C. KRAFT.

TELEPHONE RECEIVER.

APPLICATION FILED JUNE 25, 1919.

1,331,469. Patented Feb. 17, 1920.

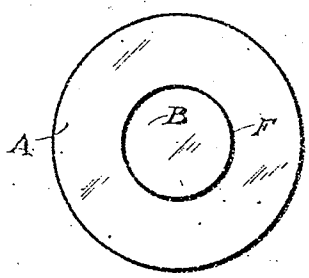



Fig. 1.

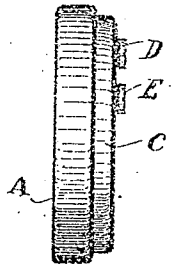



Fig. 2.

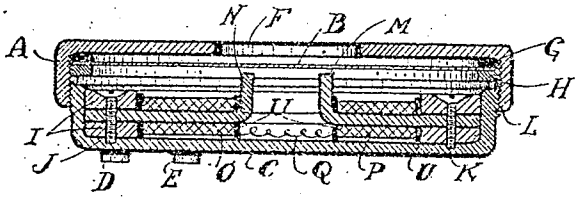



Fig. 3.

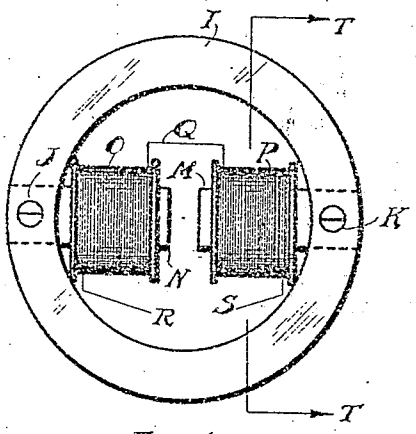



Fig. 4.

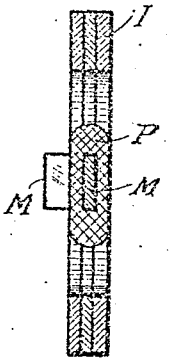



Fig. 5.

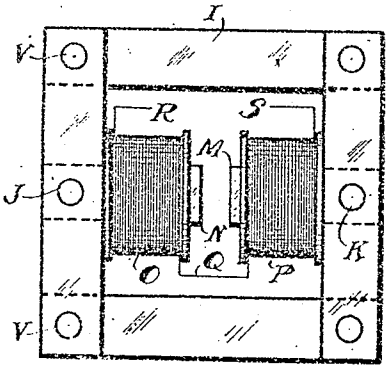



Fig. 6.

Carl Kraft.
INVENTOR.

Charles L. Hickmann
Alphonse A. Adler

BY L. S. Sutter
HIS ATTORNEY

# UNITED STATES PATENT OFFICE.

CARL KRAFT, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO L. STEWART GATTER, OF NEW YORK, N. Y.

## TELEPHONE-RECEIVER.

1,331,469. Specification of Letters Patent. **Patented Feb. 17, 1920.**

Application filed June 25, 1919. Serial No. 305,611.

*To all whom it may concern:*

Be it known that I, CARL KRAFT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvements in Telephone-Receivers, set forth in the following specification.

My invention relates especially to the so-called watch-case type of telephone receiver generally used in receiving sets for aircraft, tanks and headsets.

An object of my device is to provide an improved means of receiving telephone communication in that the construction of the device permits it to be inclosed in a flat case and thereby fit closely to the ear and head and eliminate the air resistance obtaining with the use of the present type receiver.

A further object of my invention is to provide an improved type of receiver for electrical communication of such construction and size as to be adapted to the requirements of receiver sets for deaf persons whereby same can be readily and easily grasped in the hand and is not as objectionable in appearance when placed to the ear as the present type of receiver used for this purpose.

In the drawings illustrating a preferred embodiment of this invention Figure 1, is a plan view of the outside of the receiver in which A is the cap, B the diaphragm and F the orifice. Fig. 2 is a side elevation of the complete receiver, A is the cap, C the case, D and E binding posts for electrical connections. Fig. 3 is an enlarged full cross sectional elevation, A is the cap, F the orifice, G a washer, B a metallic diaphragm and H is a metallic threaded clamping ring holding diaphragm B securely in cap A. The case C contains the magnetic circuit N, I which may be laminated or otherwise. Binding posts D and E are connected to coils O and P and when energized lines of force are set up and directed onto the diaphragm through pole pieces N—M. The insulation U is provided on coils, Q connects coils O and P, screws J and K hold the magnets and the coil in place. Adjustment of the air-gap is made by screwing cap A on case C but any other type of adjustment may be used. Fig. 4 is a plan view with the cap and diaphragm removed. Fig. 5 is a sectional view through plane T of Fig. 4 and with Fig. 6 illustrates other possibilities of magnetic circuits.

What I claim is:—

1. In a telephone receiver a diaphragm adapted to be actuated by electro-magnets, said diaphragm being mounted and held at its periphery, the cores or pole-pieces of said electro-magnets being elliptical in cross-section, mounted, for the purpose of utilizing minimum space and reducing the depth of the receiver, so that the major axial plane of the elliptical cross-section of the main portion of said core is parallel to the plane of the diaphragm but with the ends of said cores or pole-pieces turned at right angles to the main portion thereof and toward the diaphragm, having mounted on the main portion of said cores or pole-pieces magnet wire of suitable characteristics for actuating the diaphragm by means of the cores or pole-pieces when energized, all mounted in a case substantially as and for the purposes hereinbefore set forth.

2. In a telephone receiver of the type described, the combination of a diaphragm adapted to be actuated by electro-magnets and mounted at its periphery, with cores or pole-pieces of rectangular cross-section, mounted, for the purpose of utilizing minimum space and reducing the depth of the receiver, so that the major axial plane of the rectangular cross-section of the main portion of said core is parallel to the plane of the diaphragm but with the ends of said cores or pole-pieces turned at right angles to the main portion thereof and toward the diaphragm, having magnet wire spools placed on the main portion of the said cores or pole-pieces, all mounted in a case substantially as and for the purposes herein before set forth.

In witness whereof I hereunto subscribe my name this 20 day of June A. D. 1919.

CARL KRAFT.

Witnesses:
CHARLES T. DICKEMANN,
SARAH ROTHER.