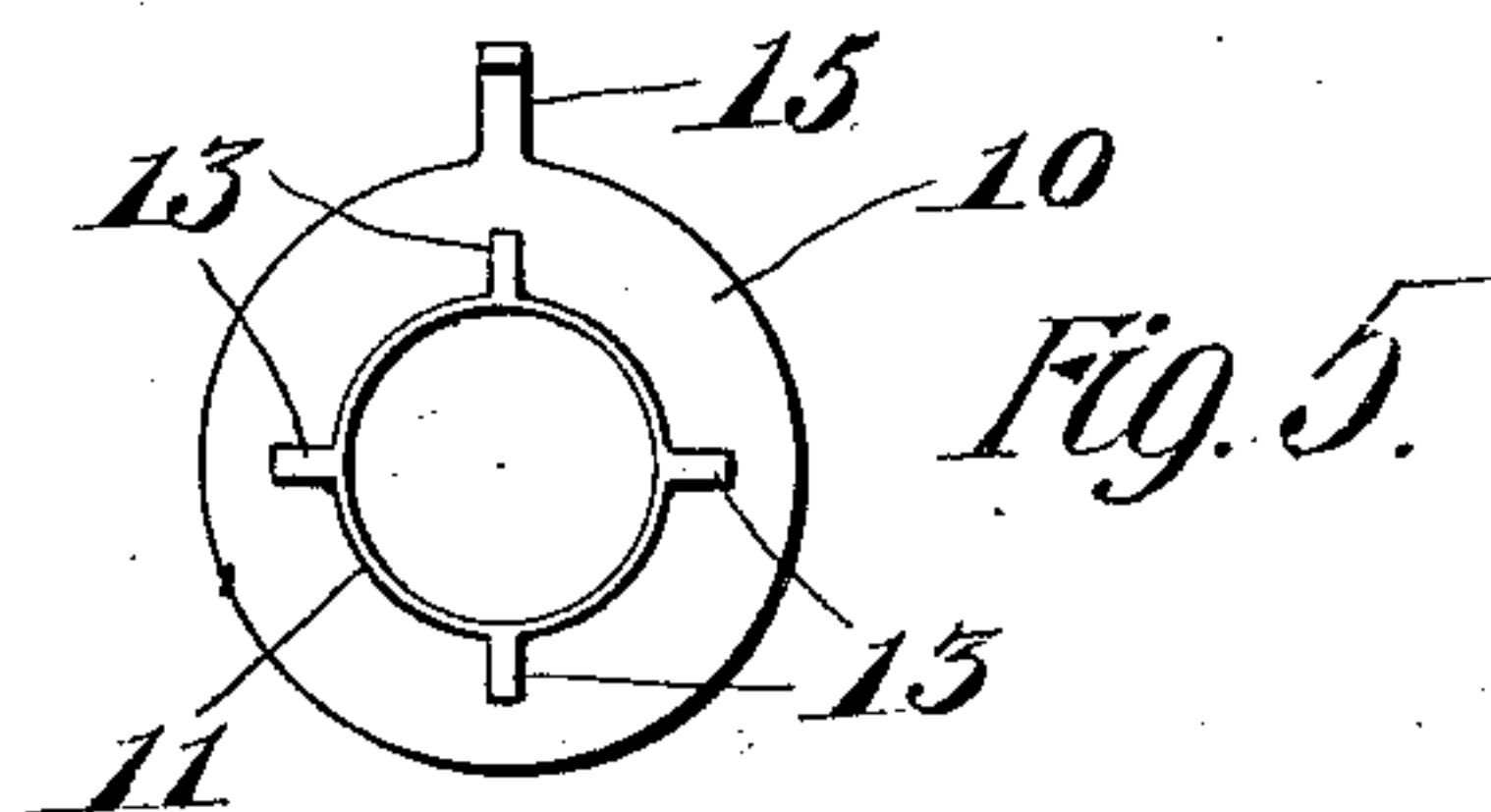
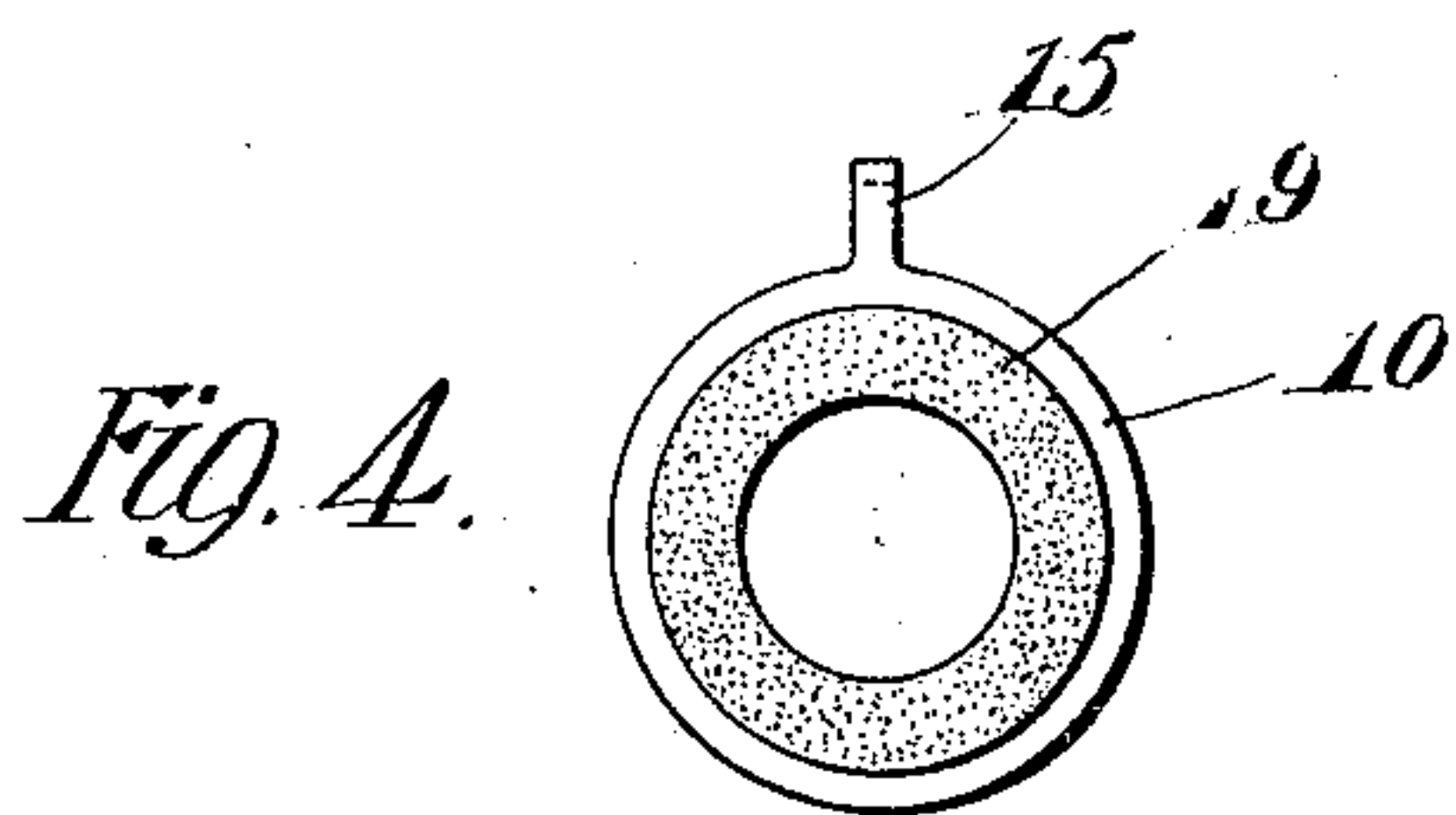
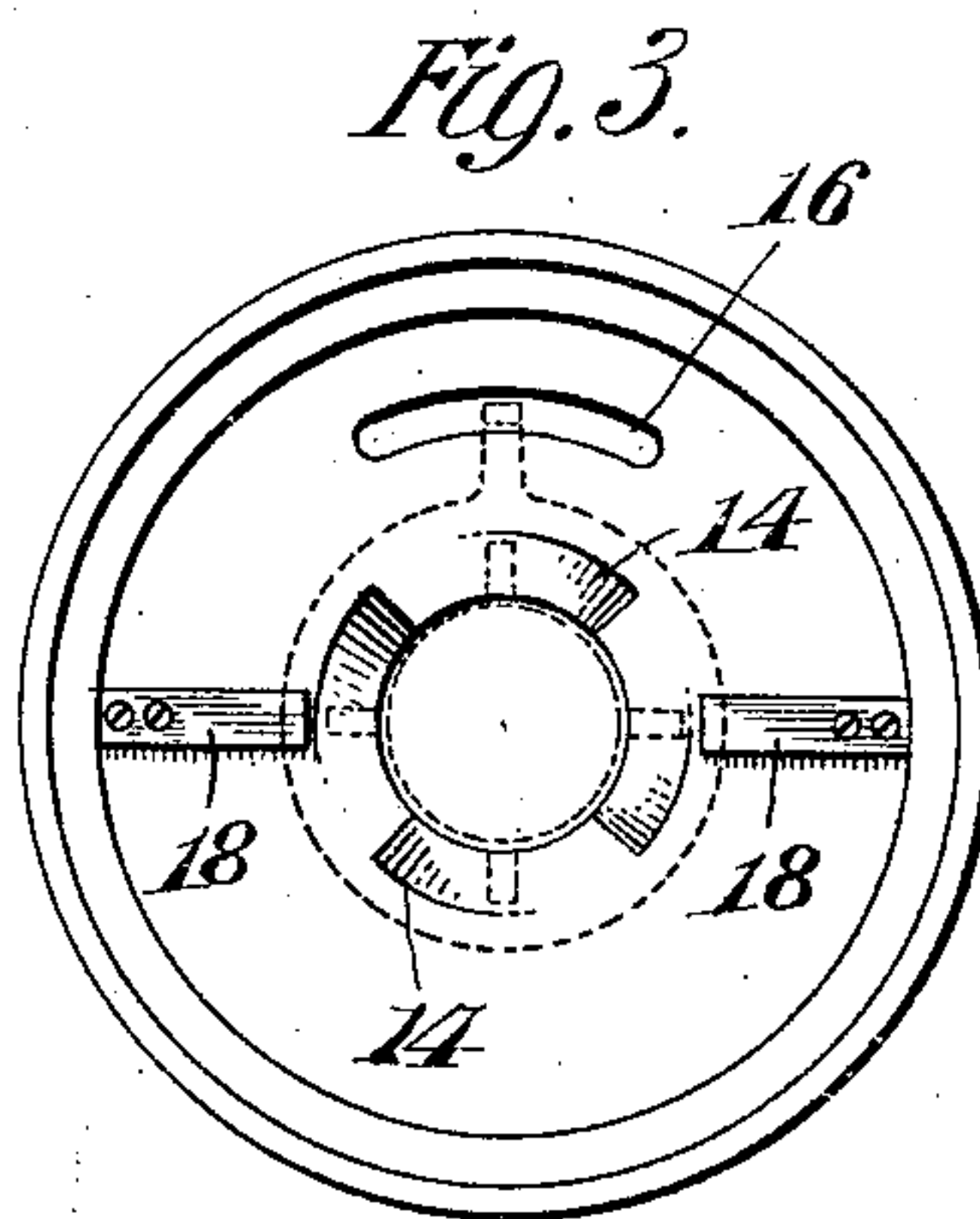
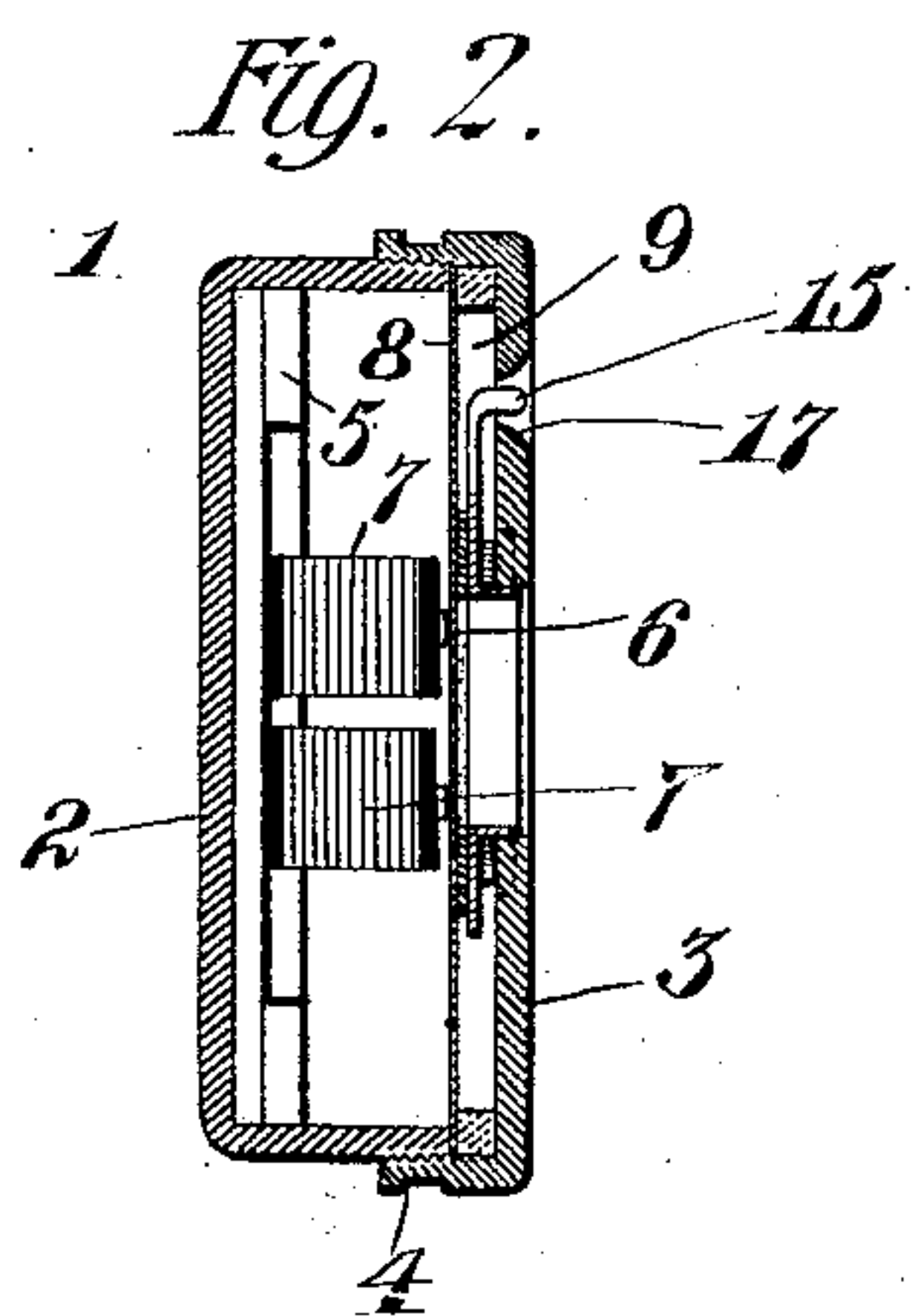
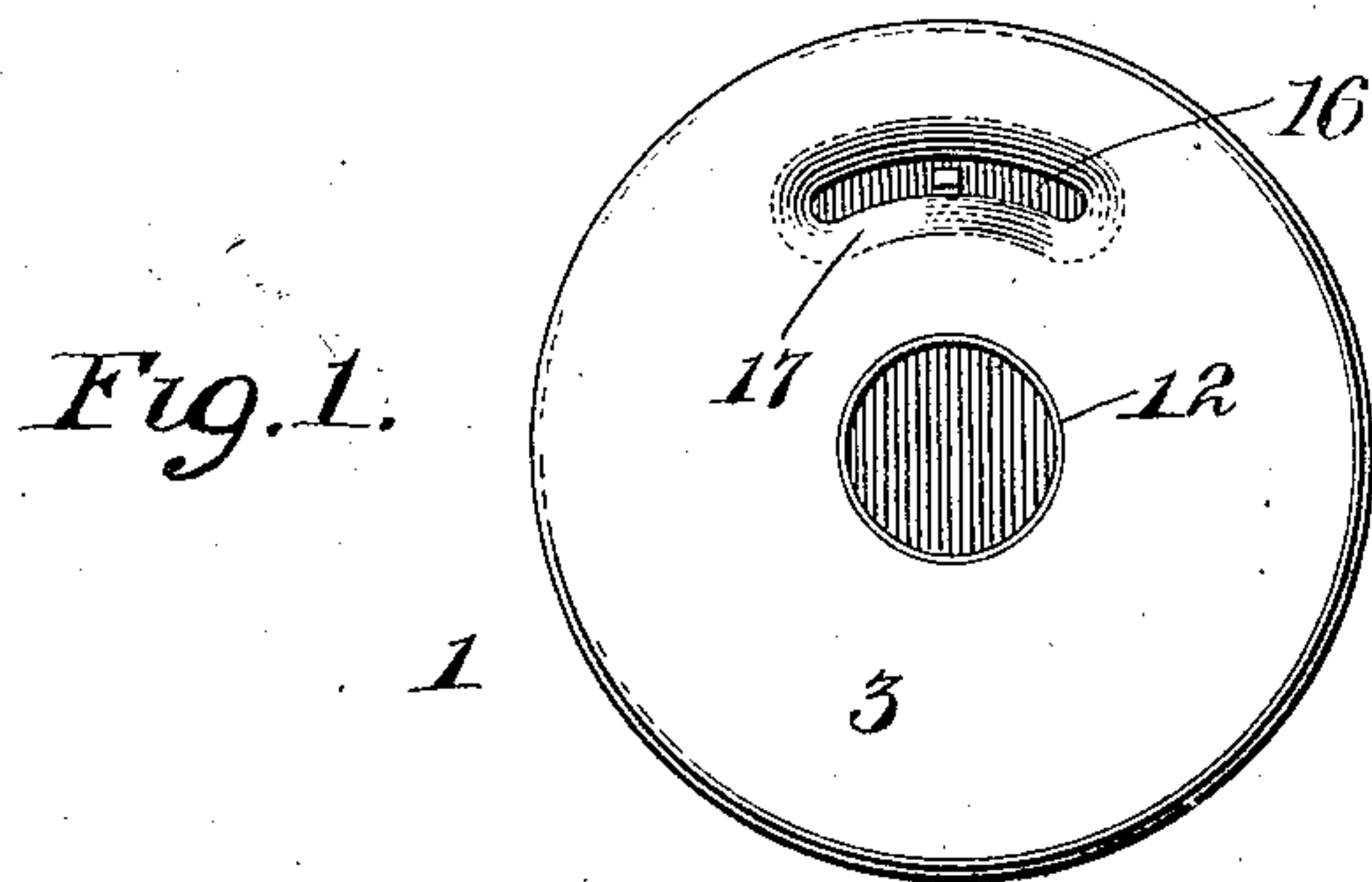


No. 848,073.

PATENTED MAR. 26, 1907.

K. M. TURNER.  
MODULATING TELEPHONE RECEIVER.

APPLICATION FILED JAN. 13, 1906.



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# UNITED STATES PATENT OFFICE.

KELLEY M. TURNER, OF NEW YORK, N. Y.

## MODULATING TELEPHONE-RECEIVER.

No. 848,073.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed January 13, 1906. Serial No. 295,834.

*To all whom it may concern:*

Be it known that I, KELLEY M. TURNER, a citizen of the United States, residing at New York city, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Modulating Telephone-Receivers, of which the following is a full, clear, and exact description.

My invention relates to telephone-receivers, and more particularly to receivers for the use of deaf persons in connection with the "acousticon" and other apparatus where the original sound is multiplied and transmitted to the receiving instrument with considerable intensity.

The principal object of the present invention is to provide means by which the receiving instrument may be adjusted to moderate the sound to suit any particular requirements.

A further object of the invention is to provide a receiving instrument in which the adjustment to modulate the tone is effected in a simple and convenient way, and in which the original or permanent adjustment obtained when the instrument is assembled is not interfered with or impaired.

With these and other objects in view my invention consists in the construction, combination, location, and arrangement of parts, as hereinafter set forth and shown, and finally particularly pointed out in the appended claims.

In the drawings, Figure 1 is a front elevation or face view of a receiving instrument embodying the principles of my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a view looking toward the inside of the cover. Fig. 4 is a view of the damping member which I employ, and Fig. 5 is a similar view of the same looking from the opposite side.

The original adjustment of a telephone-receiver is made to suit the practical conditions required and in the case of instruments adapted for deaf persons is adjusted to give a considerable intensity of sound. Whatever the adjustment made, it is very difficult to change after once being completed at the factory. Any attempt to do this is liable to disarrange the whole apparatus. As is well known, the diaphragm vibrates in exceedingly close proximity to the magnet-poles and is held in such position by the cover of the instrument, which also clamps it rigidly, and any attempt to remove the cover to change the adjustment would loosen the diaphragm,

destroying its efficiency and generally precluding any exact readjustment except at the hands of a skilled expert. By the present invention I permanently assemble the parts into the proper adjusted and clamping relation and subsequently vary or modulate the sound by a means which does not effect or impair the original adjustment. In this way the receiver may be adjusted to the needs of persons of varying degrees of deafness or to the needs of any one person under the stages of his gradual improvement. It may also be conveniently manipulated during certain kinds of weather to soften the sound thereof. In any case it can always be restored exactly to its original conditions when desired.

Referring to the drawings, in which like parts are designated by the same reference-sign, 1 indicates a frame or casing comprising a main or box portion 2 and a cover 3, having a threaded engagement 4, by which it is secured to the box. 5 designates the usual permanent magnets having centrally-projected poles 6, and 7 denotes the usual magnet-spools or bobbins wound thereon by which the telephonic impulses are made effective to vibrate the diaphragm. The diaphragm is shown at 8 in rigidly-clamped relation between the box and washers 9 beneath the cover 3. In this way the diaphragm is rigidly clamped in a position in intimate proximity to the magnet-poles 6. These features form the construction of the usual telephone-receiver and form no part of my present invention.

Supported by the cover I provide what I shall term a "damping-pad," and a convenient form of this device is illustrated in the drawings, particularly in Figs. 4 and 5 thereof. In these figures the damping-pad comprises a disk 10, having a cylindrical collar 11 projecting therefrom and adapted to enter and engage the usual listening-orifice 12 in the cover-plate.

13 designates lugs upon the face of the disk 10, adapted to engage corresponding cam-recesses 14 on the interior face of the cover. The relation is such that the lugs 13 ride upon and are cammed inward by the cam-recesses 14 when the damping pad or disk is circumferentially turned through a slight distance.

15 designates a hook-shaped handle projecting from the disk 10 and extending through a curved slot or aperture 16 in the



cover-plate. I form the edges of this slot or orifice 16 chamfered or beveled on their exterior side, as indicated at 17, so as to permit a more convenient engagement of the hook or handle 15.

18 denotes springs upon the interior face of the cover which extend over the disk 10 and hold the same in place.

By the means above described the damping-disk 10 is supported in substantially concentric relation with the diaphragm 8 and movable toward and from the same by the movements of the hook or handle 15. The face of the disk 10 is provided with a pad of rubber or other fibrous or packing material 19 in a relation to directly contact with and engage the diaphragm.

The operation is as follows: The instrument is originally assembled and adjusted for the loudest tone required in practice, corresponding to very deaf persons, or to certain atmospheric conditions, and in this relation the damping pad or disk 10 is turned so that its edges are engaged by the innermost parts of the cam-recesses 14 and the damping-pad is entirely out of contact with the diaphragm. If the atmospheric conditions vary or the person using the instrument experiences an unpleasant intensity in the sound, it is merely necessary to turn the hook or handle 15 slightly within its containing slot, so that the damping-pad 19 moves into pressing relation to the diaphragm. It is to be understood that the diaphragm is sufficiently stiff to maintain its proper distance from the magnetic poles 6 under these circumstances, the effect of the damping-pad being merely to impede the vibrating movement of the diaphragm, so as to diminish the intensity of the sound without changing the character thereof. At any time it is always possible to restore the instrument to its original condition by moving the hook or handle 15, so as to entirely withdraw the damping-pad from contact with the diaphragm, where-

upon the latter will be free to vibrate under the conditions of its original adjustment.

While I have set forth this particular form of damping-pad with cam means for moving it, I do not desire to be limited or restricted to the particular form shown, since these details may be widely modified in practice and still fall within the spirit and scope of the invention.

What I claim is—

1. In a telephone-receiver having a diaphragm, a damping-pad having cam-lugs thereon and means whereby said cam-lugs are made effective to press the damping-pad into contact with the diaphragm.

2. In a telephone-receiver having a diaphragm, a damping-disk having a collar revolutely supported by the receiver and having lugs, cam-recesses operating with said lugs and a handle for turning said damping-disk whereby it is brought into contact with the diaphragm.

3. In a telephone-receiver having a diaphragm, a pad of yielding material in proximity thereto, and cam means for moving said pad into contact with the diaphragm.

4. In a telephone-receiver having a diaphragm, an annular pad of yielding or fibrous material in proximity to the central portion thereof, and cam means for moving said pad against the face of said diaphragm.

5. In a telephone-receiver having a diaphragm and having a cover-plate with the usual sound-orifice opposite said diaphragm, an annular pad of fibrous material engaging the orifice of said cover-plate and cam means for turning said pad, whereby it is moved into contact with the diaphragm.

In witness whereof I subscribe my signature in the presence of two witnesses.

KELLEY M. TURNER.

Witnesses:

WALDO M. CHAPIN,  
FRANK S. OBER.