

(No Model.)

A. G. HOLCOMBE.  
MECHANICAL TELEPHONE.

No. 306,616.

Patented Oct. 14, 1884.

*Fig. 1*

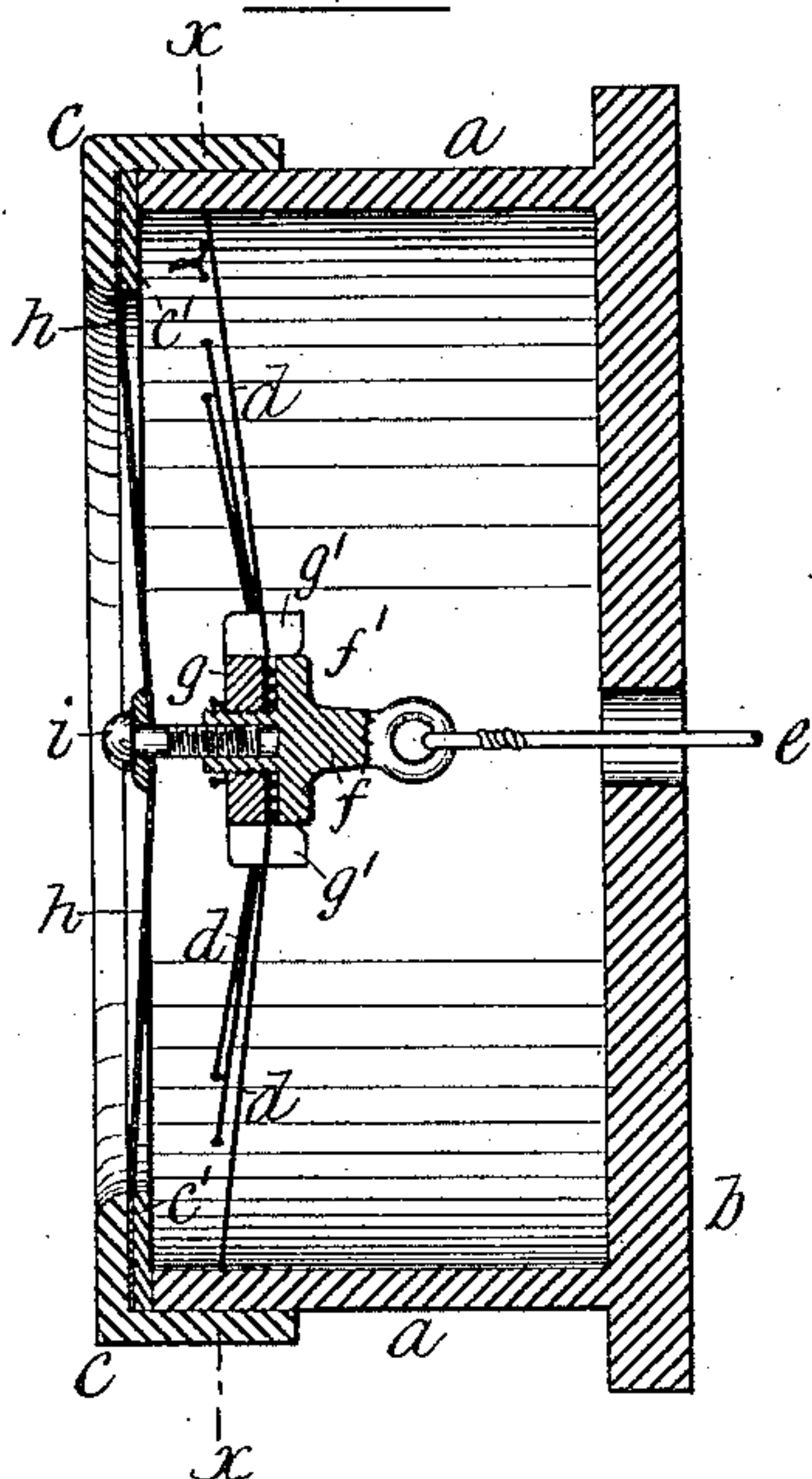


Fig. 2

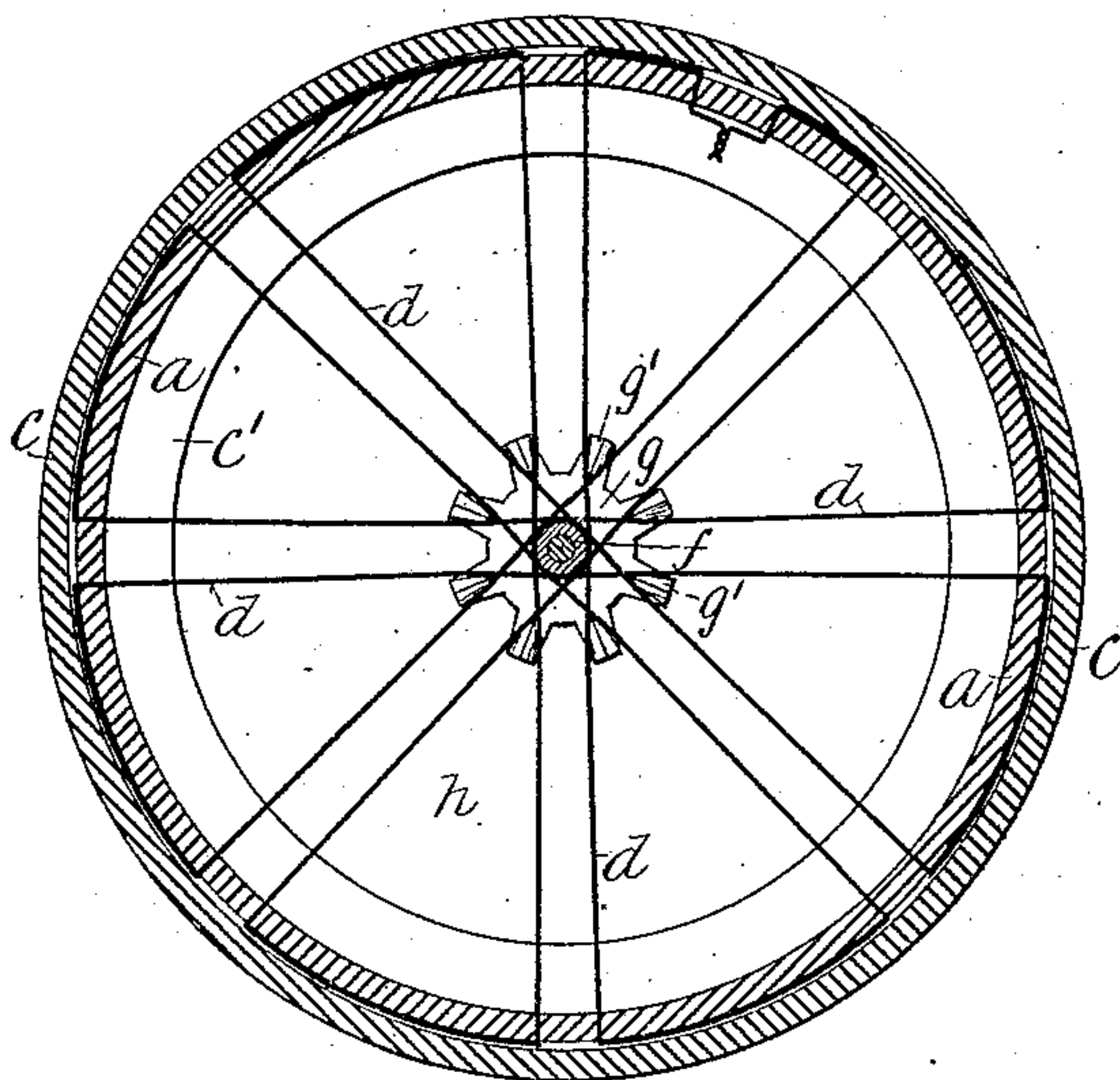
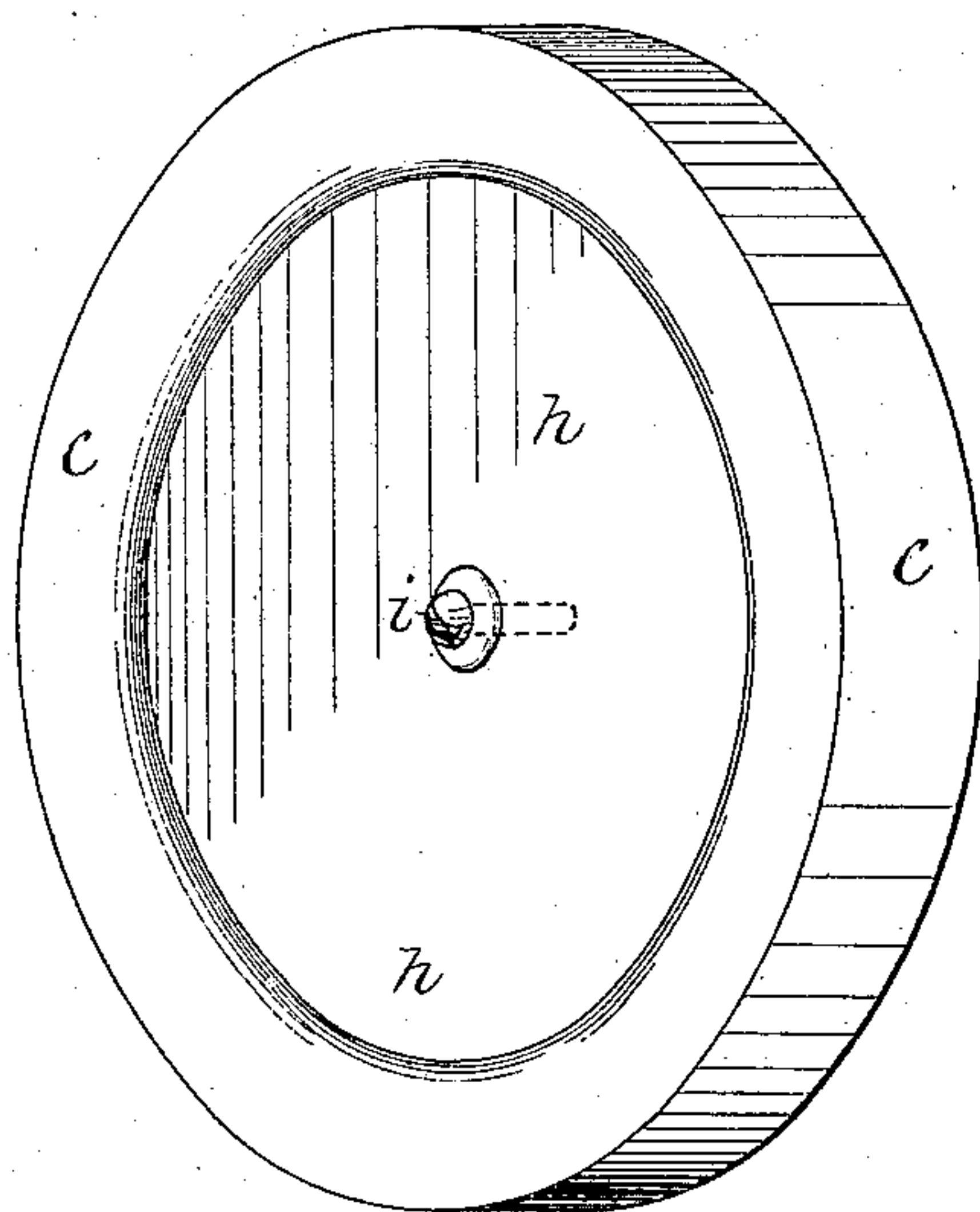
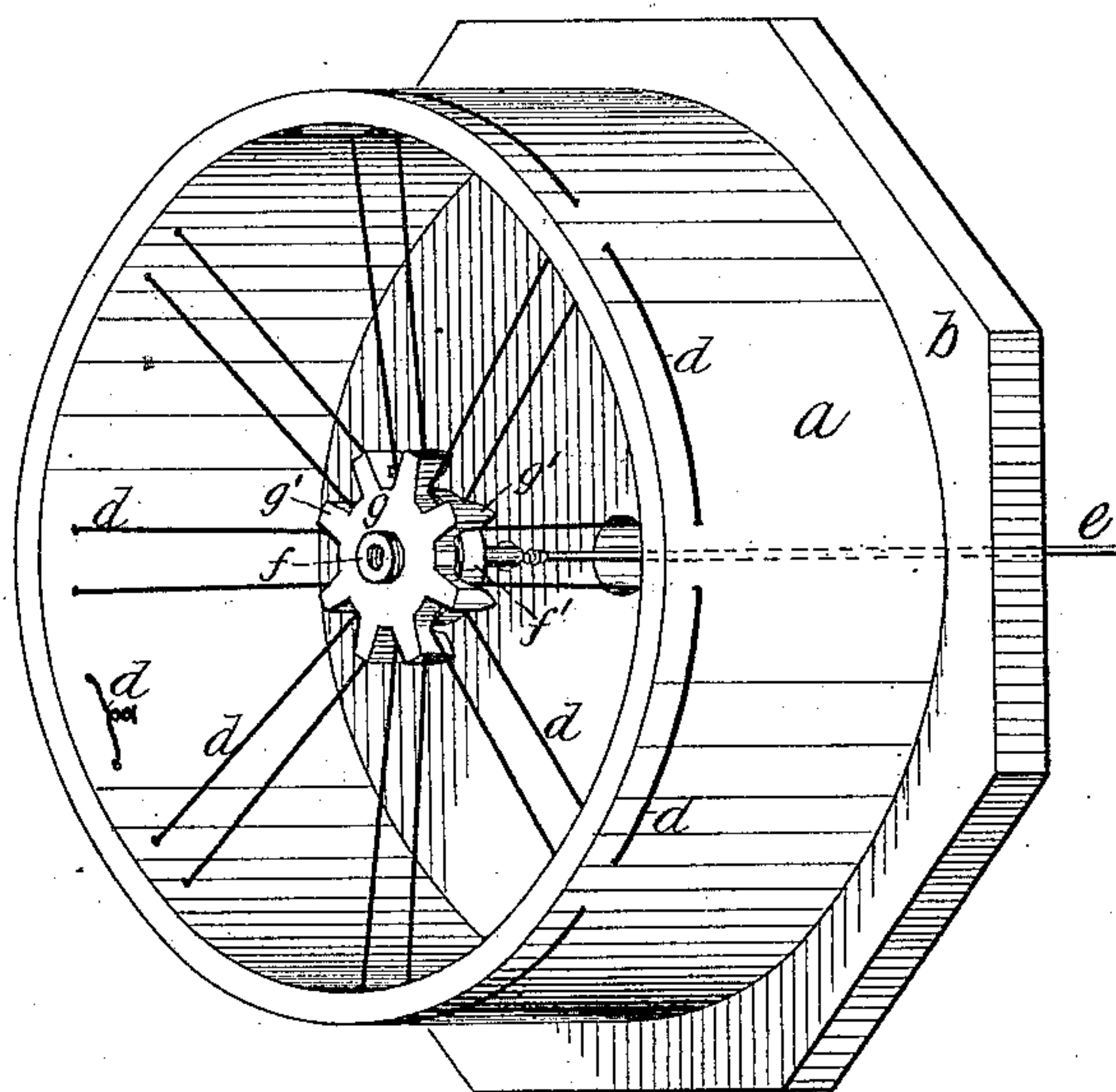


Fig. 4



*Fig. 3*



Witnesses.

G. D. Williams

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Alfred G. Halcombe

Inventor

per  
Alfred Shewlock.  
Atty.



# UNITED STATES PATENT OFFICE.

ALFRED G. HOLCOMBE, OF NEW YORK, N. Y., ASSIGNOR TO THE EQUITABLE  
ELECTRIC COMPANY, OF SAME PLACE.

## MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 306,616, dated October 14, 1884.

Application filed June 4, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED G. HOLCOMBE, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Mechanical Telephones, of which the following is a specification.

In mechanical telephones heretofore made the end of the line-wire is secured directly to the diaphragms, and dependence is placed on the strength of the diaphragms, which in some cases have been re-enforced to hold said line-wire under tension. It is necessary, to obtain good results, that the line be stretched as tightly as possible, so as to transmit the sounds in a perfect manner, and this desideratum I attain by stretching the line-wire between suitable supports or braces independent of the sound receiving or transmitting diaphragms, which are by suitable means adjustably connected to the ends of the line-wire after it is erected, subjected to the maximum tensional strain it will bear. The diaphragms, which are fastened to or form the covers of the cases in which the ends of the line-wires are supported under tension, are drawn at their centers toward the ends of the line-wires by means of screws, by which they are submitted to the proper strain to produce perfect results when the instruments are used either as transmitters or receivers.

A simple and effective way for holding the line-wire under tension independent of the diaphragms consists in arranging in the telephone-cases a series of transverse wires, or one piece of wire passed several times through the sides of the case so as to cross at or near the center thereof, at which part of these transverse wires the end of the line-wire is secured by means of a suitable clamping device, so that the tension strain of the line-wire applies a transverse strain to them; but to describe my invention more particularly I will now refer to the accompanying drawings, in which—

Figure 1 is a longitudinal central section of my improved mechanical telephone. Fig. 2 is a transverse section of the same on the line  $x x$ , looking toward the diaphragm. Fig. 3 is a perspective view with the diaphragm and cover removed, and Fig. 4 is a perspective view of the diaphragm and cover.

The case of the instrument is composed of the body  $a$ , shown cylindrical in form, but which may be of any desired shape, the base  $b$ , to which the body  $a$  is secured, and the ring  $c$ , made so as to fit over the open end of the body  $a$ .

Through holes in the body  $a$  is passed the wire  $d$ , in the manner shown, so that the transverse parts thereof are stretched across the inside of the body in pairs, leaving a space between them at the center of the body.

Separate pieces of wire stretched across the body  $a$ , and secured thereto in any suitable manner, may be used instead of one piece passed back and forth as shown, and the number of sections crossing the interior of the case may be varied as desired. The end of the line-wire  $e$  is secured in an eye formed on the bolt  $f$ , which is provided with a flange,  $f'$ , and the front end of which is screw-threaded, so as to fit in the nut  $g$ . This nut  $g$  is provided with a series of taper projections,  $g'$ , on its periphery, which extend some distance from its face, and are so arranged as to fit in the outer angles formed by the crossing of the transverse parts of the wire  $d$ , in such a manner as to draw said wires somewhat together, and securely hold them in position when the central parts of the wire are clamped between the face of the nut  $g$  and the flange  $f'$  of the bolt  $f$ . The line-wire  $e$  is by this means securely fastened to the transverse supporting-wires  $d$ , and can be stretched to any desired extent after the case is secured in position, independent of the diaphragm, as shown in Fig. 3.

To the inside of the ring  $c$  of the cover, the side flange of which covers the parts of the wire  $d$  which are on the outside of the case  $a$ , is secured the diaphragm  $h$  by its edges being clamped between the flat ring  $c'$  and the flat part of the ring  $c$ , a suitable cement being used for this purpose; or they may be fastened together by means of rivets. After the diaphragm  $h$ , with the ring  $c$ , is placed over the open end of the case  $a$ , the center of the diaphragm is connected to the bolt  $f$  by means of the small screw  $i$ , which is passed through it into a tapped hole formed in the end of the bolt  $f$ , thus providing a simple means by which the diaphragm may be adjustably stretched, and subjected to the right strain to



produce the best results, and this, too, after the line-wire is erected in position under the proper tension, and without interfering with or decreasing the tension of the line-wire.

5 What I claim, and desire to secure by Letters Patent, is—

1. In a mechanical telephone, the combination of a line-wire secured and permanently held under tension with a diaphragm independent thereof, but adjustably connected at its center to the end of the line-wire, substantially as and for the purpose set forth.

2. In a mechanical telephone, a line-wire secured at its ends under tension to transverse wires in the case of the instruments, in combination with a diaphragm connected to the end of the line-wire, or to the central parts of the transverse wires, substantially as and for the purpose set forth.

20 3. In combination, an open-end case, a series of transverse wires stretched across the interior thereof, a bolt to which the line-wire is attached, and a nut fitted on the end of the

bolt, so as to connect the same firmly to the center of the transverse wires, substantially as set forth. 25

4. In combination, the case *a*, transverse wire *d*, bolt *f*, nut *g*, provided with projections *g'*, diaphragm *h*, and adjusting-screw *i*, substantially as set forth.

5. As a new means for holding a mechanical telephone line-wire under tension, the case *a*, the wire *d*, passed through the sides and transversely across the interior thereof, and a clamping device, by which the line-wire is connected to the centers of the transverse parts of the wire *d*, in combination, substantially as set forth. 30 35

In witness whereof I have hereunto set my hand at New York, county and State of New York, this 19th day of May, 1884. 40

ALFRED G. HOLCOMBE.

Witnesses:

ALFRED SHEDLOCK,  
J. M. PENDLETON.