

No. 793,444.

PATENTED JUNE 27, 1905.

K. HÖFLINGER.
MICROTELEPHONE.

APPLICATION FILED MAR. 11, 1904.

Fig. 1.

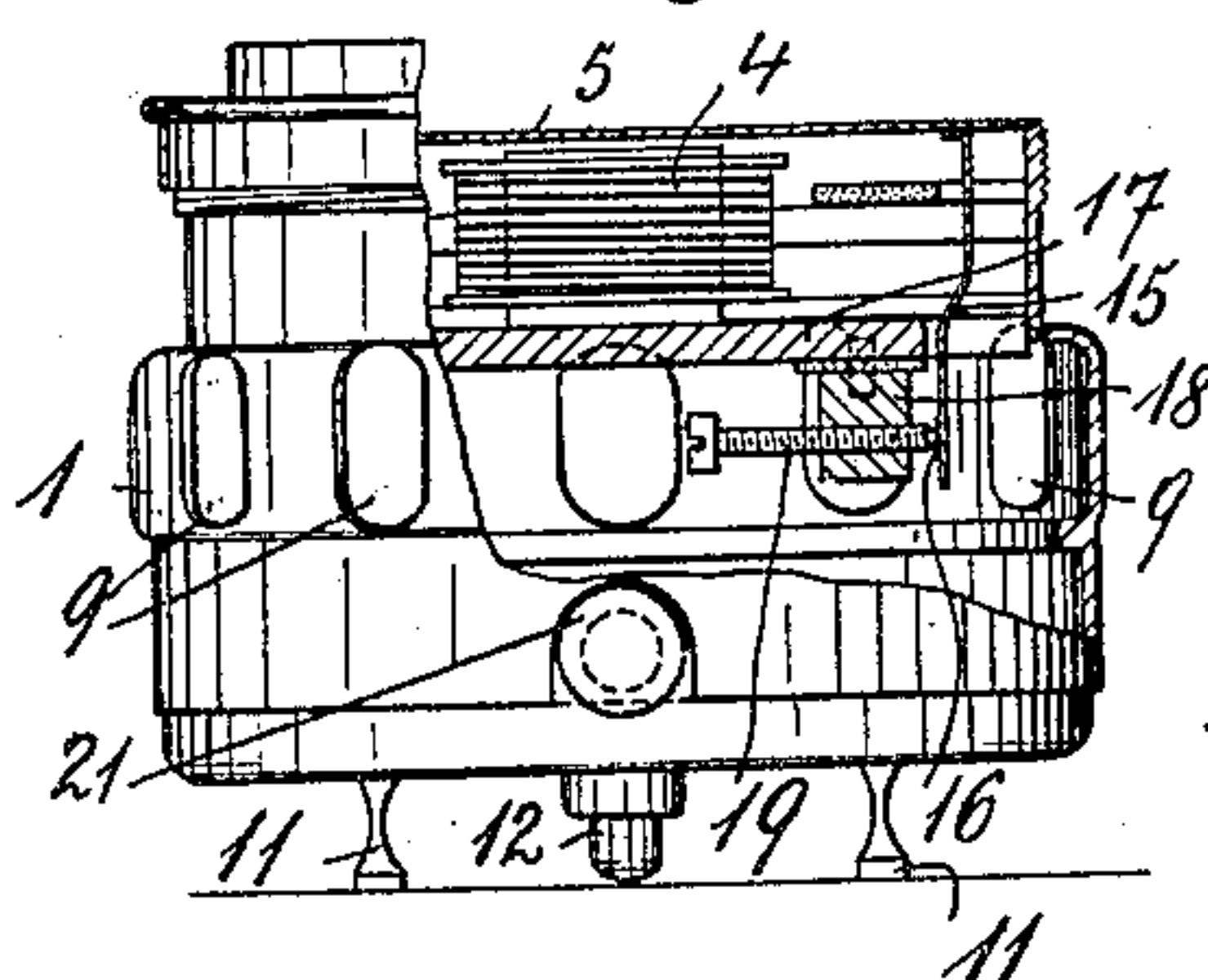


Fig. 2.

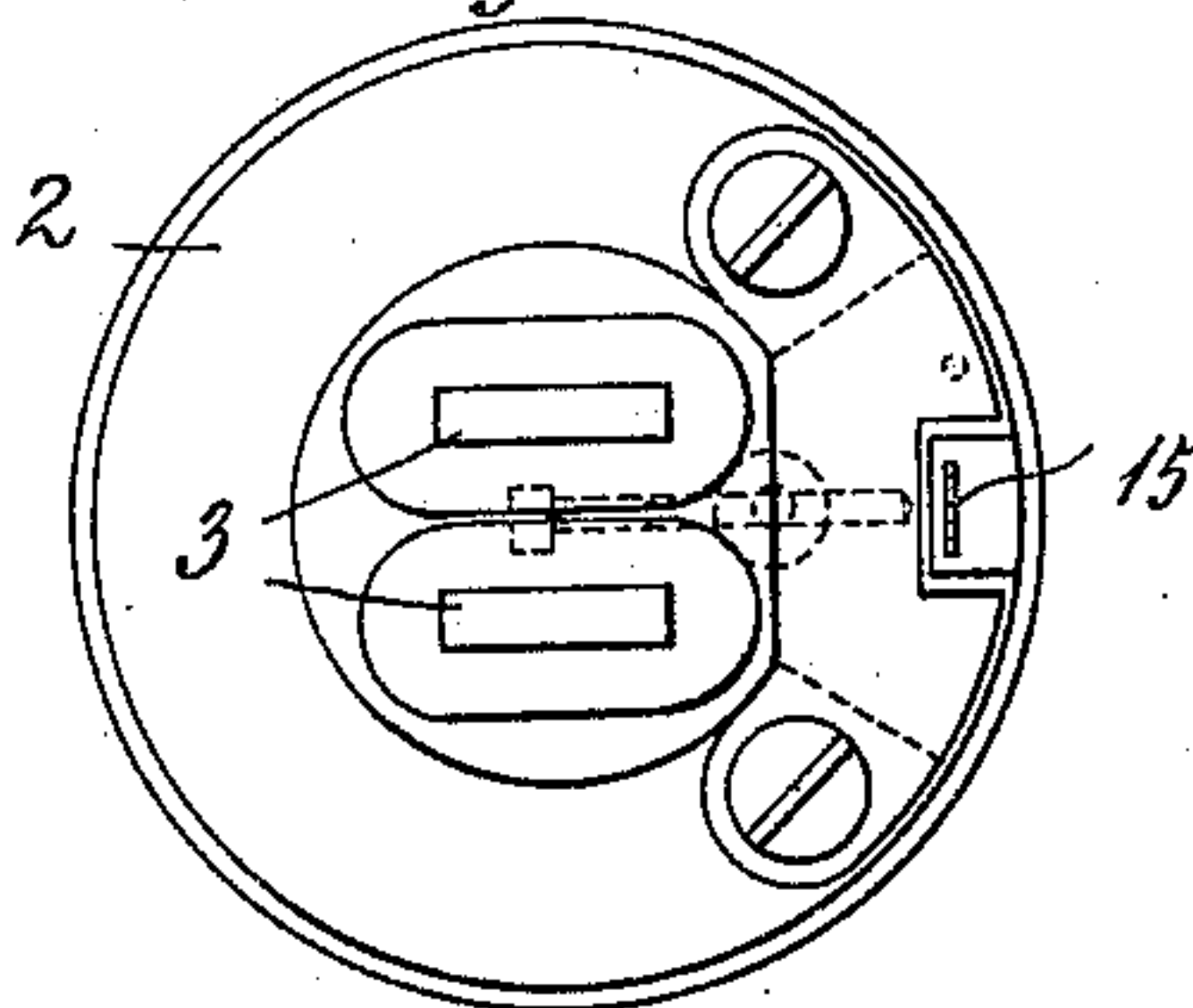


Fig. 3.

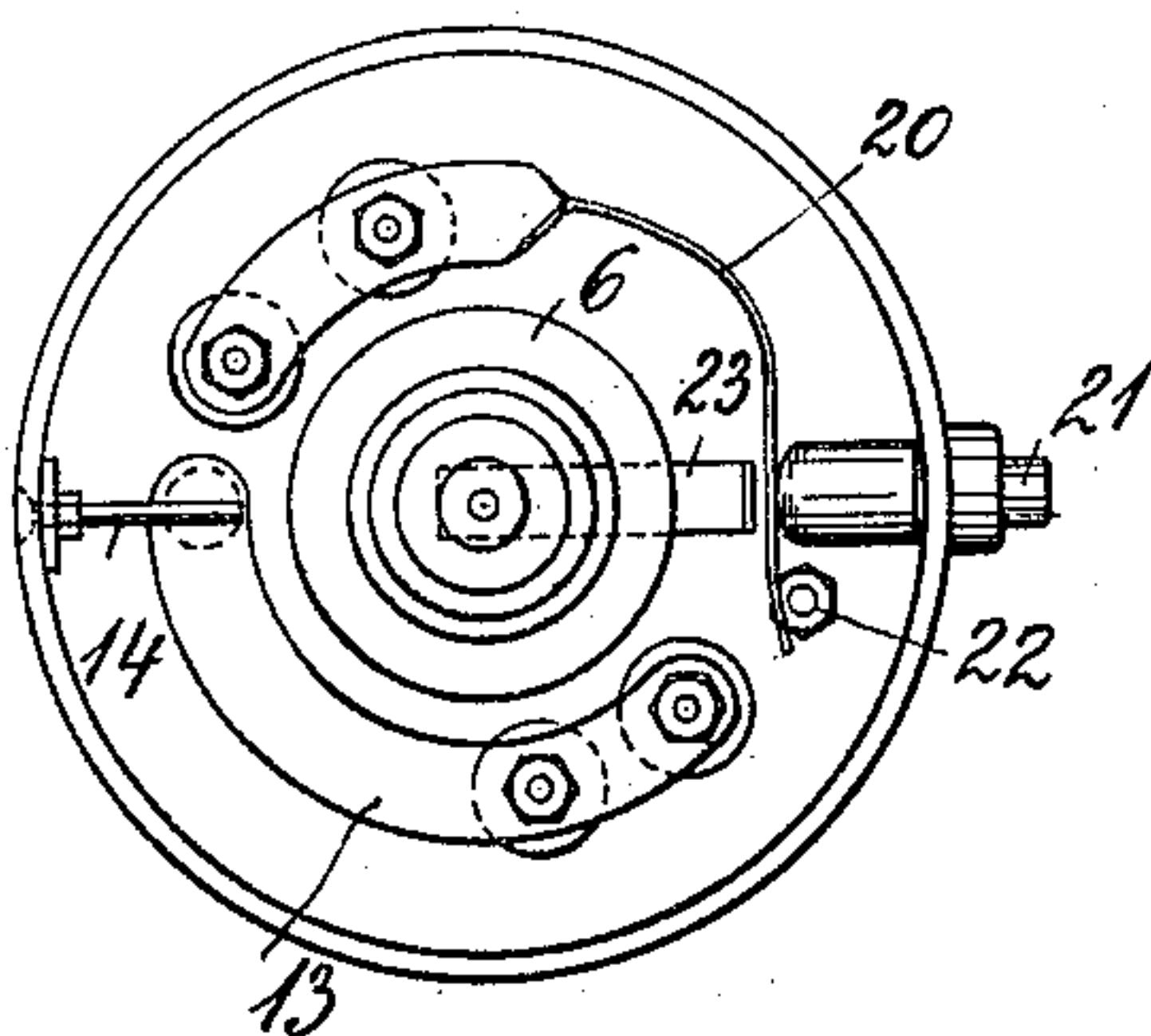


Fig. 4.

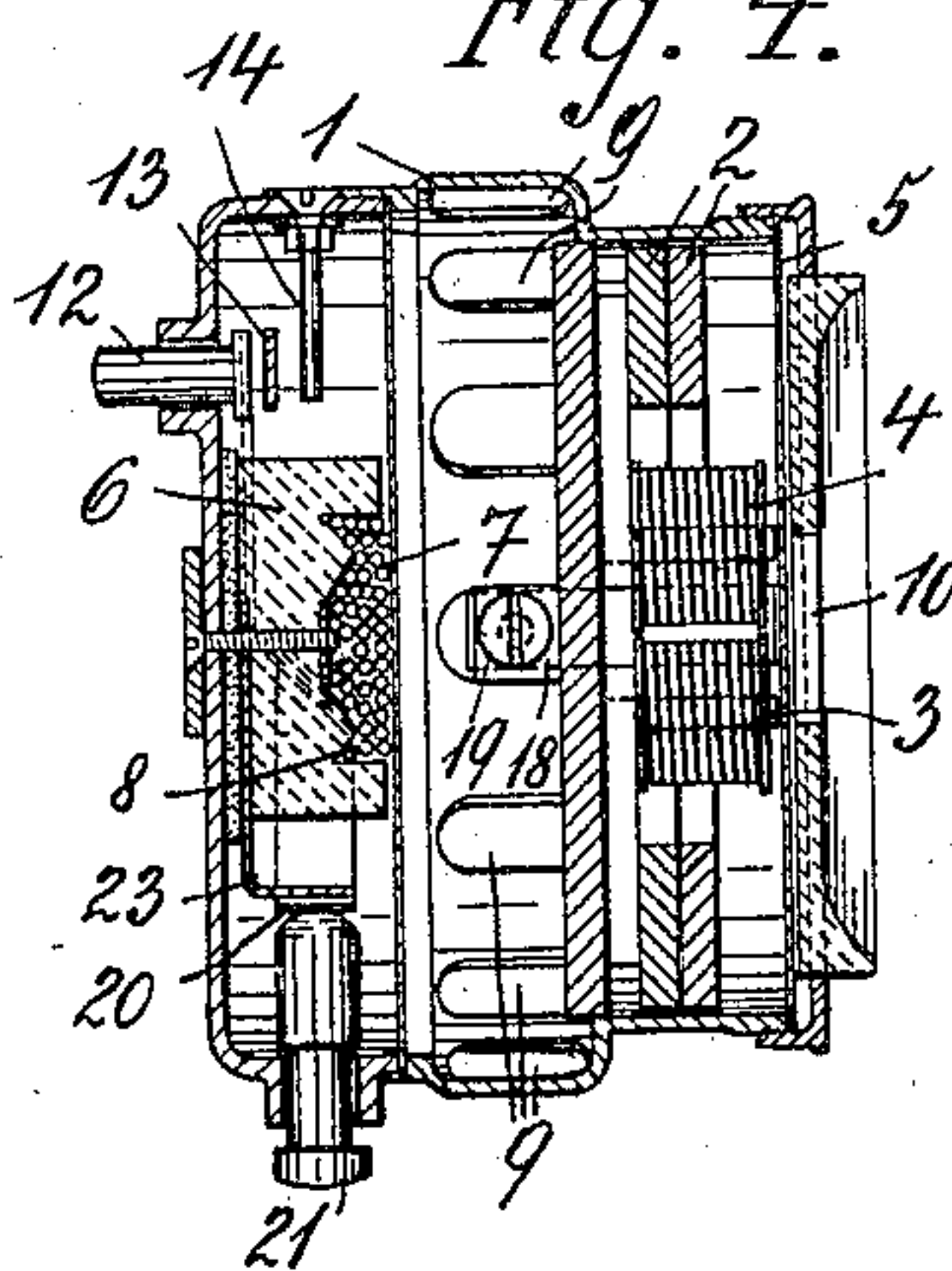
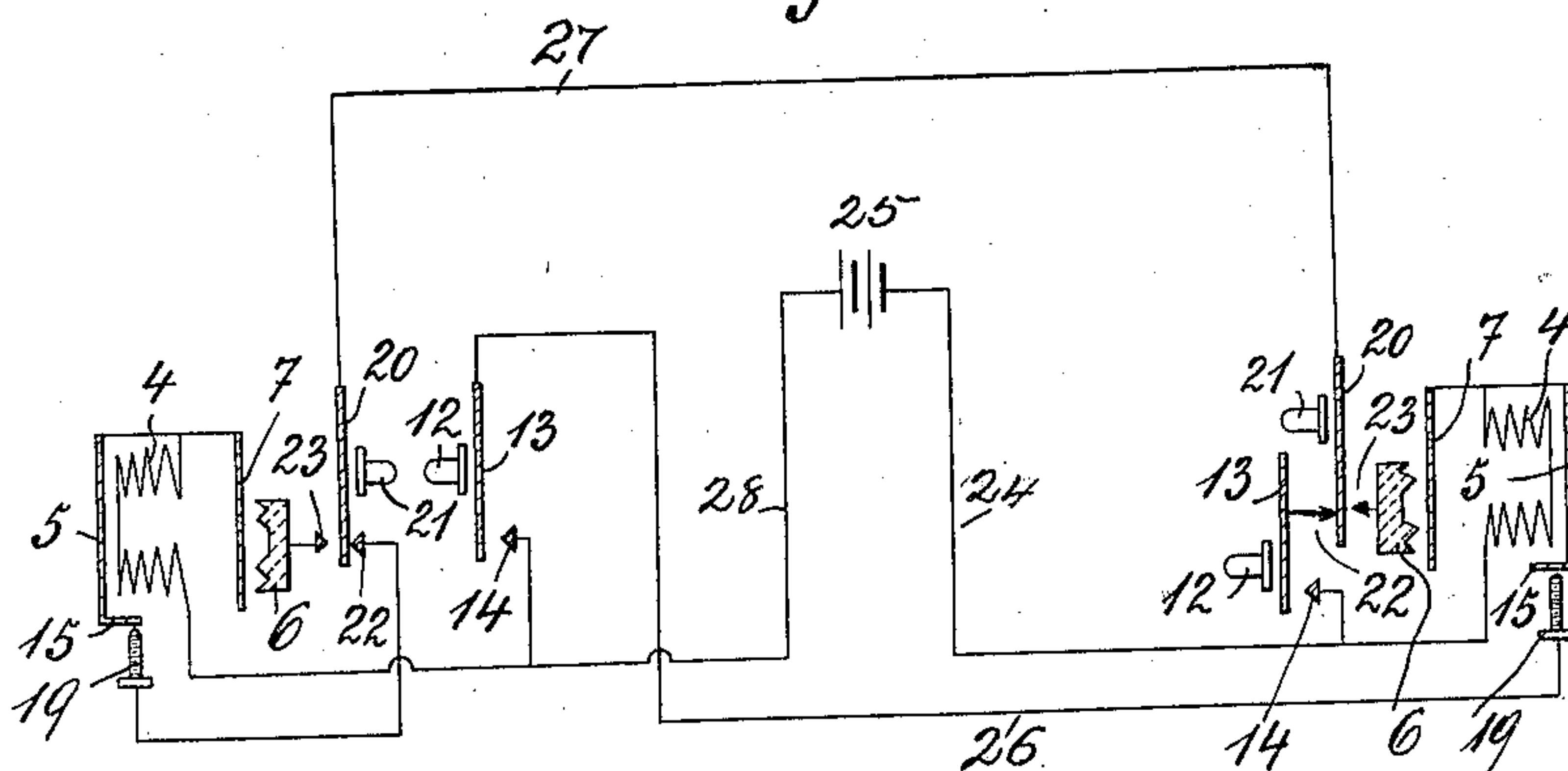


Fig. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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MICROTELEPHONE.

SPECIFICATION forming part of Letters Patent No. 793,444, dated June 27, 1905.

Application filed March 11, 1904. Serial No. 197,626.

To all whom it may concern:

Be it known that I, KONRAD HÖFLINGER, mechanician, a subject of the Emperor of Austria-Hungary, residing at No. 66 Schönbrunnerstrasse V, Vienna, Austria-Hungary, have invented certain Improvements in and Relating to Microtelephones; 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, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

This invention has for its object an apparatus in which a microphone and a telephone are combined in a suitable manner so as to form a single apparatus. The arrangement of the two appliances is such that the microphone is mounted behind the telephone in the same case, so that a compact and handy form is given to the apparatus as a whole, thus facilitating its mounting. In addition to this the invention comprises several novel arrangements by means of which the calling-key, alarm device, &c., may all be combined with the same casing.

A constructional form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 shows the apparatus partly in side elevation and partly in section. Fig. 2 is a plan view of the telephone with the membrane removed. Fig. 3 is a similar plan view of the microphone. Fig. 4 is an axial section through the apparatus, and Fig. 5 is a diagram illustrating the connections for an apparatus operated by battery-current without induction-coils.

The telephone is arranged at the upper or outer end of the cup-like casing 1 and, as shown, consists of two superposed permanent steel magnets 2 with pole-pieces 3 and magnet-windings 4 4. The diaphragm 5 is arranged in front of the poles of the magnet in the known manner.

As is more particularly shown in Fig. 4, the microphone is arranged in the lower or

inner part of the casing 1. In the constructional form here represented the microphone consists of a carbon electrode 6 with circular aperture, in front of which a carbon diaphragm 7 is arranged. The aperture in the carbon electrode 6 is filled with small balls of carbon 8.

For the purpose of permitting the sound-waves to act more effectually upon the carbon diaphragm the wall of the casing 1 is provided with openings 9 between the telephone and microphone plate.

To make use of the apparatus, it is applied, with the sound-opening 10, to the ear in the usual manner. In order to talk, it is not necessary to remove the apparatus from the ear, but only to speak in the ordinary manner, the sound-waves being transmitted both by the air and by the bones of the skull to the apparatus.

The apparatus has proved very efficient in action and particularly it presents the advantage that other sounds produced in proximity to the apparatus, such as hammering and the like, are hardly received by the apparatus at all or transmitted to the other station.

In order to permit of using the apparatus as a table-telephone without auxiliary appliances, it is formed in the following manner: Two feet 11 are fixed to the base-plate. In addition to this a push-button 12, which serves as a third foot, is passed through the base-plate and by means of this push a spring 13, arranged in the annular space around the microphone, may be pressed against a pin 14, thereby closing a circuit for calling the other station. When the apparatus stands with its two feet 11 and the push-button 12 upon the table, as shown in Fig. 1, then by means of the push-button 12 the spring 13 may be pressed against the pin 14 by hand-pressure above upon the apparatus, thus pushing button 12 into the apparatus.

If the apparatus is to be operated by battery-current alone, without induction-coil, which is perfectly satisfactory for short distances, it is possible to employ the diaphragm itself as calling device. To this end a spring-

arm 15, provided with a platinum contact 16, is attached to the diaphragm. To the base-plate 17 below the telephone is attached a bracket 18, with adjustable contact-screw 19.

5 Under the action of the magnet there is a tendency in the diaphragm to bulge inward. This changes the plane of the portion of the diaphragm which carries spring-arm 15, and although the movement of said portion is but
10 slight it results in a sufficient movement at the other end of the spring-arm 15 to cause a break of contact between parts 15 and 19. The connections are such that upon calling up at one station the current flows through
15 the windings 4 of the telephone and the contacts 16 19 to the other station, so that the diaphragm is intermittently attracted and released, and so intermittently breaks and makes
20 contact at the points 19 and 16, producing a loud sound.

In order to switch off the alarm device and switch in the microphone, so as to use the apparatus for conversation, the contact-spring 20 is mounted in the casing in such a manner
25 that it may be actuated by means of the push-button 21, projecting from the side of the casing. This contact-spring normally bears upon the pin 22, which is connected with the interrupter-contact of the diaphragm. When,
30 however, the push-button 21 is pressed, the spring comes against the contact-arm 23, connected with the microphone-carbon 6, and thus switches in the microphone. The diagrammatic view of the electrical connections, Fig. 5, illustrates, by way of example,
35 a method of connection by means of which two stations may be operated by one battery only. The two stations are not connected the same, but in such a way that the conductor 24
40 contains the battery 25, and of the two other conductors 26 and 27 the one, 26, serves for calling the right-hand station, while the other, 27, serves for calling the left-hand station. Conductors 26 and 27 serve with conductor
45 24 for talking. For this purpose conductor 26 runs from spring 13 of the left-hand station to the contact-point 19 of the right-hand station. At the closing of the circuit by spring
50 13 the battery 25, coils 4, and diaphragm 5 are connected in series. At the right-hand

station contact-spring 13 is connected through contact 22 and spring 20 with the conductor 27, while the spring 20 of the left-hand station is connected with the contact 19. Upon closing the circuit by the right-hand spring 13
55 battery 25, coils 4, and diaphragm 5 of the left-hand station are connected in series.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a hollow casing and a telephone and a microphone arranged therein, the former in front of the latter, said casing being open to the admission of sound-waves between the telephone and microphone, and a wall interposed in the casing between
65 its open portion and the telephone, substantially as described.

2. The combination of a source of electric energy, a main circuit comprising said energy source, an electromagnet in said circuit, a diaphragm operatively disposed with reference to said electromagnet to form therewith a telephone-receiver, contacts normally disposed to form an interrupter and one of them being carried by the diaphragm, a branch
75 conductor comprising the other of said contacts, and means for closing a circuit comprising said branch conductor and the portion of the main circuit which includes the energy source, substantially as described.

3. The combination of a casing, a telephone-receiver in said casing, a microphone in said casing, and a plurality of feet for supporting said casing, one of said feet being yieldable in the casing and constituting a circuit-closer, substantially as described.

4. The combination of a casing, an alarm device in said casing, a microphone in said casing, and means in said casing for simultaneously switching in the microphone and switching out the alarm device, and vice versa, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of February, 1904.

KONRAD HÖFLINGER.

Witnesses:

WENZEL SINKY,
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