

No. 855,911.

PATENTED JUNE 4, 1907.

K. M. TURNER.
TELEPHONE RECEIVER.
APPLICATION FILED FEB. 5, 1907.

Fig. 1.

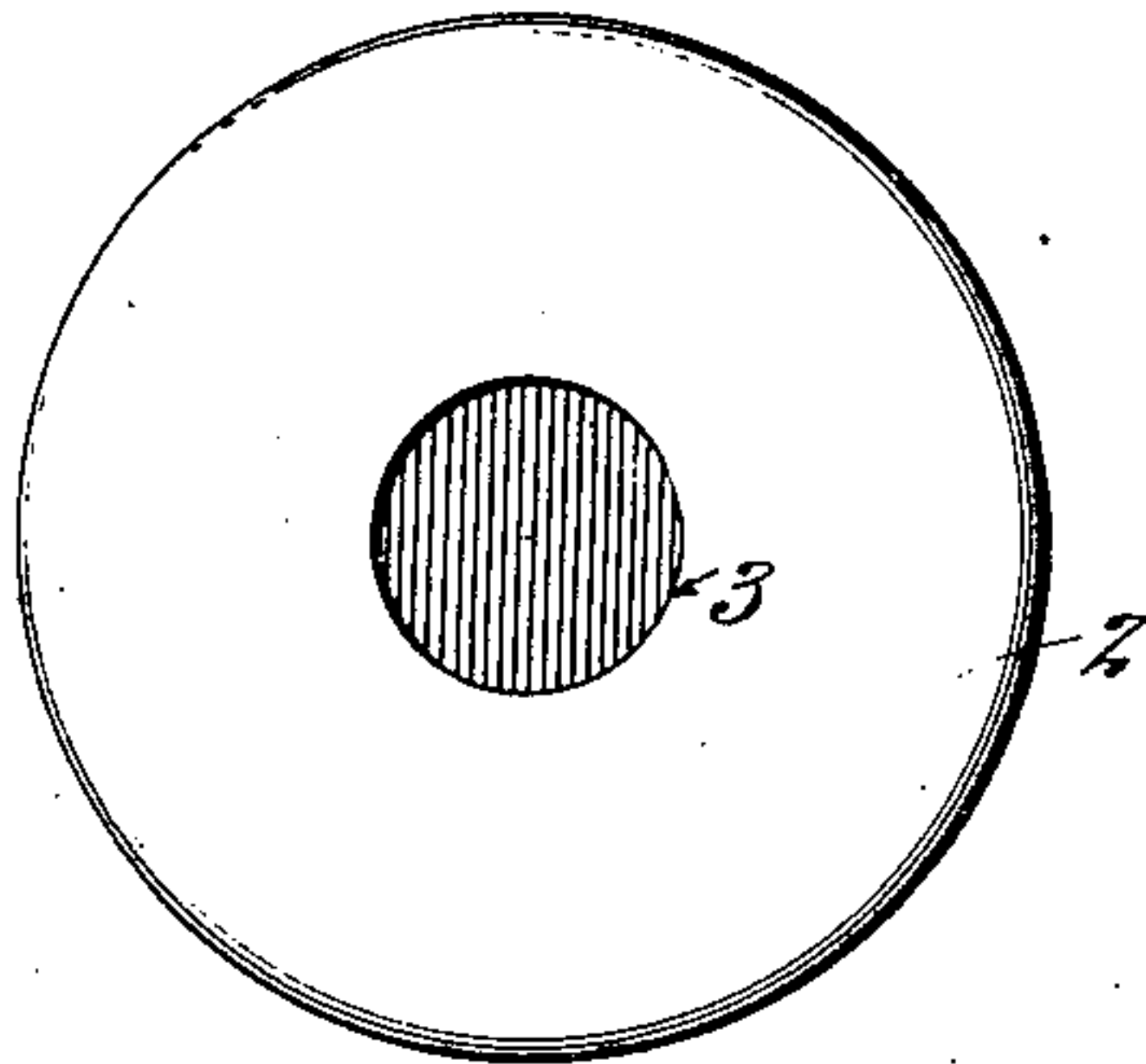


Fig. 2.

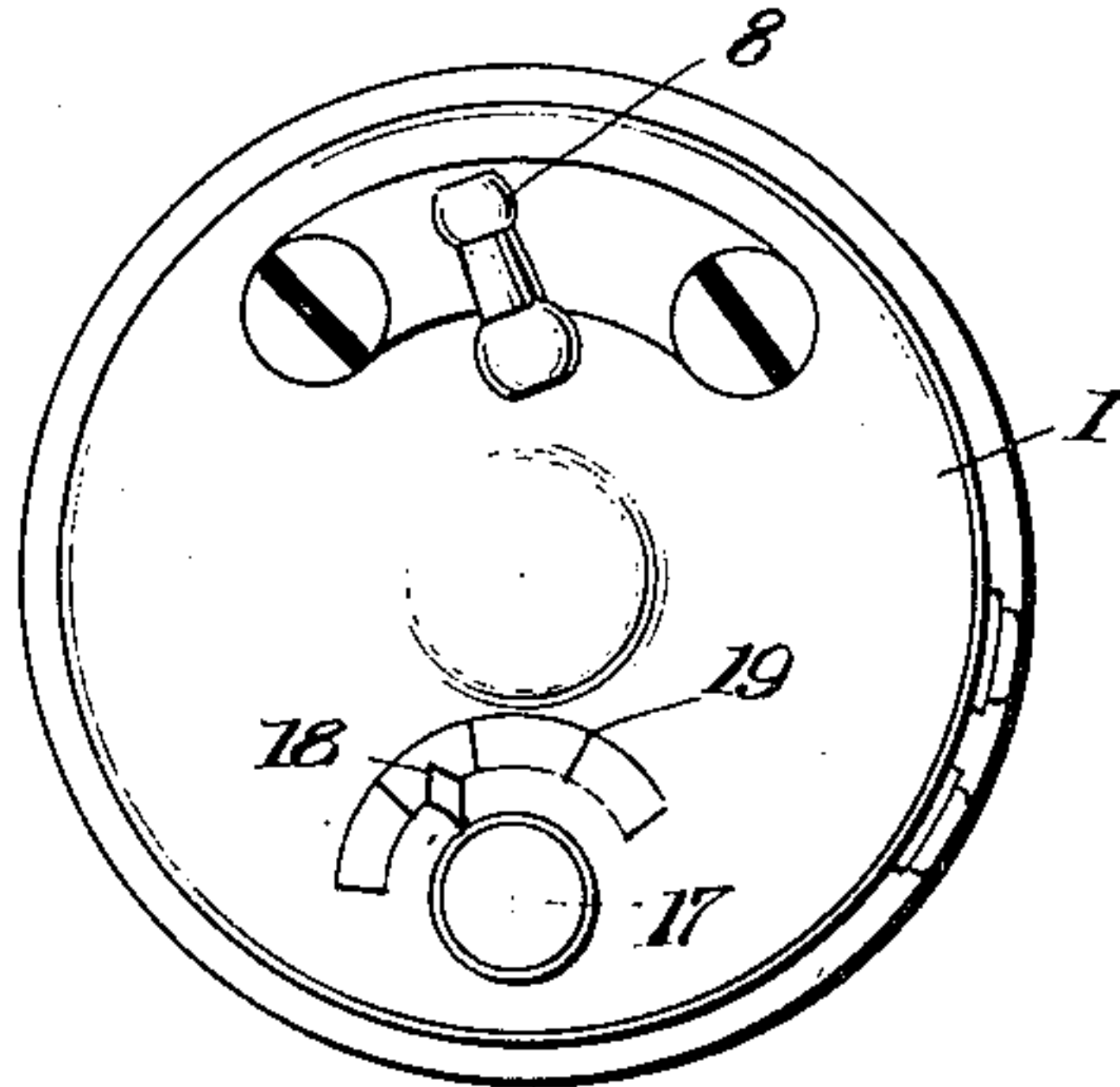


Fig. 3.

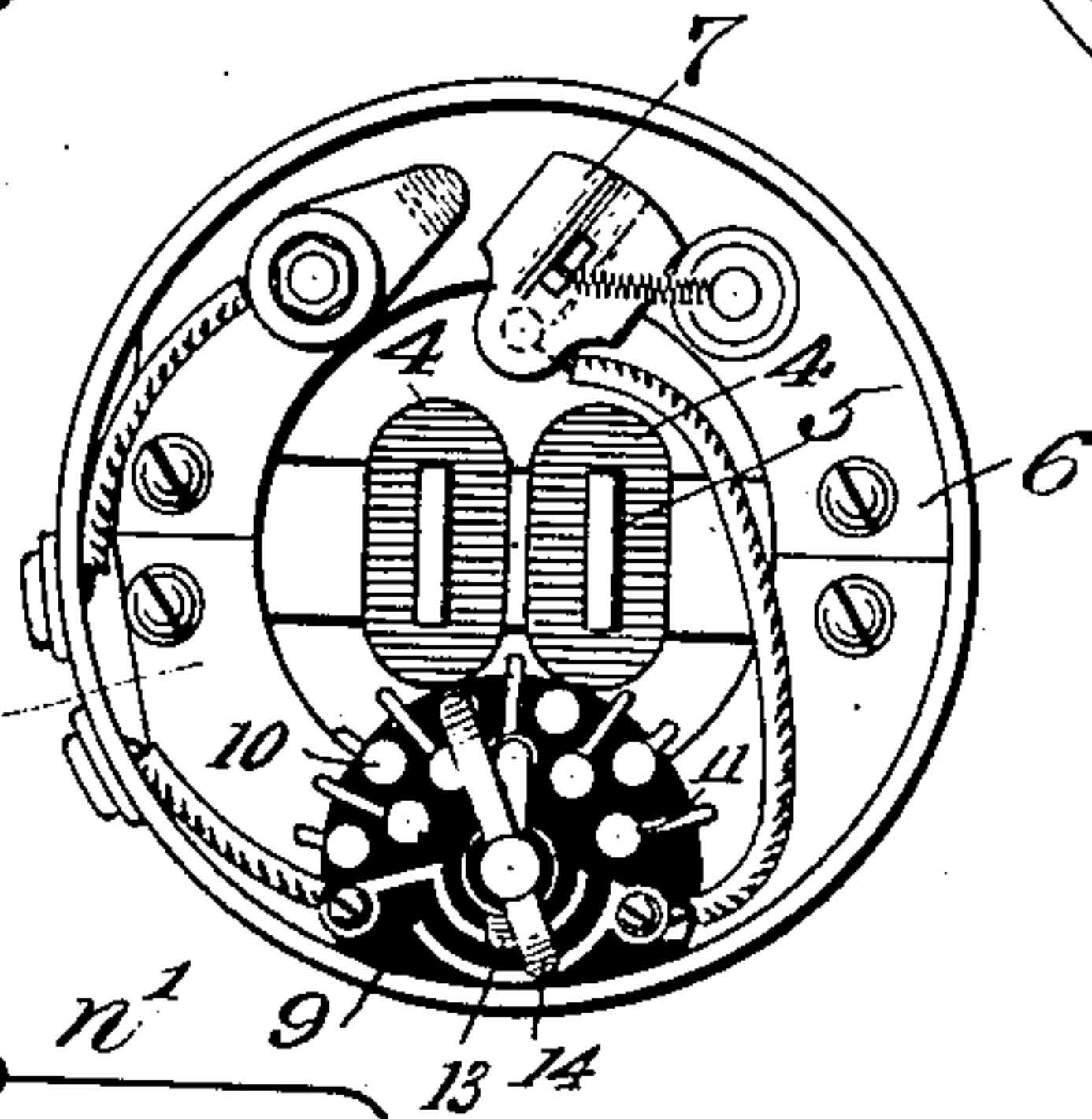
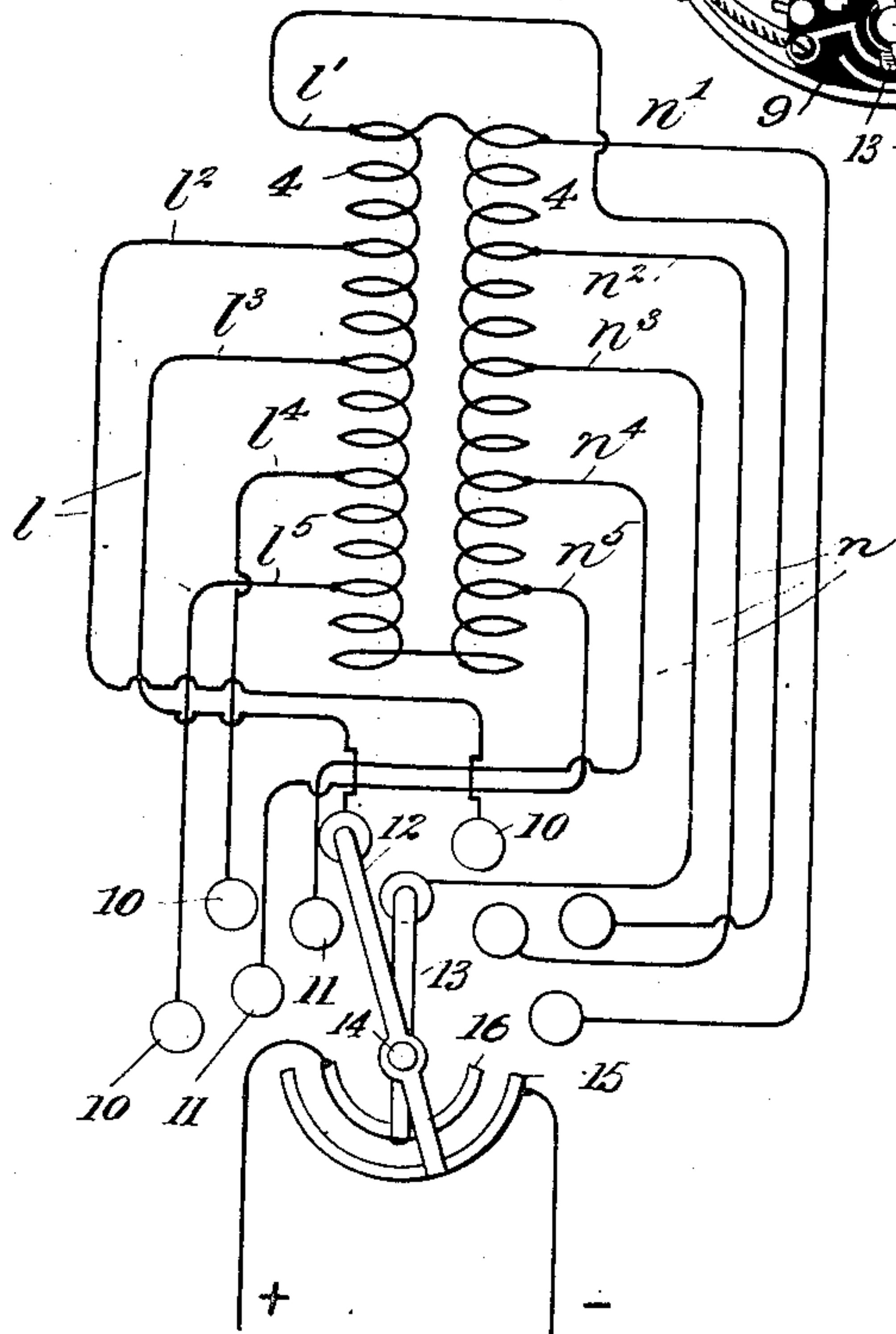


Fig. 4.



Witnesses:
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By his Attorneys
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UNITED STATES PATENT OFFICE.

KELLEY MONROE TURNER, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL ACOUSTIC COMPANY, A CORPORATION OF NEW YORK.

TELEPHONE-RECEIVER.

No. 855,911.

Statement and Declaration.

Patented June 4, 1907.

Application filed February 5, 1907. Serial No. 355,886.

To all whom it may concern:

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

My invention relates to telephone receivers, particularly of that class employed in telephonic apparatus for the deaf, by which the deaf person is enabled to hear ordinary sounds by listening into a telephone circuit, including a specially constructed and very sensitive transmitter.

One of the principal difficulties met in apparatus of this description is that no two persons are deaf to exactly the same degree, and the deafness of any single person is apt to change from time to time, depending on atmospheric conditions, and possibly the permanent improvement of his condition, or the reverse. Apparatus which is sensitive enough to be audible to the deafest persons is altogether too loud for a large class of others. The difficulty can, of course, be overcome by having a great variety of telephone receivers of different sensitiveness, and this, so far as I am aware, is the only plan in successful use up to the present time. In carrying out the present invention I overcome this difficulty by having a single receiver which is adjustable to different degrees of sensitiveness, and through a range sufficiently great to suit all the requirements of persons having varying degrees of deafness, or in varying stages of improvement, or the reverse.

With these and other objects in view, the invention consists in the features of construction hereinafter set forth and claimed.

In the drawings: Figure 1 is a front or face view of a telephone receiver embodying the principles of my invention; Fig. 2 is a rear view of the same; Fig. 3 is a view looking into the receiver with cover and diaphragm removed; Fig. 4 is a diagram of circuits;

In apparatus for the deaf, it is impracticable to have rheostats and similar telephone engineering apparatus externally of the transmitter and the receiver, which, of course, constitute the essential parts or elements of the system. This is not only due to

the trouble of carrying around so many appliances, but is also impractical on account of the fact that the average person does not wish to manage anything which looks like a complicated electrical system. Any regulating devices, should, therefore, form a part of the transmitter or the receiver of the set. In carrying out my invention I provide a regulating device, forming a part of the receiver, and which is so compact as to require no more space, or larger instrument, than has been usually employed. The regulation is accomplished by a simple turn button or handle, which is sufficiently simple to satisfy all requirements. With a receiver of this character any deaf person is enabled to at once adjust its sensitiveness to suit his needs, and in case of different atmospheric conditions, or in case his condition is improved as it frequently is by the use of these devices.

Referring now to the drawings in which like parts are designated by the same reference sign, 1 indicates the casing of a telephone receiver, having a cover 2, with the usual central aperture 3, through which the sound is received at the ear.

4 (Fig. 3) are the usual magnet windings on cores 5, which form the pole pieces of the permanent magnets 6.

7 is a switch operated by the handle 8, for completing or opening the circuit of the windings 4, for the purpose of throwing the receiver into and out of action.

The construction of the device and parts thus far described is of the ordinary character, and in itself constitutes no part of the present invention.

Within the telephone receiver is provided a little circuit controller 9, which is capable of throwing different circuits into connection with the line, or, in other words, the transmitter. In the construction shown, the different circuits include different portions of the field windings 4, which are sectionally wound for this purpose. I consider this construction a very desirable one, because by utilizing the windings themselves for varying the efficiency and sensitiveness of the receiver, a very compact construction is formed, much more compact than would be the case if separate resistances were employed and included within the receiver.

The diagram of circuits is shown in Fig. 4. It will be seen that each of the separate bob

bins or windings is sectional, and has leads l', l^2, l^3, l^4 and l^5 , and n', n^2, n^3, n^4 and n^5 , for the respective bobbins. If the circuit is completed through the leads $l' n'$, it is
 5 evident that all of the windings of both bobbins are in the circuit. If, however, the circuit is made through l^2 and n^2 , only about four-fifths of each winding is in circuit. Correspondingly, if the connection is made
 10 through leads l^3 and n^3 , only three-fifths of each bobbin is used, etc. In every case, however, the number of turns on the two bobbins is exactly the same, so that the magneto motive forces of the current is per-
 15 fectly balanced, and not irregular in its magnetizing action upon the cores 5.

The circuit controller 9 is of such a nature as to cut any desired number of leads into the telephone circuit. The practical construc-
 20 tion used has two circular rows of contacts or pins 10 and 11, of which the row 10 are connected in order to the leads l', l^2, l^3, l^4 and l^5 , while the row 11 are connected in an order to the leads n', n^2, n^3, n^4 and n^5 .

25 12 and 13 denote spring blades, pivoted at the point 14, and bearing respectively on the pins 10 and 11, corresponding to a pair of opposite leads l and n . The blades 12 and 13 are connected so as to angularly move
 30 together, and it is evident that they are put in connection with different pairs of leads successively, as they are swung through their arc of throw or movement.

15 and 16 denote arcuate rings which
 35 make continuous contact with the blades 12 and 13 respectively. The rings 15 and 16 are made the terminals of the line or telephone circuit, including the transmitter, battery and the switch 7, as already described.

40 17 indicates a button projecting through the casing 1, and which is connected to the blades 12 and 13, so as to angularly move the same in use. This button has a pointer
 45 18, moving over a graduated index or dial 19, so that the positions of the blades 12 and

13 on their pins is properly marked, and may be secured and maintained from the exterior of the closed casing.

The operation will be understood from the preceding description. The apparatus being
 50 connected for use, a greater or less sensitiveness is obtained by turning the button 17, so that the pointer 18, registers with the different marks or divisions 19. Turning
 55 the button in this way swings the blades 12 and 13 over the contacts 10 and 11 and connects different leads l and n into the telephone circuit. When the leads l' and n'
 60 are connected into the telephone circuit, the receiver is in its most sensitive condition, corresponding to the entire strength of the field magnet windings. When, however, the
 65 other leads are substituted in the telephone circuit, the strength is correspondingly reduced, so as to accord to the peculiar conditions of any particular person using the device.

What I claim, is:—

In a telephone receiver having two bobbins each sectionally wound with corre-
 70 sponding leads extending from the respective bobbins, a circuit controller having two rows of contacts respectively connected with said leads, a pair of spring blades adapted
 75 to make contact simultaneously with a pair of corresponding contacts of the respective rows, and means projecting through the casing of the receiver for angularly moving
 80 said blades to make connection with different pairs of contacts, whereby the number of turns in the telephone circuit of the two bobbins is simultaneously varied, and the sensitiveness of the receiver varied.

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

KELLEY MONROE TURNER.

Witnesses:

D. FARBER,
 WM. D. COLE.