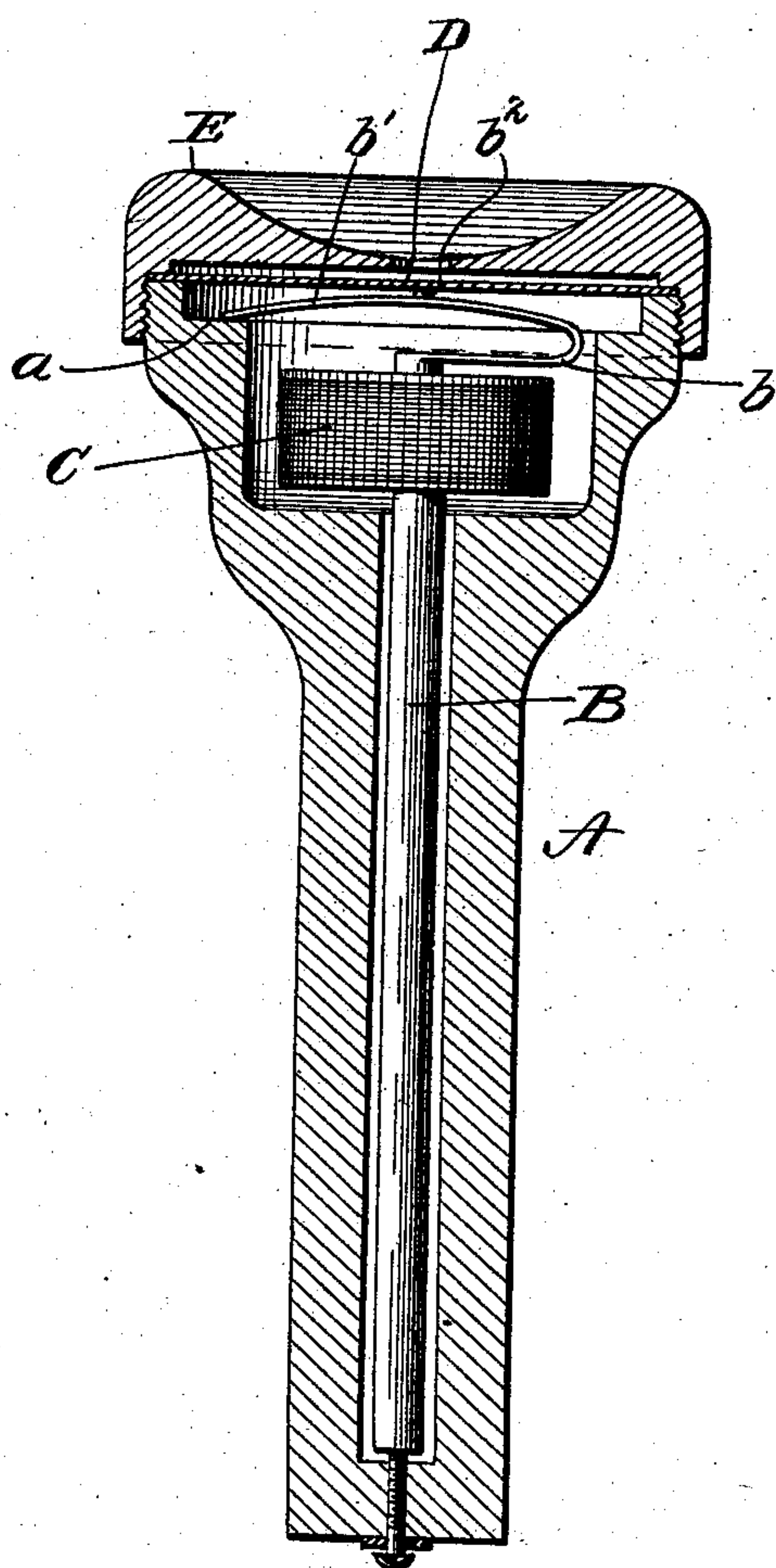


(No Model.)

H. E. WAITE.
TELEPHONE RECEIVER.

No. 292,602.

Patented Jan. 29, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEW YORK, N. Y., ASSIGNOR TO THE MOLECULAR
TELEPHONE COMPANY, OF SAME PLACE.

TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 292,602, dated January 29, 1884.

Application filed September 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WAITE, of New York, county of New York, and State of New York, have invented a new and useful
5 Improvement in Telephone-Receivers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification.

10 My invention relates to that class of receivers in which a bar-magnet is provided with a recurved arm or spring, forming an extension of the pole adjacent to and acting upon the diaphragm, illustrated in Letters Patent granted
15 to Lockwood and Bartlett June 15, 1880, No. 228,825; but in said patent the recurved arm extended only sufficiently far to cause its end to simply overhang the end of the bar, terminating at that point, and it was there connected with or expanded in width to form a diaphragm, which was rigidly connected at its
20 edges with the handle or body of the receiver. In my improvement the recurved arm is extended, and its free end rests and is adapted to slide upon a ledge or other suitable support in the head or body of the receiver, and centrally of its length and directly over the end of the bar-magnet the recurved portion of the arm has a spur which rests and is upheld
30 in contact with the diaphragm, the arrangement being such as to adapt the free end of the recurved arm to slide on its support.

In the accompanying drawing, which represents a section through a telephone-receiver embracing my improvement, A represents the
35 handle or body of a receiver, of any usual or suitable form, perforated or socketed to inclose the magnet B, and provided with an enlarged chambered portion forming the head for the reception of the coil C, surrounding the
40 end of the magnet, and for the accommodation of the diaphragm D and ear-piece E, applied to the open end of said head in any usual or preferred manner. The end of the magnet B within the head and surrounded by the
45 coil C is provided with an arm, *b*, which extends laterally to near one side of the chamber in which the coil rests; and is there recurved, its recurved portion or arm *b'* cross-

ing over and within inductive proximity to 50 the end of the magnet B to the opposite side of the chamber from that where it connects with the portion *b*, and over a ledge, *a*, or other suitable support on the side wall of the coil-chamber, said end resting lightly upon and 55 being supported by said ledge in such manner as to adapt it to slide thereon. Directly over the end of the bar B, and at or near the center of the length of the arm *b'*, which, by preference, is made slightly arching over the 60 magnet, as shown, said arm is provided with a spur, *b²*, which rests in contact with the diaphragm or sound-board D. The arching form of the arm *b'* serves to stiffen said arm and to prevent its undue deflection and the withdrawal 55 of the point *b²* from the diaphragm without unnecessary weight of metal, and is therefore preferred, but it is not essential.

The diaphragm or sounding-board may either be made in the form of a disk covering the en- 70 tire head of a receiver, or of a narrow strip of a width sufficient to cover merely the opening in the ear-piece, as preferred, and the other parts of the receiver, aside from the recurved arm of the magnet and its support, may be con- 75 structed in any usual or preferred manner.

By supporting the free end of the recurved arm of the magnet, as described, said end is adapted to slide longitudinally in the contrac- 80 tion and elongation in the length of the arm, due to molecular disturbance, or in the deflection or unbending of the recurved arm, caused by mass movement effected by the magnet, and the spur or point *b²*, participating in this movement, acts upon the surface of the 85 diaphragm with a laterally-vibrating movement, causing a slight rubbing or scratching of the diaphragm.

I am aware that a magnet provided with a laterally-projecting recurved arm or spring 90 having its free end resting in contact with the diaphragm has been employed in a receiver, the same being shown in Letters Patent granted to Robert M. Lockwood November 1, 1881, No. 249,064. This I do not claim; but, 95

Having now described my invention, I claim as new, viz:

In a telephone-receiver, the combination,

with the sounding-board and the coil, of the magnet provided with the recurved arm or spring, having its free end extended to overhang and slide upon a support at one side of
5 the coil-chamber, said arm being provided at or near the center of its length with a point resting in contact with the sounding-board, substantially as described.

In testimony whereof I have hereunto set my hand this 24th day of September, A. D. 1883.

HENRY E. WAITE.

Witnesses:

C. H. HANKINSON,
GEO. SAMUELS: