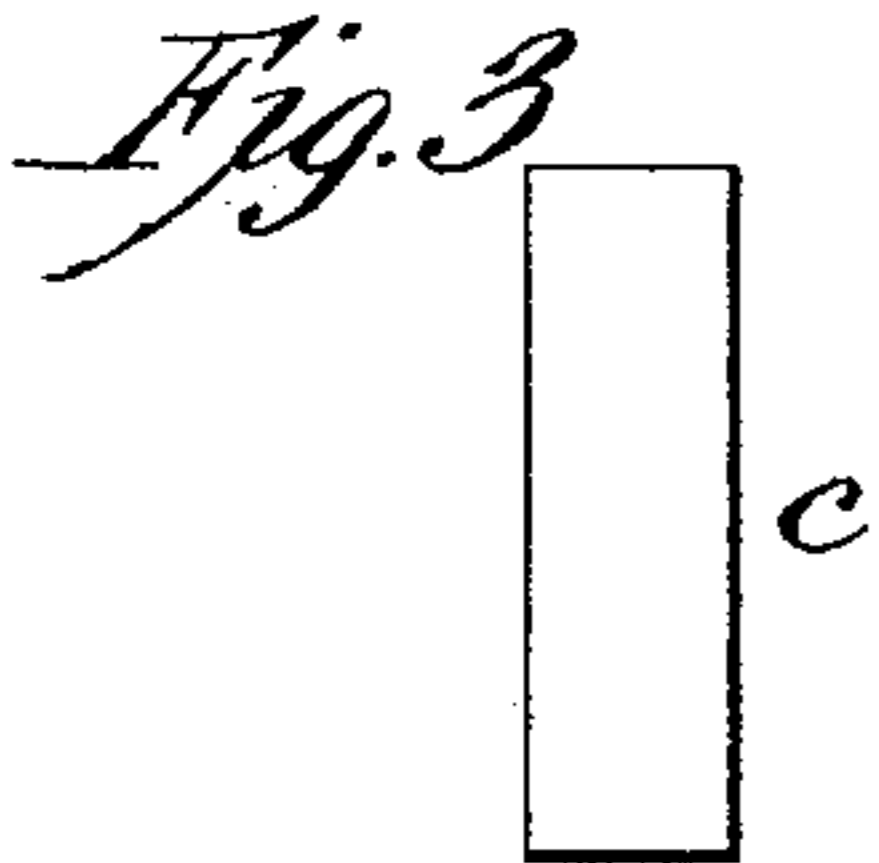
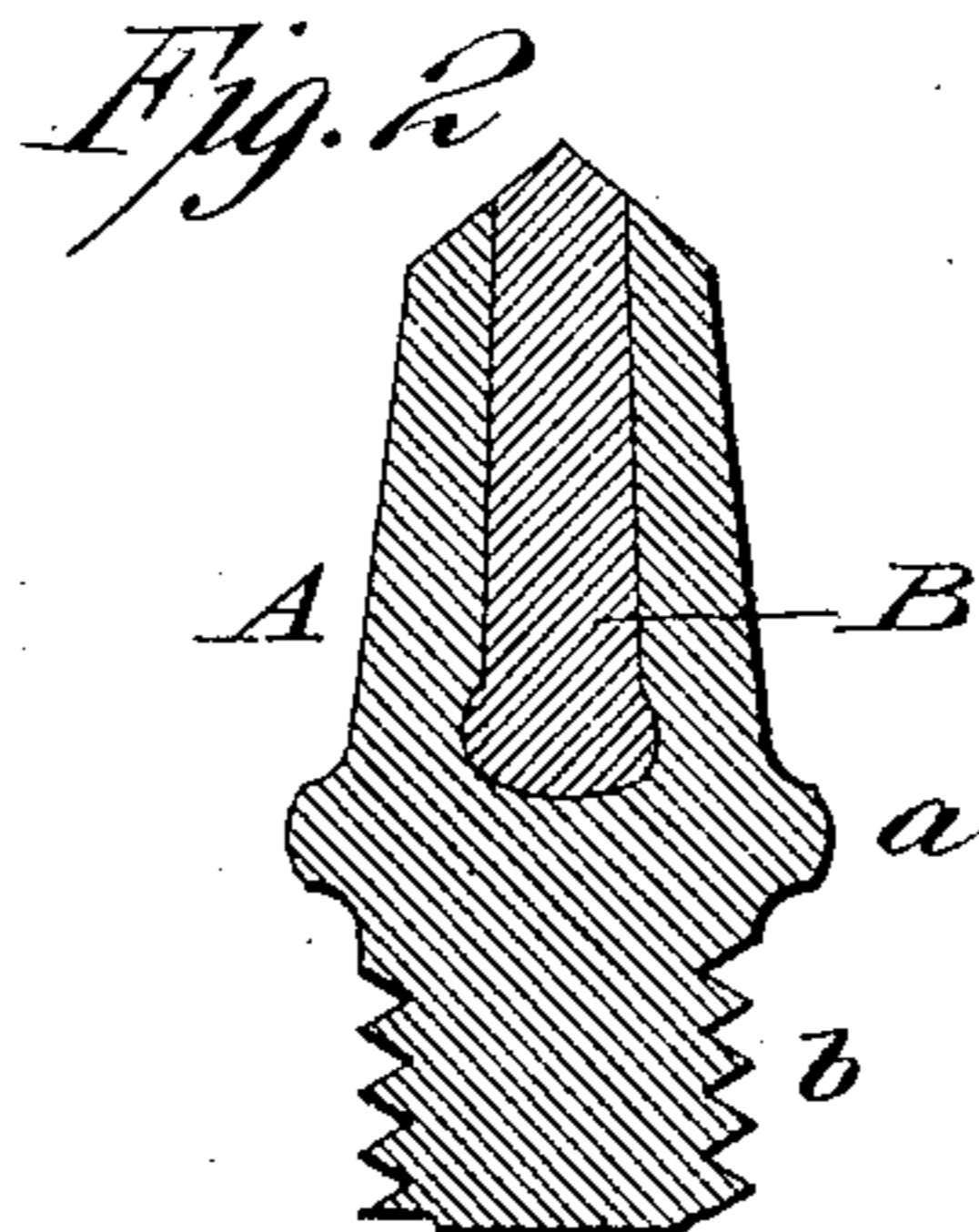
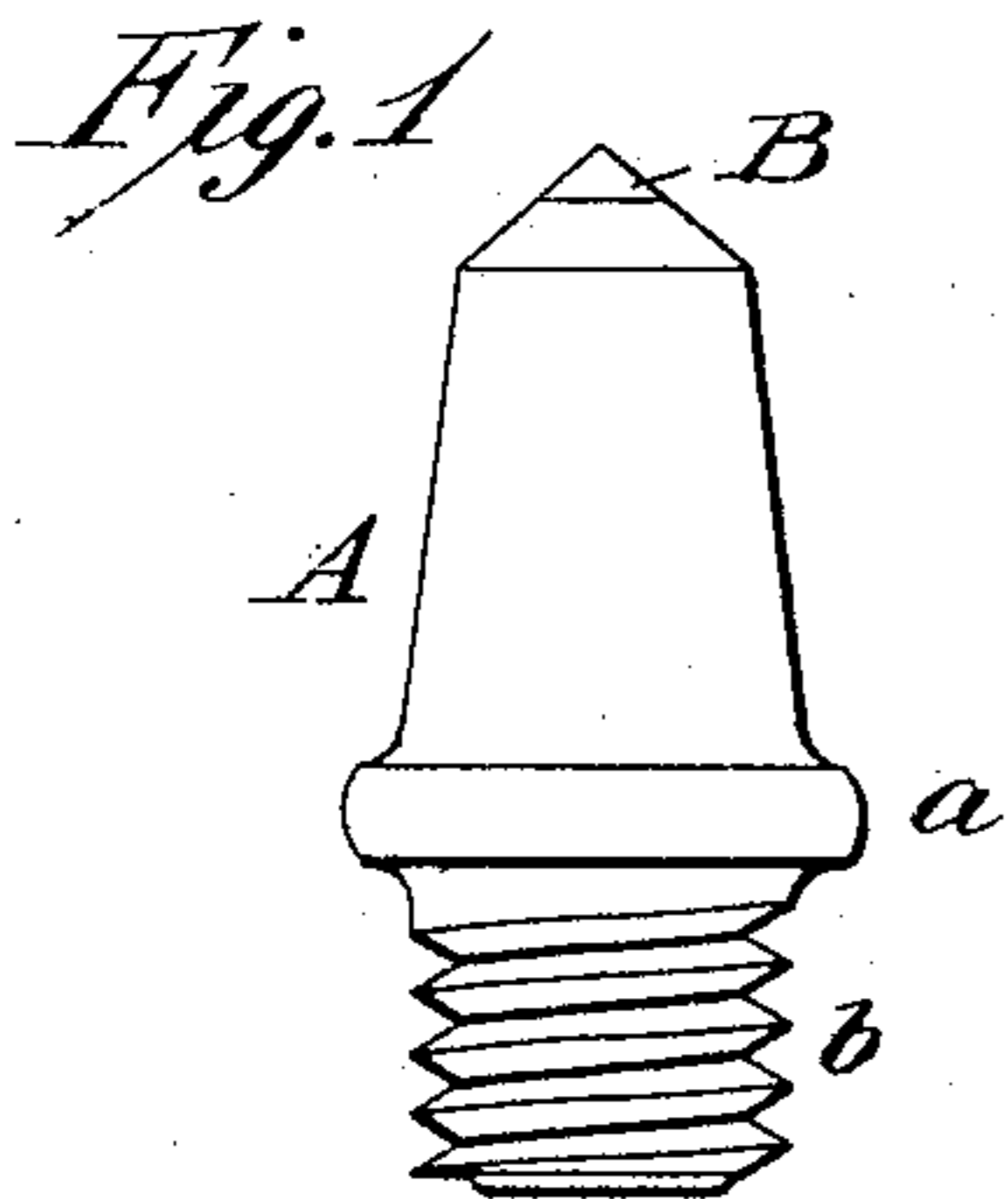


No. 779,753.

PATENTED JAN. 10, 1905.

R. WHITAKER.
HORSESHOE CALK.
APPLICATION FILED MAR. 7, 1903.



Witnesses:

Jas. F. Coleman
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UNITED STATES PATENT OFFICE.

RICHARD WHITAKER, OF NEW BRUNSWICK, NEW JERSEY, ASSIGNOR TO
THE NEVERSLIP MANUFACTURING COMPANY, OF NEW BRUNSWICK,
NEW JERSEY, A CORPORATION OF NEW JERSEY.

HORSESHOE-CALK.

SPECIFICATION forming part of Letters Patent No. 779,753, dated January 10, 1905.

Application filed March 7, 1903. Serial No. 146,718.

To all whom it may concern:

Be it known that I, RICHARD WHITAKER, a citizen of the United States, residing at New Brunswick, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Horseshoe-Calks, of which the following is a description.

The object I have in view is to produce a horseshoe-calk of the self-sharpening variety, which will be cheaper and better in quality than those heretofore produced.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the horseshoe-calk on an enlarged scale. Fig. 2 is a vertical section of the same. Figs. 3, 4, 5, 6, and 7 are views illustrating the process of manufacture; and Figs. 8 and 9 are an elevation and end view, respectively, of the center pin or core of the calk on an enlarged scale.

The calk A, preferably of frusto-conical form and made of soft steel, is provided with a hard-steel center or core B, whereby the calk has the self-sharpening quality well understood. The core B extends only as far as the shoulder *a* of the calk. The shank *b* is screw-threaded for securing the calk to the horseshoe. In the manufacture of this calk a rod of soft steel having a diameter somewhat less than the shank of the completed calk is cut into lengths *c* somewhat greater than the completed calk. One of these lengths is shown in Fig. 3. This piece *c* is then subjected to the action of a punch at one end, which produces a centering depression *d* and also tapers the end of the piece, as shown at *e* in Fig. 4. The piece *c* is then put in a drilling-machine, the drill being centered by the depression *d*, and the hole *f* is bored in the piece *c*, extending a distance somewhat greater than half the length of the piece, as shown in Fig. 5. The center pin B, made of hard steel, is then dropped into the bore *f*. This center pin is made of steel wire, cut to the proper length and subjected to the action of dies, which enlarge it slightly at one end to form

a head *g* and which also form a groove *h* on one side of the pin extending lengthwise thereof. (See Figs. 8 and 9.) The head *g* of the pin B is approximately the same size as the bore *f*, the body of the pin being smaller than that bore. The pin is inserted in the bore head first, the head resting on the bottom of the bore, as shown in dotted lines in Fig. 5. The piece *c*, with the pin B inserted in it, is then subjected to the action of dies C D, Fig. 6, which swage or upset it side-wise into the form shown in Fig. 7, and thus increase the diameter of the shank and body portion of the calk. The device is then taken from the dies, the shank *b* is screw-threaded, and the end of the calk is finished off to a uniform shape, after which the calk is tempered and is then complete and ready for use.

The action of the swaging-dies C D is not only to give the calk its final form in outline, but these dies also swage or upset the metal forming the body of the calk upon the center pin B and to some extent they may also act to slightly taper the center pin. The center pin is thus secured firmly in position, so that it will retain its place in the calk to whatever extent the calk is worn.

By providing the groove *h* running lengthwise of the center pin a vent is produced for the air or gas in the imperfectly-closed space around the center pin, such gases being given a high degree of pressure by the heat used in tempering the calk. I have found that unless such a vent is provided the center pin will be loosened during the tempering of the calk. This groove is not entirely closed by the swaging or upsetting of the body of the calk upon the center pin, and the vent produced by it is therefore effective to liberate the gases. This vent is of service in case it becomes necessary or desirable to retemper the calk. The vent also serves as a means for the escape of the confined air around the base of the pin while the body of the calk is being swaged within the dies. The groove also serves as a means for preventing twisting of

the pin within the calk, the metal of the body partially entering the groove, and thereby serving as a lock.

The horseshoe-calk constructed in the manner described is superior in quality and is also cheap to manufacture. By making the center in the form of a separate pin secured mechanically in the soft-steel body of the calk a uniform high quality of steel can be employed.

The method herein disclosed is not claimed in this case, but forms the subject-matter of an application filed by me October 24, 1903, Serial No. 178,377.

What I claim is—

1. A horseshoe-calk consisting of a hard-steel pin having a laterally-projecting portion and a relatively soft metal body swaged into holding contact with the pin laterally and at the rear of said projecting portion.

2. A horseshoe-calk consisting of a hard-steel pin having a laterally-projecting portion, and a relatively soft metal body swaged into holding contact with the pin laterally and at the rear of said projecting portion, the pin being of less length than the body.

3. A horseshoe-calk consisting of a hard-steel pin, and a relatively soft metal body swaged into holding contact with the pin, and a groove between the contacting surfaces.

4. A horseshoe-calk consisting of a hard-steel pin, and a relatively soft metal body

swaged into holding contact with the pin, and a groove between the contacting surfaces, the pin being of less length than the body.

5. A horseshoe-calk consisting of a hard-steel pin having a longitudinal groove, and a relatively soft metal body swaged into holding contact with the pin.

6. A horseshoe-calk consisting of a hard-steel pin having a longitudinal groove, and a relatively soft metal body swaged into holding contact with the pin, the pin being of less length than the body.

7. A horseshoe-calk consisting of a hard-steel pin having a laterally-projecting portion and a longitudinal groove, and a relatively soft metal body swaged into holding contact with the pin laterally and at the rear of said projecting portion.

8. A horseshoe-calk consisting of a hard-steel pin having a laterally-projecting portion and a longitudinal groove, and a relatively soft metal body swaged into holding contact with the pin laterally and at the rear of said projecting portion, the pin being of less length than the body.

This specification signed and witnessed this 5th day of March, 1903.

RICHARD WHITAKER.

Witnesses:

B. G. SIMMONS,
R. W. JOHNSON.