(No Model.)

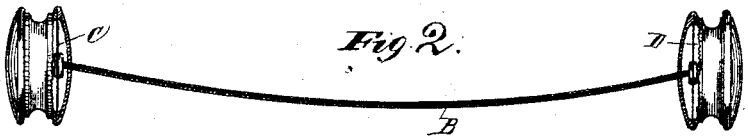
H. SELIGMAN.

CONDUCTOR FOR MECHANICAL TELEPHONES.

No. 342,468. Patented May 25, 1886.

Fig. 1

Fig. 2.



WITNESSES

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HENRY SELIGMAN, OF IRVINGTON-ON-HUDSON, NEW YORK.

CONDUCTOR FOR MECHANICAL TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 342,468, dated May 25, 1886.

Application filed June 22, 1885. Serial No. 169,408. (No model.)

To all whom it may concern:

Be it known that I, HENRY SELIGMAN, a citizen of the United States, residing at Irvington-on-Hudson, county of Westchester, and State of New York, have invented a new and useful Conductor especially adapted for Telephone-Lines, of which the following is a specification.

My invention consists in connecting the diaphragms of two telephone-instruments with a metallic conductor made up of a number of wires braided or twisted together in any suitable manner, and overlaying them with a fibrous or other suitable covering material in such a manner that the conductor, when completed, will be entirely enveloped, and all the wires will be unexposed. These layers of wire which make up the conductor are bars and non-insulated from each other, and are adapted to coact and operate in unison, thereby increasing the molecular disturbance, so that the vibratory effect upon the receiving-diaphragm will be much greater, and therefore more satisfactory, than where a single wire is employed.

The object of placing the covering material upon the exterior of the assemblage of wires is to provide a means for excluding all exterior sounds and disturbances along the line, thereby preventing said exterior noises being reproduced upon the diaphragm, a result which always follows to a greater or less extent where an uncovered conductor is employed.

Referring to the accompanying drawings, Figure 1 represents one of these conductors having a portion of the insulating material cut away to show the wires inside, and Fig. 2 is a view of two telephone-instruments connected by my improved conductor.

In these drawings, A represents the wires or conductor, which may be braided through each other or coiled around each other, or arranged together in any other suitable manner, and surrounding these is placed the covering material B, preferably fibrous in its nature, although other suitable materials may be employed. C D are the diaphragms of the transmitting and receiving instruments, respectively. The result of this arrangement will be, as aforestated, to produce much better results than heretofore obtained in acoustic or mechanical telephony, to which this invention is more particularly applied. Not only will the disagreeable ringing noises be eliminated by employing a number of wires interbraided or twisted together, but the covering material serves to exclude all foreign sounds, and permits the metallic conducting-wires to receive and transmit only such vibratory effects as are received upon the diaphragms of the instruments.

I am aware that the devices going to make up my improved mechanical telephone are severally old and well known. The use of braided or twisted wires, whether for electrical or mechanical telephones, has been before suggested. Insulating coverings for either single or multiple wires have been employed on electrical conductors, and partially insulating or deadening devices have been also employed on a wire connecting the diaphragms of mechanical telephones. None of these devices will, however, singly accomplish the purpose of the present invention. If the conductor, whether single or multiple, uniting the diaphragms of a mechanical telephone is left entirely bare, it is affected not only by shocks imparted or by rubbing against its supports, but by the slightest breeze passing over it, and the result is the disagreeable roaring sound well known to be a drawback to the receivers of such telephones. If the conductor, consisting of a single wire, be covered with a close-fitting envelope similar in character to that employed on electrical conductors, the roaring in the receiver, to be sure, is almost entirely arrested; but at the same time the transmitting powers of the conductor are so materially impaired as to render the telephone practically worthless for lines of any considerable length. It was this difficulty which led Huston, in his Patent No. 285,269, of the 18th September, 1883, to show and describe an insulator for a single-line conductor, consisting of a rubber or fibrous thread so wound on the conductor as to arrest and deaden the vibrations thereof when once imparted, but still not sufficiently covering the conductor to entirely destroy its transmitting properties. As it is, the transmitting properties of such conductor are impaired in exact proportion to the quantity of insulation employed; but it is obvious that, although partially effectual in deadening vibrations of the wire, an imperfect covering—such as that used by Huston—would not really materially inter-

fere with the impact of outside objects upon the line. The wind blowing over the line would set up vibrations which could be only partially counteracted, especially on short lines, by the imperfect fibrous covering. The absolute exclusion of outside influences on the line can only be attained by surrounding the conductor with a practically impervious envelope; but, as already remarked, such an envelope could not be employed upon a single-line conductor without materially affecting its efficiency.

I have discovered that a conductor consisting of a number of wires braided or twisted together and covered with a close envelope is not open to this objection. This result I attribute to the fact that, although the envelope touches and deadens the vibrations of the outer bends of the wire, there is, by reason of the close contact of the various threads making up the conductor, a practically continuous inner wire free to vibrate within a metallic and not a deadening envelope.

Although braided or twisted wires have been before used for electrical telephones, it is well known that the conductors of such telephones do not connect the diaphragm thereof directly and mechanically. There could therefore in such use be no suggestion of the new utility which would accrue from the applying of such conductors to a mechanical telephone.

The joining of the two old elements—namely, mechanical telephone diaphragms and insulated multiple conductors—is with the production of a new and useful result, as above specified, and is what I desire to claim herein.

I claim—

In combination with the receiving and transmitting instruments of a mechanical telephone, a multiple conductor uniting said instruments, consisting of a number of wires braided or twisted together and a close jacket or envelope surrounding said wires, so as to exclude outside influences, while not interfering with the transmission of speech, substantially as set forth.

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Witnesses:
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