

(No Model.)

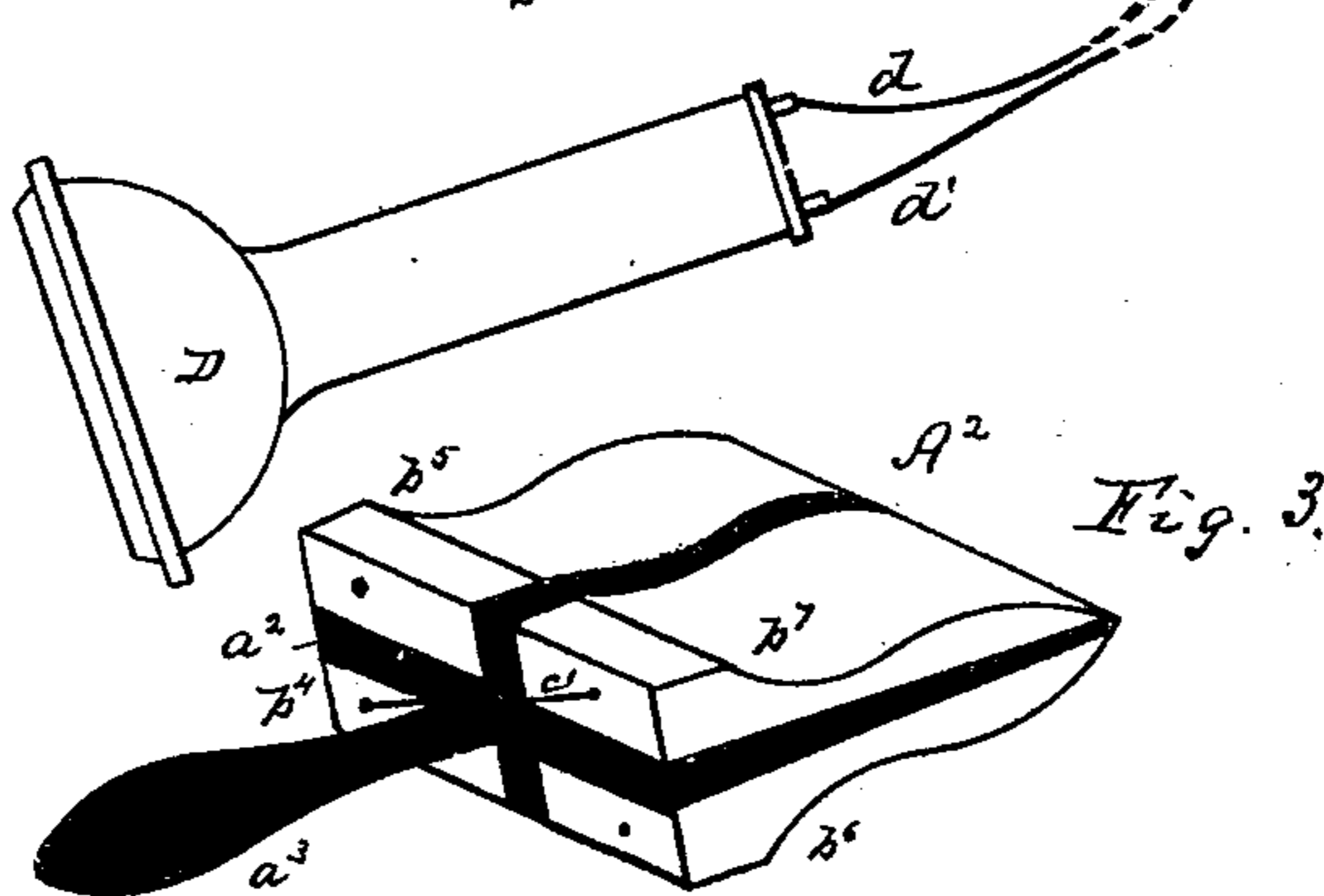
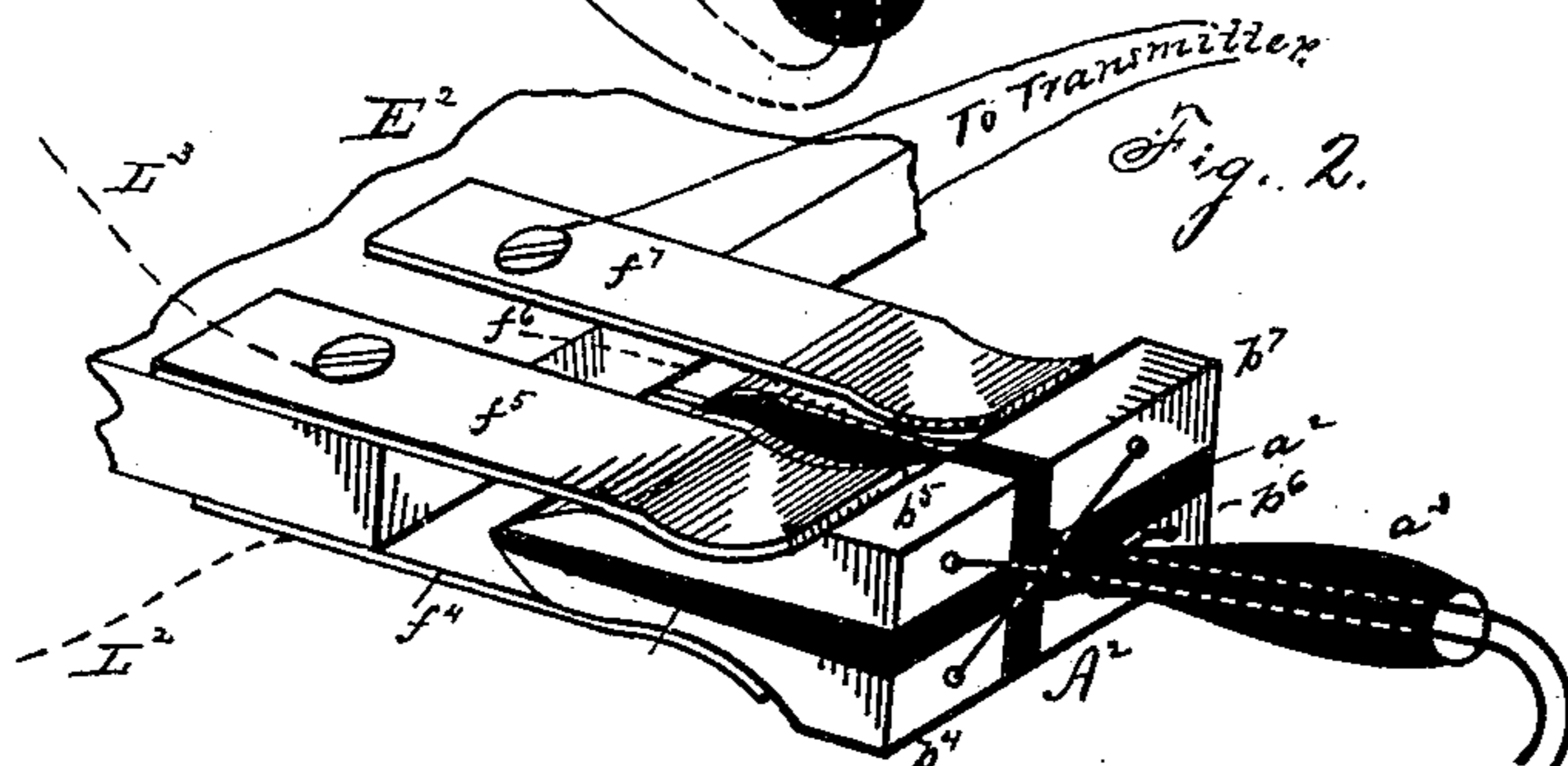
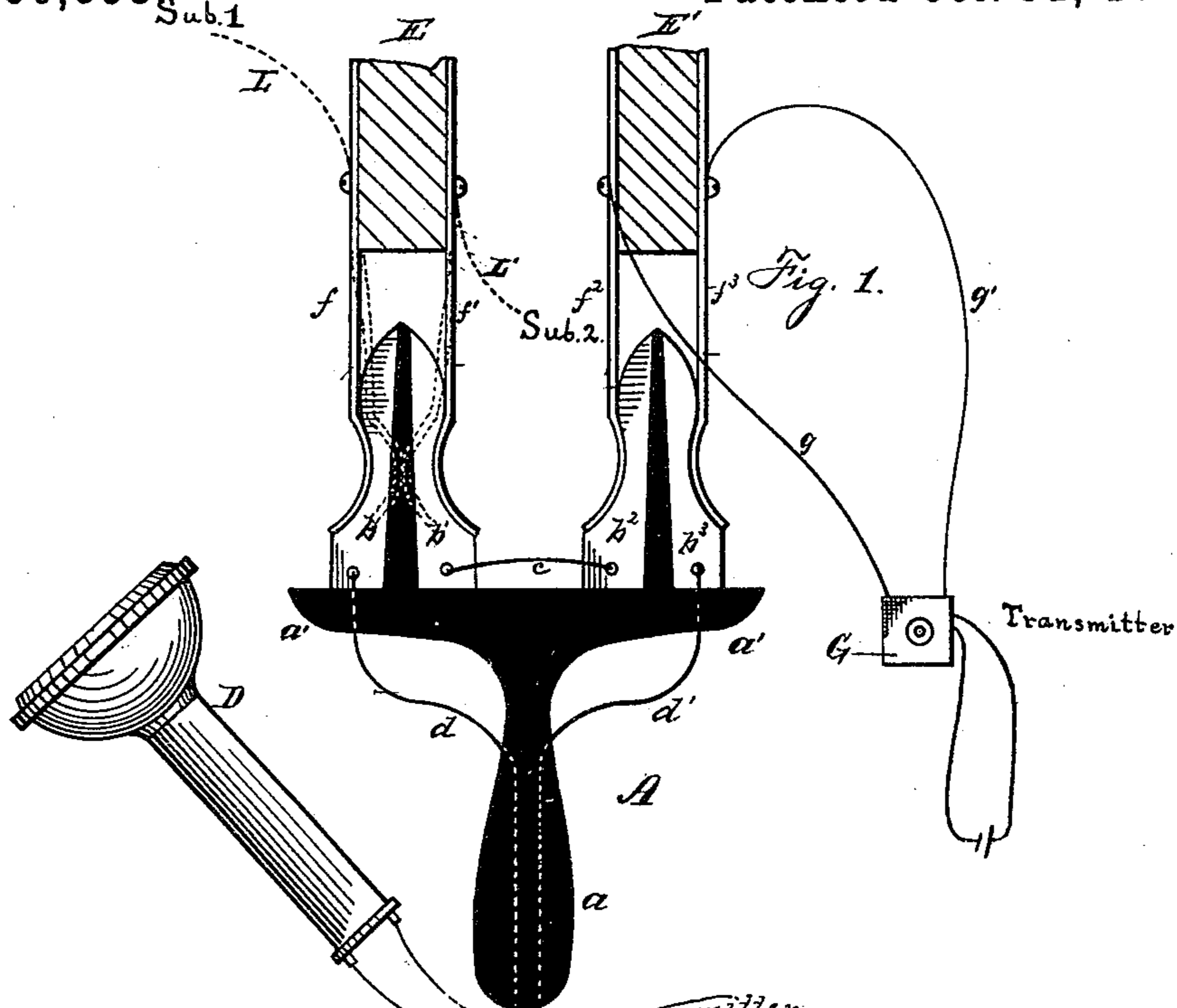
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CONNECTING DEVICE FOR OPERATORS' TELEPHONES.

No. 266,853

Sub.1

Patented Oct. 31, 1882.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## CONNECTING DEVICE FOR OPERATORS' TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 266,853, dated October 31, 1882.

Application filed February 20, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS MANN, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Connecting Devices for Operators' Telephones; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a plug which is to be connected to the flexible connecting-cords of a switch-board-operator's telephone; and its object is to enable the operator to connect his telephone in circuit with two connected subscribers' lines or disconnect it therefrom without interrupting conversation which may at the time be going on over said lines. The purpose of the operator's connection in the circuit is to ascertain whether or not communication has been properly established over the two lines, or if a conversation between two subscribers has been concluded.

My connecting-plug is intended especially for use in a telephone-exchange system invented by me, and for which I have applied for Letters Patent in an application filed February 3, 1882, Serial No. 51,772; but it may be used in connection with any switch-board having line-terminals arranged substantially as hereinafter described, and as shown in the accompanying drawings, in which—

Figure 1 is a view, partly in section and partly in elevation, showing my invention applied to use. Fig. 2 is a perspective view, illustrating a modification of the invention applied to use. Fig. 3 is a perspective view of the modified plug detached.

Referring to Fig. 1, the letter A designates the connecting-plug, which is composed of a handle, *a*, having a laterally-extended base, *a'*, of non-conducting material, and the wedge-like metallic terminals *b b'* and *b<sup>2</sup> b<sup>3</sup>* project in pairs from said base, the terminals of each pair being insulated from each other, and the two terminals *b' b<sup>2</sup>* connected by a wire, *c*. The connecting-cords *d d'* of the operator's telephone D are connected to the terminals *b* and *b<sup>3</sup>*, respectively, said cords being for conven-

ience passed through apertures formed for them in the handle *a* and base *a'*.

The letters E E' indicate projections from a switch-board which is not shown, and to these projections are attached the terminal metallic springs *f f'* and *f<sup>2</sup> f<sup>3</sup>*. The springs *f* and *f'* are terminals of subscribers' lines, and, when not separated by the plug, are in contact with each other, as indicated by dotted lines, so that any two subscribers' lines which may be connected with said springs will be connected in circuit. The springs *f<sup>2</sup>* and *f<sup>3</sup>* are respectively connected with a transmitter (shown at G) by wires *g* and *g'*.

The devices by means of which two subscribers' lines may be connected with the springs *f* and *f'* are shown in my application before referred to, and form no part of the present invention. I have, however, indicated the subscribers' lines connections in dotted lines, as shown at L and L'.

The plug A is shown as applied to enable the operator to connect his receiving-telephone D and the transmitter G in circuit with the two subscribers' lines without interrupting any communication which may be in progress over said lines; and it will be seen that a circuit is established—say from line L over spring *f*, plug-terminal *b*, cord *d*, through telephone D, over cord *d'*, plug-terminal *b<sup>3</sup>*, spring *f<sup>3</sup>*, wire *g'*, through the transmitter G, over wire *g*, spring *f<sup>2</sup>*, plug-terminal *b<sup>2</sup>*, wire *c*, plug-terminal *b'*, and spring *f'* to line L'. The operator may listen and learn if a conversation is going on over the lines, and if so may remove his plug without interrupting the same, as the two springs *f* and *f'* will immediately come together, as shown in the dotted lines, and thus maintain the communicating-circuit intact. If the subscriber on one of the lines should break circuit and the operator wish to communicate with the other subscriber, he may do so by connecting the spring which formed the terminal of the line which is broken with the ground by any convenient means.

In the modification shown in Figs. 2 and 3 the metallic plug-terminals *b<sup>4</sup> b<sup>5</sup>* and *b<sup>6</sup> b<sup>7</sup>* are mounted upon an insulating-plate, *a<sup>2</sup>*, provided with a handle, *a<sup>3</sup>*, the said plate separating the terminals of the respective pairs. The termi-

nals  $b^4$  and  $b^7$  are connected by a wire,  $c'$ , and in Fig. 2 the terminals  $b^5$  and  $b^6$  are respectively connected with the receiving-telephone D. This modified form of the connecting-plug  $A^2$  is for use with a switch-board having its pairs of terminal springs for subscribers' lines and transmitter secured to the same projection, as shown at  $E^2$ . The line-terminal springs are indicated by  $f^4$  and  $f^5$ , and the transmitter-terminals by  $f^6$  and  $f^7$ . The connection between the lines  $L^2 L^3$ , when the plug is inserted between the springs, will be readily understood from the previous description of Fig. 1.

What I claim is—

1. The connecting-plug consisting of the four metallic contact-terminals arranged in two pairs projecting from a non-conducting base, a single terminal of one pair being in electrical connection with a single terminal of the other pair, and the other two terminals adapted for

connection with a telephone, substantially as described.

2. The plug consisting of base  $a'$ , of non-conducting material and having a suitable handle, and the pairs of metallic terminals  $b b'$  and  $b^2 b^3$  projecting from said base, the terminals  $b'$  and  $b^2$  being electrically connected, substantially as described.

3. The combination, with the terminal springs connecting subscribers' lines and the terminal springs of the transmitter, of the connecting-plug having four metallic terminals arranged in pairs for insertion between the pairs of springs, respectively, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

LEWIS MANN.

Witnesses:

J. EDWARD WARREN,  
CHARLES MANN.