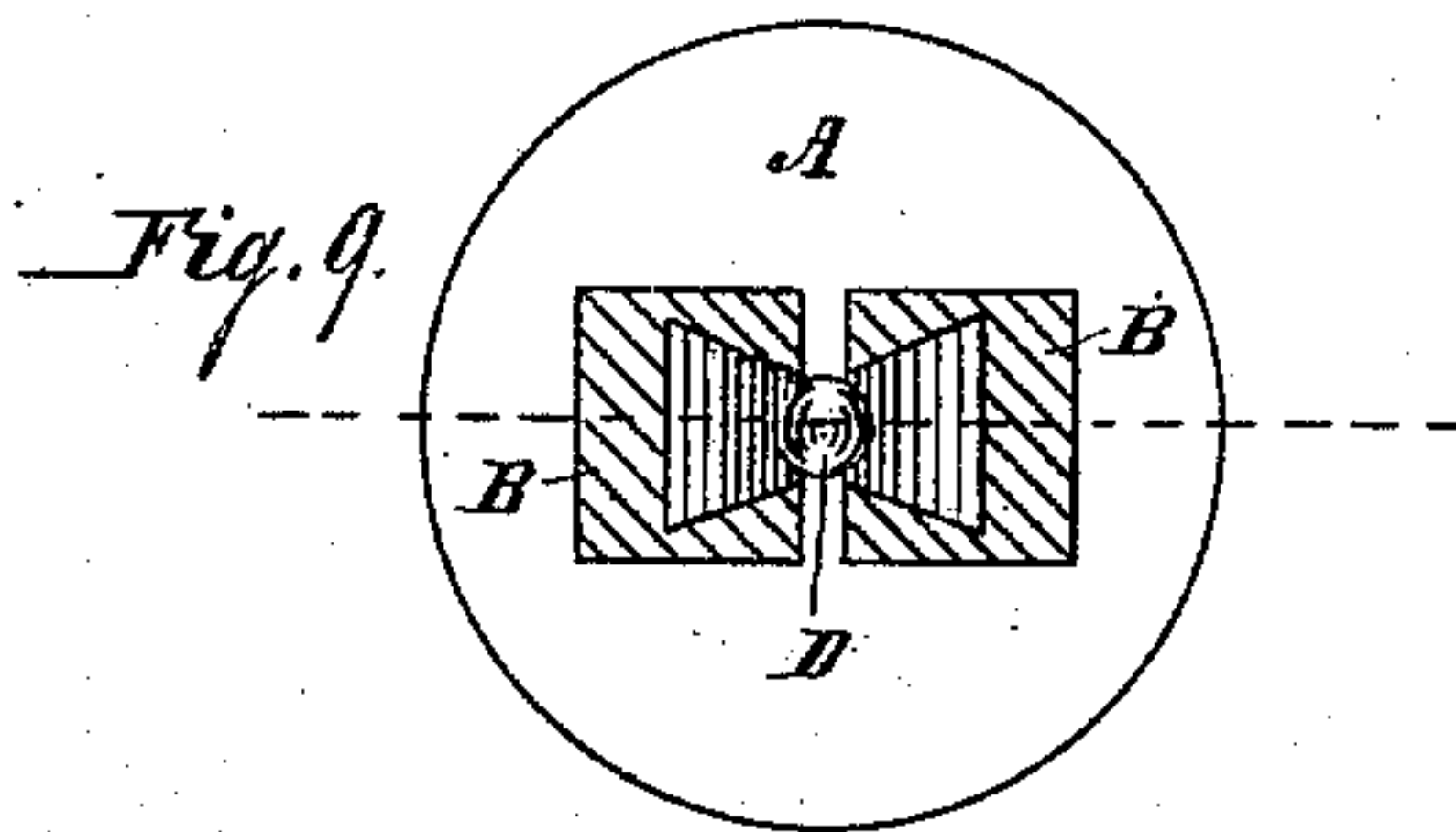
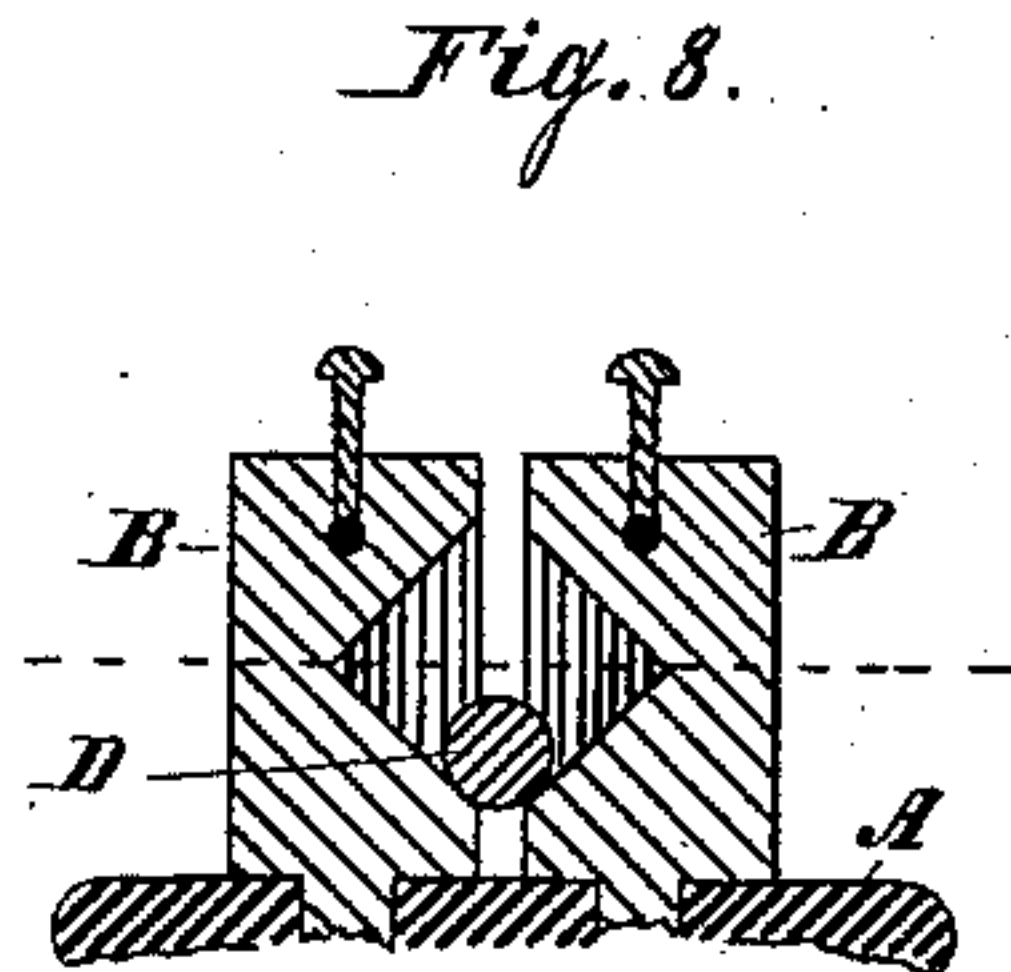
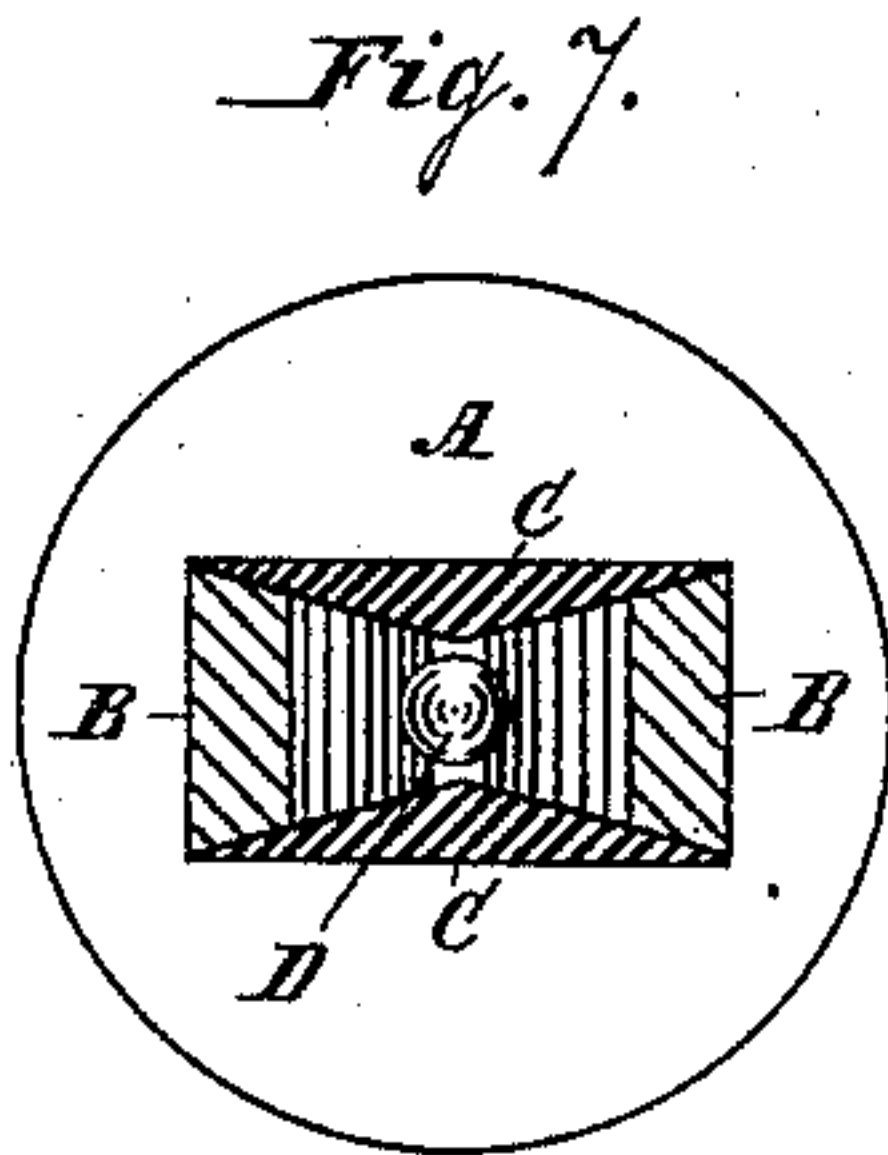
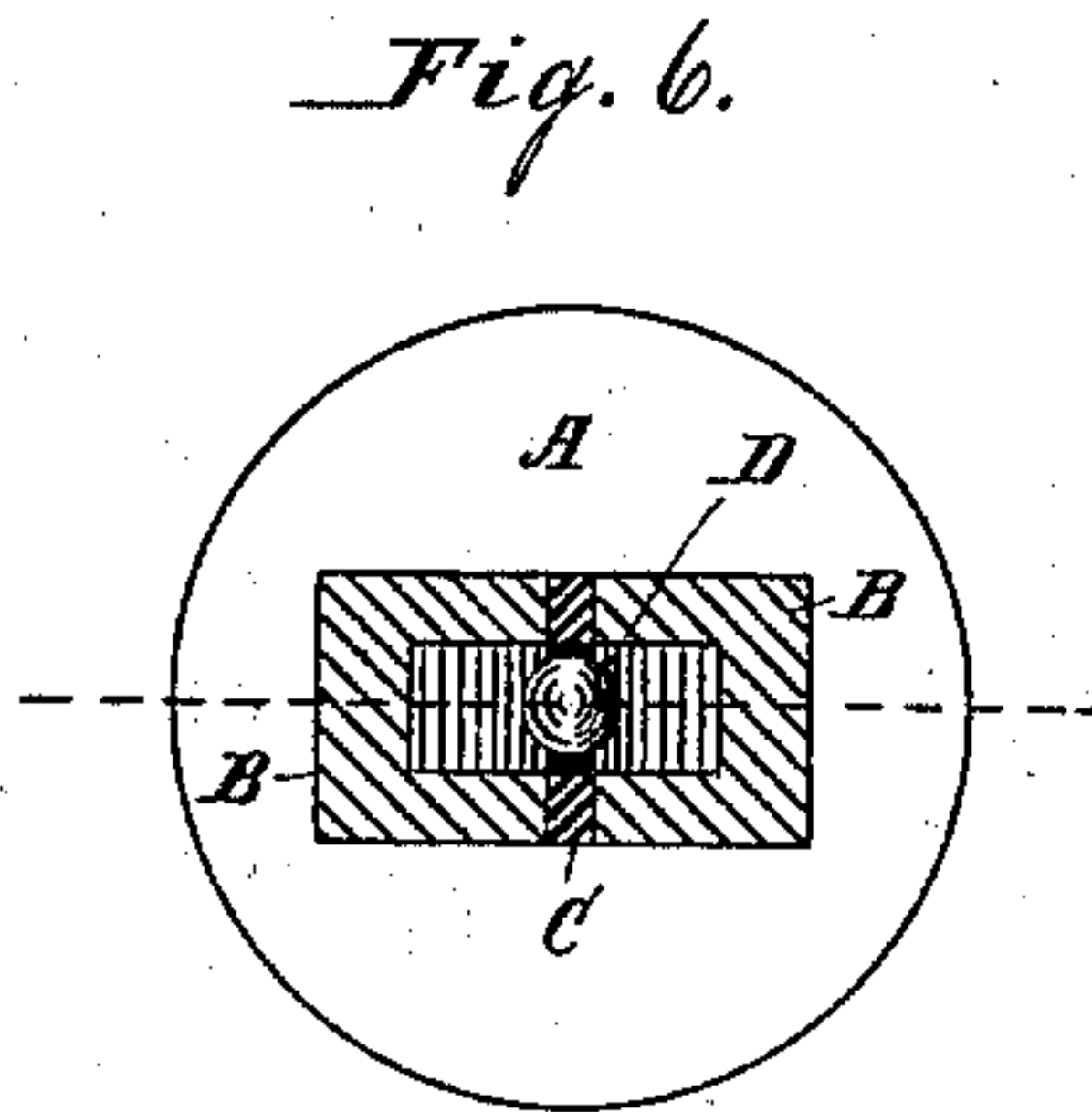
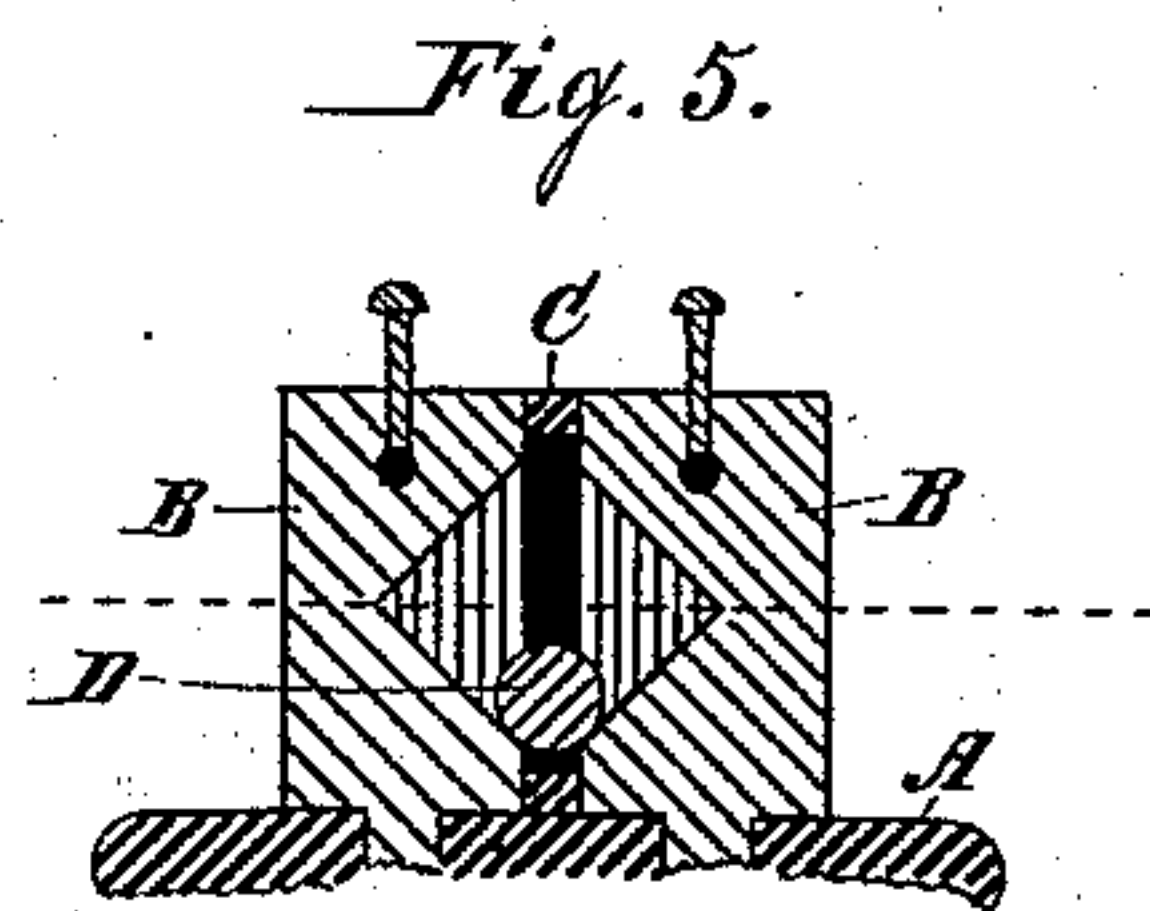
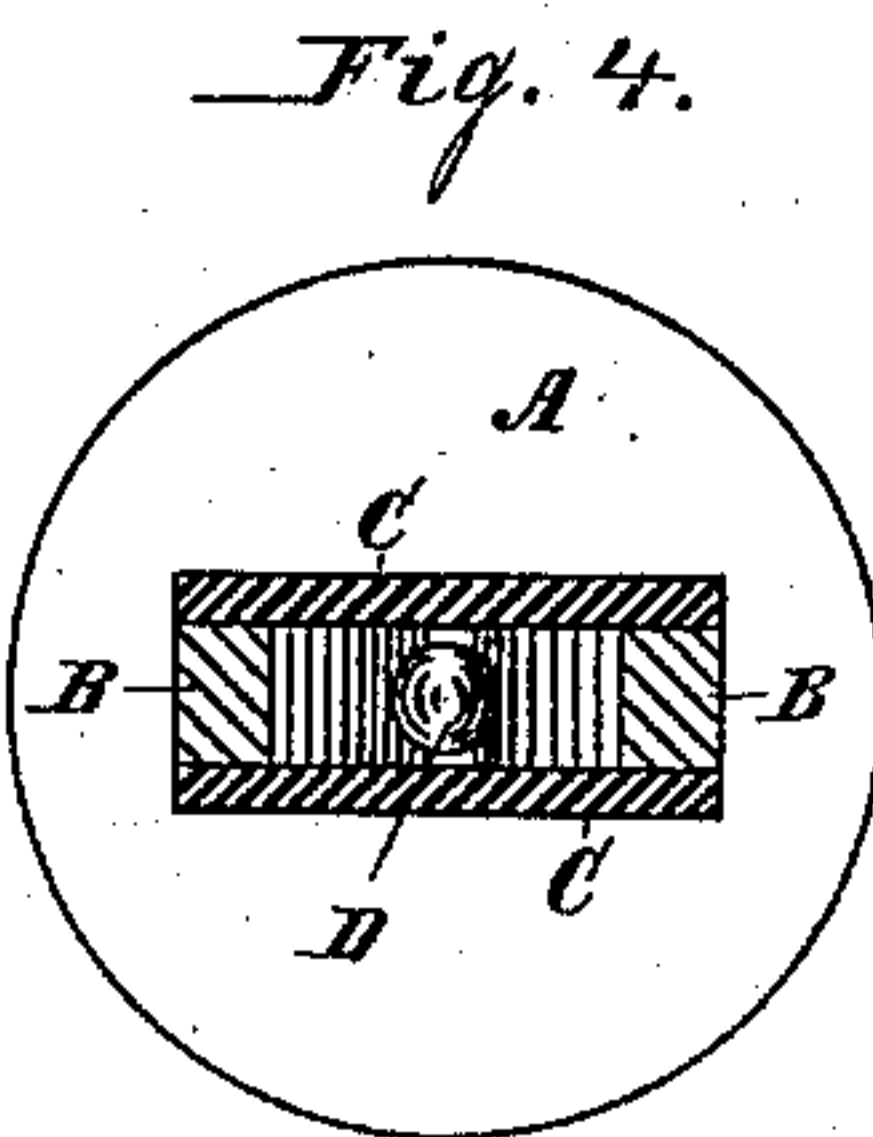
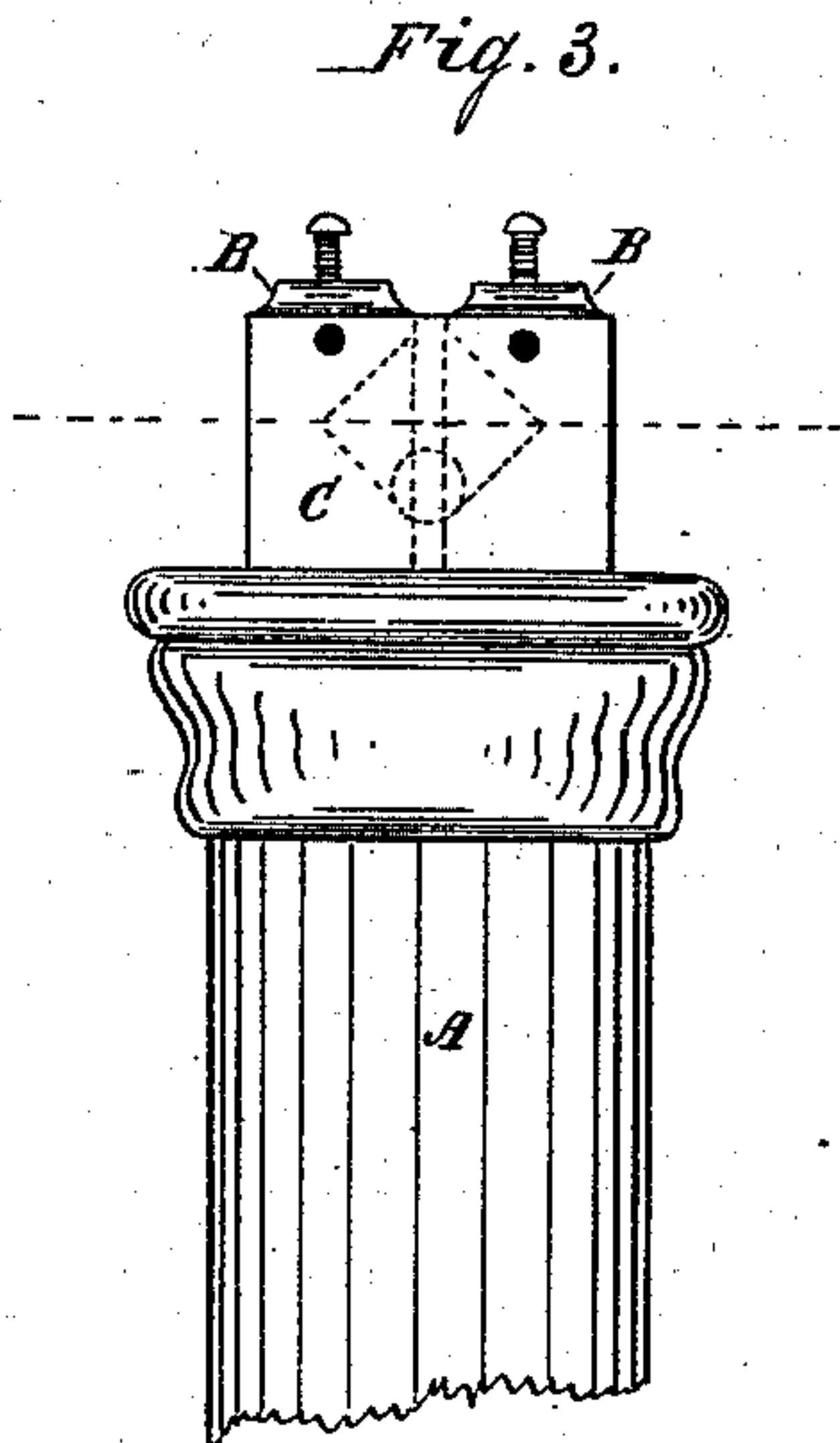
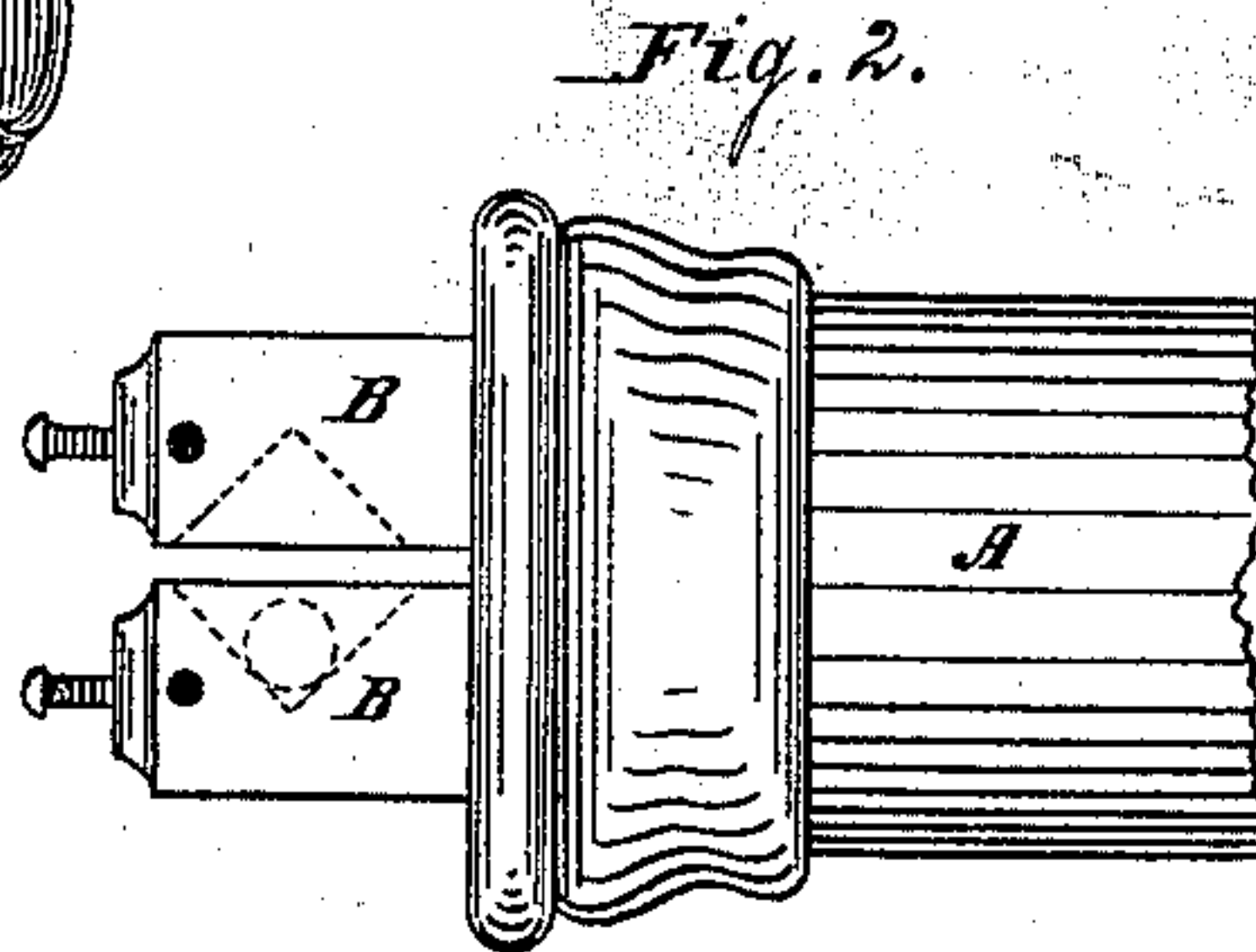
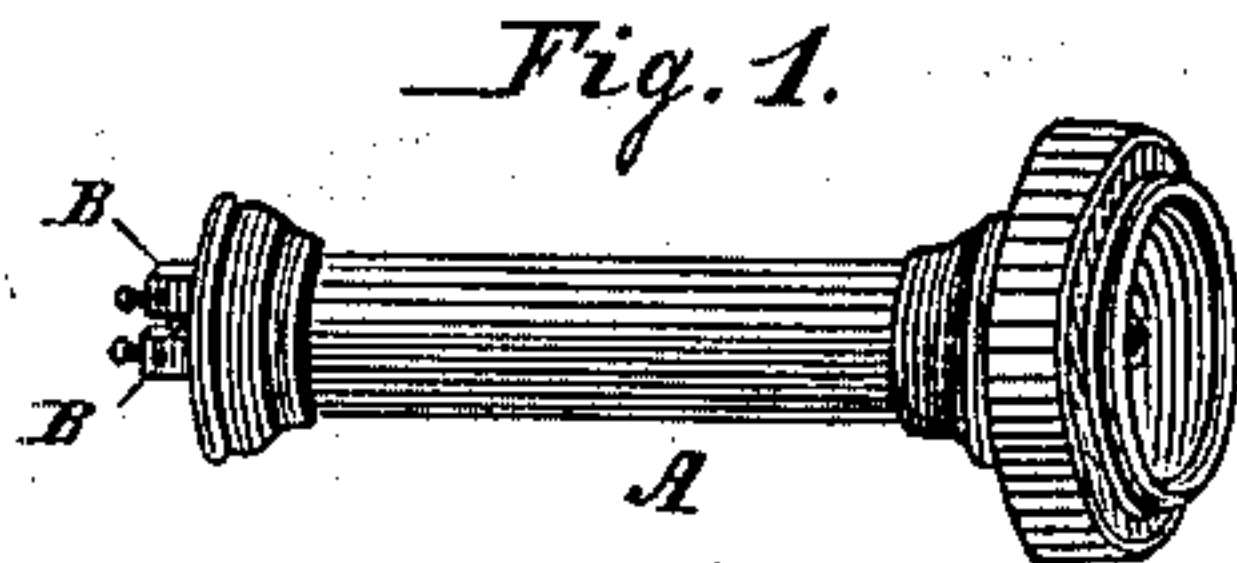


(No Model.)

E. T. GILLILAND.

Combined Telephone and Automatic Switch.  
No. 237,971. Patented Feb. 22, 1881.



WITNESSES.

James B. Linius.  
R. P. Daggett.

INVENTOR.

Ezra T. Gilliland,  
PER  
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ATTORNEY.



# UNITED STATES PATENT OFFICE.

EZRA T. GILLILAND, OF INDIANAPOLIS, IND., ASSIGNOR TO THE AMERICAN BELL TELEPHONE COMPANY, OF BOSTON, MASS.

## COMBINED TELEPHONE AND AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 237,971, dated February 22, 1881.

Application filed September 6, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, EZRA T. GILLILAND, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Combined Telephone and Automatic Switch, of which the following is a specification.

The object of my said invention is to produce a telephone that will automatically "make" an electrical short circuit, thus cutting out the telephone from the main line or call-signal apparatus, when not in use, and "break" the same when put in use, thereby dispensing with the gravity-switch now ordinarily employed in connection with telephones, and all other devices of like character or purpose. This object is accomplished by constructing two metal posts upon the telephone, (which, preferably, also serves as binding-posts,) which are indented or notched out, as shown, and inserting in the cavity formed by the indentations a metallic ball, which will roll into contact with both posts when the telephone is in vertical position, as when out of use and hanging up, but which will also roll so as to be electrically separated from one of said parts when the telephone is in a horizontal or approximately horizontal position, as when in use, all as will hereinafter be more particularly explained.

Referring to the accompanying drawings, (in which where insulating material is employed it is indicated by heavier sectional lines than are elsewhere used,) and which are made a part hereof, Figure 1 is a perspective view of an otherwise ordinary telephone embodying my invention. Fig. 2 is a side elevation of a portion thereof in horizontal position, showing by means of dotted lines the relative positions of the posts and ball when the telephone is in use and the short circuit is broken. Fig. 3 is a side elevation in vertical position, showing, by means of dotted lines, the relative positions of the aforesaid parts when the telephone is out of use and the short circuit is established, and also showing the posts notched out, simply, and the sides of both formed of continuous sheets of non-conducting material. Fig. 4 is a horizontal section of Fig. 3. Fig. 5 is a vertical section of a construction wherein the posts are divided by a sheet of non-con-

ducting material cut out sufficiently to not stop the cavity for the ball. Fig. 6 is a horizontal section of Fig. 5. Fig. 7 is a horizontal section of another construction, wherein non-conducting material covers the sides of the posts, as in Fig. 4, but comes to a point in the center, so as to cause the ball to more quickly roll back from one or the other of the posts when the telephone is brought toward a horizontal position. Fig. 8 is a vertical section of a form wherein no non-conducting material is employed, but in which the form of the cavity is similar to that shown in Fig. 7, and which causes the ball to roll back quickly when the telephone is brought in position for use, as in Fig. 2. Fig. 9 is a horizontal section of Fig. 8.

In said drawings the portions marked A represent the body of the ordinary telephone; B, the binding-posts, which, in this case, are constructed to serve in my invention; C, insulating material, which I employ in some constructions, as shown; and D, the ball, which serves to make the electrical circuit described.

The operation of my invention is as follows: When the telephone is hung up the ball rolls down to the point as shown in Fig. 3, and an electrical connection is established between the two binding-posts, cutting out the telephone from the main line and call-signal apparatus. When the telephone is in use it is held in a horizontal or nearly horizontal position, and the ball rolls away from one of the posts, as shown in Fig. 2, the short circuit is broken, and the telephone brought again into the main circuit. As is shown in the drawings, this latter result is sometimes attained by the use of insulating or non-conducting material, and sometimes by the mechanical construction of the parts.

I prefer in constructing this device to use some form wherein insulating or non-conducting material enters into the construction, as in that case the cavity or chamber containing the ball can be entirely inclosed and rendered dust-proof. The particular form which I regard with most favor is that shown in Fig. 7, as while with the others it is not likely that the ball would ever roll in such position as to defeat or embarrass the purpose of the invention,

with this it is nearly or quite impossible that it should do so. Other forms than those shown may, of course, be employed.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a telephone, two posts or parts formed with cavities in their adjacent faces, and a ball which is inserted in said cavities, said cavities having a formation, substantially as described, by which said ball is caused to establish an electrical connection between said parts when the telephone is in one position, and to break said connection

when it is in other positions, substantially as and for the purposes set forth. 15

2. The combination of the telephone, the parts B B, divided by space or insulating material, as described, and the ball D, resting in a chamber or cavities formed in said parts, substantially as and for the purposes set forth. 20

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 1st day of September, A. D. 1880.

EZRA T. GILLILAND. [L. S.]

In presence of—

JAMES F. GILLILAND,  
C. BRADFORD.