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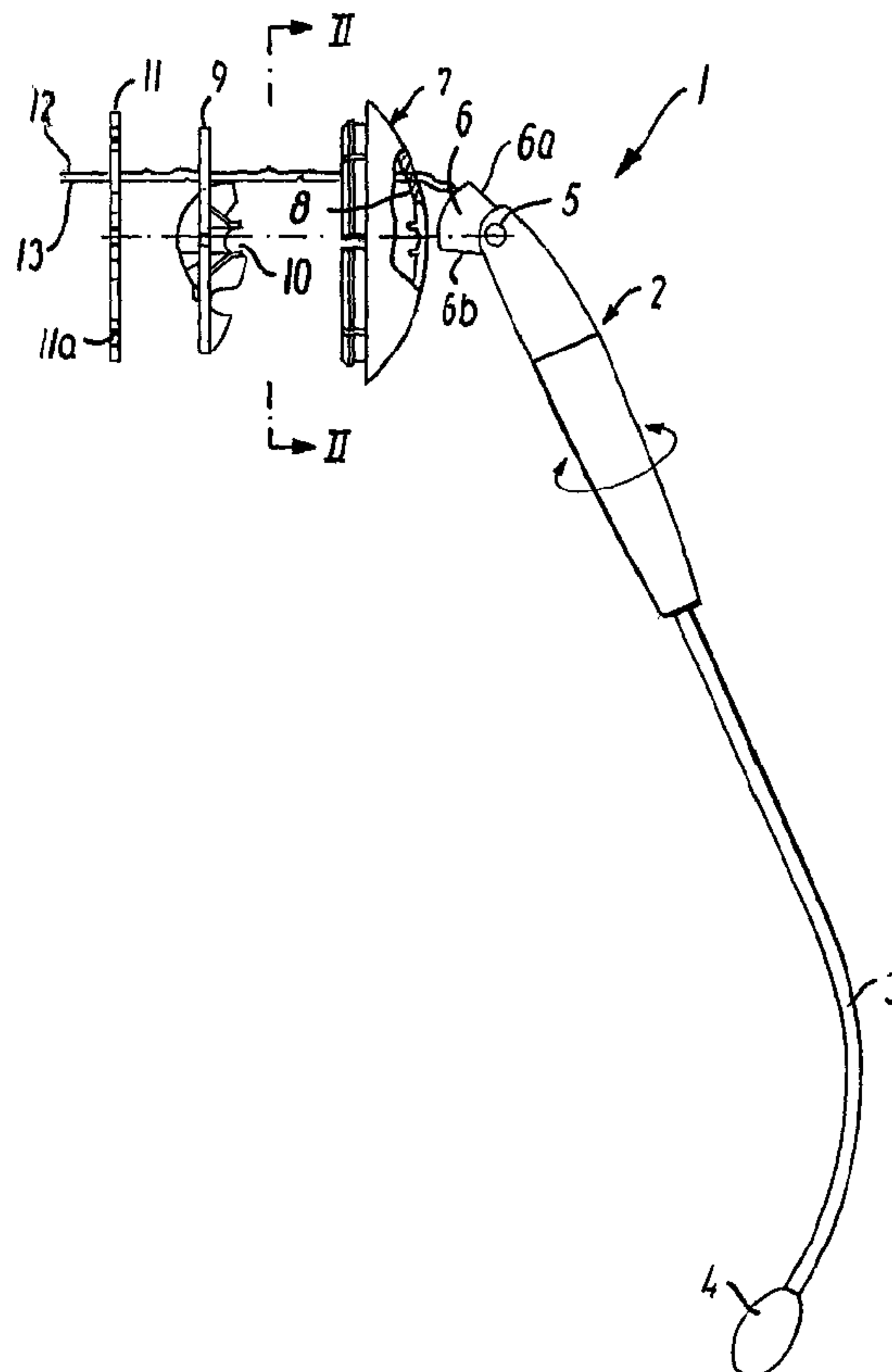
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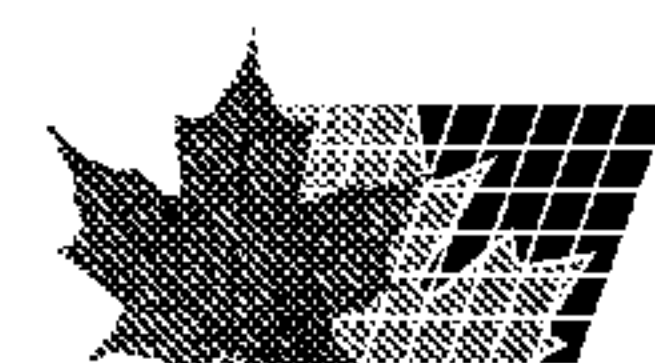
(54) Titre : CASQUE A TIGE MICROPHONIQUE AJUSTABLE

(54) Title: HEADSET WITH ADJUSTABLE MICROPHONE BOOM



(57) **Abrégé/Abstract:**

A headset with an adjustable microphone boom (1) which can be adjusted to and from a position near the mouth of a user and is mounted in a housing (7) by a friction part (6) being coupled to a flexible friction coupling which is configured in a plate (9) in that co-operating plates (20, 21) are stamped out of the plate and are connected to the plate (9) by means of flexible arms (21, 27, 28, 32). The friction part (6) has a shaft (5) which can be accommodated in a bearing defined by recesses which are configured partly in the inside (8) of the housing (7) and partly in the plate (9). The microphone boom (1), the housing (7) and the plate (9)



(57) **Abrégé(suite)/Abstract(continued):**

with friction coupling are held together by means of a locking ring (11). In this way a stable, adjustable microphone boom is provided which does not become loose with time, understood in the way that no matter in which position and regardless of how frequently the position is changed, the microphone boom will remain secured with a sufficient force in the friction coupling.

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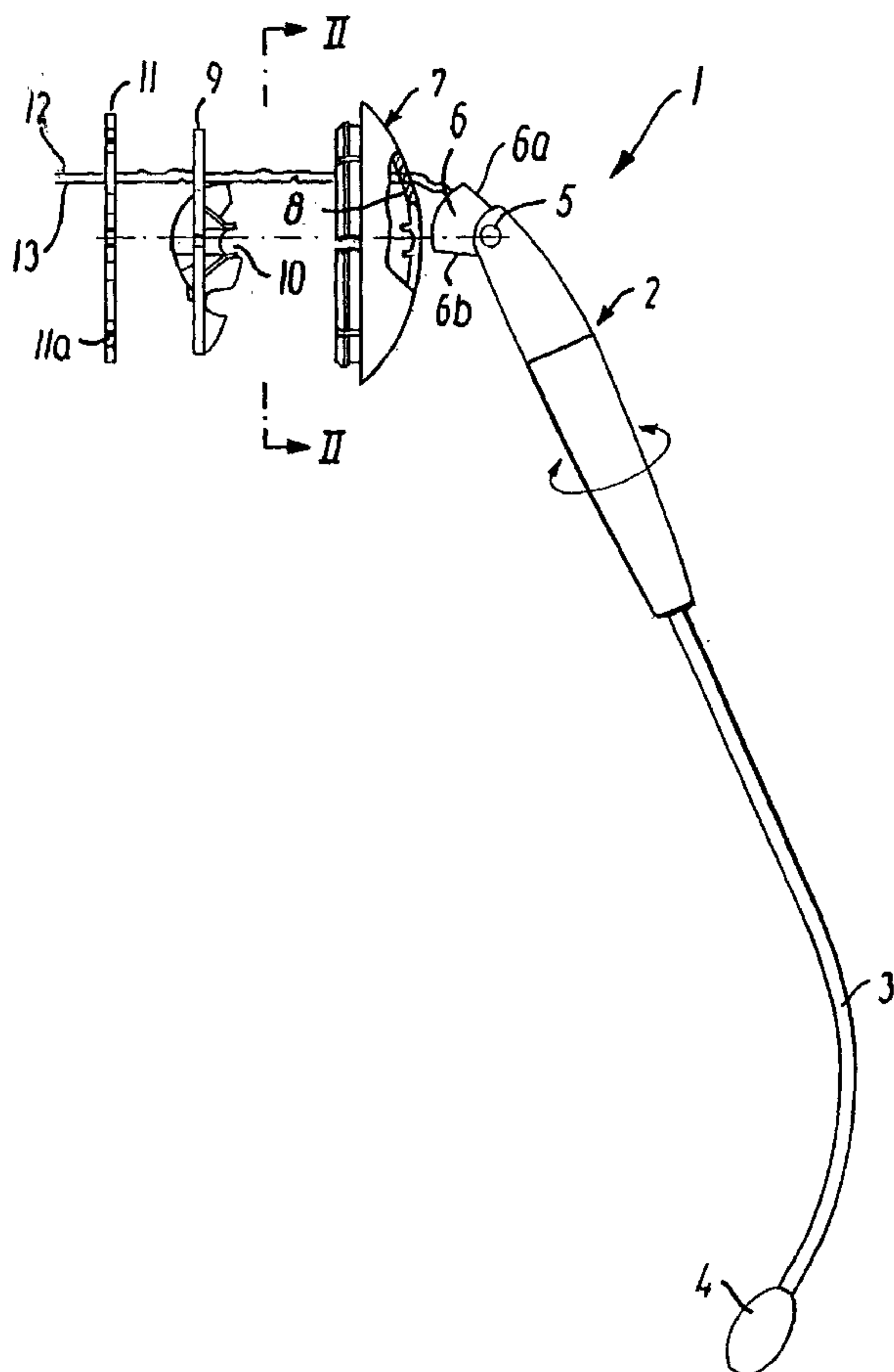
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(54) Title: HEADSET WITH ADJUSTABLE MICROPHONE BOOM



(57) Abstract: A headset with an adjustable microphone boom (1) which can be adjusted to and from a position near the mouth of a user and is mounted in a housing (7) by a friction part (6) being coupled to a flexible friction coupling which is configured in a plate (9) in that co-operating plates (20, 21) are stamped out of the plate and are connected to the plate (9) by means of flexible arms (21, 27, 28, 32). The friction part (6) has a shaft (5) which can be accommodated in a bearing defined by recesses which are configured partly in the inside (8) of the housing (7) and partly in the plate (9). The microphone boom (1), the housing (7) and the plate (9) with friction coupling are held together by means of a locking ring (11). In this way a stable, adjustable microphone boom is provided which does not become loose with time, understood in the way that no matter in which position and regardless of how frequently the position is changed, the microphone boom will remain secured with a sufficient force in the friction coupling.

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Headset with adjustable microphone boom

5 The invention concerns a headset with an adjustable microphone boom, which is swingable to or from a user's cheek, where the boom is mounted in a bearing provided in a housing, the microphone boom being suspended in the housing by a friction part configured on the microphone boom.

10 Such headsets are to be found in increasingly widespread use, e.g. among personnel at reception desks and by personnel engaged in telephonic sales.

15 Today, a modern headset is built up so that the user can wear it without any inconvenience arising in the form of discomfort due to the weight of the headset or its clamping around the head etc.

Moreover, if the headset is of the wireless type, it is seldom necessary for the user to remove the headset from the head.

20 In connection with periods during which the headset is not in use, it is desirable to be able to remove the microphone boom from the area around the mouth, e.g. in connection with the intake of food by the user.

25 The most common way in which to remove the microphone boom from the user's mouth is to turn it parallel with the loudspeaker capsule, and herewith approximately parallel with the user's cheek. However, it may be desirable to move the microphone boom away and at a distance from the cheek, so that, for example during the intake of food, there is no risk that it comes into contact with the food.

US patent no. 5,469,505 discloses a headset, where the microphone boom can be swung away from a user's cheek in that the boom is configured with two hinge joints which are mutually displaced by 90°.

5 Such a swinging to and from the cheek must naturally be able to be effected during the whole lifetime of the headset, and without the microphone boom becoming loose with the result that it cannot be secured in any fixed position. This requirement places great demands on the manner in which the microphone boom is coupled to the headset.

10

In light of this, it is an object of the invention to provide a headset whereby a stable swinging-out of a headset's microphone is possible throughout the whole lifetime of the headset.

15 The object of the invention is achieved with a headset of the kind disclosed in the preamble to claim 1 which is characterised in that the friction part is suspended in a flexible arrangement that consists of a friction coupling.

20

In this way, a stable coupling of the microphone boom to the headset is achieved in that the flexible suspension will compensate for wear which would otherwise make the coupling-together become loose and perhaps make it impossible to position the microphone boom.

25

As disclosed in claim 2, it is expedient that the friction coupling is configured in a plate disposed in the housing. This further ensures, after long-time use, that play does not arise in the flexible arrangement when the microphone boom is moved.

30

For further stabilisation of the headset bearing, as disclosed in claim 3, it is expedient if the friction part has a transverse shaft which is arranged to secure the microphone boom in recesses formed in the inside of the

housing and, as disclosed in claim 4, that in the plate on that side which faces towards the inside of the housing, further recesses are configured which, together with the recesses in the inside of the housing, completely surround the shaft.

5

As disclosed in claim 5, for reasons of advantageous production technique, it is an advantage if the friction coupling is configured as a stamped-out part of the plate.

10 To ensure a good and durable connection between the microphone boom's bearing part and the stamped-out part, as disclosed in claim 6, it is advantageous if the stamped-out part consists of two plates which are arranged to accommodate the friction part between two of their surfaces. In this way, a secure grip is obtained around the friction part which, due to the  
15 spring effect from the two plates against the friction part, maintains a force sufficient to secure the friction part after long-time use.

For a simple coupling of the microphone boom's bearing part to the housing with its flexible friction coupling, as disclosed in claim 11, it is expedient if  
20 the inside of the housing has a circle-disk shaped surface, from which a wall with cut-outs extends outwards, and in claim 12, that the microphone boom, the housing and the plate are coupled together with a locking ring.

Further expedient embodiments of the invention are disclosed in the  
25 remaining, dependent claims.

The invention will now be explained in more detail with reference to the example embodiment shown in the drawing, in which

30 fig. 1 shows, seen from the side, a microphone boom with bearing parts according to the invention in the dismantled state,

fig. 2 shows a section along the line II – II in fig. 1, while

fig. 3 shows a friction coupling on a plate according to the invention.

5 In fig. 1, a microphone boom in its entirety is indicated by the reference number 1. As will be seen, at its one end it consists of a microphone 4 which is secured to the one end of a boom 3, while the other end of the boom 3 is connected to a pivotal adjusting piece 2. The adjusting piece 2 ends at a friction part 6 which has two opposing surfaces 6a and 6b. The  
10 friction part 6 is pivotally connected to the adjusting part 2 by means of a shaft 5 which extends through the adjusting piece 2 and the friction part 6. This shaft 5 extends out through both sides of the adjusting part 2.

Fig. 1 also shows a housing 7 which is arranged to receive the friction part  
15 6 and a plate 9 with bearing 10, as explained in more detail in the following.

Finally, fig. 1 shows a locking ring 11 which is arranged to hold the plate 9 firmly in the housing 7.

20 In fig. 2, the housing is shown again seen in the direction II – II and with the friction part 6 inserted in the housing. As will be seen, the shaft 5 with the friction part 6 is mounted in recesses in the form of bearing shells in the inside of the housing (in fig. 2 partially hidden by the shaft 5). In the inside of the housing 7 a circular-disk shaped recess 14 is also provided, from  
25 which a wall 30 with cut-outs 15 extends outwards. The inside of the housing 7 is also provided with lugs 16, which are intended to co-operate with recesses 17 (see fig. 3) in the plate 9.

30 In fig. 3, the plate 9 is seen with a flexible friction coupling according to the invention. On the opposite side of the plate 9, recesses in the form of bearing shells (not shown) are formed which, together with the bearing

shells on the inside of the housing 7, constitute the bearing 10 which surrounds the shaft 5 when the plate 9 is inserted in abutment against the surface 14.

- 5 In the plate 9 a flexible friction coupling according to the invention is configured. This flexible friction coupling consists of two plates 20 which are connected to resilient arms 21, 27, 31, 32 and to securing pieces 26 and 28. The resilient arms, the plates 20 and the securing pieces 26, 28 are configured by the stamping-out of material in the plate 9, shown by a  
10 downwardly decreasing opening 24 between the plates 20 and shown at cut-outs 22 and 23.

The parts illustrated in the figures are assembled in the following manner:

- 15 The friction part 6 is introduced into the inside of the housing 7 from the right in fig. 1. The friction part 6, which has a slightly larger breadth than the opening 24 between the plates 20, is now pressed in between the plates 20, whereby a force is applied to the friction part 6 which is determined by the spring effect of the arms 21, 27, 31 and 32. At the same time, the shaft  
20 5 is mounted in the bearing shells of the housing 7 and on the coupling plate 9, said bearing shells together forming the bearing 10. To hold all of the parts together, the locking ring 11 is mounted against the inside of the housing 7. In this way, the microphone boom can be moved in an angular area which is defined by a distance limited by the surfaces 6a and 6b of the  
25 friction part 6 against the inner surface 8 of the housing and the boundary 29 of the friction coupling, respectively, as shown in figs. 1 and 3, respectively.

- 30 Further, the friction will increase when the microphone boom is moved towards the boundary 29, which corresponds to moving it away from a

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user's cheek, since the extent of the opening 24 decreases downwards, as mentioned before.

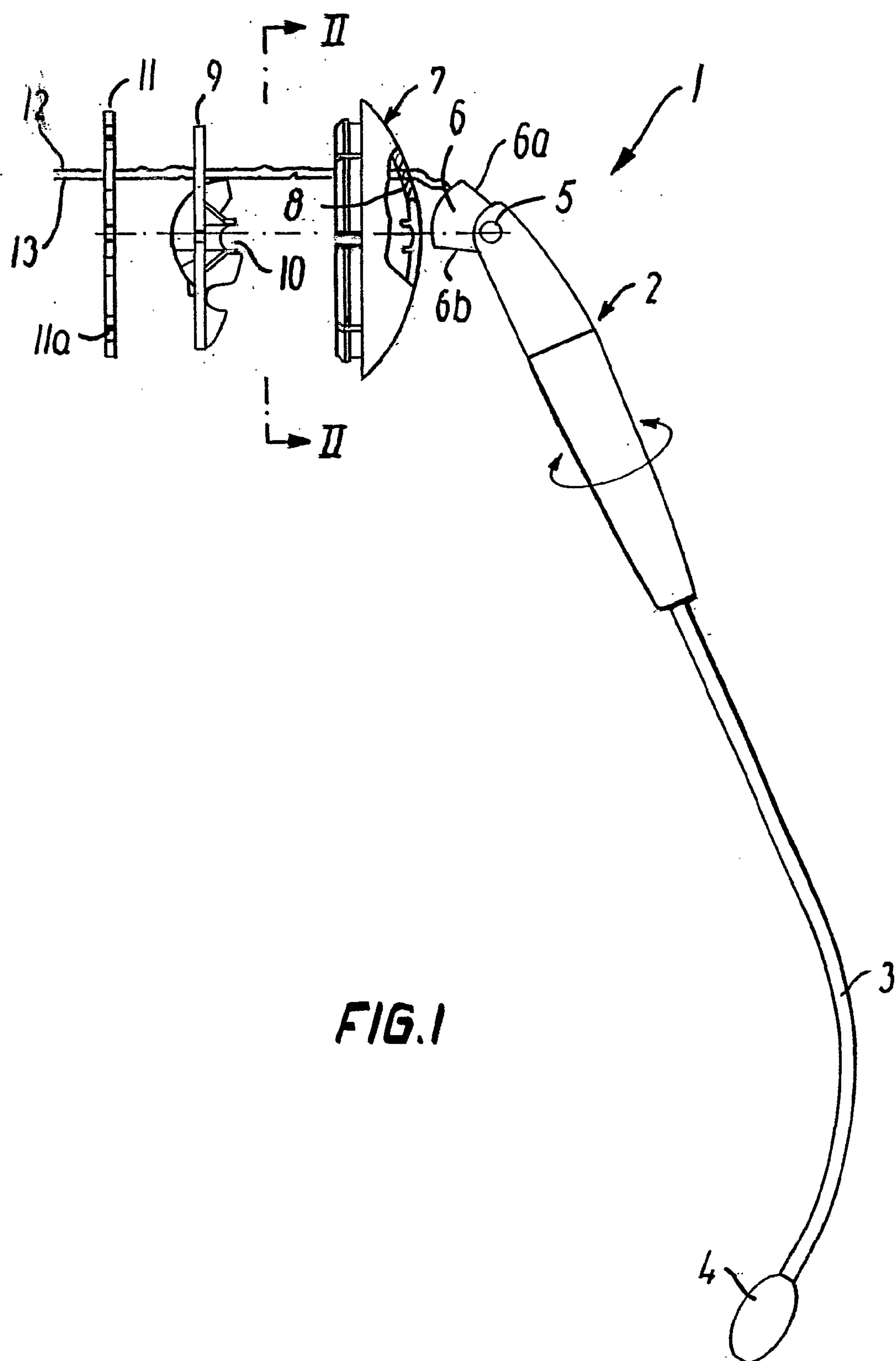
AMENDED SHEET

## CLAIMS

- 5 1. Headset with an adjustable microphone boom (1), which is swingable to or from a user's cheek, where the boom is mounted in a bearing provided in a housing (7), the microphone boom being suspended in the housing (7) by a friction part (6) configured on the microphone boom, **characterized in** that the friction part is suspended in a flexible arrangement that consists of a friction coupling.
- 10 2. Headset according to claim 1, **characterized in** that the friction coupling is configured in a plate (9) arranged in the housing (7).
- 15 3. Headset according to claim 1 – 2, **characterized in** that the friction part (6) has a transverse shaft (5) which is arranged to secure the microphone boom (1) in recesses configured on the inside of the housing (8).
- 20 4. Headset according to claim 1 – 3, **characterized in** that on the sides which face towards the inside (8) of the housing (7), the plate (9) is configured with further recesses which, together with the recesses on the inside of the housing (7), completely surround the shaft (5).
- 25 5. Headset according to claim 2 – 4, **characterized in** that the friction coupling (20, 21) is configured as a part stamped out of the plate (9).
6. Headset according to claim 5, **characterized in** that the stamped-out part consists of two plates (20) which are arranged to accommodate the friction part (6) between two of their surfaces.

7. Headset according to claim 6, **characterized in** that the friction part (6) has a breadth which is greater than the distance between the plates (20) when the friction part is not introduced between the plates (20).
- 5 8. Headset according to claim 6 or 7, **characterized in** that the opening between the two plates is decreasing.
9. Headset according to claim 6 – 8, **characterized in** that the two plates (20) are suspended by connecting the sides of the plates which face away from the friction part (6) to flexible arms (21, 27, 28, 32).
- 10 10. Headset according to claim 1 – 9, **characterized in** that the friction part (6) is arranged to be turned at an angle which is defined by the side edges (6a, 6b) of the friction part (6) in that in its first outer position the friction part lies up against the inner surface of the housing (7), and in the second position it lies up against an edge (29) which constitutes a part of the boundary of the cut-out (23).
- 15 11. Headset according to claim 1 – 9, **characterized in** that the inside of the housing (7) has a circular-disk shaped surface (14), from which a wall (30) with recesses (15) extends.
- 20 12. Headset according to claim 2 – 11, **characterized in** that the microphone boom (1), the housing (7) and the plate (9) are coupled together with a locking ring (11).
- 25

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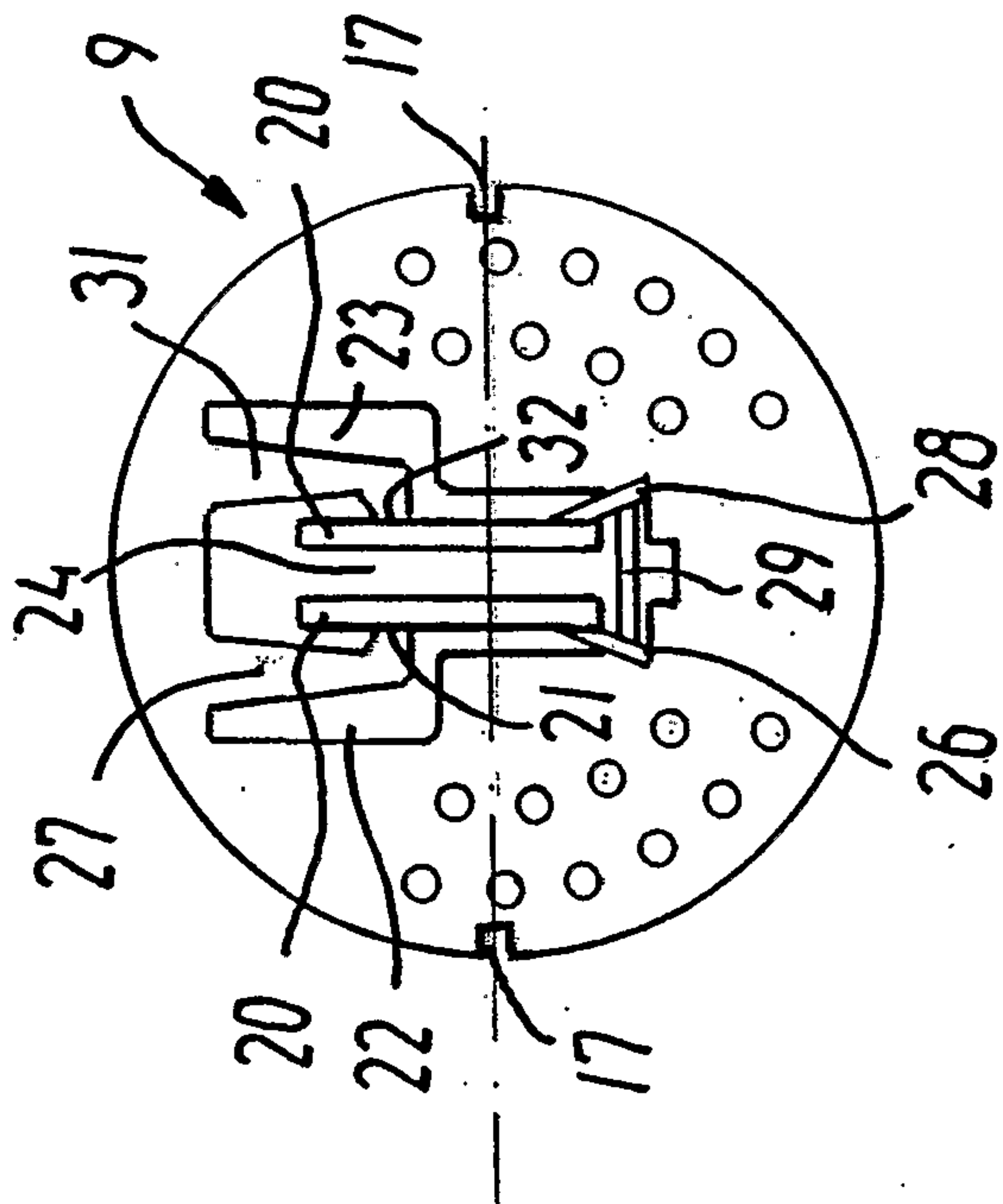


FIG. 3

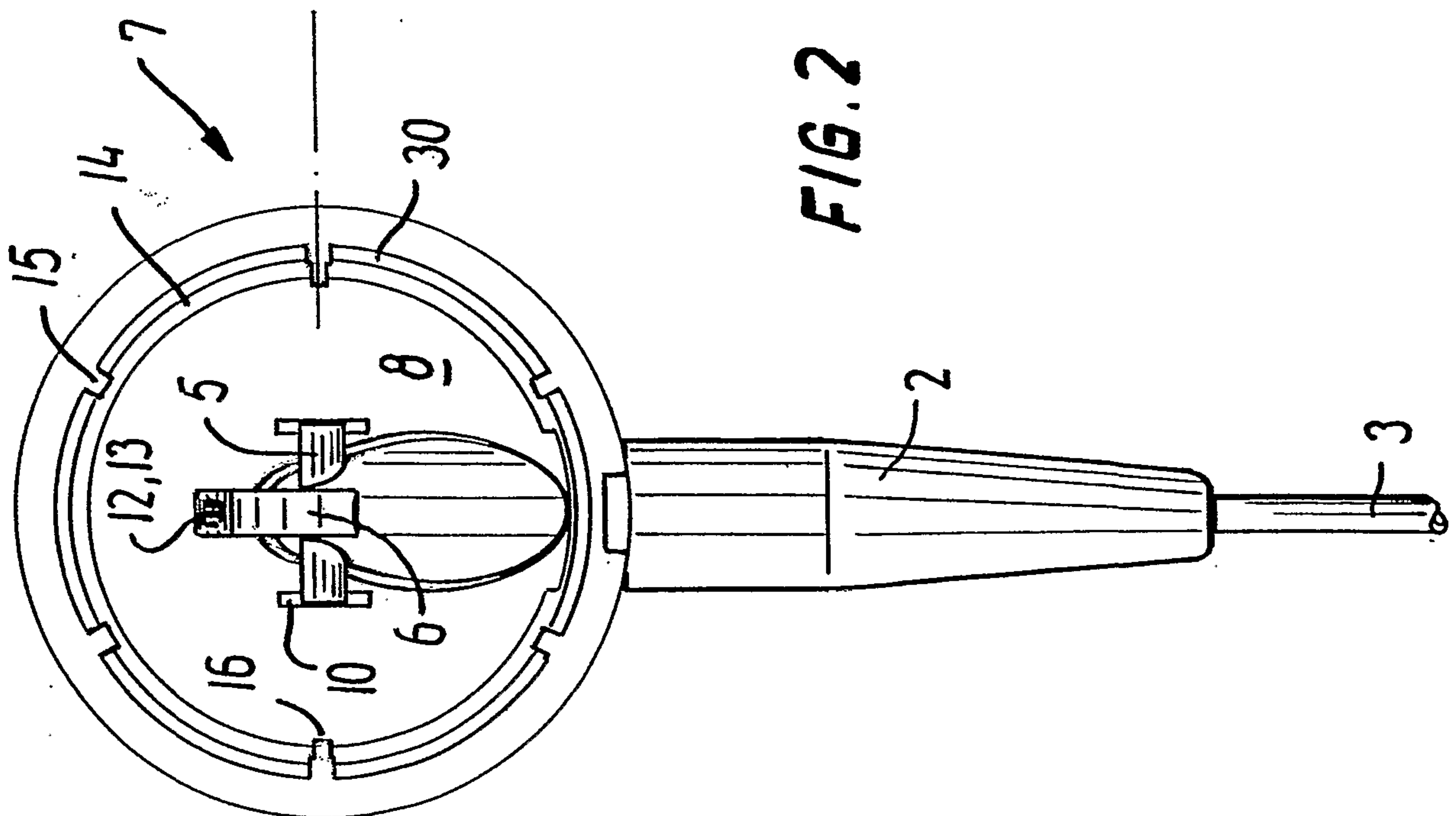


FIG. 2

