H. G. FISKE.

Dental Attachment for Telephones.

No. 228,254. Patented June 1, 1880.

Fig. 1.

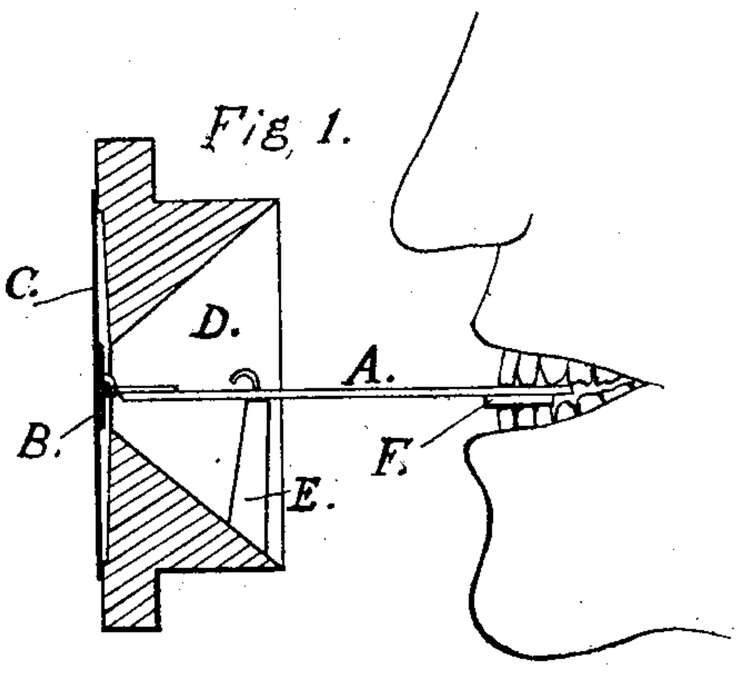


Fig. 2.

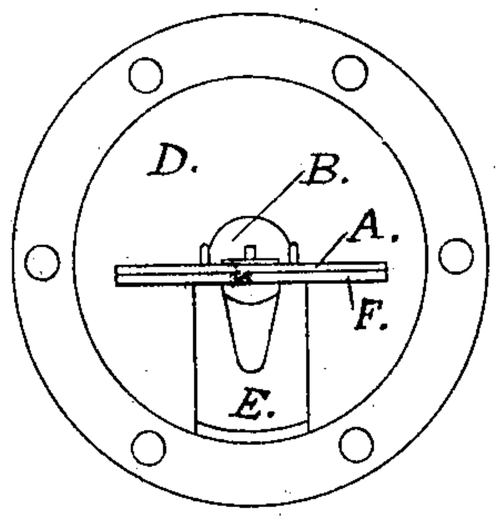


Fig. 5.

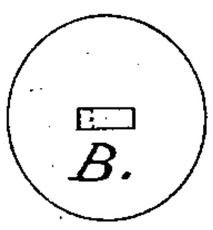


Fig. 3.

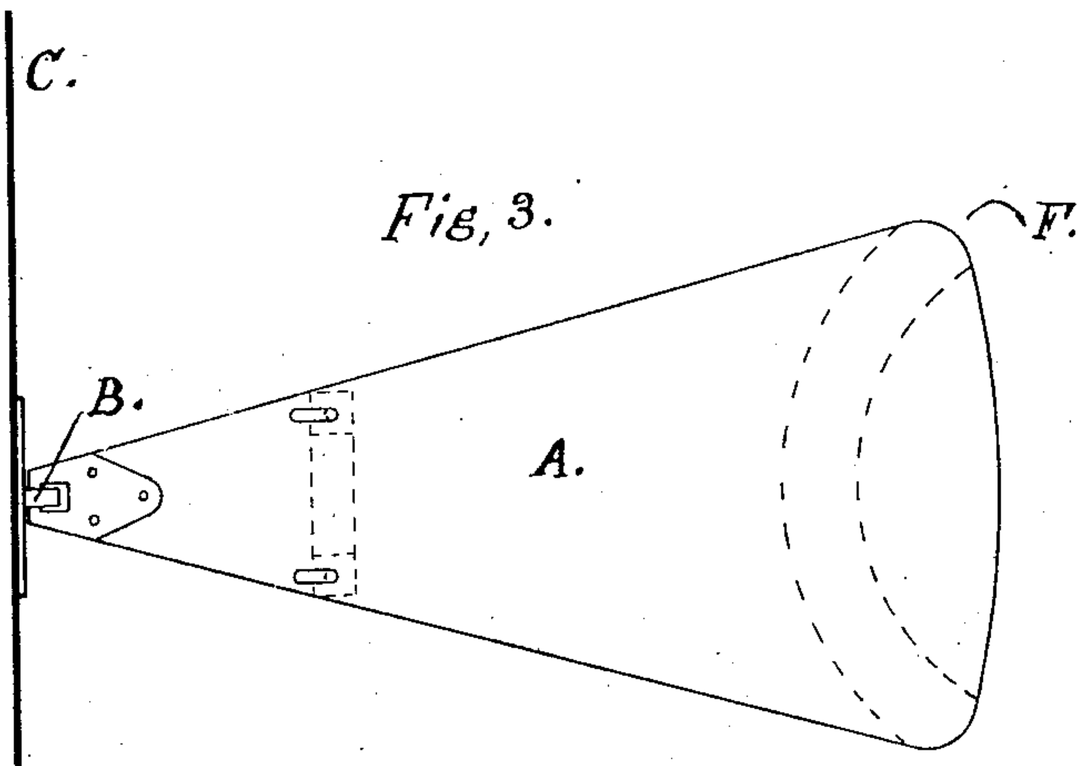


Fig. 6.

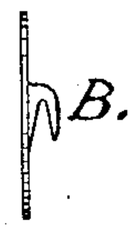
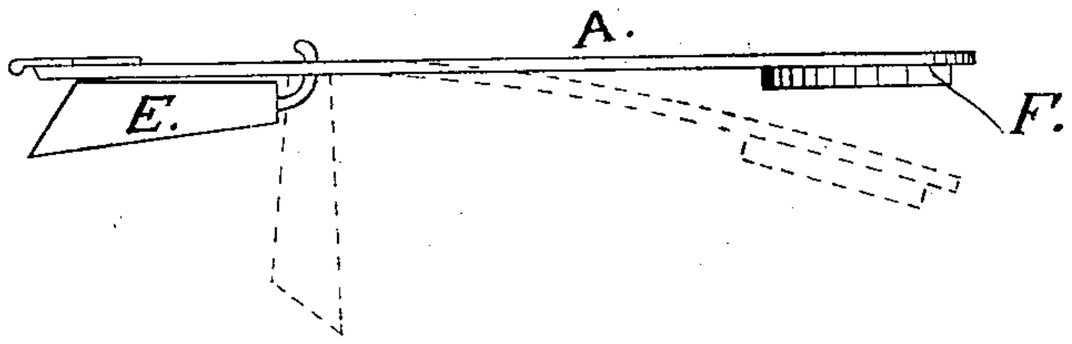


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY G. FISKE, OF SPRINGFIELD, MASSACHUSETTS.

DENTAL ATTACHMENT FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 228,254, dated June 1, 1880.

Application filed November 4, 1879.

To all whom it may concern:

Be it known that I, HENRY G. FISKE, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Attachment for Telephones, for the purpose of hearing through the medium of the teeth, which attachment is fully explained in the following specification and accompanying drawings.

The object of my invention is to furnish a cheap and convenient instrument, which may be readily attached to an ordinary receiving electric or non-electric telephone without danger of diminishing the force of the vibrations of said receiving-telephone, and by the aid of which instrument and the ordinary receiving and transmitting telephones and their connections vibrations may be transmitted to the teeth, and enable a person to hear and comprehend ordinary conversation, music, &c., through the medium of the telephones and said teeth and the nerves, even though the listener be quite deaf and the telephonic transmitter be at a great distance.

It is my object, also, to make the instrument or attachment of such material and construct in such a manner that when applied to a receiving-telephone all unnecessary and unsteady strain shall come upon the said receiving-telephone and its usual support.

It is also my object to provide a suitable means of attaching and detaching said instrument to and from the telephone, that the said telephone may be used in the ordinary manner without difficulty, and also that each person may have an instrument of his own.

The nature of the invention consists in providing a link constructed in such a manner as to adapt it to be secured to an ordinary receiving-telephone without the employment of string or any similar cords, which might endanger the force of its vibrations, and by the aid of which link and a transmitting-telephone and its connections the vibrations may be transmitted from the transmitter through the receiver and thence to the teeth, thereby enabling the listener to receive the greatest possible force of the vibrations direct upon the teeth.

It also consists in providing the said link with a suitable means of connecting and disconnecting with the telephone; also, of providing the link with a support, which shall permit the outer end of the link to be pressed downward by the upper teeth alone, or both upper and lower teeth, for the purpose of creating greater tension between the telephone and teeth.

It also consists in applying the link to the vibrating disk of the telephone in such a manner that whatever pressure is brought to bear upon the disk shall be at right angles with its greatest natural vibrations to avoid straining the disk out of its proper vibrating sphere; and it also consists in providing one side of the link with an elastic substance to prevent solid contact of both upper and lower teeth at once.

In the drawings, Figure 1 is a side elevation of my invention, shown applied to a transverse section of a mouth-piece to a telephone, also showing the manner of applying to the teeth. Fig. 2 is a front elevation of my invention applied to the mouth-piece of a telephone. Fig. 3 is a top view of my invention. Fig. 4 is a side elevation of the mouth-plate, showing the manner in which it may be bent downward by pressing with the teeth, also showing the elastic support folded upward. Fig. 5 is a top view of the hook-plate, and Fig. 6 is a side elevation of the same.

In the drawings, A indicates the link or mouth-piece through which the sound or vibrations are transmitted, and is made of a somewhat rigid sound-conveying substance, like hard rubber, wood, metal, &c., preferably made thin and broad to obtain a full bearing upon the teeth, and may be capable of connecting direct with the magnet of an electric telephone, but produces better effects to connect direct with the disk, as shown, the latter being true when applied to acoustic telephones.

B indicates the stud to which the end of the link A is joined in securing it to the disk C, and should be made of a good sound-conveying substance, and may be of any desirable form, but preferably made of a hooking and wedging shape, for the purpose of tightening its hold upon the end of the link A, thereby producing a firm though movable sound-conveying joint at this point, which is a very important feature.

D is a section of the mouth-piece to a telephone, the other half being removed for the purpose of showing the manner of attaching my invention.

The support E is an elastic fulcrum, by the aid of which, and pressure applied to the outer end of the link A, the said link forms a more solid contact with the stud B, and the pressure which is thereby exerted upon the disk C is at right angles with its plane, and therefore with the greatest natural vibrating sphere of said disk, thereby permitting an almost free vibration of the disk C, while it does at the same time communicate its vibrations to the link A.

The support may be made of any elastic form and substance which will not deaden the vibrations as they are passing through the link A. , It is hinged on the link, as shown in Fig. 4, where it is folded up for convenience of carrying said link in the pocket, or otherwise.

F indicates an elastic cushion secured to the lower side of the link A to avoid solid contact of both upper and lower teeth at once.

The operation is as follows: The stud B being secured to or made a part of the magnet to an electric telephone, or the disk of an electric or acoustic telephone, the mouth-piece of the said telephone being secured in its place, connections being made with a transmitter, as in ordinary telephonic conversation, the link A is then applied to the stud B at its inner end, and the support E is caused to rest upon the mouth-piece D of the telephone, that being most convenient. The listener will then press his upper teeth down lightly upon the top of the link A, and that will, with the aid of the fulcrum E, cause the opposite end of the link to be forced tightly onto the wedge-shaped stud B, and thereby form a firm and solid contact with the receiving-telephone, and if said listener be deaf, and the auditorial nerves be in good condition, he will hear any ordinary conversation, music, &c., which may be transmitted through the telephone from the distant transmitter with almost as much ease as the most acute listener can through the ear in the ordinary way. If the listener is not deaf he should stop up his ears to shut out all sound in that direction.

The only solution that I am able to give is, I believe the vibrations to be transmitted through the teeth and skull to the auditorial nerves, and thus the listener is able to comprehend sound nearly as well as through the drum of the ear.

It will be seen from the foregoing that conversation may be carried on between two or more persons in extremely noisy places, like rolling-mills, factories, &c., where it is extremely difficult to converse in the ordinary way, and that deaf people may enjoy the luxury of hearing and conversing through the ordinary telephone, even though the tones be faint.

It will also be seen from the foregoing that the link A may be secured permanently to a telephone; but where more than one person has occasion to use it it is more desirable that each person have a link of his own; also, by removing said link the same telephone may be used in the ordinary way; and it is also obvious that the arrangement of the stud B and the tip of the link, which is adapted to be attached to the stud, may be reversed in order without materially affecting its efficiency, and also that it may form a part of, or be attached to, the magnet of an electric telephone.

I am aware that various devices have heretofore been used to convey the sound of musical instruments, clocks, &c., to the teeth and sense of hearing—such as sticks, wires, &c.—and do not claim the link A in its broad sense, but only when adapted to and fitted to be secured to or made a part of a receiving-telephone for the purpose of transmitting sound-vibrations from an ordinary transmitter, which may have long or short connections with said receiver, and which connections may be used to transmit similar vibrations in opposite directions. Of course, when two persons, both of whom are deaf, attempt conversation over the line, each will be obliged to use one of the aforesaid links. Were I to attach the link A to the receiving-telephone by the employment of an intervening string or similar material, which requires to be strained taut by pulling upon it to make it become a suitable sound-conveying medium, I should then endanger the necessary delicate adjustment of the telephone, and in many cases entirely destroy its vibrations while straining said string, and therefore I attach the link direct to the telephone without the employment of such string or material, and secure it in such a manner as to avoid all loss of the force of the vibrations, thus enabling one adjustment of the telephone to answer for hearing in this and also in the ordinary way.

Though in many cases the transmitting and receiving instrument are one and the same at one or both ends of the line, it will not materially affect the use of the link A; but still it is usually best to remove the link while speaking into the telephone, though it is not absolutely necessary.

It will be seen from the foregoing that when an acoustic telephone is used as a transmitter, were it not for the receiving-telephone, with its vibrating disk or medium and means of holding it in the hand or attaching to some firm support, the link A would then have to be connected direct to the end of the connecting wire or string through which the sound is conveyed from the transmitter, and the whole weight and strain of said wire or string would bear direct upon the teeth, which is not only disagreeable but exceedingly dangerous to the teeth of the listener, especially when a great distance separates the speaker and listener. All of this is obviated by the employ-

ment of a suitable intervening receiver, as shown.

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

1. The combination of a telephone and the solid link A, when the latter is provided with a suitable means of directly attaching and detaching readily from said telephone, for the purpose of enabling the same telephone to be used in the ordinary way, and also to enable different persons each to attach and use a link of their own, substantially as shown and described.

2. The link A when provided with the elastic support E, for the purpose substantially herein shown and described.

3. The link A when provided with the cushion F, for the purpose substantially as shown and described.

4. In combination with the link A, a transmitting and a receiving telephone and their usual connecting medium, when the said link is made of a somewhat rigid, good sound-conveying substance, like hard rubber, &c., and attached direct to the receiving-telephone, and is so attached and adapted to be used as not to endanger the force of, or destroy the vibrations of, the said receiving-telephone, substantially as shown and described.

5. The combination of the link A and the stud B, when said stud is made to be attached permanently to the telephone and the link is detachable, substantially as shown and described.

6. The stud B when constructed substantially as described, for the purpose of connecting the link A and the telephone, substantially as shown and described.

7. The stud B when made of such a wedging shape as to tighten its hold upon the link A when the said link is pressed against it, substantially as shown and described.

8. The elastic support E when hinged upon the link A for the purpose of folding up, substantially as shown and described.

9. The combination of the link A, or its equivalent, and an acoustic transmitting-telephone, when the link A is attached to the receiving end of the line and is provided at that point with a vibratile support, for the purpose of supporting and receiving the greater part of the necessary strain of the connecting wire or cord, and to thus obviate all danger to the teeth of the listener, substantially as herein shown and described.

10. The combination of the disk C and the link A, when said link is adapted to be secured to the disk in such a manner as to bring the pressure from said link to bear edgewise with the disk and at right angles with its greatest sphere of vibration, substantially as shown and described.

HENRY G. FISKE.

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