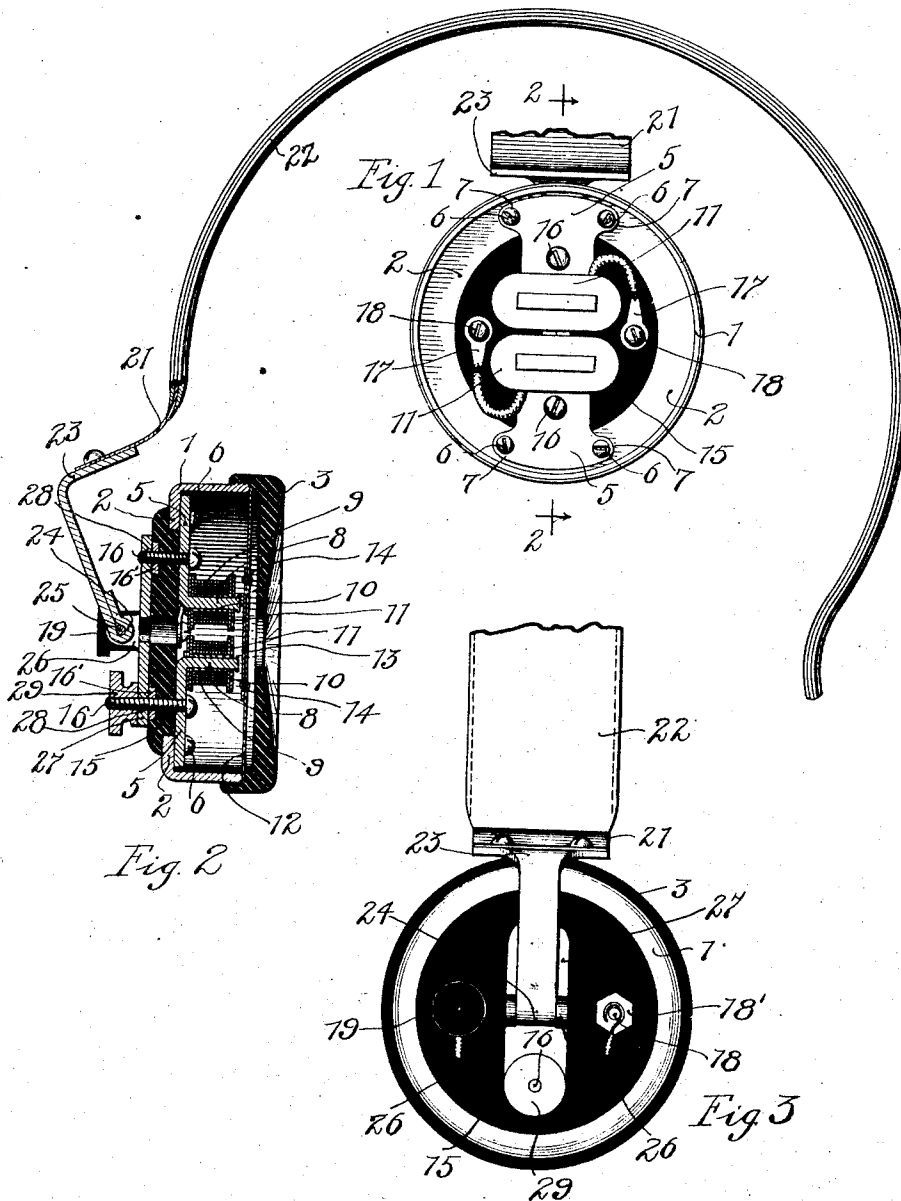


J. S. GOLDBERG,
RECEIVER.
APPLICATION FILED NOV. 23, 1903.

901,704.

Patented Oct. 20, 1908.



Witnesses
Leonard W. Novander.
Charles J. Schmidt.

Inventor
John S. Goldberg
By *Charles A. Brown*
Attorney

UNITED STATES PATENT OFFICE.

JOHN S. GOLDBERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

RECEIVER.

No. 921,704.

Specification of Letters Patent.

Patented Oct. 20, 1908.

Application filed November 23, 1903. Serial No. 182,351.

To all whom it may concern:

Be it known that I, JOHN S. GOLDBERG, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Receivers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to receivers, particularly to such known as watch case receivers, and has for its object the provision of a receiver of simplified construction therefor, and in which the weight is reduced to a minimum without impairing the efficiency.

Generally speaking, my improved receiver consists of an outer casing in the shape of a ring composed preferably of magnet steel. This ring is oppositely polarized at diametrically opposite regions and from these regions magnet cores extend and are provided with coils which may be connected in circuit in the usual manner. Heretofore this outer casing was composed of non-magnetic material which necessitated the addition of a magnet upon the interior thereof, which magnet usually was semi-circular in form, the pole piece extending from the ends thereof. This magnet usually embodied the greater portion of the receiver weight, and by my improved construction this superfluous weight is entirely eliminated as it is unnecessary to use such additional magnet for the reason above explained. A diaphragm rests on the front edge of the case and in order to prevent short-circuiting of the magnetic circuit, the diaphragm is preferably composed of aluminum or other non-magnetic material provided with a disk of magnetic material at its center to be disposed over the pole faces. The rear opening of the ring casing is covered by a disk of insulating material upon the inside of which may be mounted the terminal tips and upon the outside of which may be mounted the terminal posts, and also when desired an operator's head frame may be mounted thereon.

The figures in the accompanying drawing will more clearly illustrate my invention, Figure 1 being a front view of the receiver with the diaphragm and cap removed, Fig. 2 being a vertical, longitudinal section taken on lines 2, 2, Fig. 1, and Fig. 3 being a rear view thereof.

A casing 1 in the shape of a ring is provided at its rear with an annular web 2, and at its front upon the outside thereof with threads adapted to receive the receiver cap 3. The casing 1 is preferably composed of magnetic material such as magnet steel and by being suitably interposed in a magnetic field, may be magnetized so that diametrically opposite regions thereon are oppositely polarized. At these polarized regions, pole pieces 5, 5 are secured by means of screws 6, 6 passing through them and threading into the web 2. These pole pieces are provided with flaring portions 7, 7 whereby greater contact area is assured between the pole pieces and the polarized part of the casing.

The inner ends of the pole pieces terminate in core pieces 8, 8 extending perpendicularly thereto and upon which are mounted coils 9, 9. These coils are first wound upon paper spools 10, 10, whereafter said spools are slipped over the core pieces and held between flanges 11, 11. In order to hold the spools and flanges in place the ends of the core piece are then upset as indicated in Fig. 2. This results in securely holding such spools in place and also in presenting a larger pole face area to act upon the magnetic portion of the diaphragm. In order to prevent short-circuiting of the lines of force which should pass between the pole pieces, I provide a diaphragm 12 of nonmagnetic material, which may be preferably aluminum, and at the center of said disk I mount a disk 13 of magnetic material preferably soft iron, which disk may be secured to the diaphragm by rivets 14, 14. The disk 13 will now lie in the path of the lines of force passing between the pole pieces, the diaphragm 12 being of non-magnetic material preventing direct passage of magnetic lines of force from one polarized area to the other. A plate 15 of insulating material covers the back of the casing and is held in place preferably by screws 16, 16 passing through the pole pieces 5 and through said plate to be engaged on the other side thereof by nuts 16', 16'. Terminal tips 17, 17 are mounted upon the inner side of said plate 15, the coil terminals leading to said tips. These tips are held under screws 18, 18 which pass to the outside of the plate to be engaged by nuts 18', 18' and by terminal buttons 19, 19, in the usual manner. I have shown an operator's head frame in connection with the receiver, the head band

21 being covered with leather 22 and secured to a supporting piece 23 provided at its end with a bearing 24, engaging a shaft 25 extending between lugs 26, 26, which lugs form
 5 part of a plate 27 which is secured to the insulating plate 15. The plate 27 is preferably provided with the holes 28, 28 adapted to receive the extending ends of the screws
 10 16, 16. I have shown a thumb nut 29 engaging one of said screws over said plate by means of which the plate may be firmly held against the back of the insulating plate 15. The receiver thus at all times lies in a correct and easy position against the operator's ear.
 15 I have thus described a receiver which is of a most simple construction and employing a minimum number of parts and

I claim as new and desire to secure by Letters Patent.

20 1. In a receiver, the combination of an outer cylindrical casing consisting of a continuous one-piece shell of magnetic material of which diametrically opposite regions are oppositely polarized, bent pole pieces extending
 25 from such polarized regions, coils disposed on such pole pieces and held in place between the bent ends and the upset ends thereof, and a diaphragm disposed over the pole faces of said pole pieces.
 30 2. In a receiver, the combination with an outer cylindrical casing consisting of a continuous one-piece shell of magnetic material having diametrically opposite regions oppositely polarized, of bent pole pieces extending
 35 from said polarized regions, coils disposed about said pole pieces and held in place between the bent ends and the upset ends thereof and a disk of magnetic material disposed before the pole faces of said pole

pieces, said disk being supported from a diaphragm of non-magnetic material.

3. In a receiver, the combination with an outer one piece casing in the shape of a continuous ring and composed of magnetic material, diametrically opposite regions of said
 45 casing being oppositely polarized, bent pole pieces extending inwardly from said polarized regions, cores extending perpendicularly from the inner ends of said pole pieces, receiver coils disposed upon said cores and
 50 held in place between the bent ends and the upset ends thereof and a diaphragm disposed before the faces of said cores.

4. In a receiver, the combination with an outer one piece casing in the shape of a continuous ring and composed of magnetic material, of an annular web extending inwardly from the rear edge of said casing, two
 55 diametrically opposed regions of said casing being oppositely polarized, a bent pole piece secured to such web at each of said areas and extending inwardly, integral cores extending
 60 forwardly and perpendicularly from said pole pieces at the inner ends thereof, receiver coils disposed about said cores and held in place by the upset ends thereof and by the
 65 body portions of the pole pieces, a disk of magnetic material disposed before the pole faces of said cores and a diaphragm of non-magnetic material for supporting said disk.

In witness whereof, I hereunto subscribe my name this 18th day of November A. D., 1903.

JOHN S. GOLDBERG.

Witnesses:

CHARLES J. SCHMIDT,
 LEONARD W. NOVANDER.