

April 8, 1941.

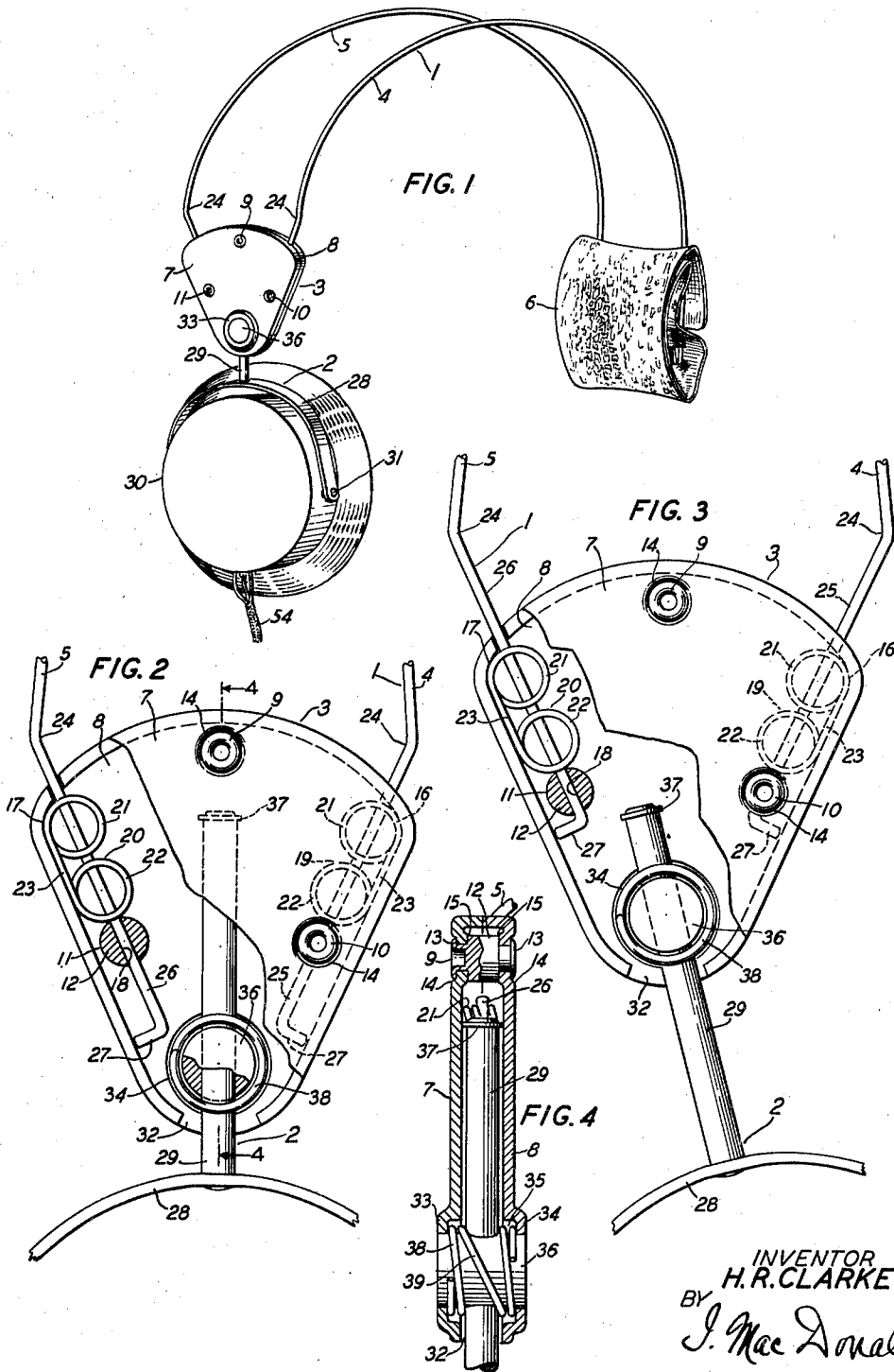
H. R. CLARKE

2,237,752

HEADSET

Filed Oct. 31, 1939

2 Sheets-Sheet 1



INVENTOR
H. R. CLARKE
BY
J. Mac Donald
ATTORNEY

April 8, 1941.

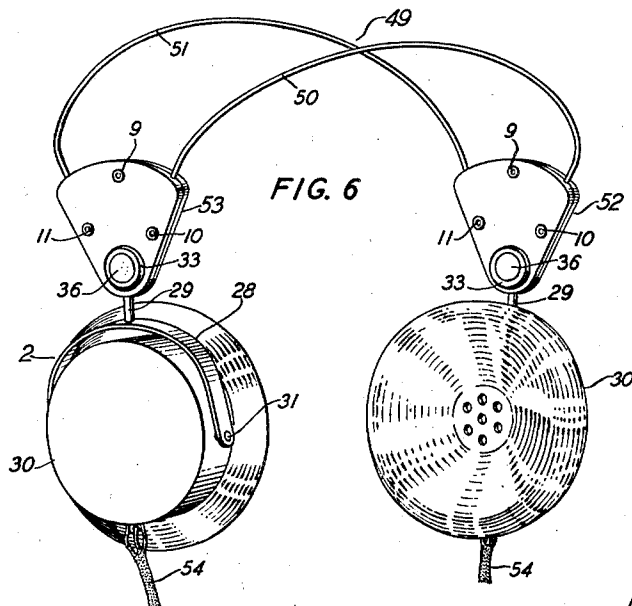
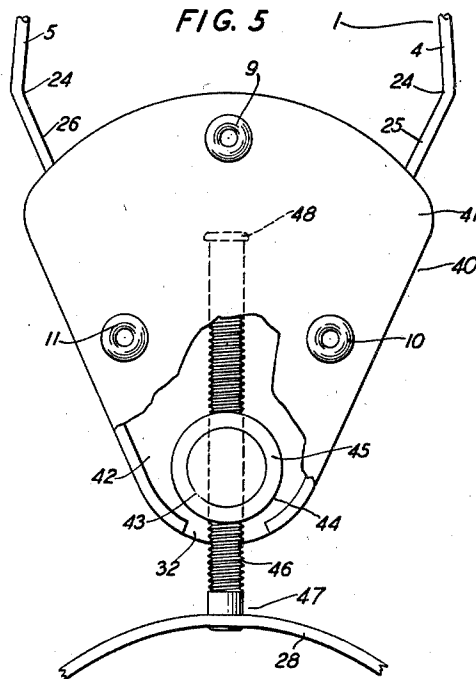
H. R. CLARKE

2,237,752

HEADSET

Filed Oct. 31, 1939

2 Sheets-Sheet 2



INVENTOR
H. R. CLARKE
BY
J. Mac Donald
ATTORNEY

UNITED STATES PATENT OFFICE

2,237,752

HEADSET

Harry R. Clarke, Newark, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application October 31, 1939, Serial No. 332,093

8 Claims. (Cl. 179-156)

This invention relates to headsets and more particularly to so-called telephone headsets.

The object of the invention is to provide a lightweight non-hair-catching telephone headset which may be readily adjusted to fit different head contours and sizes found in users of the device.

A feature of the invention resides in an adjustable receiver supporting structure.

Another feature resides in an adjustable connection between wire members of a headband and a casing holding the receiver support.

Other features reside in the particular form and arrangement of the parts and the combination thereof.

In the drawings:

Fig. 1 is a view in perspective of a headband, a receiver and supporting means for the receiver and embodying the invention;

Fig. 2 is a front view, partly in section, of the receiver supporting means, and portions of the headband and the receiver holder; Fig. 2 is drawn on an enlarged scale relative to Fig. 1;

Fig. 3 is a view corresponding to Fig. 2 but showing some of the parts adjusted to positions different from the positions shown in Fig. 2;

Fig. 4 is an edge view, partly in section, of portions of the parts shown in Figs. 2 and 3 and taken on the line 4-4 in Fig. 2;

Fig. 5 is a view corresponding to Fig. 2 but showing a modification thereof; and

Fig. 6 is a view in perspective of a double receiver headset embodying the invention.

I have found that the usual and well-known forms of telephone headsets comprising a headband adapted to fit over the head of a user and equipped with adjustable means for supporting a receiver are often found to be objectionable because the particular structure and arrangement of the parts are such that the hair of the user becomes caught or entangled in the headset parts. When the hair of the user becomes caught or entangled in the headset parts the wearing of the headset becomes annoying to the user and considerable annoyance is caused when the user attempts to remove the headset. The headsets are also found to be particularly uncomfortable to wear in some cases because the headband portion cannot be adjusted to fit the particular contour of the head of the user or the receiver cannot be readily brought to and maintained in a desired position relative to the user's ear.

In my invention the headband portion of the headset and the parts serving to support the telephone receiver or receivers are so constructed

and arranged that the catching therein of the hair of the user is not likely to occur. The parts are also constructed and arranged to permit adjustment of the headset to meet and accommodate different head contours and sizes. The headset may be constructed and arranged to serve as a support for a single telephone receiver as shown in Fig. 1 or may be constructed and arranged as shown in Fig. 6 to serve as a support for two telephone receivers.

The headset illustrated in Figs. 1, 2, 3 and 4 comprises a headband 1, a receiver holding yoke 2 and a casing 3, the casing 3 serving as a support for the yoke 2. The headband 1 is made of a single length of wire bent into such form as to provide two spaced parallel arranged and bowed portions 4 and 5, the bowed formation being such that the headband 1 will fit about the crown portion of the head of a user. On the closed end of the bent wire is supported a pad 6, the particular form of which is not important to the present invention. The pad 6 may be, however, of the form shown and covered in my patent H. R. Clarke 1,578,642, issued March 30, 1926.

On the end of the headband 1 opposite to that occupied by the pad 6 is adjustably supported the casing 3. The casing 3 is a hollow casing comprising two shell-like members 7 and 8. The members 7 and 8 are of like form and are flanged on the edge portions, the flange on each of the members 7 and 8 extending at approximately 90 degrees from the plane of the main portion. The members 7 and 8 are placed together with the flanged edges thereof in abutting relation and so that the members 7 and 8 cooperatively form the hollow casing 3. The casing 3 is sector-like in form with the wider portion at the top and the narrower portion at the bottom. All of the corner portions of the casing 3 are rounded so that no sharp corners or edges are presented on the outside of the casing. The members 7 and 8 are inwardly embossed and apertured at spaced points to accommodate rivets 9, 10 and 11 by means of which the members 7 and 8 are held together to cooperatively form the hollow casing 3. The rivets 9, 10 and 11 are of like form and each has an enlarged central portion 12 bearing against the associated inwardly embossed and apertured portions of the members 7 and 8 as shown for instance in Fig. 4, the rivet in this case being the rivet 9.

Although I have shown three rivets in the structure and the rivet 9 as being located in the upper portion of the casing 3 and in vertical alignment with the narrower and lower end of

the casing 3 some variation may be made in the number of rivets provided and in the location thereof without departing from the spirit of the invention. The outer ends of the rivets 9, 10 and 11 are spun over against the outer surface of the casing 3 to anchor the members 7 and 8 together as shown, for instance, at 13 in Fig. 4, the spun-over end portions of the rivet being located in depressions 14 formed in the members 7 and 8 when the inwardly extending embossings 15 are formed therein. The spun-over ends of the rivets therefore lie about flush with the plane of the outer surface of the members 7 and 8 and present no projections such as might catch the hair of a user of the headset.

The rivets 10 and 11 are located near the converging sides of the casing 3 and somewhat below the upper rounded corners 16 and 17 of the casing. The enlarged central portion 12 of these rivets are transversely apertured as shown at 18 for a purpose to be later explained. Housed within the hollow casing 3 and located between the upper corners of the casing and the rivets 10 and 11 are springs 19 and 20. Each spring 19 and 20 comprises two helical portions 21 and 22 arranged side by side and joined by an integral bar portion 23. It will be seen that the helical portion 21 of the spring 19 lies in the upper corner 16 of the casing 3 and that the helical portion 22 bears against the enlarged central portion 12 of the rivet 10. The bar portion 23 lies against the flange of the casing. The spring 20 is located between the corner 17 of the casing and the rivet 11.

The end of the headband 1 opposite to that occupied by the pad 6 is arranged to enter the casing 3 by bending the free ends of the portions 4 and 5 inwardly at the points 24 to provide converging leg portions 25 and 26. The leg portions 25 and 26 extend through apertures provided in the flanges of the upper portion of the casing 3 and pass transversely through the helical portions 21 and 22 of the springs 19 and 20 and transversely through the rivets 10 and 11, the leg portion 25 passing through the spring 19 and the rivet 10 and the leg portion 26 passing through the spring 20 and the rivet 11. The end of each leg portion 25 and 26 is bent after passing through the associated rivet to form a stop 27 to prevent complete withdrawal of the leg portion from the rivet. There is sufficient room in the casing 3 below the rivets and the leg portions 25 and 26 are of sufficient length, however, to permit the leg portions 25 and 26 to slide downwardly within the casing. The casing 3 is therefore adjustable on the headband 1 and is retained in an adjusted position by the friction of the leg portions 25 and 26 in the respective springs 19 and 20 and the rivets 10 and 11. By pushing the leg portions 25 and 26 from the position shown in Fig. 3 to the position shown in Fig. 2 the headband 1 may be in effect shortened so that the headset may be used by a person having a relatively low crown. For a still lower crown the leg portions 25 and 26 may be pushed farther into the casing from the position shown in Fig. 2. A high crown may be accommodated by having the leg portions 25 and 26 in the positions shown in Fig. 3. The headband 1 may also be adjusted to accommodate odd-shaped crowns by differential adjustment of the leg portions 25 and 26. For instance, the portion 4 of the headband may be in effect shortened relative to the portion 5 by pushing the leg portion 25 a greater distance into the

casing 3 than the leg portion 26 or by oppositely moving the leg portions 25 and 26, the extent of movement being only limited by the stops 27 and the length of the leg portions 25 and 26. Since the leg portions 25 and 26 extend transversely through the helical portions of the respective springs 19 and 20 and through the respective rivets 10 and 11 and are in frictional engagement with these parts, the leg portions 25 and 26 will be frictionally held in any adjusted position. A user of the headset may therefore adjust the headset so that it is comfortable to wear and it will remain in the adjusted condition even when the headset is removed from the head.

The receiver holding yoke 2 comprises a bowed spanner portion 28 and a rod portion 29. The spanner portion 28 is adapted to span the casing of a watch case type telephone receiver 30 and is equipped with inwardly directed pins 31 on its two spaced lower ends, the pins 31 being adapted to set into indentations in the receiver casing and pivotally support the receiver 30. The rod portion 29 extends upwardly from the top of the bowed spanner portion 28 and into the casing 3 through a relatively wide aperture 32 in the lower end of the casing 3, the flanges at this end of the casing being cut away to provide the aperture 32.

The portions 7 and 8 of the casing 3 are outwardly embossed and apertured at a point slightly above the aperture 32 as shown in Fig. 4, the apertured embossings 33 and 34 being in alignment with each other and cooperating to provide an enlargement 35 in the internal area of the casing 3. Extending transversely between the portions 7 and 8 of the casing 3 and journaled in the apertured embossings 33 and 34 is a cylindrical bar 36 the ends of which lie about flush with the outer surfaces of the embossings 33 and 34. The bar 36 is transversely apertured at its central portion to slidably receive the rod portion 29 of the receiver holding yoke 2, the rod portion 29 extending upwardly through the bar 36 and being provided on its upper end with a stop 37 to prevent complete withdrawal of the rod portion 29 from the bar 36.

A helical spring 38 is supported on the bar 36 and so that the turns of the spring encompass the bar 36, the spring 38 being disposed in the enlarged space 35 and with the end turns bearing against the inner surfaces of the embossings 33 and 34. One of the central turns 39 of the spring 38 is distorted from the normal pitch of the turns so that one portion of the turn 39 frictionally bears against one side of the rod portion 29 and another portion of the turn frictionally bears against the other side of the rod portion 29 of the receiver holding yoke 2. The rod portion 29 of the receiver holding yoke 2 may be manually moved up or down within the bar 36 but will be held in any adjusted position by means of the spring 38 since the turn 39 thereof frictionally engages two opposite sides of the rod portion 29. The rod portion 29 may be manually rotated within the bar 36 to change the angle of the receiver holding yoke 2 and therefore the receiver 30 relative to the ear of a user of the headset. The spring 38 will hold the yoke 2 in this adjusted position. Since the bar 36 is journaled in the apertured embossings 33 and 34 and the relatively wide aperture 32 is provided in the casing 3 the receiver holding yoke 2 may be swung from side to side and take for instance the position shown

in Fig. 3. The end turns of the spring 38 that frictionally bear against the inner surfaces of the embossings 33 and 34 will hold the rod portion 29 in the required angular position relative to the casing 3.

It will be seen that the headset above described may be adjusted in many ways to fit different head contours and sizes and that the receivers may be readily brought into a required position relative to the ear of a user. Also that there are no sharp corners on the casing structure or parts abruptly projecting from the casing walls such as might catch the hair of a user and that the headband per se comprises two spaced parallel runs of wire without any interposed mesh or covering material such as might catch the hair and cause annoyance to a person wearing the headset.

In the modification shown in Fig. 5 certain parts therein are identical with parts in the headset shown in Figs. 1, 2, 3 and 4 and are therefore identified by the same numbers as in the figures already described. In Fig. 5 the casing 40 is of the same general form as the casing 3 in Figs. 1, 2, 3 and 4 but differs therefrom in this respect that no outwardly extending embossings 33 and 34 are provided thereon. The casing 40 is a hollow casing comprising two shell-like members 41 and 42 apertured and internally embossed at spaced points to accommodate the rivets 9, 10 and 11. The members 41 and 42 are flanged along the edge and then placed together so that the flanges are in abutting relation, the members 41 and 42 being held together by means of the rivets 9, 10 and 11 to cooperatively form the hollow casing 40. The members 41 and 42 are apertured at 43 to receive a rotatable bar 44. The ends of the bar 44 are reduced in diameter to fit the apertures 43 and to provide a shoulder 45 near each end to frictionally bear against the inner faces of the members 41 and 42. The bar 44 is transversely apertured and tapped in its central portion to receive an externally threaded rod portion 46 which extends upwardly from the central portion of the spanner portion 28 of a receiver holding yoke 47. The rod portion 46 extends through the aperture 32 in the lower end of the casing 40 and transversely through the bar 44 and may be provided at its upper end with a stop 48 to prevent complete removal from the bar 44. The yoke 47 may be manually rotated to turn the rod portion 46 in the bar 44 to raise or lower a receiver not shown, relative to the casing 40 or to turn the receiver relative to the ear of a user of the head-set. The yoke 47 may also be manually swung from side to side since the bar 44 is journaled in the casing structure. The frictional bearing of the shoulders 45 on the bar 44 against the inner faces of the members 41 and 42 of the casing will maintain the yoke 47 in a required angular position relative to the casing 40. The casing 40 is adjustably supported on the leg portions 25 and 26 of the headband 1 in the same manner as the casing 3 in Figs. 1, 2, 3 and 4, the leg portions 25 and 26 being frictionally engaged by the respective springs 19 and 20 and the rivets 10 and 11.

Fig. 6 shows the application of the invention to a double headset. In this embodiment of the invention the headband 49 is made of two separate lengths of wire 50 and 51 bowed into required form and held in parallel spaced relation by means of the casings 52 and 53. The casings 52 and 53 may be of the form shown in Figs. 1, 2, 3 and 4 or may be of the form shown in Fig. 5.

For the purpose of illustration and not in the sense of limiting the structure, the casings 52 and 53 are shown as being exact duplicates of the casing 3. The ends of the bowed wires 50 and 51 extend into the casings 52 and 53 and are in frictional engagement with helical springs and rivets, not shown but located in the casings and corresponding to the springs 19 and 20 and the rivets 10 and 11 previously described. Each casing contains the rotatable bar 36 and the associated helical spring 38. The receivers 30-30 are adjustably supported by means of the receiver holding yokes 2, the rods 29 of which are frictionally held in the bar 36 by means of the associated helical springs 38. A telephone cord 54 extends to each receiver 30.

What is claimed is:

1. A telephone headset comprising a receiver, a headband, two apertured shell members of like form arranged to cooperatively form a hollow casing, said casing being adjustably supported on an end portion of said headband, a bar transversely supported in said casing, end portions of said bar extending through and supported in the apertures in said shell members and a holder for said receiver extending into said casing and transversely through said bar and adjustably supported in said bar.

2. A telephone headset comprising a receiver, a headband, a casing comprising two apertured shell members of like form adjustably supported on an end portion of said headband, a bar extending transversely between said shell members and through said shell members, a receiver holder, a rod on said receiver holder extending into said casing and transversely through said bar and means supported on said bar and frictionally engaging said rod and each of said shell members.

3. A telephone headset comprising a receiver, a headband formed of two bowed parallel wires, a casing, means in said casing frictionally holding end portions of said wires, a bar rotatably supported in said casing and extending transversely within said casing and through opposite sides of said casing, a receiver holder slidably supported in said bar and extending into said casing and spring means supported on said bar and frictionally engaging said holder and opposite sides of said casing.

4. A telephone headset comprising a receiver, a headband, a hollow casing adjustably supported on an end portion of said headband, means in said casing frictionally engaging said headband, a bar extending transversely within said casing and rotatably supported therein, said bar extending through opposite walls of said casing, a receiver holder having a portion extending into said casing and transversely through said bar and adjustably supported in said bar and a helical spring supported on said bar and frictionally engaging said receiver holder and opposite walls of said casing.

5. A telephone headset comprising a receiver, a headband, a hollow casing adjustably supported on an end portion of said headband, spring means supported in said casing and frictionally engaging said headband to adjustably hold said casing on said headband, a bar extending transversely within said casing and journaled therein, a receiver holder, a rod portion on said receiver holder extending transversely through said bar and slidably supported therein and a helical spring encompassing said bar and having end portions bearing against said casing and one of

the turns of said spring bearing against opposite sides of said rod portion to frictionally hold said receiver holder in an adjusted position.

6. In a telephone headset, a headband having two spaced parallel wire portions bent at one end to provide two converging leg portions, a hollow casing adjustably supported on said leg portions and helical springs in said casing transversely arranged relative to said leg portions and frictionally engaging said leg portions to hold said casing in an adjusted position.

7. In a telephone headset, a headband having two spaced parallel wire portions bent at one end to provide two converging leg portions, a hollow casing adjustably supported on said leg portions, transversely apertured members in said casing slidably receiving said leg portions and springs

within said casing frictionally engaging said leg portions to hold said casing in an adjusted position on said leg portions.

8. In a telephone headset comprising a headband, a pair of shell-like members, transversely apertured rivets holding said members in position and cooperating therewith to form a hollow casing, converging wire leg portions on said headband extending into the casing formed by said members and through the transverse apertures in said rivets and springs supported transversely between said members and frictionally engaging said leg portions, each of said springs comprising two helical portions arranged side by side and a bar portion connecting said helical portions.

HARRY R. CLARKE.