(No Model.)

S. F. SHERMAN.

TELEPHONE.

No. 476,026. Patented May 31, 1892.

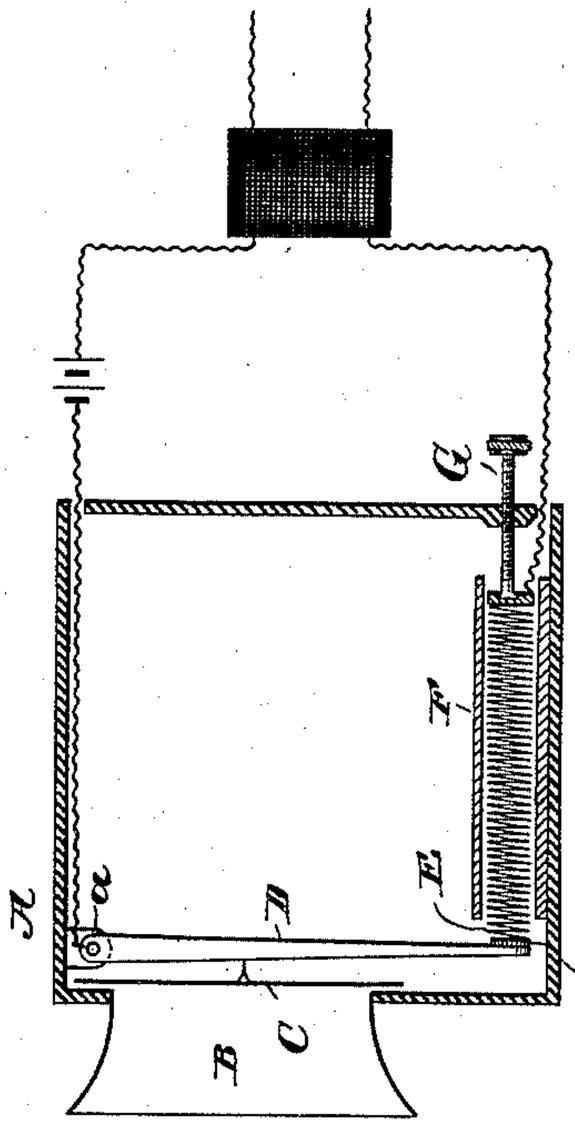

Fig. 2.

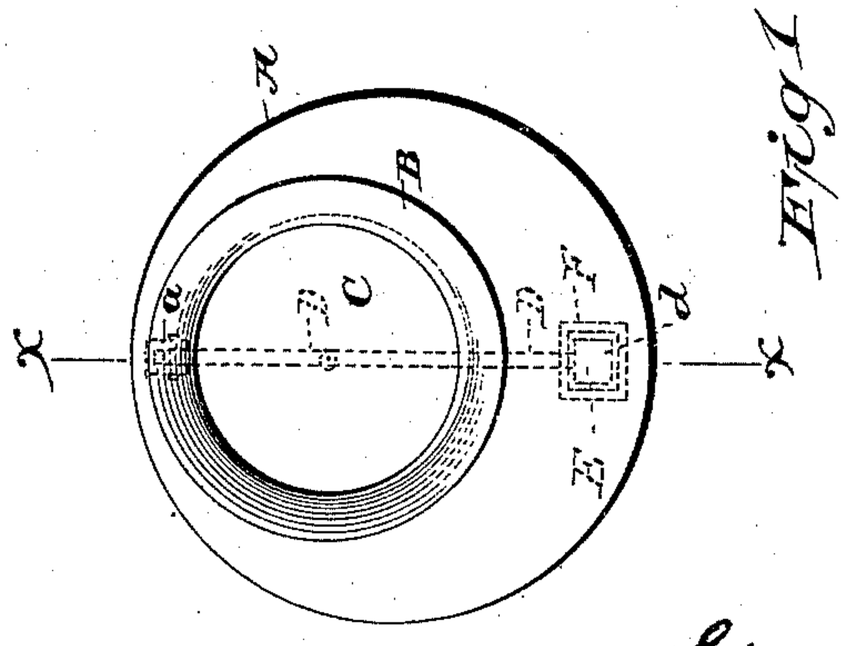

Fig. 4.

Fig. 3.

Attest:
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UNITED STATES PATENT OFFICE.

STEPHEN F. SHERMAN, OF NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE F. SHAVER, OF YONKERS, NEW YORK.

TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 476,026, dated May 31, 1892.

Application filed March 2, 1892. Serial No. 423,494. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN F. SHERMAN, a citizen of the United States of America, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Telephones, of which the following is a specification.

My invention is an improvement in telephones; and it consists in a variable resistance in the form of a conducting strip or ribbon folded or creased to form plaits, which is in the primary transmitter-circuit and is connected with the diaphragm of the transmitter either directly or indirectly, whereby the plaits of the strip are opened and closed and the resistance through the entire plaited conductor varied with the movements of the diaphragm, and in certain other details hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a plan and view for the transmitter seen from the front. Fig. 2 is a side view in cross-section on the line *x x* of Fig. 1. Fig. 3 is a perspective view of the plaited resistance-strip.

A is the outer casing of the transmitter, in which the mouth-piece B and the operative parts of the transmitter are supported.

C is the diaphragm.

D is the multiplying-lever, pivoted to the casing at *a* and carrying on its end a conducting-block *d*, to which one end of the plaited conducting-strip E is attached. This plaited conductor rests in a horizontal position upon the floor of a protective casing F and is attached at its other end to a block on the end of an adjusting-screw G. This screw works in a thread in the casing A, and by turning the screw in or out the folds of the conductor E can be made as close or as open as is desired. An electric battery is shown connected with the lever D and embracing within its circuit the conductor E and the primary coils of an induction-coil, the secondary coils of which are connected with the line-wires.

The conducting-strip E should be of high resistance compared with the other resistance of the primary or battery circuit. It can be made in the following way: A flexible strip or ribbon of silk, cotton, paper, or other suitable material is painted with white lead or other suitable paint or varnish and while this coating is still moist is coated with a layer of powdered carbon. There is thus formed a carbonized ribbon which is a conductor of electricity of high resistance, or a thin strip of vulcanized fiber may be used; but I do not limit myself to a ribbon of any particular composition.

The operation of the transmitter is as follows: When the diaphragm C is caused to vibrate by sound-waves, its vibrations are transmitted through the lever D, by which they are considerably enlarged, to the plaited strip E. The folds of this strip are closed or opened, according to the direction of motion of the diaphragm and lever. Thus the resisttance of the strip, and hence of the primary circuit, is varied, and the currents are induced in the secondary coils of the induction-coil, which traverse the line-wires and operate the receiver, where the sounds which set up the vibration of the diaphragm of the transmitter are reproduced.

The ribbon or conducting-strip should be narrow and thin, but strong, and should be covered with the powdered carbon as evenly as possible.

Without limiting myself to the precise details shown, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a telephone-transmitter, the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, made of a piece of conducting material creased or folded to form plaits, substantially as described.

2. In a telephone-transmitter, the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, made of a piece of carbon creased or folded to form plaits, substantially as described.

Subscribed by me, in New York city, this 29th day of February, 1892.

STEPHEN F. SHERMAN.

In presence of—
THOMAS EWING, Jr.,
M. W. COPPORTO.