(No Model.) 2 Sheets—Sheet 1.

H. L. TYLER.

TELEPHONE TRANSMITTER.

No. 491,275. Patented Feb. 7, 1893.

Fig. 1.

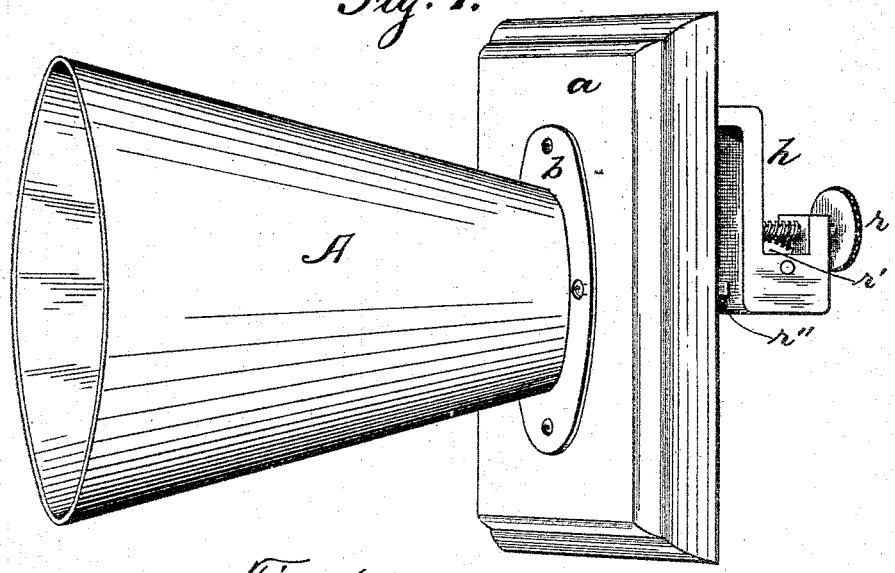

Fig. 4.

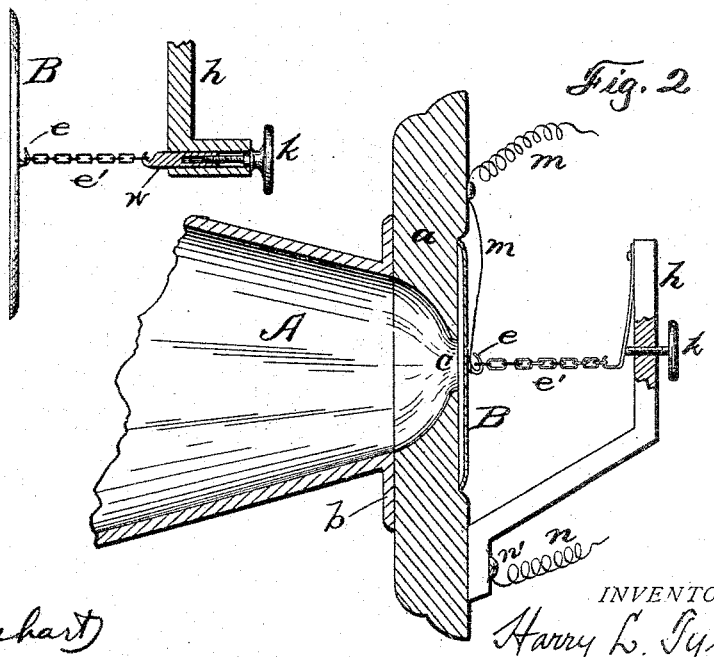

Fig. 2

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(No Model.) 2 Sheets—Sheet 2.

H. L. TYLER.

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Fig. 3.

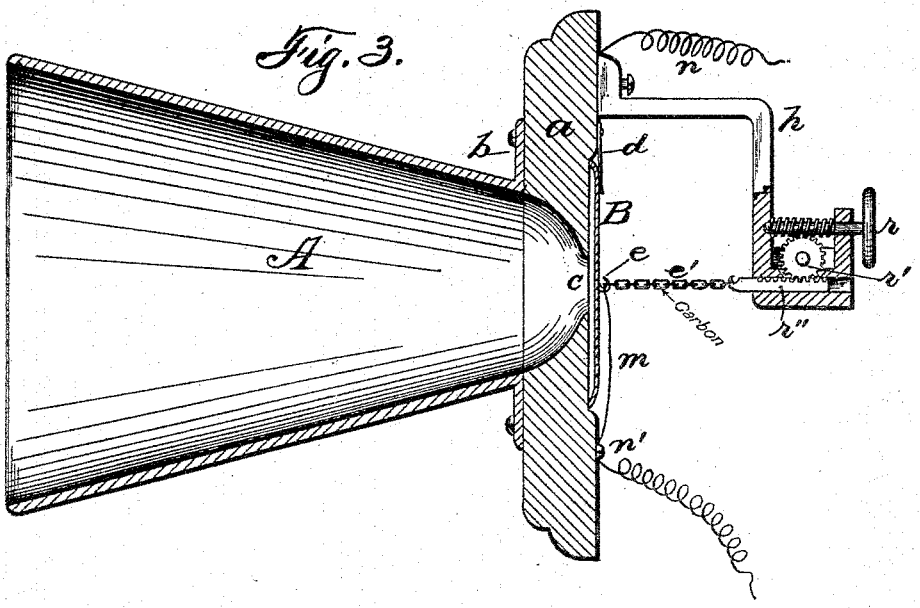
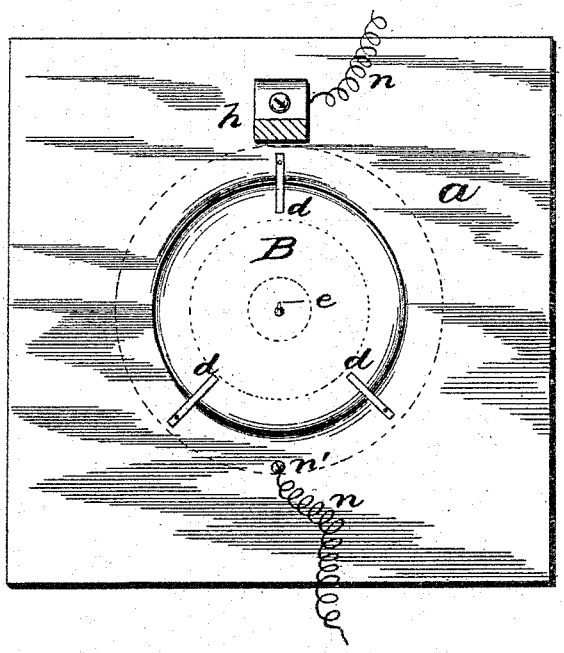


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY L. TYLER, OF CORNING, NEW YORK.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 491,275, dated February 7, 1893.

Application filed May 13, 1892. Serial No. 432,873. (No model.)

To all whom it may concern:

Be it known that I, HARRY L. TYLER, of Corning, in the county of Steuben, in the State of New York, have invented new and useful Improvements in Telephone-Transmitters, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to telephonic transmitters, in which a non-metallic vibratory transmitting diaphragm is used, said diaphragm being also a non-conductor of electricity, and is provided with a central hook to which is connected a conductor leading to one pole of the circuit, and to which is also connected one end of a chain, the other end of which is connected to a tension spring secured upon a conductor bracket, a tension screw being also in contact with said spring, and a conductor leading to the other pole of the circuit, being connected to said bracket, said chain being not only a conductor, but from its linked construction, adapted to vary the intensity of the flow of electric current in proportion to the intensity of the volume of sound and sound waves and consequent vibrations of said diaphragm.

My object is to produce a transmitter to be used in connection with electric telephones, in which a non-conducting diaphragm is used, and to which, tension is imparted by means of an electric conductor, consisting of a link of any form or style desired but so connected together as to create a chain; and in which the tension is varied by the varying impact of the sound waves upon the diaphragm and its resultant vibrations; in which the tension is adjusted by means of a tension screw engaging with the tension spring to which the inner end of said chain is connected; and in which one terminal of an electric circuit is connected to the hook upon said diaphragm to which one end of said chain is connected, or to the outer part of it, the other terminal being connected to the tension spring, the outer end of the chain, the tension screw, or to the bracket which carries the tension screw and spring, so that the flexibility of the chain and the variable tension thereof operated and affected by the varying intensity of the sound waves and diaphragm vibrations, will cause a varying resistance of the circuit, and flow of electricity.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claim hereto annexed. It is constructed as follows reference being had to the accompanying drawings, in which

Figure 1, is a plan perspective of the transmitter, complete. Fig. 2, is a vertical sectional elevation of the same. Fig. 3, is a vertical section of the same, in which the chain is tensionally adjusted by a worm actuated pinion engaging with a rack, provided with a hook, to which said chain is connected. Fig. 4, is a side elevation of the diaphragm and chain having one end connected to a sliding bar, one end of which is threaded internally to receive the tension screw. Fig. 5, is a rear elevation of the diaphragm, its holder, its retaining springs or fingers, and its terminal connections in part, the bracket being broken off.

A—, is the conical tubular receiver secured upon the backing —*a*— by screws through the flange —*b*—, said receiver being of glass or other suitable material, and said screw holes being of elongated form so that the receiver can be adjusted upon the backing. The orifice —*c*— in said backing tapers outwardly so as to coincide with the inner end of the bore of the receiver. In a seat in the backing, I place the diaphragm —B— of mica, or other vibratory, non-conducting material, and it is there retained by the spring fingers —*d*— which may be covered with felt, soft paper, chamois or other soft leather or rubber, or other soft, yielding or flexible material in order that they will the less interfere with the vibrations of the diaphragm. In the center of this diaphragm I secure a hook —*e*—, and —*e'*— is a chain having one end connected thereto. This chain is of carbon or other good conducting material and of any style or shape of link, or is in any manner made up of sections flexibly connected together.

Upon the backing —*a*— I secure a bracket —*h*— of substantially the form shown, composed of any good conducting material, and —*k*— is an adjusting screw mounted therein, its outer end being in engagement with the

spring —*k'*—, secured to the bracket, the free end of which is provided with a hook, as shown, to which the inner end of said spring is connected, said spring producing and maintaining the tension upon the chain and the diaphragm, and the degree thereof being adjusted by said set screw. One terminal wire —*m*— is connected to said hook; and the other one —*n*— is connected to the bracket, through the binding screw —*n'*—. It will be be apparent that the latter wire can be also connected to the chain, the spring or even to the adjusting screw in any ordinary manner, when the bracket is made from non-conducting material.

In Fig. 3 I show a worm screw —*r*— engaging with a pinion —*r'*— which is in engagement with a sliding rack bar —*r''*— to the outer end of which the chain is connected, all being mounted in the bracket substantially as shown, and by which the tension of the chain and of the diaphragm is adjusted.

In Fig. 4, I show a sliding bar —*w*— to one end of which the chain is connected, and having its other end threaded interiorly to receive the screw, both being mounted in the bracket substantially as shown, and operating together to maintain and regulate the tension, of the chain and diaphragm.

It will be seen that the slackening and tightening of the chain will vary the resistance of the circuit, in proportion to the varying impact of the sound waves upon the diaphragm, and the resultant vibration thereof; and will accordingly vary the flow of the electric current, according to the variation in the intensity or volume of sound emitted upon the diaphragm from the receiver through the orifice, at the inner end thereof.

What I claim as my invention and desire to secure by Letters Patent, is

In a telephone transmitter, the combination of a non-conducting diaphragm, a hook secured to said diaphragm, a carbon chain connected to said hook, and means for supporting and regulating the tension of said carbon chain, consisting of a bracket, a sliding rack-bar mounted in said bracket, a pinion in engagement with said rack-bar and the worm screw engaging said pinion, said sliding rack-bar being provided with a hook for engaging the other end of the chain, substantially as shown and described.

In witness whereof I have hereunto set my hand this 29th day of February, 1892.

HARRY L. TYLER.

In presence of—
L. M. MILLSPAUGH,
C. E. DRAKE.