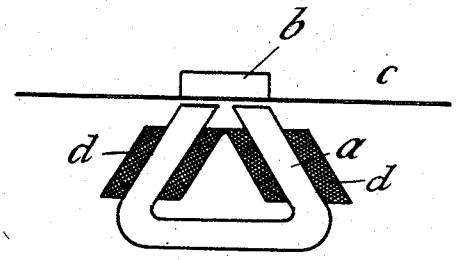
June 2, 1925. 1,540,093

W. SPÄTH

ELECTROMAGNETIC VIBRATOR, TELEPHONE, OR THE LIKE

Filed Sept. 9, 1922

Fig. 1.



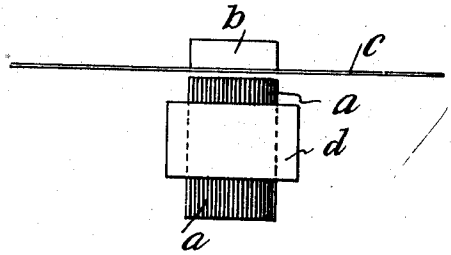


Fig. 2.

Inventor
Wilhelm Späth
by Knight Bros
attys

Patented June 2, 1925. 1,540,093

UNITED STATES PATENT OFFICE.

WILHELM SPÄTH, OF KIEL, GERMANY, ASSIGNOR TO SIGNAL GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF KIEL, GERMANY, A FIRM.

ELECTROMAGNETIC VIBRATOR, TELEPHONE, OR THE LIKE.

Application filed September 9, 1922. Serial No. 587,183.

To all whom it may concern:

Be it known that I, WILHELM SPÄTH, citizen of the German Republic, and residing at Kiel, county of Schleswig-Holstein, and State of Prussia, Germany, have invented certain new and useful Improvements in Electromagnetic Vibrators, Telephones, or the like, of which the following is a specification.

The invention relates to electromagnetic vibrators, telephones, or the like, and is an improvement in or modification of the invention set forth in the specification accompanying my application Serial No. 512,077.

The invention is illustrated in the accompanying drawings, in which

Figure 1 represents a side elevation of the operating elements of a telephone receiver; and

Figure 2 represents an end elevation thereof.

According to the invention set forth in the above-mentioned specification, in order to reduce the oscillating mass of the telephone system, the armature carried by a thin diaphragm is so constructed in regard to its mass that a compromise is effected between as small a mass as possible and correctly adjusted induction of the armature (not quite saturated). It is necessary in this design of the telephone system, in order absolutely to obtain the advantages aimed at in the invention of the principal patent application, to dimension the thickness of the armature, so that the flux remains somewhat below saturation in the armature. This is obtained according to the invention by correct dimensions of the thickness of the armature. In order, however, with given induction in the air gap, not to increase the armature mass to an undesired degree, it is proposed, in accordance with the invention to reduce the polar region of the magnet system.

In the accompanying drawing the features differing from the invention of the patent application Ser. No. 512,077 are shown in a telephone system whose magnet limbs *a* are arranged obliquely to one another so that the polar region is reduced. The limbs carry the alternating current coils *d*. On account of this arrangement of the limbs *a* the length of the armature *b* mounted on diaphragm *c* is considerably reduced so that, in order to be able to maintain the condition of the flux remaininig below saturation, the armature can be constructed correspondingly thicker.

Besides to telephones the invention may be applied to any other kind or modification of electromagnetic vibrating apparatus such as sound producers or the like.

I claim:—

1. In an electromagnetic vibrator, a field magnet composed of iron laminae forming a yoke and limbs converging towards each other, and an alternating current coil on the field magnet, said field magnet forming as a whole a common path for the permanent magnetic lines of force and for the magnetic lines of force produced by the alternating current in the said coil, a vibratory diaphragm, an iron armature connected to said diaphragm and facing the pole pieces of the field magnet and having substantially the size of the pole area, the thickness of the said armature being suitably chosen so that the flux remains somewhat below saturation.

2. In an electromagnetic vibrator, a field magnet composed of iron laminae forming a yoke and limbs converging towards each other sufficiently to reduce the polar area of the field magnet, and an alternating current coil on the field magnet, said field magnet forming as a whole a common path for the permanent magnetic lines of force and for the magnetic lines of force produced by the alternating current in the said coil, a vibratory diaphragm, an iron armature connected to said diaphragm and facing the pole pieces of the field magnet and having substantially the size of the pole area, the thickness of the said armature being suitably chosen so that the flux remains somewhat below saturation.

In testimony whereof I affix my signature in presence of two witnesses.

WILHELM SPÄTH.

Witnesses:
ALWIN WIEDIG,
HERMANN SCHÖNING.