

1,229,634.

R. H. MANSON.
TELEPHONE TRANSMITTER.
APPLICATION FILED AUG. 17, 1914.

Patented June 12, 1917.

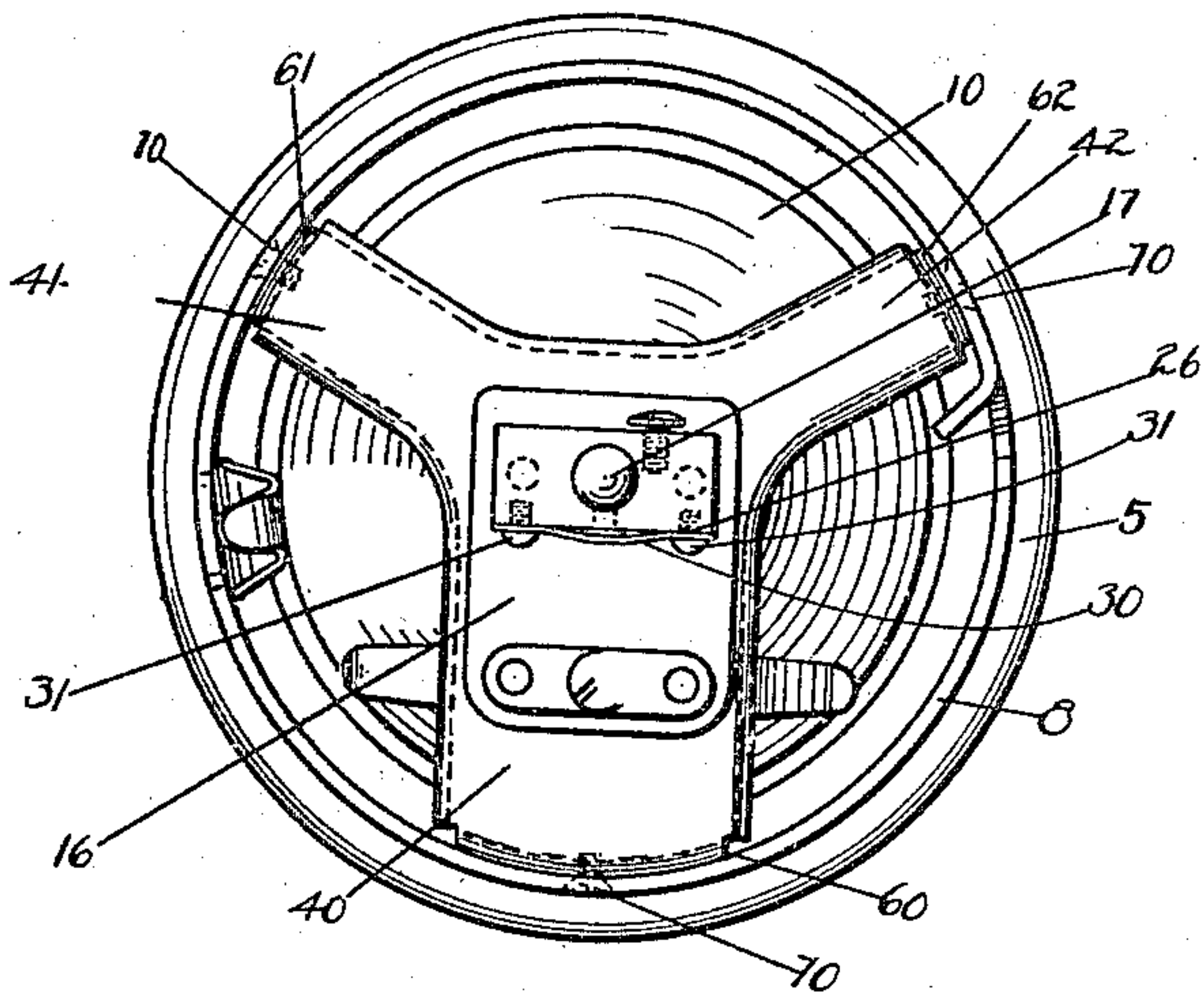


Fig. 1

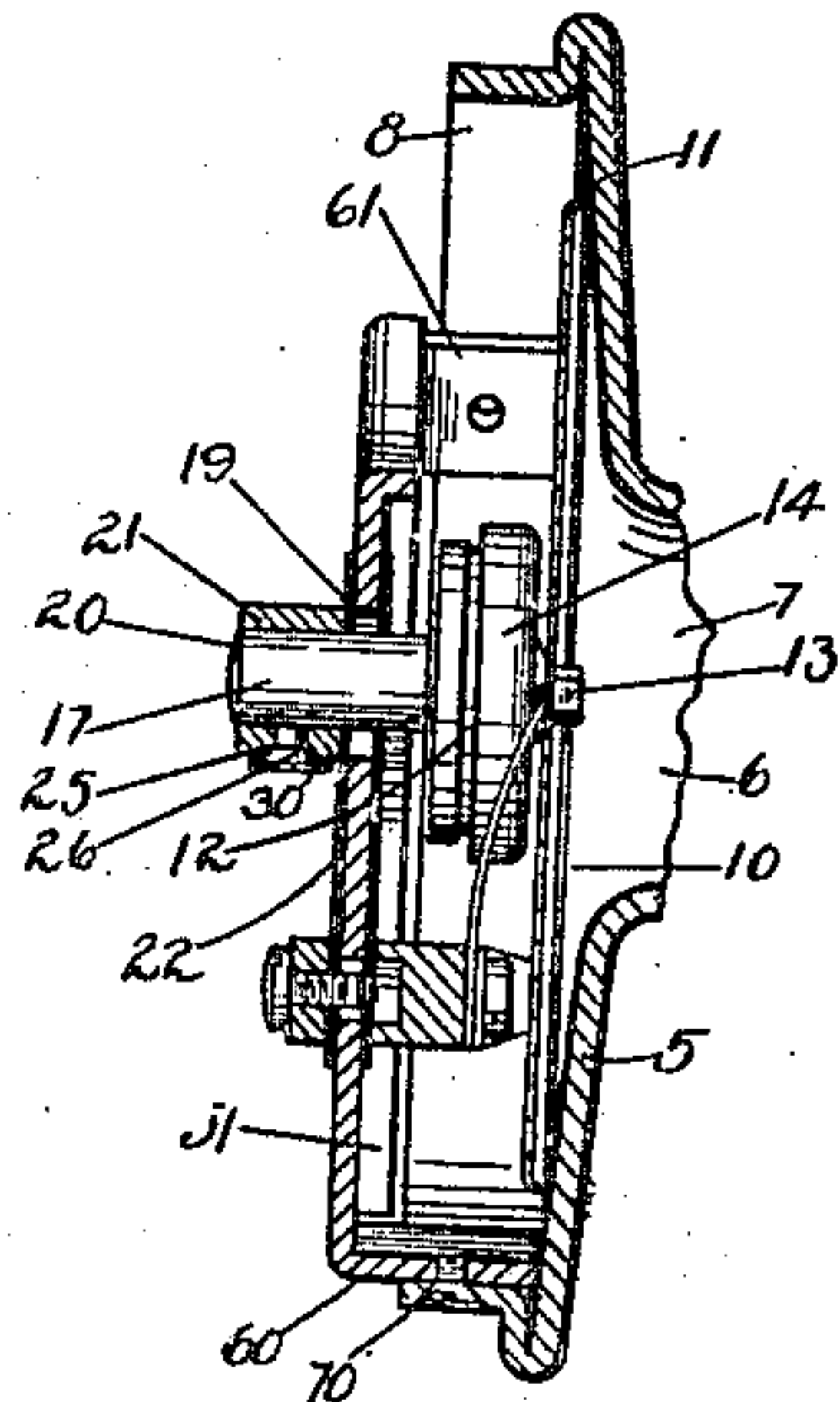


Fig. 2

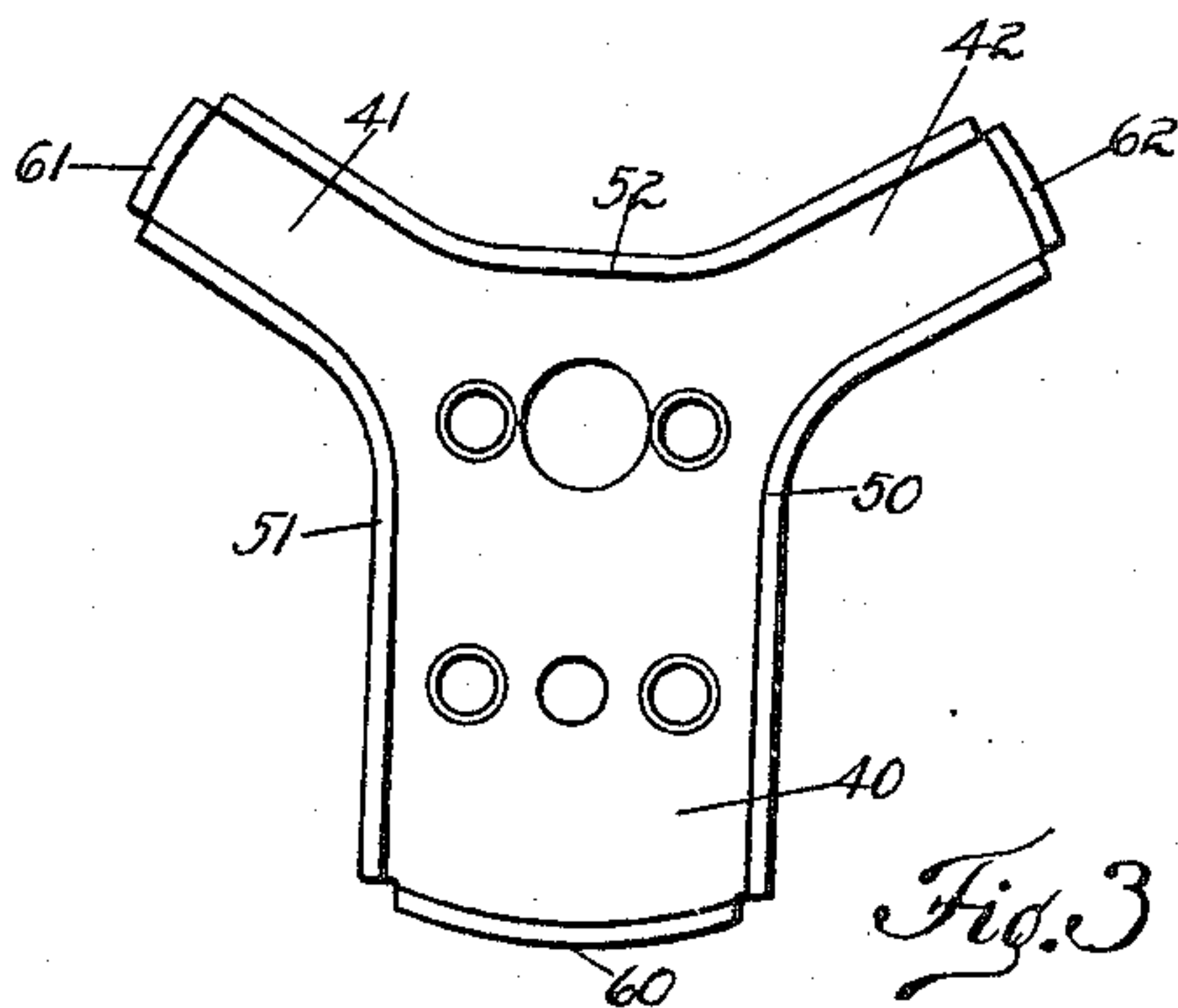


Fig. 3

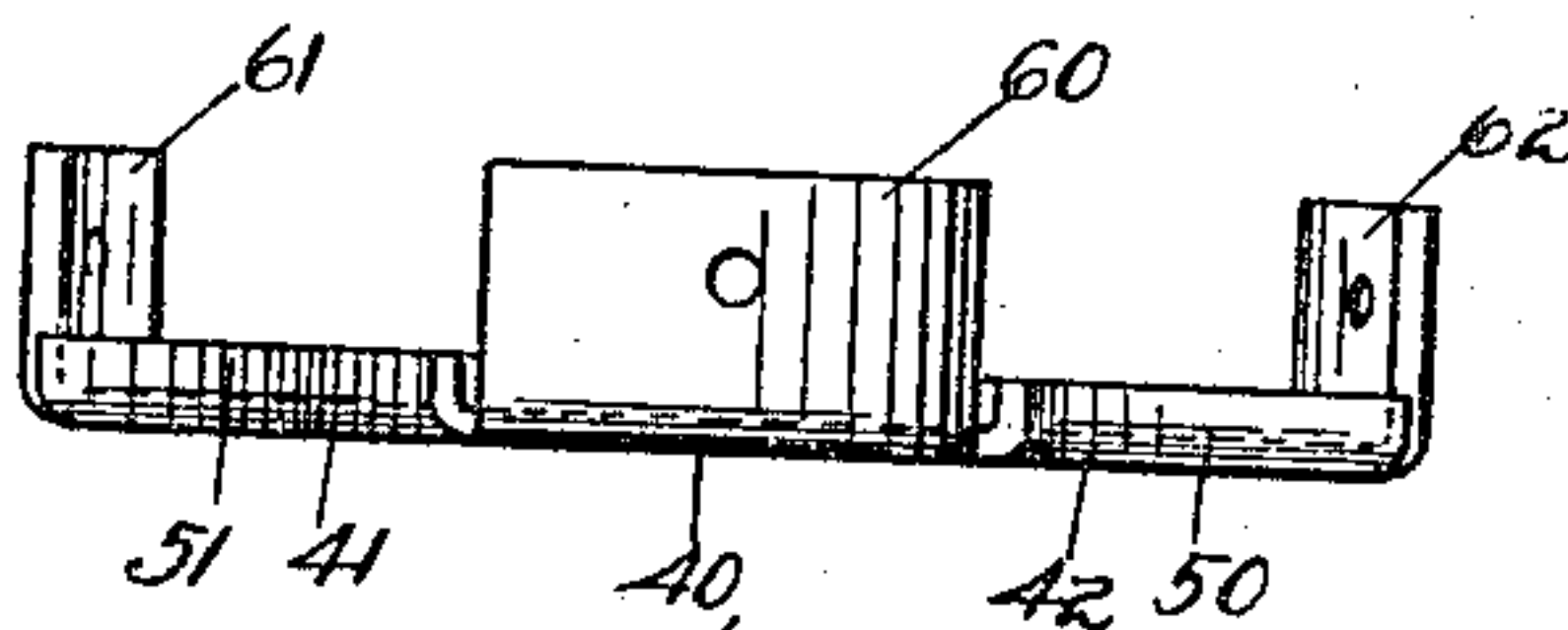


Fig. 4

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UNITED STATES PATENT OFFICE.

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TELEPHONE-TRANSMITTER.

1,229,634.

Specification of Letters Patent.

Patented June 12, 1917.

Application filed August 17, 1914. Serial No. 857,057.

To all whom it may concern:

Be it known that I, RAY H. MANSON, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Telephone-Transmitters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to telephone transmitters, and more particularly to a transmitter in which means are employed for keeping in proper adjustment the parts of modern transmitters. Transmitters are ordinarily adjusted at the factory under a certain set of temperature and climatic conditions. As is well known, these conditions change and the delicate adjustment is spoiled which affects the future efficiency of the transmitter.

One of the objects of my invention is to provide means which will automatically take care of the change in association of the parts which results from such changes as are due to change in temperature, expansion and contraction of the various parts, microscopic changes due to wear, et cetera.

Another object of my invention is to provide a stiff, rigid support for the rear electrode of the transmitters, and one which will not permit even infinitesimal twistings or shifting in the position of the rear electrode.

Other objects of my invention and the invention itself will be better understood from a description of an embodiment of the invention.

Figure 1 is a rear plan view of an embodiment of my invention.

Fig. 2 is a section through the embodiment shown in Fig. 1, showing the transmitter cup in elevation.

Fig. 3 is a front plan view of the support for the rear electrode.

Fig. 4 is a side elevation of the element shown in Fig. 3.

Referring now to the embodiment illustrated in the drawing, at 5 is shown the front casing of the transmitter, here constituting a base for other parts and which is provided with an opening 6 for the entrance of sound waves. A mouth-piece 7 may be mounted in this opening. I have shown here only a portion of the mouth-piece, as its

structure and association with the casing front is well understood. A support is formed upon the back of the front. In the embodiment illustrated this support consists of a flange 8 integral with the front. The transmitter diaphragm is illustrated at 10. In the form shown this diaphragm is turned over at its edge to form a flange 11, and the edge of this flange abuts against the casing front, and is insulated from the latter by a suitable flat washer of insulating material. The transmitter electrodes are associated together in transmitter relation with each other in some suitable way, such as by a cup and carbon granules. The transmitter cup is shown at 12 and is of ordinary and well known construction. The front electrode is connected at 13 to the diaphragm in any suitable manner, such as by a threaded shaft on the electrode, and a nut upon the shaft. The edge of the cup 12 is connected to the front electrode through an auxiliary diaphragm of suitable material, such as mica and a threaded ring 14. This structure is all well known. The rear electrode may consist of the bottom of the cup 12, or be mounted in the bottom in any suitable manner and granular carbon placed in the cup between the electrodes, all in a manner well known.

The rear of the cup is connected to a bridge 16 in some suitable manner, such as through a shank 17 on the bottom of the cup. This shank extends through an opening 19 in the support 16, and into a bore 20 in a block 21 fastened by any suitable means to the bridge, and is illustrated in the drawing to the rear of the bridge, being insulated therefrom by insulating material 22, the block and bridge thus constituting a support for the rear electrode. The block 21 is cross-drilled, as shown at 25, and a friction member 26 is inserted therein. Suitable means are provided for holding the member 26 in engagement with the shank 17, here shown as a spring 30 which is connected by suitable means, such as screws 31 to the block. The means 30 exerts such pressure upon the rear electrode through the intervening members that it is not moved when the diaphragm is vibrated by voice waves. This pressure, however, is not sufficient to prevent the movement of the rear electrode in response to the contraction and expansion of the parts of the transmitter structure

which result from changes in temperature, from irregularities in manufacture, or for other reasons.

The bridge 16, unlike the bridges which have hitherto been used, forms a rigid, stiff support for the rear electrode, and prevents this electrode from being twisted out of parallelism with the front electrode, at the same time allowing for irregularities in manufacturing, and permitting the support to expand and contract as a result of changes in temperature. As illustrated in the drawing, the member 16 comprises three limbs, the limb 40 being wider than the limbs 41 and 42. The wide limb 41 carries the electrical terminals of the transmitter and the block for the rear electrode. The edges of the limbs are turned over to form flanges 50, 51 and 52 extending along the limbs up to a point closely adjacent the flange 8 upon the casing front. Connecting means 60, 61 and 62 are formed upon the ends of the limbs 40, 41 and 42, and through these connecting means the support 16 is connected to the casing, for example, through the flange 8, by any suitable means, such as screws 70. When so connected, the ends of the members 60, 61 and 62 should rest against the inside face of the casing. The flanges 50, 51 and 52, as will be seen, are not carried along the connecting means 60, 61 and 62, as it is desired that there should be some flexibility in the connecting means, and to the limbs next adjacent thereto, in order to allow for the expansion and contraction due to the causes mentioned. Owing to the stiffening flanges, the bridge will not sag, hog or otherwise buckle, any irregularities or expansions being taken up by the flexible ends of the bridge.

It will readily be seen that my transmitter may be more easily adjusted at the factory, and that owing to the structure of the support for the rear electrode, the changes in adjustment resulting from expansion and contraction of the parts will not only be greatly reduced by the rigid nature of the support and by its adaptability to direct its expansion and contraction, but will be cared for by the automatic adjustable features of the transmitter.

While I have shown this particular embodiment and these particular details, I do not wish to be limited thereto, my idea being to illustrate my invention by such embodiment and details, from which numerous departures may be made without departing from the spirit of the invention.

I claim:

1. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes, one of which is connected to the diaphragm, a support for the other electrode, relatively flexible means to connect the support to the base, a stiffening flange along

the edge of said support, and means to associate said electrodes together in transmitter relation.

2. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes, means to connect one of said electrodes to the diaphragm, a three-limbed support for the second electrode, means to connect the second electrode to the support, means to connect the support to the base, and flanges along the edges of the limbs of the support.

3. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes, means to associate said electrodes together, means to connect one of said electrodes to the diaphragm, a three-limbed support for the other electrode, means to adjustably connect said other electrode to said support, means to connect said support to said base, and flanges along the edges of the limbs of the support.

4. In a telephone transmitter, the combination of a diaphragm, a pair of electrodes, means to connect one of the electrodes to the diaphragm, a support for the second electrode, means to associate the electrodes together, and yielding means to connect the second electrode to the support, said last named means acting in a plane substantially parallel to the diaphragm.

5. In a telephone transmitter, the combination of a base, a diaphragm, an electrode and means to connect it to the diaphragm, a second electrode, means associating said electrodes together in transmitter relation to each other, a support for the second electrode and means normally inoperative to exert pressure upon said diaphragm for automatically adjusting said second electrode.

6. In a telephone transmitter, the combination of a base, a diaphragm, an electrode and means to connect said electrode to the diaphragm, a second electrode, means for associating said electrodes together in transmitter relation, supporting means for said electrode including a perforated member, a shank associated with the second electrode extending into the perforation in said perforated member, a friction exerting member mounted in the perforated member and normally engaging the shank and yielding means to hold said friction member in engagement with said shank, whereby the second electrode is adjustably held by the supporting means.

7. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes and means to associate said electrodes in transmitter relation to each other, means to connect one of the electrodes to the diaphragm, a shank connected to the rear electrode, supporting means for the rear electrode including a perforated member, the shank extending into the perfora-

tion in said last named member and means for exerting a yielding pressure upon said shank in a direction substantially parallel to a plane passing through the two longest
5 of the principal axes of one of said electrodes.

8. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes, and means to associate said electrodes in transmitter relation to each other,
10 means to connect one of the electrodes to the diaphragm, a shank connected to the rear electrode, supporting means for the rear electrode including a perforated member, the shank extending into the perforation in
15 said last named member and means to exert a yielding pressure upon the side of said shank.

9. In a telephone transmitter, the combination of a base, a diaphragm adapted to be vibrated in response to voice waves, a pair of electrodes, means to associate said electrodes in transmitter relation with each other, means to connect one of the electrodes
25 to the diaphragm, a support for the second electrode and yieldable means for preventing the second electrode from vibrating when the diaphragm vibrates in response to voice waves.

30 10. In a telephone transmitter, the combination of a base, a diaphragm, a pair of electrodes, means associating said said electrodes together in transmitter relation, means to connect one of said electrodes to the diaphragm, a support for the second
35 electrode, and yielding means normally exerting no pressure on said diaphragm for permitting said second electrode to move in

said support to compensate for changes in configuration of said parts. 40

11. In a telephone transmitter, the combination of a base, a main or sound receiving diaphragm, an electrode connected to the main diaphragm, a carbon granule containing cup, a mica diaphragm inclosing
45 said cup, a second electrode, said electrodes being mounted in said cup, supporting means for the second electrode including a perforated member, a cylindrical shank connected to the second electrode extending
50 through the perforation in said perforated member, a second perforation in said member cross-drilled with respect to said first perforation, a plunger in said second perforation adapted to exert friction upon said
55 shank and a spring pressing said plunger into yieldable engagement with the shank.

12. In a telephone transmitter, the combination of a base, a main diaphragm, a pair of electrodes and means to associate said
60 electrodes in transmitter relation to each other including a flexible diaphragm, means to connect one of said electrodes to the diaphragm and mechanism exerting no pressure on said flexible diaphragm for permitting
65 the automatic adjustment of one of said transmitter electrodes with respect to the other.

In witness whereof, I have signed my name in the presence of two witnesses this
70 7th day of August, 1914.

RAY H. MANSON.

Witnesses:

S. A. BEYLAUCES,
GEO. E. ROBERTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."