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P. J. SPIES & R. C. DEUBEN.
TELEPHONE TRANSMITTER.
APPLICATION FILED NOV. 1, 1902.

Fig. 1.

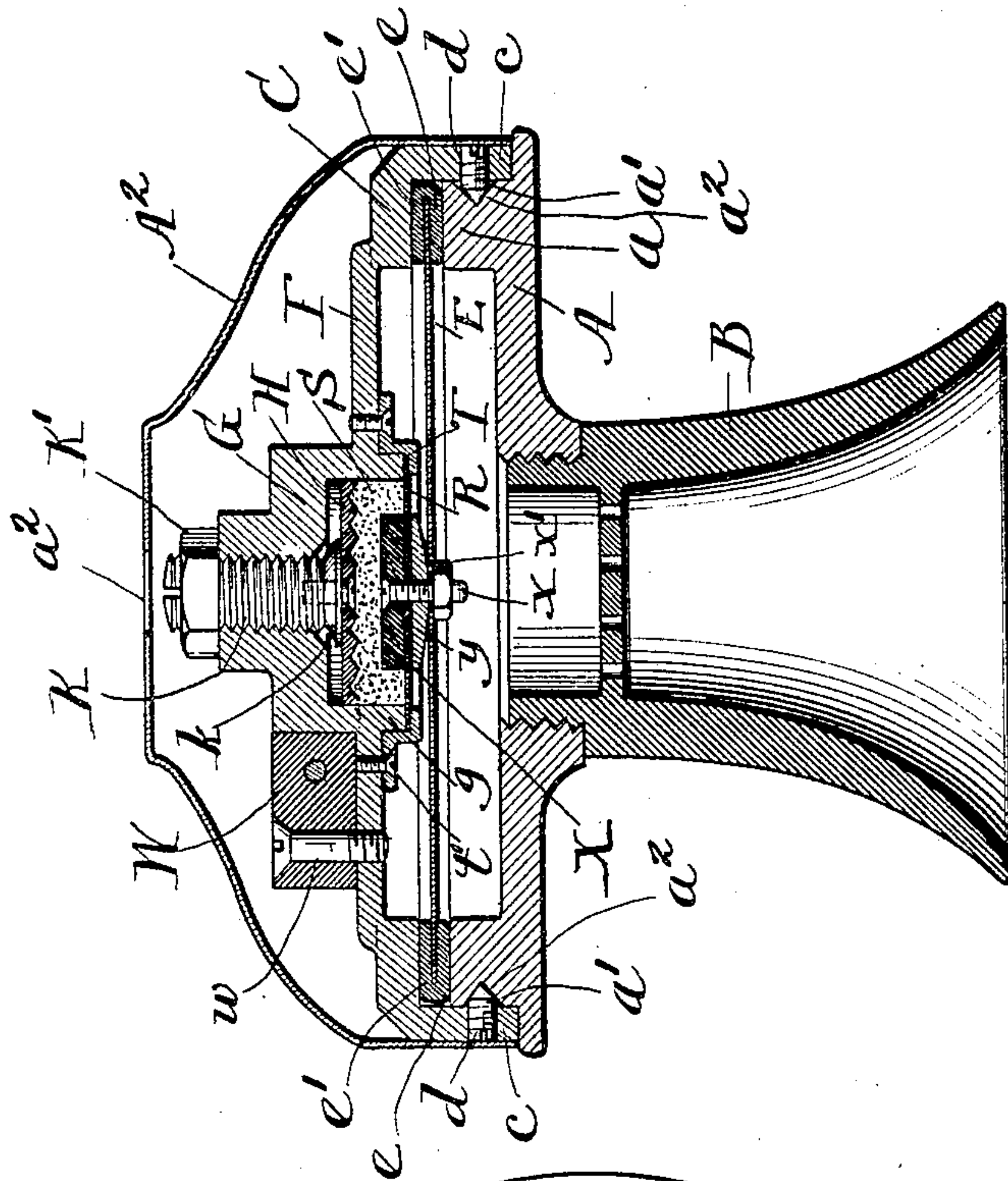


Fig. 2.

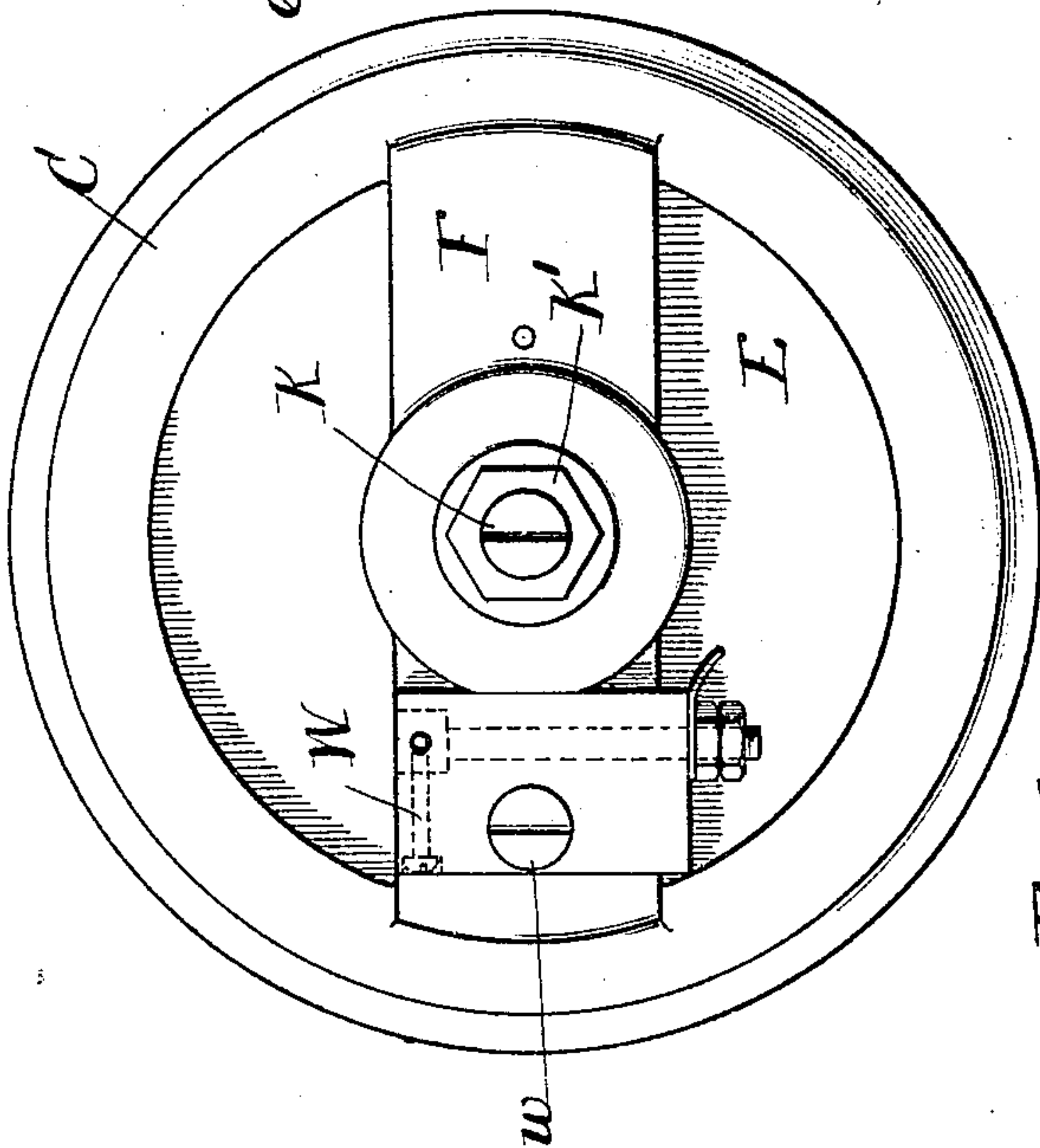
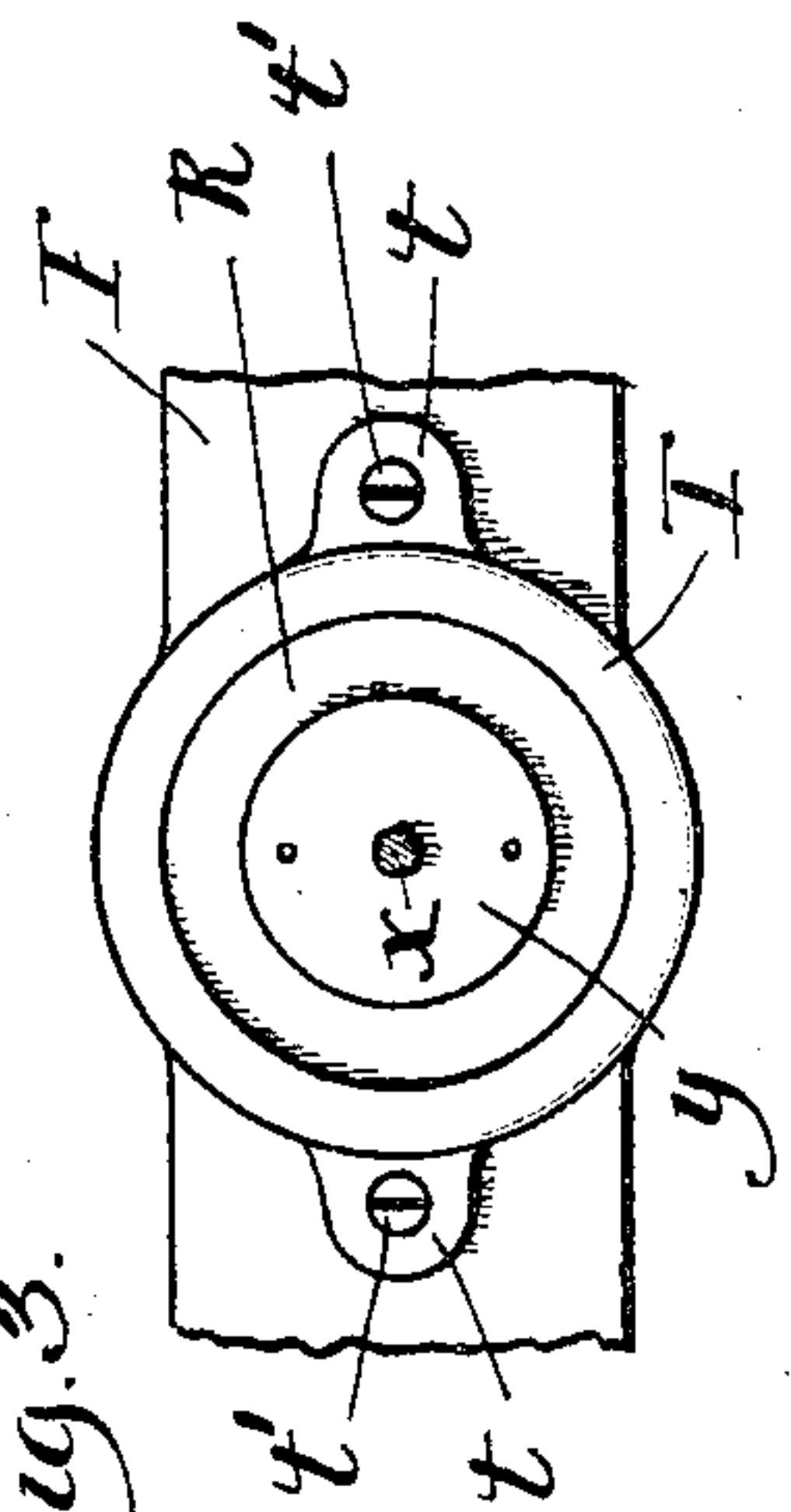


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TELEPHONE-TRANSMITTER.

No. 800,767.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PHILIP J. SPIES and RUDOLPH C. DEUBEN, citizens of the United States, and residents of Chicago, Cook county, Illinois, have jointly invented certain new and useful Improvements in Telephone-Transmitters, of which the following is a full, clear, and exact description.

This invention has relation to the improvement of telephone-transmitters of the type commonly known as "solid-back" transmitters; and the invention has for its object to improve and simplify the construction of this type of transmitter. This object of the invention is accomplished by the novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view in vertical longitudinal section through a telephone-transmitter embodying our invention. Fig. 2 is a back view, the cover of the transmitter being removed. Fig. 3 is a detail front view showing a portion of bridge-plate with means for holding the auxiliary diaphragm thereon.

A designates the front plate of the transmitter, that is provided, as usual, with the mouthpiece B. The back of the plate A is formed with an annular flange *a*, adapted to set within the annular flange *c* of the back ring C. The outer face of the flange *a* is preferably formed with an annular V-shaped groove *a'*, adapted to receive the pointed inner ends of set-screws *d*, that pass through threaded holes in the flange *c* of the back ring C. It is preferred to form the flange *a* with an annular groove *a'*, because the screws *d* can then be set at any point at which they may chance to come around the periphery of the flange. The purpose in forming the grooves *a'* with the inclined surface *a''* is to enable the back ring C to be drawn toward the flange *a* when the screws *d* are forced inward, and by this means the major diaphragm E has its edges firmly clamped between the folds *e e'* of the rubber gasket that is interposed between the back ring C and the flange *a* of the front plate. By this means a most simple and effective provision is afforded whereby not only may the front and back parts of the transmitter be securely connected together, but the edges of the major dia-

phragm are firmly and rigidly clamped in position for use.

Heretofore in the construction of solid-back transmitters it has been customary to attach to the back of the front plate a separate bridge that carried the electrode-cell in which the electrodes and carbon granules were sustained. Our present invention contemplates that the bridge-piece shall be carried by the back ring, that is detachably connected to the front plate, as practice has demonstrated that by this construction a much more easy, secure, and effective adjustment and alinement of the parts is possible than with prior constructions. Preferably the bridge-piece F is formed integral with the back ring C, these parts being made of suitable metal, and by preference also the bridge-piece F has the electrode-cell G formed integral therewith, this cell serving to hold the electrodes and carbon granules.

One of the electrodes H is fixed upon the end of an adjusting-screw K, the inner end of which screw is formed with an expanded or flanged portion *k*, while the outer end of the screw K extends through a threaded hole in the back of the cell G and is furnished with a lock-nut K'. The purpose of the screw K is to adjust the electrode H as may be required, and the purpose of the flange *k* at the end of the screw K is to prevent the electrode H from contacting with the back wall of the cell G and being broken or withdrawn from the end of the screw K, since obviously when the screw K is drawn outward until the flange *k* strikes the back wall of the cell G the further movement of the screw K is arrested. The cell G has its wall extending forwardly, has an annular flange *g* beyond the front face of the bridge F, and upon this annular flange *g* will rest the auxiliary diaphragm R, whereby the carbon granules S are retained within the cell G. The outer edge of the auxiliary diaphragm R is clamped by a ring T, that is preferably formed with perforated lugs *t*, through which pass the retaining-screws *t'*, that hold the ring T firmly upon the bridge F. The inwardly-turned edges of the ring T serve to securely clamp the auxiliary diaphragm R against the front edge of the flange *g*, and thus effectively serve in retaining the carbon granules within the cell G. Upon the inner face of the auxiliary diaphragm R is fastened by the screw *x*

the electrode X. This screw x passes through the auxiliary diaphragm R, the plate or block y , and through a central hole in the major diaphragm E, and upon the threaded end of the screw x is fitted a nut x' , whereby the major diaphragm E is firmly clamped to the block y . To the bridge F an insulating-block W, with screw w to hold cord-terminals, is fixed. The back of the transmitter is covered by a cap or shield A^2 , having a hole a^2 therein for passage of the wire cord, this shield A^2 being attached to the flanged back ring C in the usual manner.

While we have described what we regard as the preferred embodiment of our invention, we wish it understood that the precise details of construction above set out may be varied without departing from the spirit of the invention and that features of the invention may be employed without its adoption as an entirety.

So far as we are aware this invention presents the first instance of a transmitter in which the front plate is provided with an annular flange and with a back ring extending opposite the rear face of said flange and having at its outer edge a forwardly-extending annular flange encircling the flange of the front plate, the periphery of the front-plate flange having an annular groove to receive screws extending radially through the flange of the back ring, so that the parts may be readily set in position without the necessity of bringing the front plate and the back ring to any exact relative point. We believe also that this invention presents the first instance of a transmitter having a back ring provided with a bridge formed integral therewith and having an integral electrode-cell provided at its front with an auxiliary diaphragm fixed thereto, the rear electrode being provided with an adjusting-screw passing through the back of the electrode-cell.

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

1. A telephone-transmitter comprising a front plate provided with a mouthpiece and with a rearwardly-extending annular flange, said flange having upon its periphery an an-

nular V-shaped groove adapted to receive the points of clamping-screws, a back ring having at its outer edge a forwardly-extending annular flange encircling the flange of the front plate and screws passing through said back-ring plate and entering the V-shaped annular groove of the front-plate flange and a diaphragm having its periphery interposed between the back ring and the rearwardly-extending annular flange of the front plate.

2. A telephone-transmitter comprising a front plate, a back ring connected to said front plate, a bridge carried by said back ring, a main diaphragm clamped between said front plate and said back ring, an electrode-cell formed integral with said bridge, an auxiliary diaphragm within said cell, the inner end of said cell being provided with an annular flange projecting inwardly from said bridge and engaging the edge of said auxiliary diaphragm to firmly secure said diaphragm and hold it in place when said front plate and said main diaphragm are removed and electrodes and granules within said cell.

3. A telephone-transmitter comprising a front plate and a back ring detachably connected together and having interengaging annular flanges, a main diaphragm clamped between said plate and ring, a bridge formed integral with said ring and having integral with it an electrode-cell, an auxiliary diaphragm at the forward end of said cell, an annular flange projecting inwardly from said bridge and engaging the edge of said auxiliary diaphragm to firmly secure said diaphragm and hold the same in place when said front plate and main diaphragm are removed from said back ring, a front electrode in said cell detachably connected to both of said diaphragms, a back electrode in said cell, an adjusting-screw connected to said back electrode and threaded through the back of said cell, granules between said electrodes and an inclosing casing connected to said back ring.

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