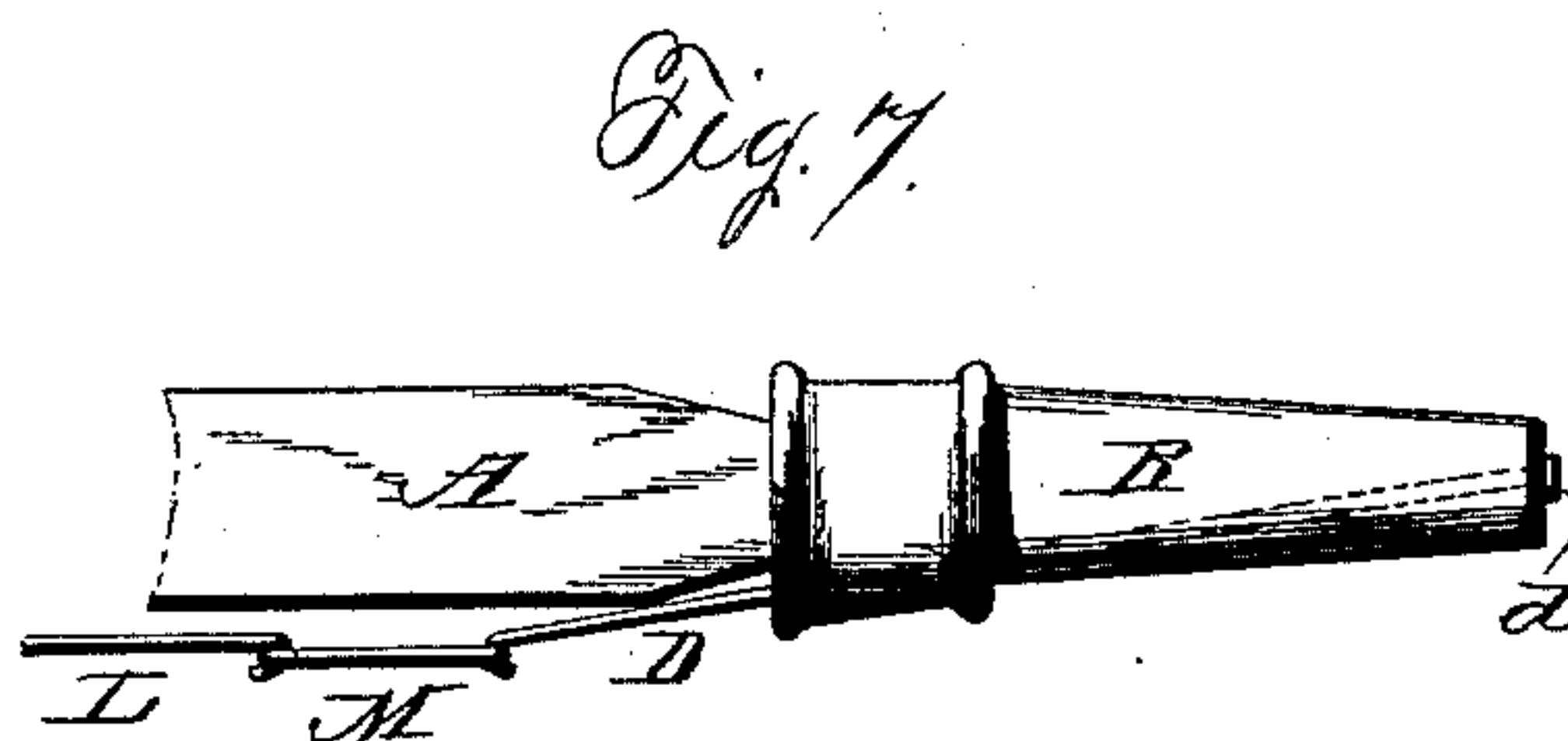
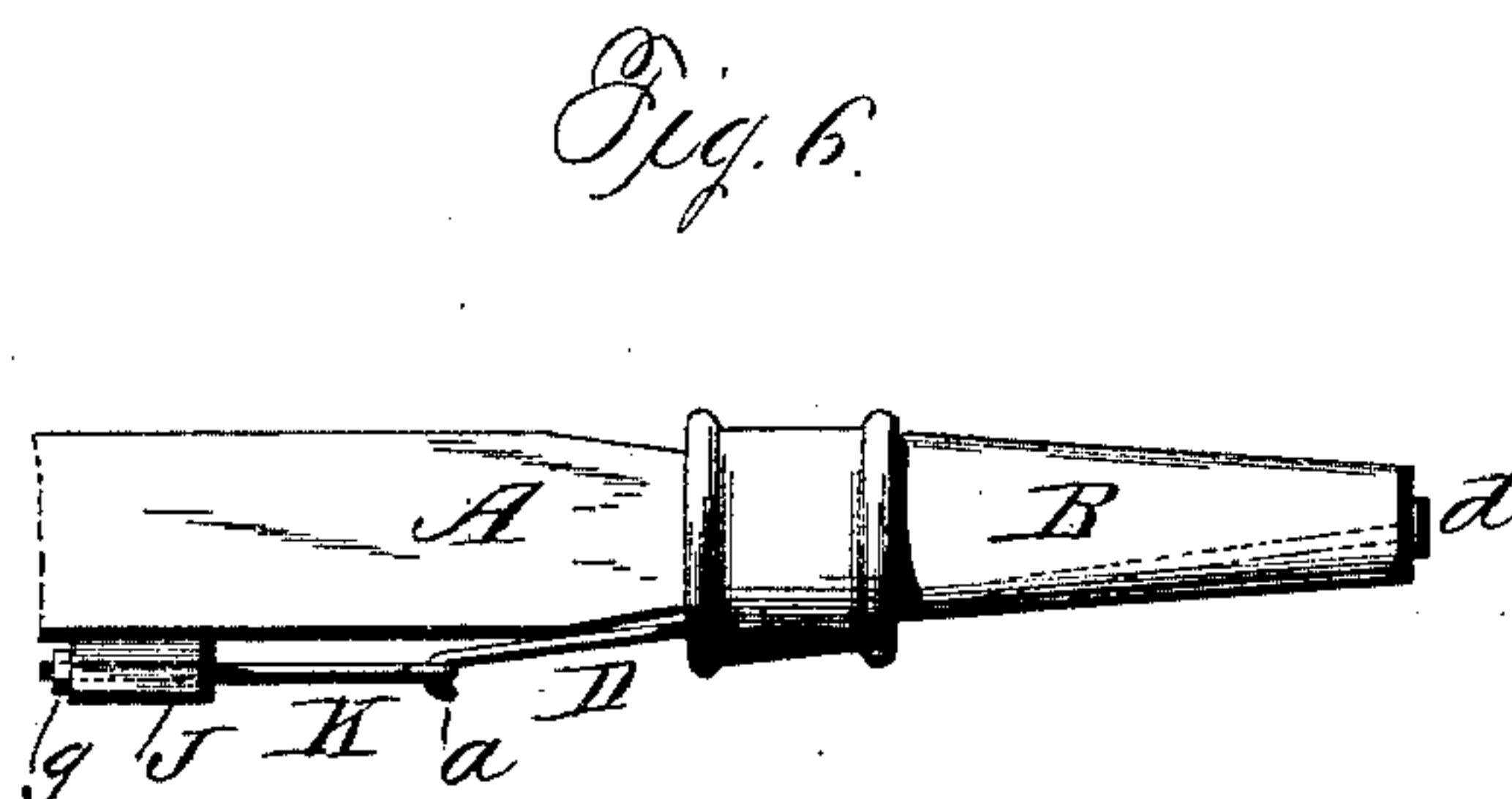
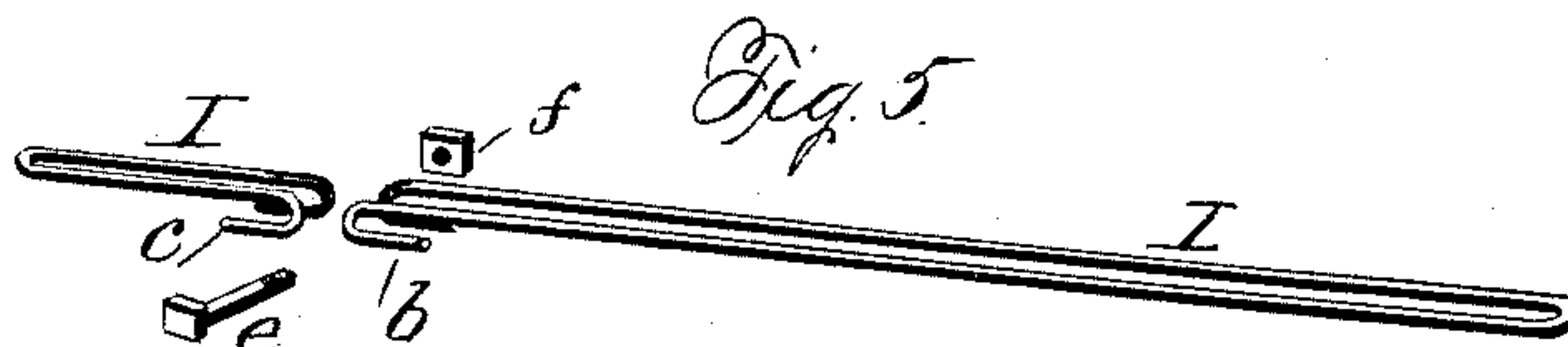
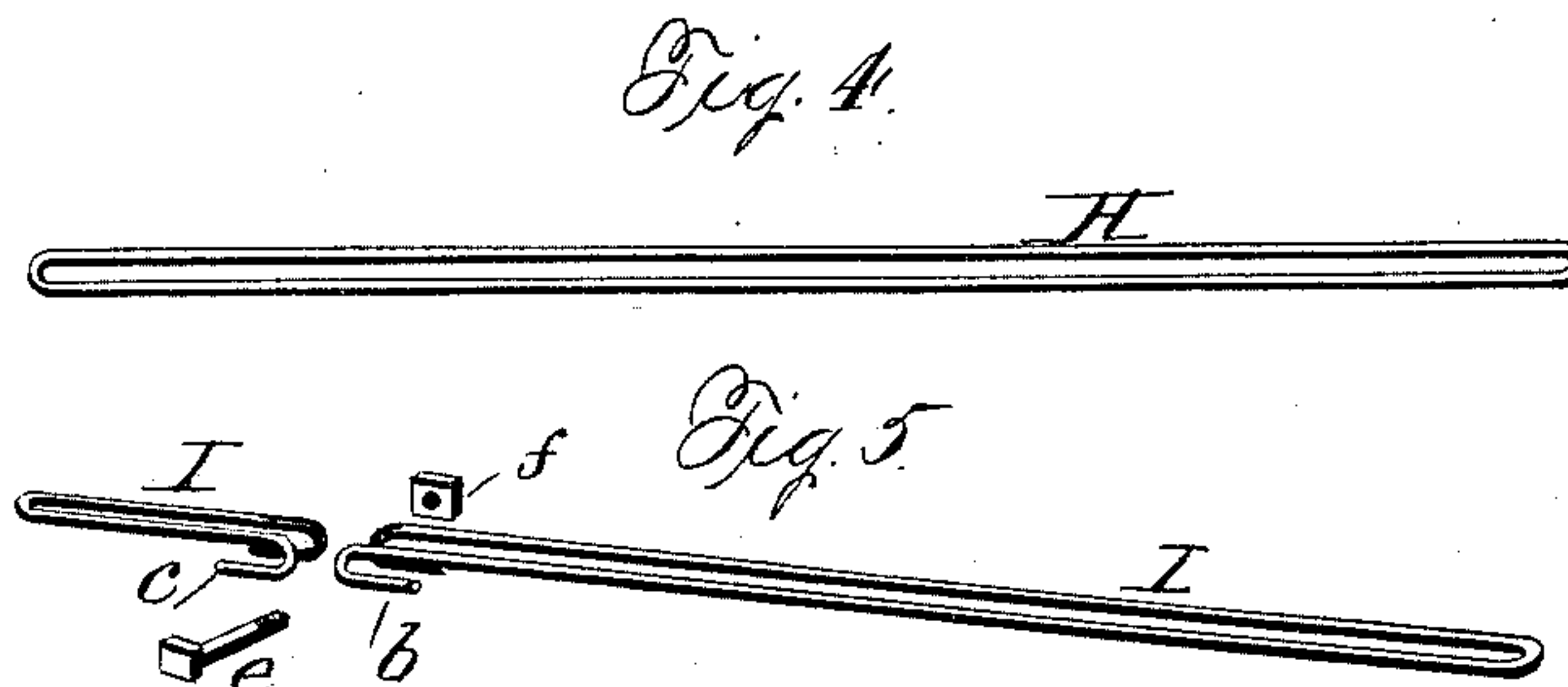
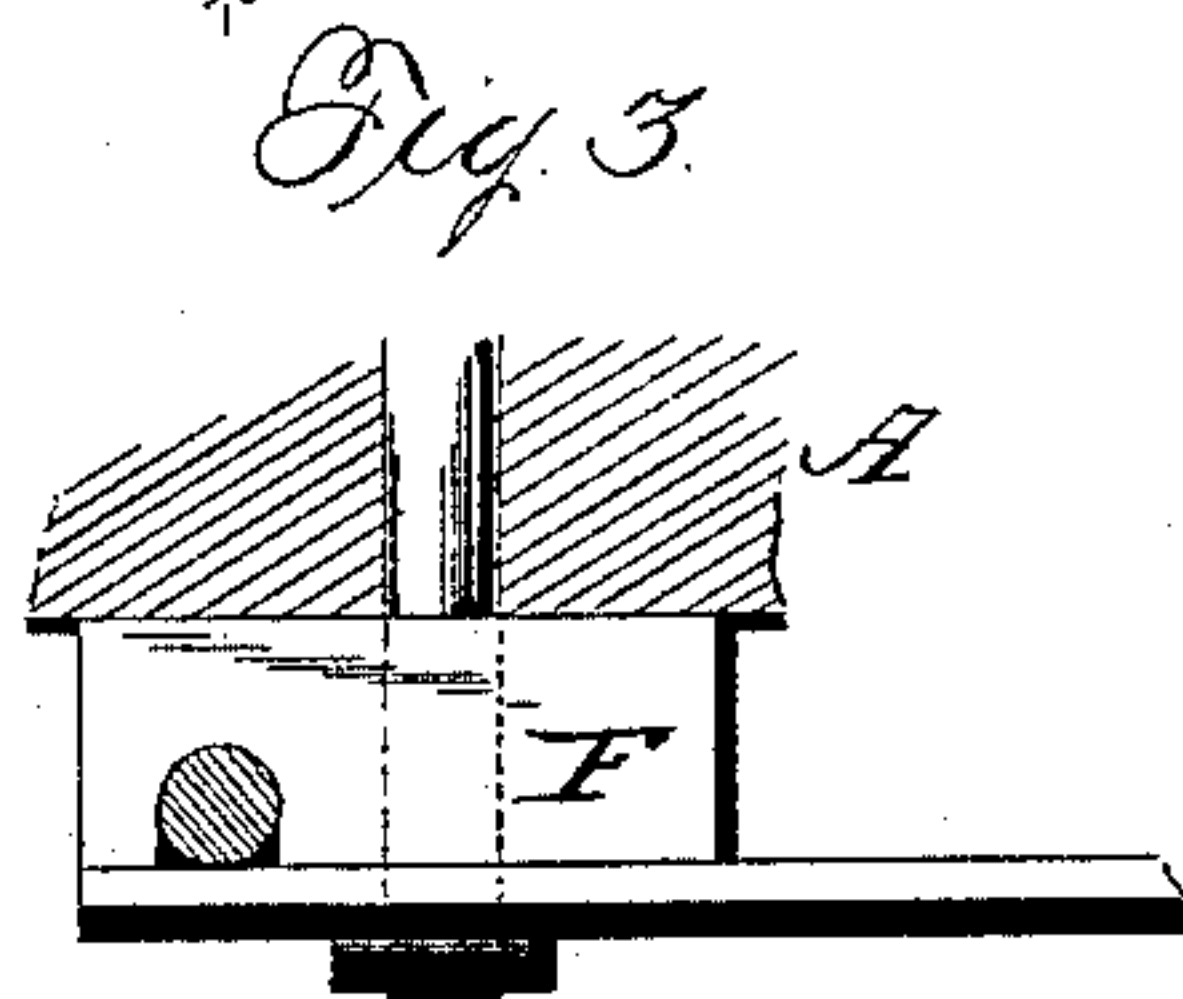
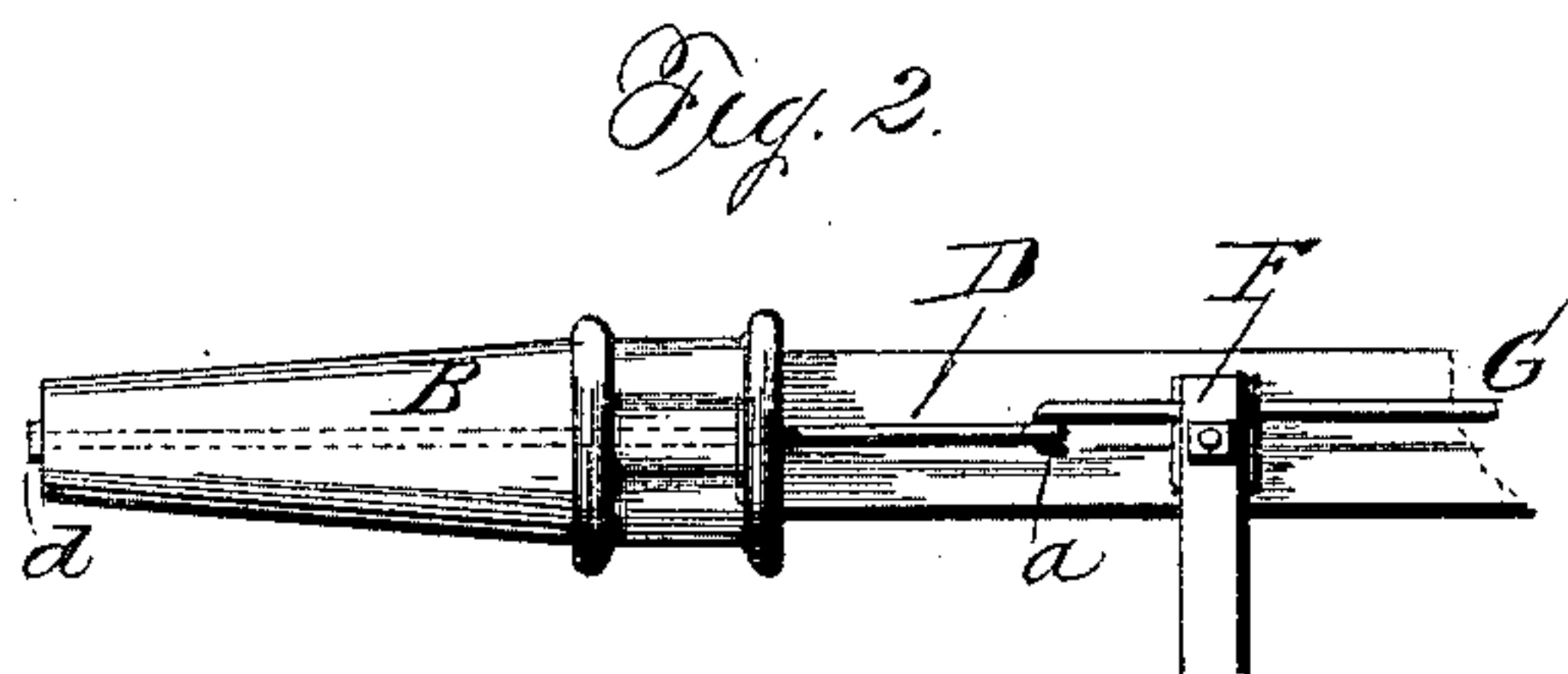
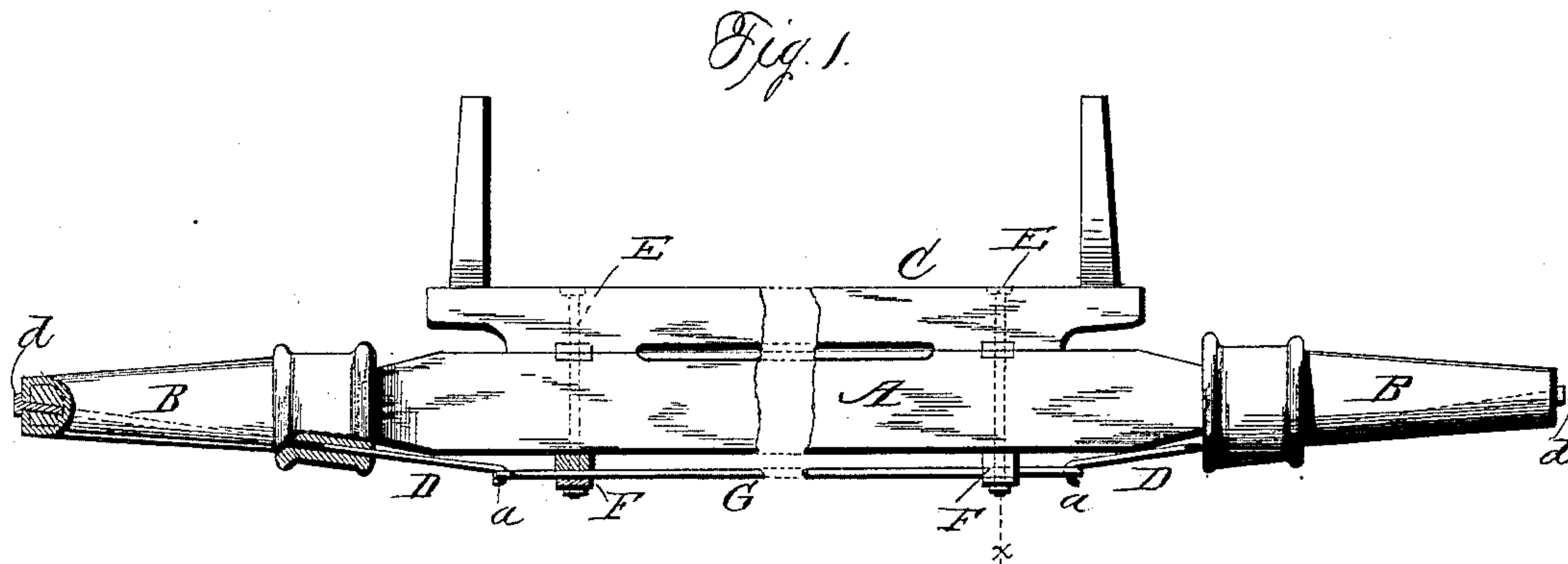


(No Model.)

F. ULRICH.
VEHICLE AXLE.

No. 424,585.

Patented Apr. 1, 1890.



Witnesses
Chas. Williamson.
E. H. Bond.

Inventor
Frederick Ulrich.
per Chas. H. Fowler.
Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK ULRICH, OF PERU, INDIANA.

VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 424,585, dated April 1, 1890.

Application filed August 26, 1889. Serial No. 321,949. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK ULRICH, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Wagon-Trusses; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in trusses, designed more particularly for wagon-axles, and I therefore have shown it in this connection in the drawings; but I wish it understood that by such showing I do not intend to restrict myself to such use.

The invention consists in the peculiar combinations and the construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the appended claim.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side view of a wagon-axle, showing my improvements with parts broken away. Fig. 2 is a bottom plan of a portion of the same. Fig. 3 is a section on the line *x* of Fig. 1. Fig. 4 is a perspective view of one form of truss. Fig. 5 is a like view of a two-part truss with the bolt and nut for attaching the same shown disconnected. Fig. 6 is a side elevation showing a modified form of truss and connection to the axle. Fig. 7 is a similar view of another form.

Referring to the details of the drawings by letter, A designates an axle, B the skeins, and C the bolster, all of any approved construction, except as hereinafter specified.

D is a rod formed with an integral head *d*, as shown best in Fig. 1, and this rod passes through the skein, starting from the center thereof at the outer end and inclined downward, as shown, so that in leaving the skein it passes under the axle, where it terminates in a hook *a*. The skein is somewhat enlarged upon its under side to provide a groove,

through which the said rod passes. There is a like rod at each end of the axle. The integral heads of the rods bear against the outside of the heads of the skeins, as shown. 55

E are vertical bolts which pass through the bolster, hounds, and axle, and through and serve to secure to the under side of the axle the blocks F, as shown clearly in Fig. 1. The hound-straps are also secured in place by these bolts, as shown best in Fig. 3. Through these blocks passes the central truss portion, which may be in the form of a rod, as shown at G in Fig. 1, with each end formed into a hook engaging the hooks of the rods D, or it may be in the form of a link, as shown at H in Fig. 4, the end bends in the link engaging the hooked ends of the rods D; or, instead of the form of link shown in Fig. 4, I may sometimes employ a two-part link, as shown at I 65 in Fig. 5, each part having its closed ends engaging the hooked ends of the rods D and the hooks *b* and *c* forced past each other and being arranged in reverse directions, as indicated in Fig. 5, and a transverse bolt *e* passed 75 between the hooks and then provided with a nut *f*, as shown in said figure. These hooks or loops are bent and the bolt inserted while the rods are hot, and the contraction of the rods incident to the cooling increases their 80 tension on the hooks of the rods D.

In Fig. 6 I have shown a block J attached to the under side of the axle, and to this block is fixedly secured in any suitable manner one end of a rod K, the other end of which is hooked to engage the hooked end of the rod D, as shown in said figure. The inner end of this rod K is provided with a nut *g*, by which the parts may be tightened when desired. 90

In Fig. 7 is shown still another form, wherein the longer rod L has hooked ends or may be a link similar to that shown in either Fig. 4 or 5, and the space between the ends of this rod and the hooked ends of the rods D traversed by short rods or links M, as shown. This rod L is placed in position while hot, and the contraction incident to cooling increases the tension. 95

By the above construction I not only strengthen the axle, but the skeins, the weight of the load coming against the end of 100

the axle instead of on the shoulder of the skein.

What I claim as new is—

The combination, with the axle and skeins,
5 of truss-rods passed through said skeins in an inclined direction and a two-part link joining the inner ends of said rods and formed with oppositely-arranged hooked ends, and a transverse bolt passed through said hooks

and joining the two parts, substantially as is shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK ULRICH.

Witnesses:

NOTT M. ANTRIM,
JULIETT WHITE.