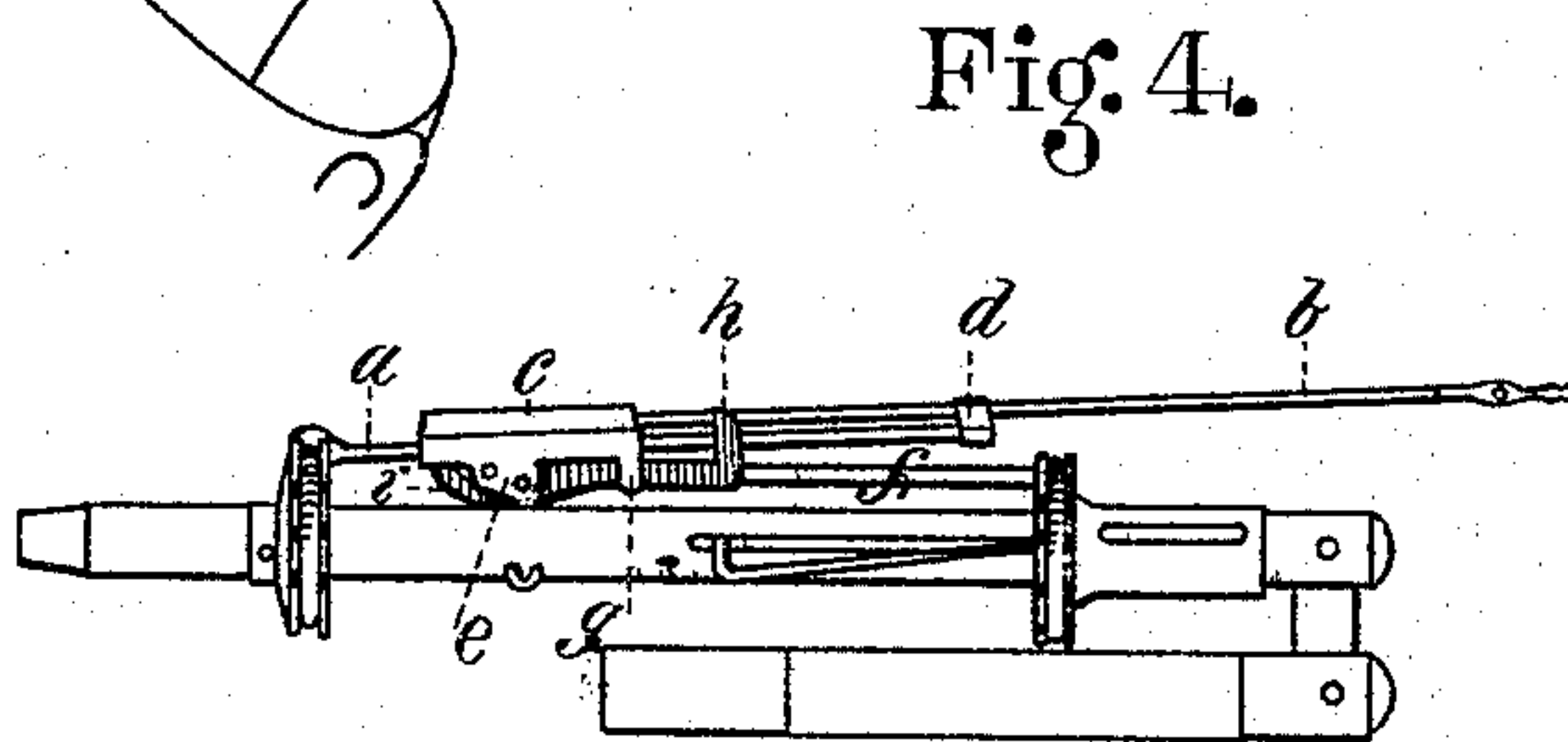
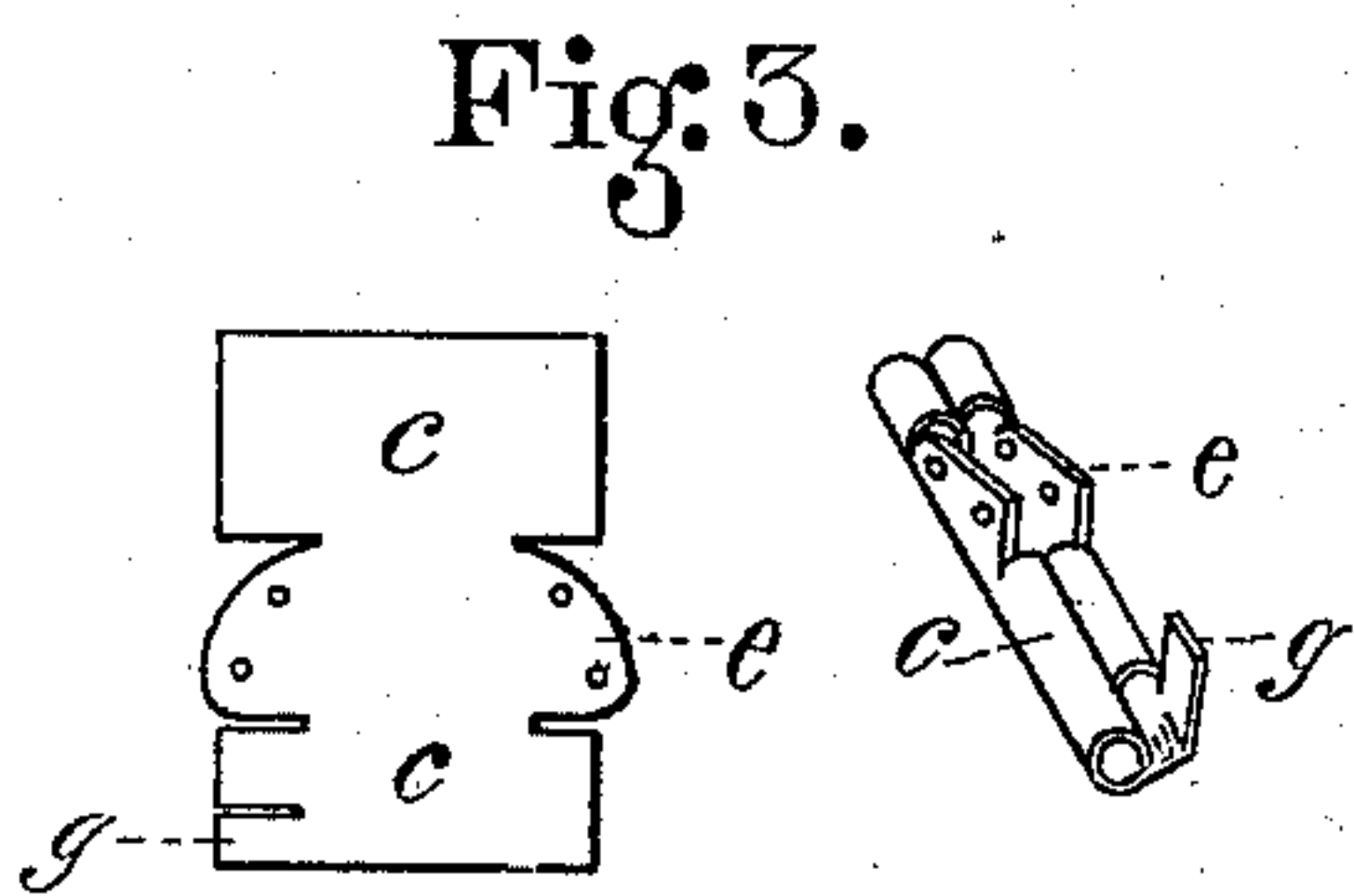
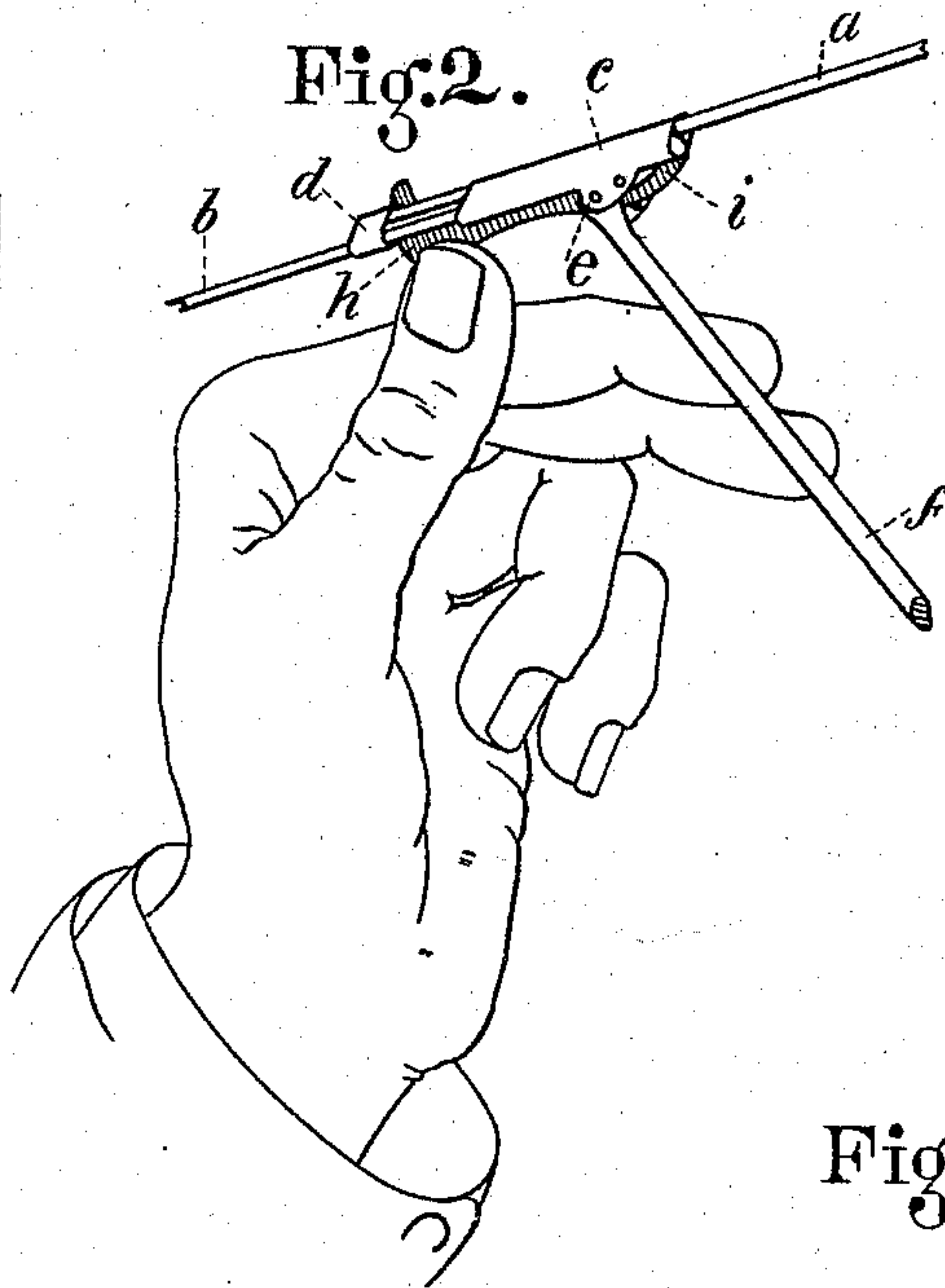
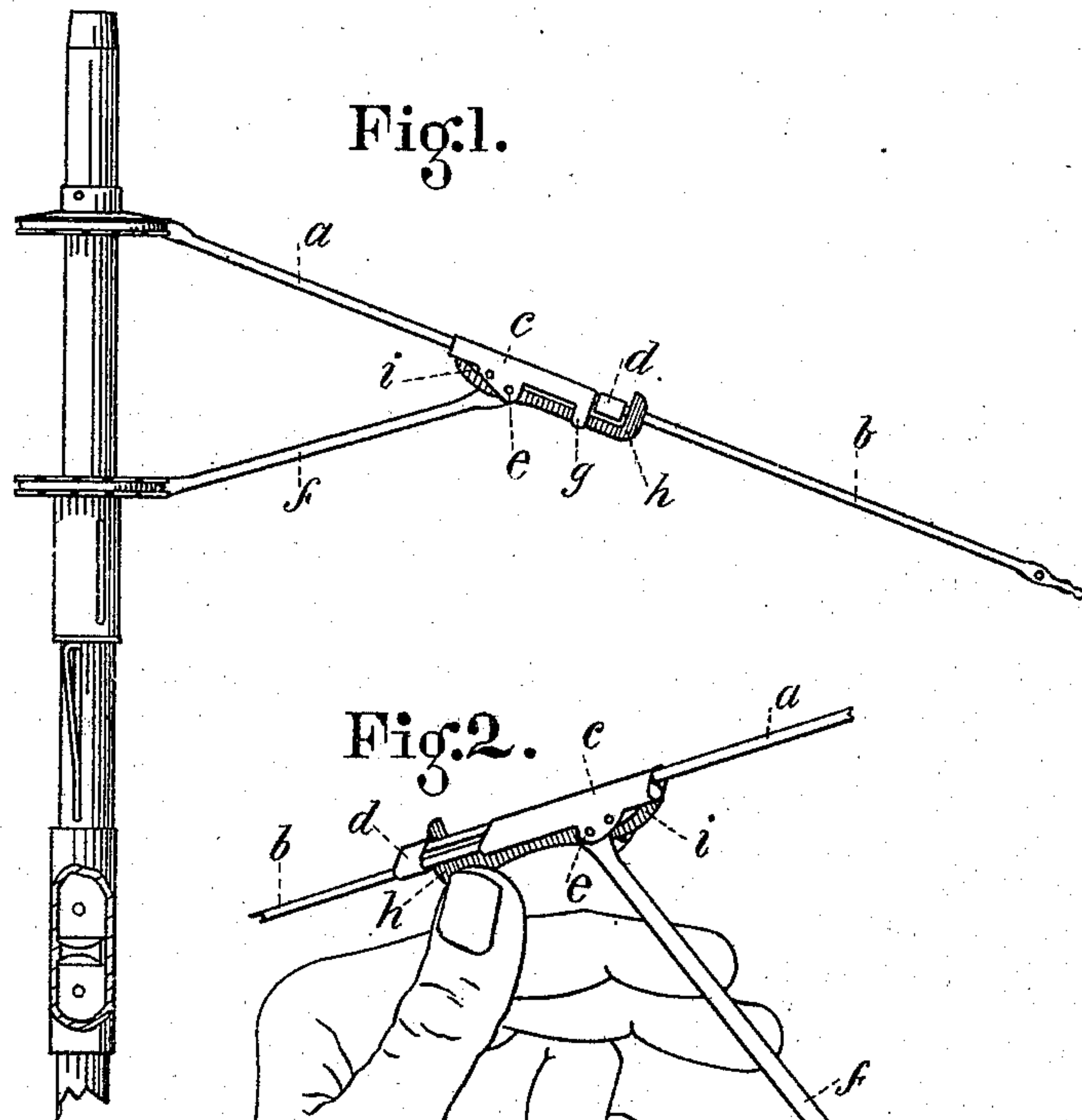


A. B. SHAW.  
FOLDING-UMBRELLA.

No. 182,233.

Patented Sept. 12, 1876.



Witnesses:  
C. G. Hayes.  
E. A. Phelps.

Inventor:  
A. B. Shaw  
Per R. S. Spencer,  
Atty.



# UNITED STATES PATENT OFFICE

AI B. SHAW, OF MEDFORD, MASSACHUSETTS.

## IMPROVEMENT IN FOLDING UMBRELLAS.

Specification forming part of Letters Patent No. 182,233, dated September 12, 1876; application filed July 28, 1876.

*To all whom it may concern:*

Be it known that I, AI B. SHAW, of Medford, Middlesex county, Massachusetts, have invented certain Improvements in Folding Umbrellas, of which the following is a specification:

My improvements relate to the formation of the clasps or slides, which constitute the joints, whereby the ribs of umbrellas are folded or shortened, and to the employment of a spring-hook in connection with the joints of folding umbrellas.

My invention consists in a rib in two or more parts, united by clasps or slides formed of sheet metal, the sides folded inward, as shown, so that each side shall embrace one of the parts of which the rib is composed, one of the slides having, at its edges, raised flanges to receive the end of the stretcher and its rivet.

My invention also consists in a rib in two parts, in combination with a flat metal spring-hook, elastic in one direction and rigid in another, to permit or prevent folding at the joint with which it is connected.

My invention further consists in the combination of the spring and divided rib of a folding umbrella, with a stop to check any undue strain upon the spring.

In the drawing, Figure 1 is a side view of the clasps and hook, showing the rib fully extended. Fig. 2 is a reversed view, in perspective, showing the preferred method of disengaging the spring-hook. Fig. 3 shows the blank for the clasp *c*, and the same formed ready for use. Fig. 4 represents my improved umbrella folded.

I form the ribs of my umbrella in two or more parts, *a b*, united by means of the clasps *c d*, the clasp *d* being firmly secured to the outer end of the part *a*, and permitting the part *b* to slide freely through it, while the clasp *c* is fastened to the inner end of the part *b*, and slides freely along the rib *a*. I thus shorten the rib by sliding the part *b* up beside the part *a*, as shown in Figs. 4 and 2.

The clasp *c* is formed preferably of sheet-brass, struck out in a die, and bent about as shown in Fig. 3. The opposite edges are turned inward and arranged to clasp the rod

*b* closely, and slide freely upon the rod *a* to facilitate the folding. Two flanges, *e e*, are formed, one at each side, which stand out to receive between them the stretcher *f*, pivoted thereto through the central holes. The holes nearest the upper end of the clasp receive the thread which secures the covering at that point. A projection, *g*, is also formed with the clasp *c* to act as a stop for the spring, yet to be described. The clasp *d* will be understood without detailed description. The ribs *a b*, united by the slide-clasps *c d*, being extended to their full length, as in Fig. 1, are held in this extended position by means of the spring-hook *h*, which is secured between the stretcher and the flange *e* by the stretcher-rivet. Hence, it controls the movements of the slide *c*. The outer end of the hook protrudes sufficiently to engage with the end of the rib *a*, or the clasp *d* fixed thereon, and so long as this engagement exists the part *a* and *b* cannot fold or slide into position side by side. The hook is kept from dropping downward, and thus becoming disengaged, by the shoulder *i* at the other end, which bears against the under side of the slide *c*. The hook is rigid in the direction of its length and width, but elastic in the line of its thickness, so that it may be sprung to one side to disengage it from the clasp *d*. A stop, *g*, preferably formed integral with the clasp *c*, limits this side movement of the spring-hook, and protects it from injury. The stop acts as a guard, which prevents pressing the hook so far to one side as to permanently set the spring or break it off where attached to the rib.

When the hooks of the several ribs are each engaged with the clasps *d* the umbrella may be repeatedly opened and closed like an ordinary one—the ribs retaining their full length. When it is desired to fold it to half-length, the umbrella is partially opened and each spring-hook is disengaged from the clasp *d* by pressing it slightly backward and upward—most conveniently by the left hand, as shown in Fig. 2. The umbrella is then closed loosely, and the lower half *b* of the several ribs, with the covering attached, will slide freely up beside the upper half *a*. The covering is stitched to the outer end of the ribs *b*

in the usual way, to clasp *c* through holes in the flanges *e*, and to rib *a* at the apex. The stick is jointed in the ordinary manner.

To open the umbrella, after it has been folded, the ribs are to be drawn down together to their full length, when each spring-hook will catch over its clasp *d*, and the article will be ready for use.

I claim as of my invention—

1. The extension-rib *a b*, united by the sheet-metal clasps or slides *c d*, the clasp *c*, having the flanges *e* formed thereon, substantially as and for the purposes set forth.

2. The extension-rib *a b*, slides *c d*, and spring-hook *h*, held in position by the stretcher-rivet, and operating substantially as set forth.

3. In a folding umbrella, the rib in two parts, in combination with a spring and a stop for the spring, limiting its movement at a given point, substantially as and for the purposes set forth.

AI B. SHAW.

Witnesses:

J. R. WIDGER,

A. H. SPENCER.