Second Edition.]

PATENT SPECIFICATION

Application Date: July 6, 1922. No. 18,609/22.

203,121

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Complete Accepted: Sept. 6, 1923.

PROVISIONAL SPECIFICATION.

Improvements in or relating to Telephone Receivers.

I, SIDNEY GEORGE BROWN, F.R.S., Electrical Engineer, of Victoria Road, Willesden Lane, North Acton, in the County of Middlesex, a subject of the King of Great Britain, do hereby declare the nature of this invention to be as follows:—

This invention relates to telephone receivers or head phones and has for its chief object to enable such devices to be made more economically than heretofore, without impairing their efficiency. Head phone receivers as at present made usually comprise an ebonite or other composition cap, which fits against the ear of the listener, which cap is screwed upon the edge of a light aluminium or other metal case carrying the diaphragm and a receiving electromagnet the poles of which approach closely to the inner face of the diaphragm.

In such receivers the pole pieces have hitherto been of iron, the magnet consisting of a stamping or stampings. According to one feature of this invention the magnet stamping is itself formed with tongues which when bent up constitute the pole pieces, the tongues being so shaped and situated in the stamping as when bent up to form adjacent upright pole pieces the length of which may be substantially greater than the distance separating them. For this purpose, in one form of stamping in which the magnet may be of ring or part ring form, the tongues are formed in the stamping so as to extend past or overlap each other and on bending up to form pole pieces which are staggered or side by side. Or the stamping may have tongues at one side which are directed towards each other and can be bent up so as to form pole pieces having their vertical edges adjacent. Or the stamping may be bent up so as to constitute a ring of pole pieces instead of the pair usually supplied, provided with separate coils or a single ring coil common to the group. In either case the poles can be as closely adjacent to each other as is required, while providing for the necessary length of the pole pieces to carry the receiver coils.

The magnet can be secured in the case by screws passing through the stamping at opposite sides and preferably close to the bent up pole pieces.

Dated this 6th day of July, 1922.

HASELTINE, LAKE & Co.,
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Park Row Building, 15, Park Row, New York, N.Y., U.S.A.,
Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in or relating to Telephone Receivers.

I, SIDNEY GEORGE BROWN, F.R.S., Electrical Engineer, of Victoria Road, Willesden Lane, North Acton, in the County of Middlesex, a subject of the King of Great Britain, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to telephone receivers or head phones and has for its chief object to enable such devices to be

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made more economically than heretofore, without impairing their efficiency. Head phone receivers as at present made usually comprise an ebonite or other composition cap, which fits against the ear of the listener, which cap is screwed upon the edge of a light aluminium or other metal case carrying the diaphragm and a receiving electromagnet the poles of which approach closely to the inner face of the diaphragm.

In such receivers the pole pieces have hitherto been of iron, the magnet body consisting of a stamping or stampings. According to this invention (which is applicable to various types of telephone receiver) the magnet stamping of sheet metal is itself formed with tongues which when bent up constitute coil carrying pole pieces, the tongues being so shaped and situated in the stamping as, when bent up, to form adjacent upright pole pieces the combined lengths of a pair of which are considerably greater than the distance separating them. For this purpose, in one form of stamping in which the magnet may be of ring or part ring form, the tongues are formed in the stamping so as to extend past or overlap each other and on bending up to form pole pieces which are staggered or side by side. Or the stamping may have tongues at one side which are directed towards each other and can be bent up so as to form pole pieces having their vertical edges adjacent. Or the stamping may be bent up so as to constitute a ring of pole pieces instead of the pair usually supplied, provided with separate coils or a single ring coil common to the group. In any case the poles can be as closely adjacent to each other as is required, while providing for the necessary length of the pole pieces to carry the receiver coils.

In order that the said invention may be clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawings, in which:—

Figure 1 is a face view showing the interior of the receiver,

Figure 2 is a cross section of the complete receiver,

Figures 3 and 4 are, respectively, face and side views of a magnet stamping showing one form of the invention; and

Figures 5 to 8 show modified forms of magnet stamping.

A is the receiver casing. B is the vulcanite or other cap perforated in the usual manner and screwed upon the casing A. C is the diaphragm gripped at its edges between the casing and cap. D is the magnet stamping with bent up pole pieces d on which the receiving coils E are mounted.

In the form of magnet shown in Figures 1, and 2 an approximately semicircular stamping is employed and the blank is stamped out in the form shown in Figure 3, the pole piece tongues d being indicated in dotted lines before turning up to form the pole pieces. It will be seen that these tongues when flat extend past each other so as to lie side by side and therefore when they are turned up at right angles, as indicated in Figure 4, they are spaced sufficiently apart to accommodate the receiver coils E but are separated by a distance which is considerably smaller than their combined lengths and in fact is, as shown, smaller than the length of either pole piece. This length of pole piece is obtained by causing the tongues to extend past or overlap each other so that when bent up they form pole pieces which are staggered and are, therefore, not limited in length by the distance separating them. It is, of course, obvious that if desired the tongues may be arranged so that the pole pieces are placed side by side, that is with their edges adjacent and separated by a convenient distance, the spacing of the pole pieces depending upon the shape and disposition of the tongues.

The magnet is secured in the casing by screw studs F passing through the stud holes d^1 in the part of the magnet stamping adjacent to the pole pieces, these studs passing through insulating bushes and form terminals for connecting up the receiving coils E through the tongues f.

Figure 5 shows a slight modification of the magnet form in which the stamping D^1 forms somewhat more than a semicircle and the tongues or pole pieces d^1 are directed inwardly, parallel to each other so that when bent up they stand side by side with adjacent edges. The space between is made sufficient to accommodate the coils.

In Figure 6 the stamping D^2 is in the form of a cross and two pairs of pole pieces d^2, alternately N and S, are made by bending up the tongues which radiate from the centre to form the cross.

In Figures 7 and 8 a stamping D^3 is made of star form, with four longer and four shorter radiating tongues d^3 and d^4 which when bent up form an outer and an inner ring of pole pieces of opposite polarities as indicated. This allows a single magnet coil E^1 to be employed between the two pole rings. Obviously the number of pole pieces may be varied according to the size of the magnet.

Having now particularly described and ascertained the nature of my said inven-

tion and in what manner the same is to be performed, I declare that what I claim is:—

1. For use in a telephone receiver, a magnet comprising a stamping of sheet metal which is itself formed with tongues which are bent up to constitute coil carrying pole pieces, the tongues being so shaped and situated in the stamping as, when bent up, to form adjacent upright pole pieces the combined lengths of a pair of which are considerably greater than the distance separating them.

2. A stamped magnet as in Claim 1, in which the pole pieces are formed by bending up from a blank tongues which extend past or overlap each other and on bending form pole pieces which are staggered or side by side, for the purpose specified.

3. A stamped magnet as in Claim 1, in which the pole pieces are formed by bending up radiating tongues.

4. A stamped magnet as in Claim 3, in which two sets of radiating tongues are bent up to form two rings of pole pieces adapted to receive between them a single magnet coil.

5. For use in a telephone receiver, a magnet stamping having coil carrying pole pieces and made in any one of the forms illustrated in Figures 3 to 8 of the accompanying drawings, for the purpose specified.

6. A telephone receiver having its parts constructed, arranged and adapted to operate substantially in the manner hereinbefore described with reference to the example illustrated in Figures 1 and 2 of the accompanying drawings, for the purpose specified.

Dated this 4th day of April, 1923.

HASELTINE, LAKE & Co.,
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Park Row Building, 15, Park Row, New York, N.Y., U.S.A.,
Agents for the Applicant.

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2nd Edition

[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1.

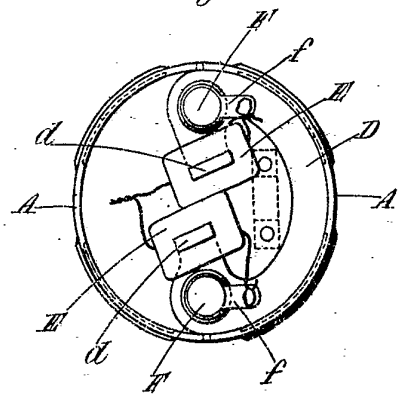


Fig. 2.

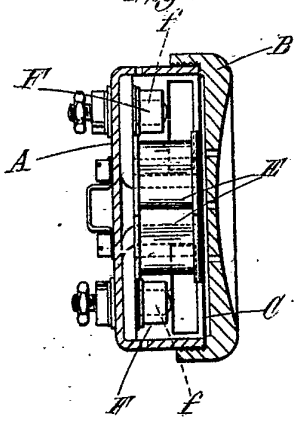


Fig. 4.

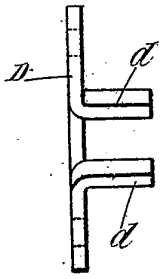


Fig. 3.

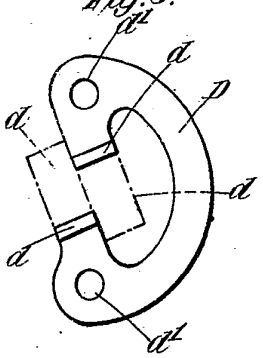


Fig. 5.

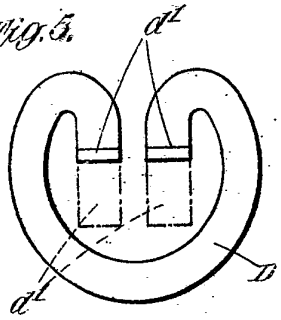


Fig. 6.

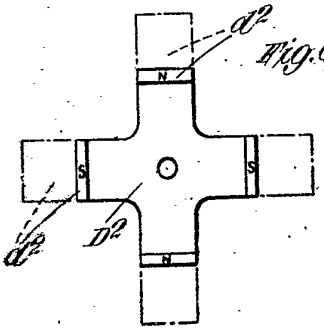


Fig. 7.

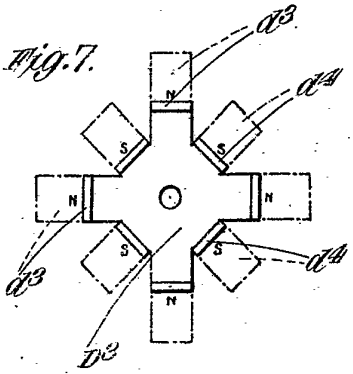
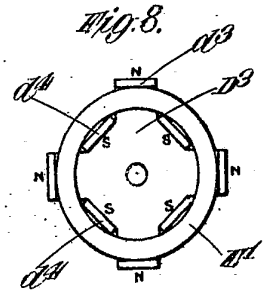


Fig. 8.



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