

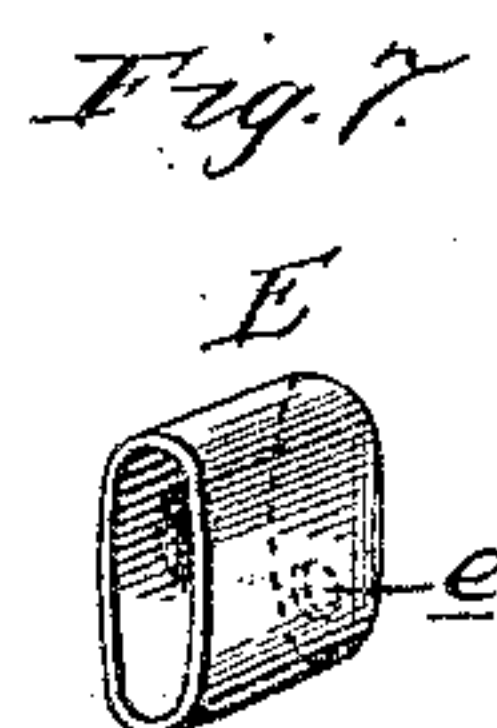
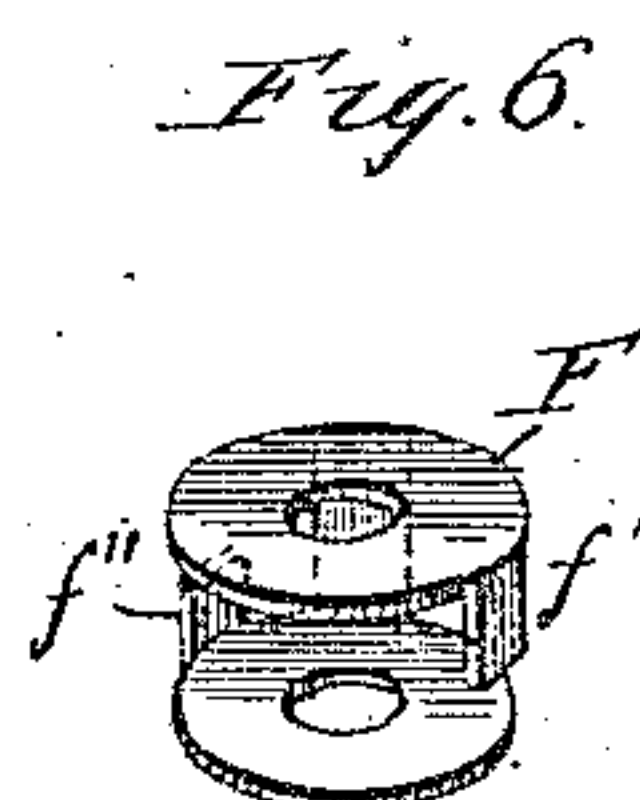
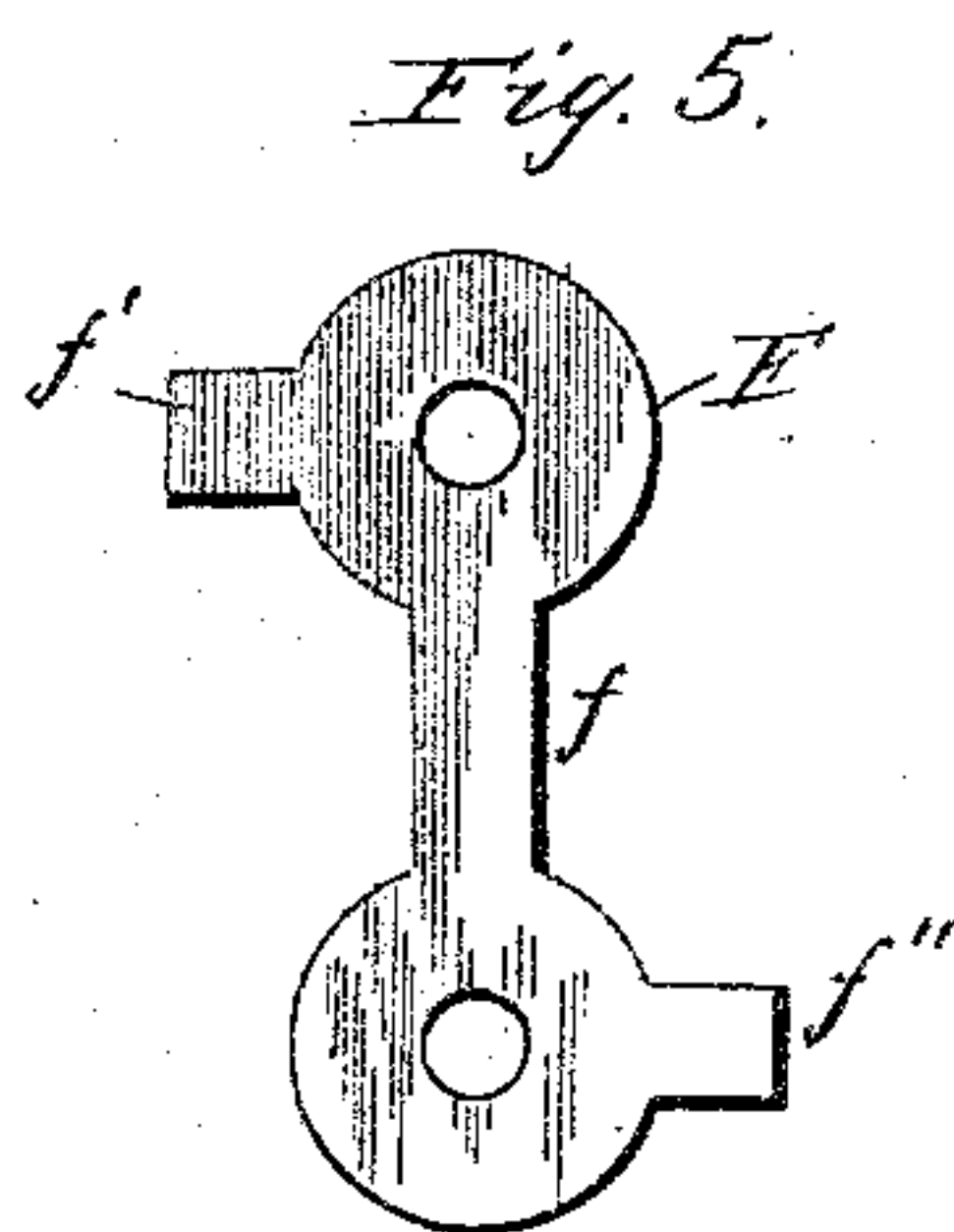
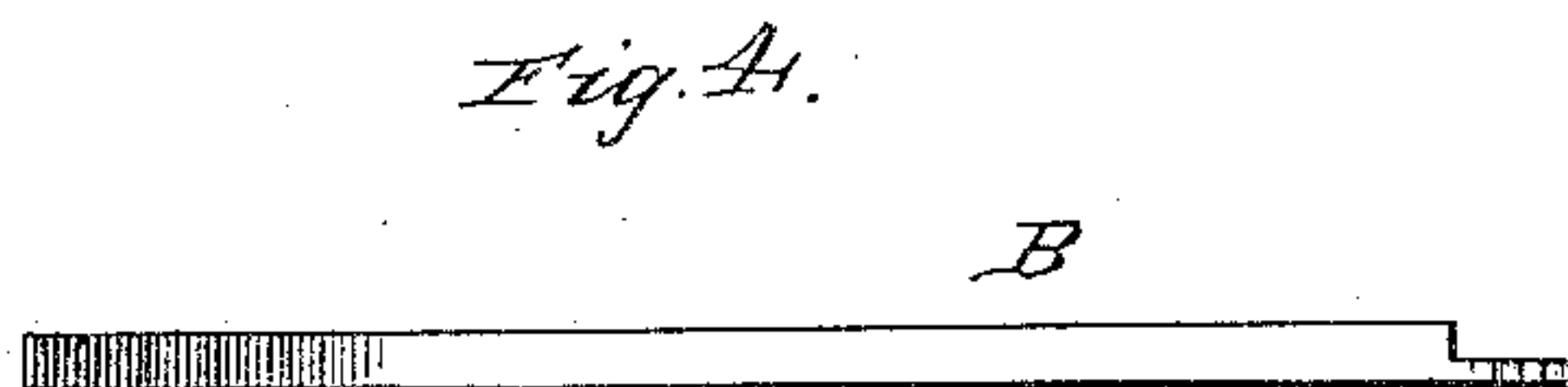
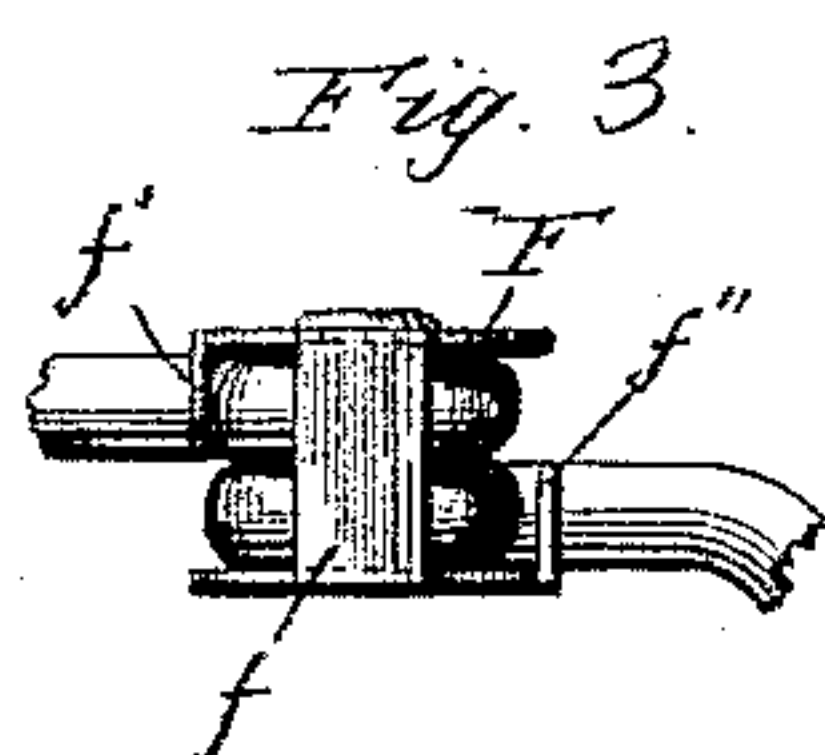
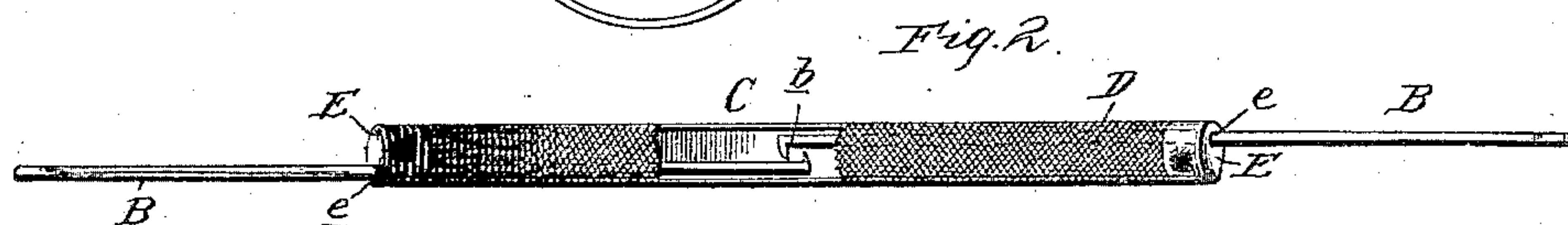
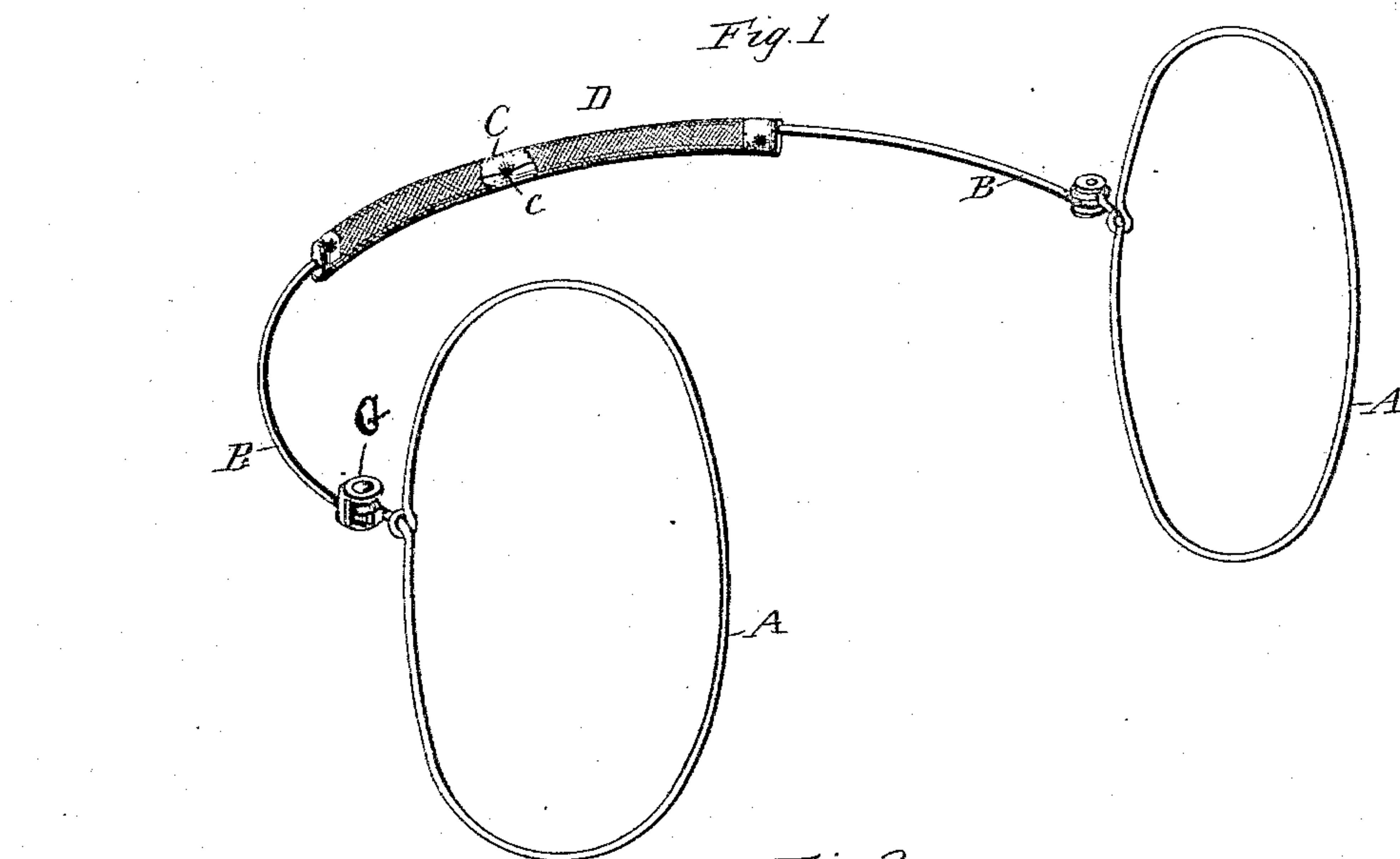
(No Model.)

I. B. KLEINERT & R. C. MANVILLE.

EAR MUFF.

No. 381,559.

Patented Apr. 24, 1888.



Isaac B Kleinert.
Robert C Manville.

INVENTORS

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WITNESSES:

W. J. Robertson.

UNITED STATES PATENT OFFICE.

ISAAC B. KLEINERT, OF NEW YORK, N. Y., AND ROBERT C. MANVILLE, OF WATERBURY, CONNECTICUT; SAID MANVILLE ASSIGNOR TO SAID KLEINERT.

EAR-MUFF.

SPECIFICATION forming part of Letters Patent No. 381,559, dated April 24, 1888.

Application filed December 15, 1887. Serial No. 257,977. (No model.)

To all whom it may concern:

Be it known that we, ISAAC B. KLEINERT and ROBERT C. MANVILLE, both citizens of the United States, the former residing in the city, county, and State of New York, and the latter at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Ear-Muffs, of which the following is a specification, reference being had therein to the accompanying drawings.

Our improvement relates more particularly to that class of ear-muffs in which the ear-loops are hinged to slides which are inclosed in a tube; and the invention consists in the peculiar construction and arrangement and combinations of parts, hereinafter described, and then definitely pointed out in the claims.

In the accompanying drawings, which illustrate what we consider the preferable form of our invention, Figure 1 represents a perspective view of our improvement in its open condition. Fig. 2 is a view of the tube and slides with parts represented as broken away. Fig. 3 is a view of the joint between the slide and the ear-loop. Fig. 4 represents a slide of a different form detached. Fig. 5 is a plan of the blank from which is formed the double washer of the hinge. Fig. 6 is a perspective view of the double washer detached, and Fig. 7 is a similar view of a cap serving the double purpose of a guide for the slide and to protect the end of the textile or other covering surrounding the tube.

All of these views except the first are on a much enlarged scale.

Referring now to the details of the drawings, A A represent ear-loops, of any convenient material, pivoted to slides B B, which are inclosed in a tube, C, made in any convenient manner and of any suitable material, but preferably of sheet-brass or from brass tubing flattened and bent to shape. The inner ends of these slides are bent, as shown at *b*, so that when these ends come together, or nearly so, as shown in Fig. 2, they form stops and prevent the slides being drawn entirely out.

Surrounding the tube is a covering, D, of some textile material, preferably of braided mohair, and at the opposite ends of the tube

are caps E E, each having a hole, *e*, in its extreme end, through which one of the slides passes. This cap is passed over the outside of the covering D and holds it in place on the tube, thus performing the double function of protecting the end of the textile covering and forming a guide for the slide. The joint between the slides and ear-loops is made by forming the end of each into a loop and inclosing the same in a double washer, F, through which is passed a rivet, G. These double washers are formed from blanks of the shape shown in Fig. 5, having a neck, *f*, and stops *f'* *f''*, so that when bent into shape the blank will become a double washer connected together at *f*, and having stops *f'* *f''* projecting in opposite directions, as shown in Fig. 4.

In lieu of slides made of round wire we sometimes use flat wire for this purpose, in which case it will be found preferable to make them of wire of the width of the inner longest diameter of the tube and set their flat sides together so as to lap each other. Their ends may be bent to form stops, or any other suitable means may be used to prevent their coming out of the tube accidentally.

It will be seen that by the construction shown an ear-muff frame is produced that is not only cheaply made, but is durable and will fold into small space.

By the use of the double washers the parts of the hinge are firmly secured together, and the stops *f'* *f''* on the washers serve to limit the movement of the ear-loops and keep them in their proper place, for the stop *f'* will come in contact with the slide, while the pivoted part of the ear-loop will come in contact with the stop *f''*.

In some cases we may make the neck *f* in the position shown in dotted lines in Fig. 6, in which case it will serve the purpose of one of the stops.

The caps E may be secured in any convenient manner. We have found it to be a cheap yet good way to drive a punch into the body of the cap, and thus force a portion of the metal of the cap into a depression in the tube, and both cap and tube are in this manner securely fastened together. After the parts are put together, and to prevent one of the

slides being drawn out farther than the other, we usually make a deep depression in the tube C, as shown at *c* in Fig. 1, which will prevent either slide from moving more than half its length out of the tube. This, though important, is not absolutely necessary.

What we claim as new is—

1. The combination, with the slide and ear-loop of an ear-muff, of a double washer having its opposite portions connected by a neck at one side of the same and embracing and securing together both slide and loop, and a pivot passing through the double washer, the slide, and loop, substantially as described.

2. The combination, with the slide and loop of an ear-muff, of a double washer provided with stops to hold the loop in its proper position and the pivot passing through the double washer, the slide, and loop, substantially as described.

3. The combination, with a tube, C, of two slides lapping over each other, each having a hook formed on its end to act as a stop and prevent its leaving the tube, the hook on one side having its end pointing in a direction opposite to that on the other, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ISAAC B. KLEINERT.
ROBERT C. MANVILLE.

Witnesses to the signature of Isaac B. Kleinert:

JOS. S. MICHAEL,
ROBT. AVERY.

Witnesses to the signature of Robert C. Manville:

WILLIAM DUNCAN,
CHAS. F. MAST.