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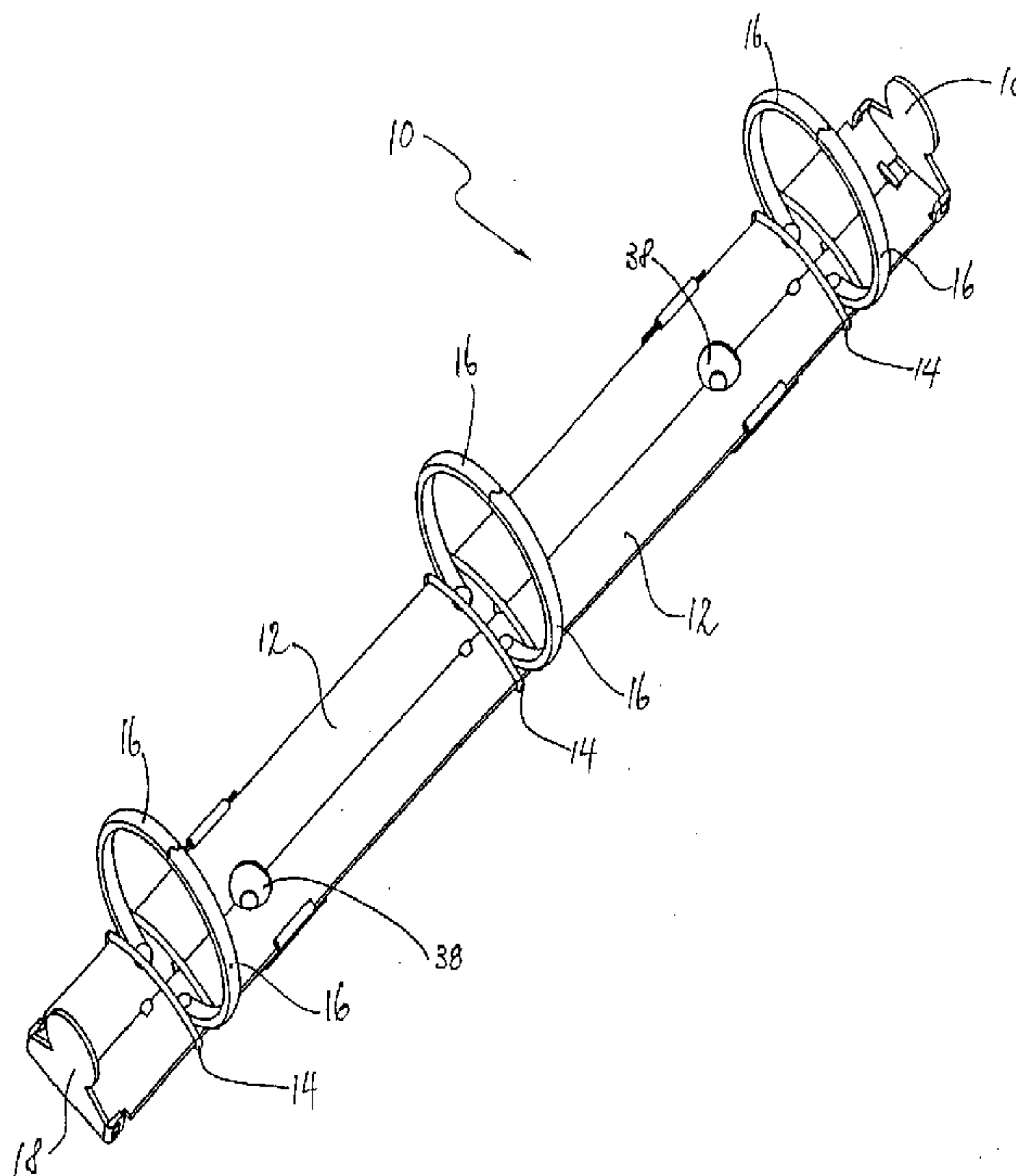
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(54) **MECANISME DE RELIURE A ANNEAUX**

(54) **A RING BINDER MECHANISM**



(57) There is disclosed a ring binder mechanism to be secured to a cover, the mechanism including a pair of plates mounted with a number of half rings, the plates being retained by a number of wires for pivotal movement between a position in which the half rings are open, and a position in which the half rings are closed, and two levers which may be moved to pivot the plates between the two positions, each of the plates including a protrusion received within a respective hole aperture of the lever to allow the lever to pivot relative to the plates.

ABSTRACT

There is disclosed a ring binder mechanism to be secured to a cover, the mechanism including a pair of plates mounted with a number of half-rings, the plates being retained by a number of wires for pivotal movement between a position in which the half-rings are open, and a position in which the half-rings are closed, and two levers which may be moved to pivot the plates between the two positions, each of the plates including a protrusion received within a respective hole aperture of the lever to allow the lever to pivot relative to the plates.

[Fig. 1]

### A Ring Binder Mechanism

This invention relates to a ring binder mechanism which may be secured to a base member (e.g. a cover), for retaining loose-leaf paper and, in particular, such a mechanism which is activated by at least one lever.

### Background of the Invention

A conventional ring binder generally includes a pair of elongated plates which are engaged with each other with a respective elongated edge of the plate abutting each other. The plates are retained in their engaged position by a retaining member, e.g. an upper housing which is substantially rigid. To each of the plates are mounted a number of half-rings, which may be moved to engage with a corresponding half-ring of the other plate to form a full ring, for retaining loose-leaf paper. At each longitudinal end of the ring binder mechanism is provided with a lever which may be pivoted by a user to pivot the plates between a position in which the half-rings are open, and a position in which the half-rings are closed.

The levers are usually situated between and loosely associated with the upper housing and the pair of elongated plates. Such levers cannot, however, be used where the upper housing is dispensed with, as in some later designs of ring binder mechanisms. In addition, since the levers are only loosely associated with the upper housing and the pair of plates, such may completely loose out during use.

It is therefore an object of the present invention to provide a ring binder mechanism in which the aforesaid shortcomings are mitigated, or at least to provide a useful alternative to the public.

Summary of the Invention

According to a first aspect of the present invention, there is provided a ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said lever being engaged solely with said pivotable structure.

According to a second aspect of the present invention, there is provided a ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said pivotable structure comprising at least one axle member engaged with an aperture of said lever, to allow said lever member to pivot relative to said pivotable structure.

According to a third aspect of the present invention, there is provided a ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said

pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said pivotable structure comprising at least one axle member about which said lever is pivotable.

According to a fourth aspect of the present invention, there is provided a ring binder mechanism adapted to be secured to an article, said mechanism comprising a pair of plate members with a plurality of half-ring members mounted thereto, said plate members being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said plate members between said first position and second position, each said plate member comprising at least one axle member at least partly received within an aperture of said lever to allow said lever to pivot relative to said plate members.

#### Brief Description of the Drawings

An embodiment of the invention will now be described, by way of an example only, and with reference to the accompanying drawings, in which:-

Fig. 1 is a top perspective view of a ring binder mechanism according to the present invention in a closed position;

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Fig. 2 is a partial, enlarged and exploded view of a longitudinal end of the ring binder mechanism shown in Fig. 1;

Fig. 3 is a top perspective view of the ring binder mechanism shown in Fig. 1 in an open position;

Fig. 4 is an exploded view of the ring binder mechanism shown in Fig. 1;

Fig. 5 is a cross-sectional view of the ring binder mechanism shown in Fig. 1 in the closed position;

Fig. 6 is a cross-sectional view of the ring binder mechanism shown in Fig. 1 in the open position; and

Fig. 7 is a top perspective view of a tab member used in the ring binder mechanism shown in Fig. 1.

#### Detailed Description of the Preferred Embodiment

As shown in Figs. 1 to 3, a ring binder mechanism according to the present invention is shown as generally designated as 10. The mechanism 10 includes a pair of elongate plates 12 each having a pair of longer edges and a pair of shorter edges. The plates 12 are arranged side by side with a longer edge of one plate 12 always in abutment with a longer edge of another plate 12. The plates 12 are kept in this relative position by three wires 14 which are crimped on both ends to retain the plates 12 for pivotal movement.

To each of the plates 12 are fixedly secured three half-rings 16, which may be caused to open and close upon pivotal movement of the plates 12 relative to each other. At each longitudinal end of the ring binder mechanism 10 is a lever 18. The lever 18 includes a thumb-tab 20 on which a thumb of a user may be placed to apply force thereon, a ledge 22 engaged with a recess 24 formed between the two plates 12, and two lugs 26 each having a hole 28 therein. Each of the plates 12 includes a protrusion 30 at its outer corner. In addition to having the ledge 22 engaged with the recess 24, the lever 18 is also engaged with the plates 12 by having the protrusions 30 of the plates 12 received within a respective hole 28 of the lugs 26.

Two securing tabs 32 are also fixedly engaged with, and spanning across from below, the plates 12. As shown more clearly in Fig. 7, each tab 32 includes a base plate 34 having a hole 36 which is aligned with an aperture 38 formed between the plates 12. As can be seen in Figs. 5 and 6, a rivet 40 may be received in and engaged with the hole 36 of the base plate 34 of the securing tab 32, and deformed to secure the securing tab 36, and thus the mechanism 10, to a cover 42, which may be made of a cardboard or plastics material.

As can be seen in Figs. 5 and 6, the ledge 22 includes two wider portions 44, 46 joined by a narrower portion 48. The wider portions 44, 46 are wider than the width of the recess 24 formed between the plates. The levers 18 may be moved, e.g. by a user, to pivot about the protrusions 30 from the position as shown in Figs. 1 and 5 to assume the position as shown in Figs. 3 and 6. During such movement, the wider portion 46 acts on the under-surfaces of the plates 12 in order to pivot them to move

from the position as shown in Figs. 1 and 5, to the position as shown in Figs. 3 and 6,<sup>6</sup> in order to open the half-rings 16. The levers 18 may also be moved to pivot about the protrusions 30 from the position as shown in Figs. 3 and 6 to assume the position as shown in Figs. 1 and 5. During such movement, the wider portion 44 acts on the upper-surfaces of the plates 12 in order to pivot them to move from the position as shown in Figs. 3 and 6, to the position as shown in Figs. 1 and 5, in order to close the half-rings 16.

It should be understood that the above only describes an embodiment whereby the present invention may be carried out, and that further modifications and/or alterations may be made thereto without departing from the spirit of the invention. For example, instead of utilizing wires 14 to retain the plates 12 in their proper position, the plates 12 may alternatively be supported by an upper housing, as in conventional ring binder mechanisms.

**CLAIMS**

1. A ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said lever being engaged solely with said pivotable structure.
2. A mechanism according to Claim 1 further comprising a plurality of retaining members.
3. A mechanism according to Claim 1 or 2 wherein each or said retaining member comprises a wire member.
4. A mechanism according to Claim 1 wherein said pivotable structure comprises a pair of plate members.
5. A mechanism according to Claim 1 further comprising two lever members.
6. A mechanism according to Claim 1 wherein said mechanism is securable to said article via a tab member joining two outer edges of said pivoting structure.

7. A mechanism according to Claim 6<sup>8</sup> wherein said tab member comprises a surface adapted to abut with said article.
8. A mechanism according to Claim 6 or 7 wherein a rivet member is engageable with said tab member and said article, to thereby secure said mechanism with said article.
9. A ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said pivotable structure comprising at least one axle member engaged with an aperture of said lever, to allow said lever member to pivot relative to said pivotable structure.
10. A mechanism according to Claim 9 wherein at least part of said axle member is received within said aperture of said lever.
11. A mechanism according to Claim 9 further comprising a plurality of retaining members.
12. A mechanism according to Claim 9 or 11 wherein each or said retaining member

comprises a wire member.

13. A mechanism according to Claim 9 wherein said pivotable structure comprises a pair of plate members.
14. A mechanism according to Claim 9 wherein said lever comprises two apertures.
15. A mechanism according to Claim 9 wherein said pivotable structure comprises a pair of axle members.
16. A mechanism according to Claim 9 further comprising two lever members.
17. A ring binder mechanism adapted to be secured to an article, said mechanism comprising a pivotable structure with a plurality of half-ring members mounted thereto, said pivotable structure being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said pivotable structure between said first position and second position, said pivotable structure comprising at least one axle member about which said lever is pivotable.
18. A mechanism according to Claim 17 wherein said pivotable structure comprises two axle members.

19. A mechanism according to Claim 17 wherein said lever is engaged with said axle member of said pivotable structure.
20. A mechanism according to Claim 17 further comprising a plurality of retaining members.
21. A mechanism according to Claim 17 or 20 wherein each or said retaining member comprises a wire member.
22. A mechanism according to Claim 17 wherein said pivotable structure comprises a pair of plate members.
23. A mechanism according to Claim 17 further comprising two lever members.
24. A ring binder mechanism adapted to be secured to an article, said mechanism comprising a pair of plate members with a plurality of half-ring members mounted thereto, said plate members being retained by at least one retaining member for pivotal movement between a first position in which said half-ring members are open, and a second position in which said half-ring members are closed, at least one lever member being movable to pivot said plate members between said first position and second position, each said plate member comprising at least one axle member at least partly received within an aperture of said lever to allow said lever to pivot relative to said plate members.

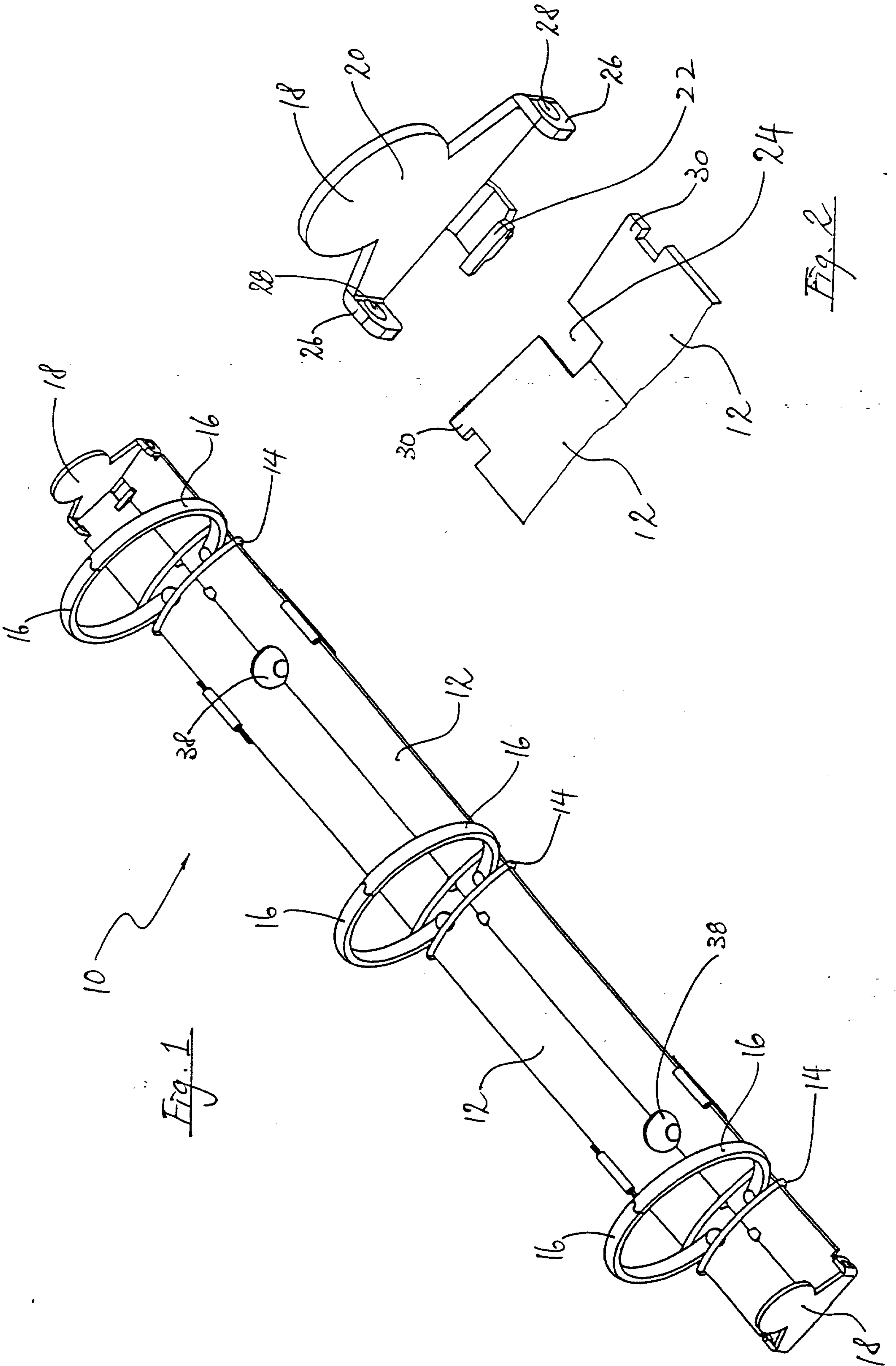


Fig. 1

Fig. 2

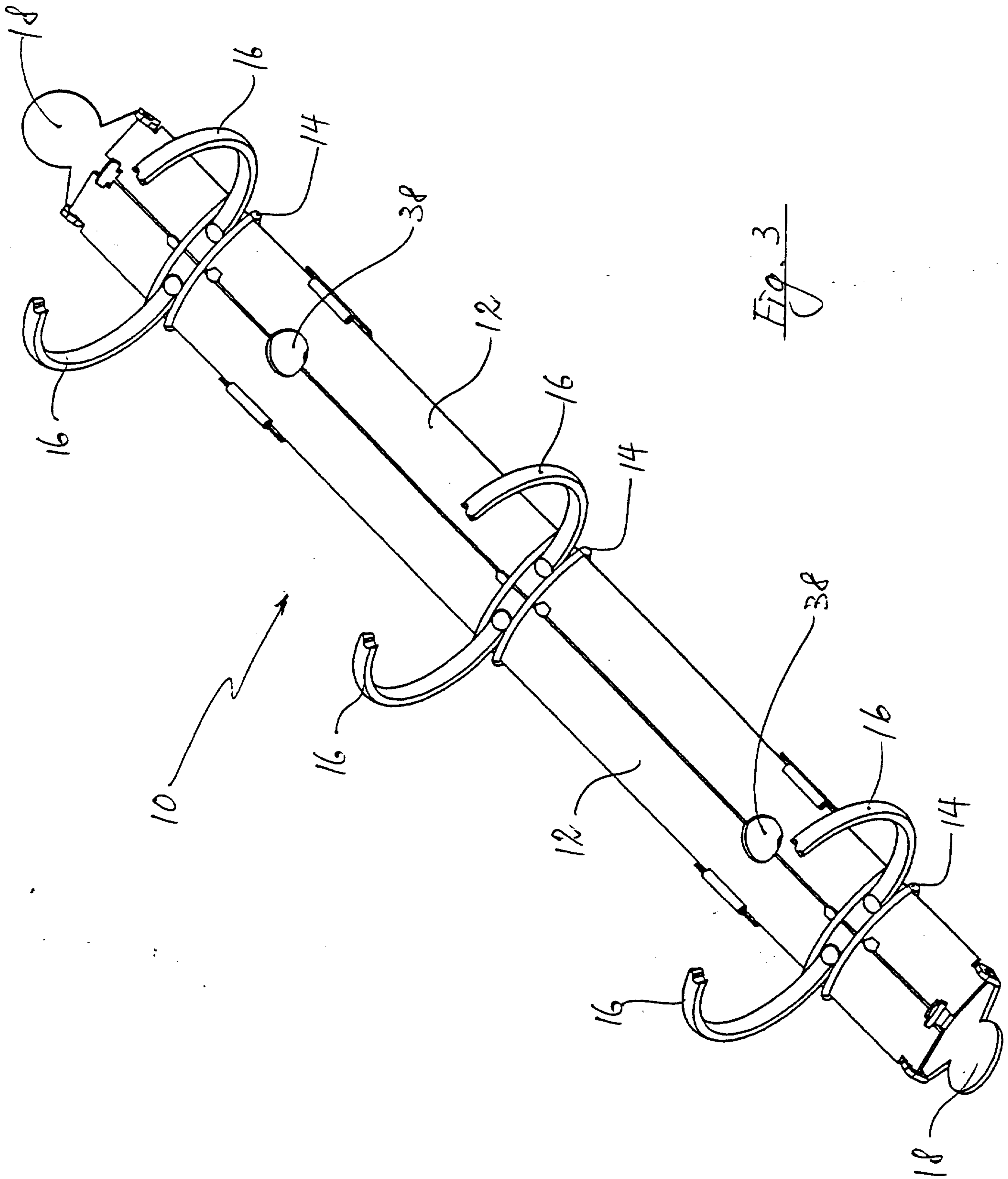


Fig. 3

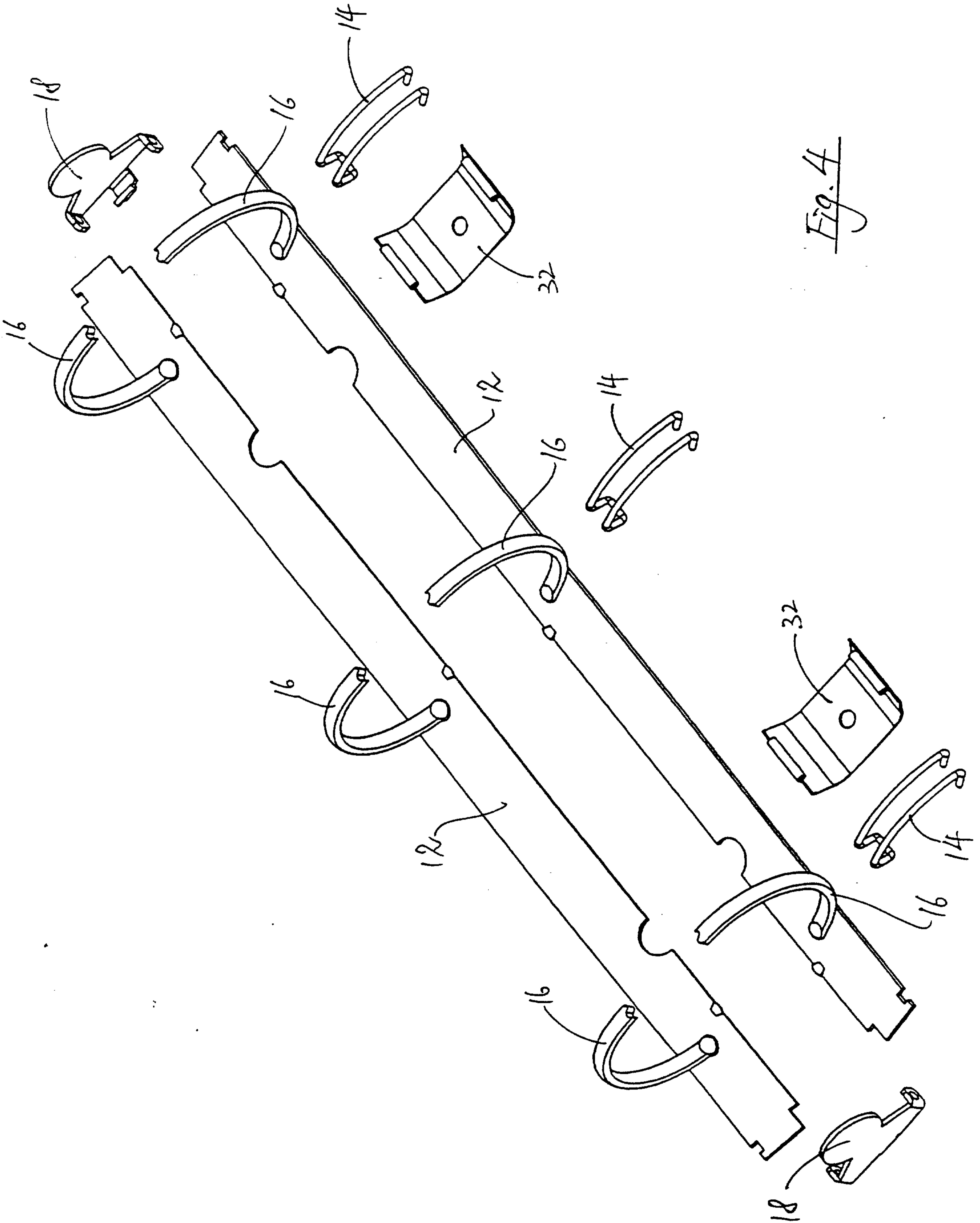


Fig. 4

Fig. 5

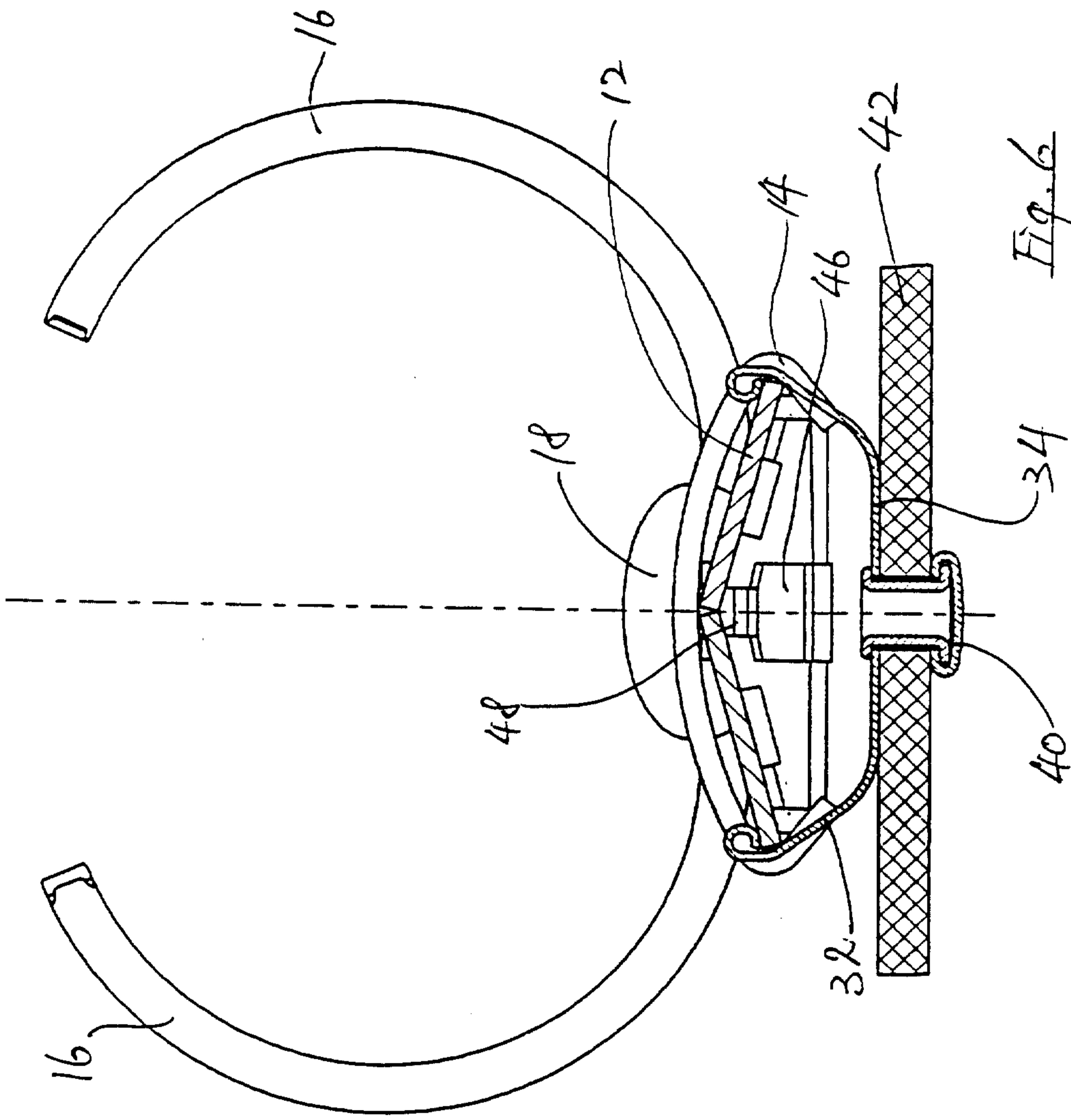
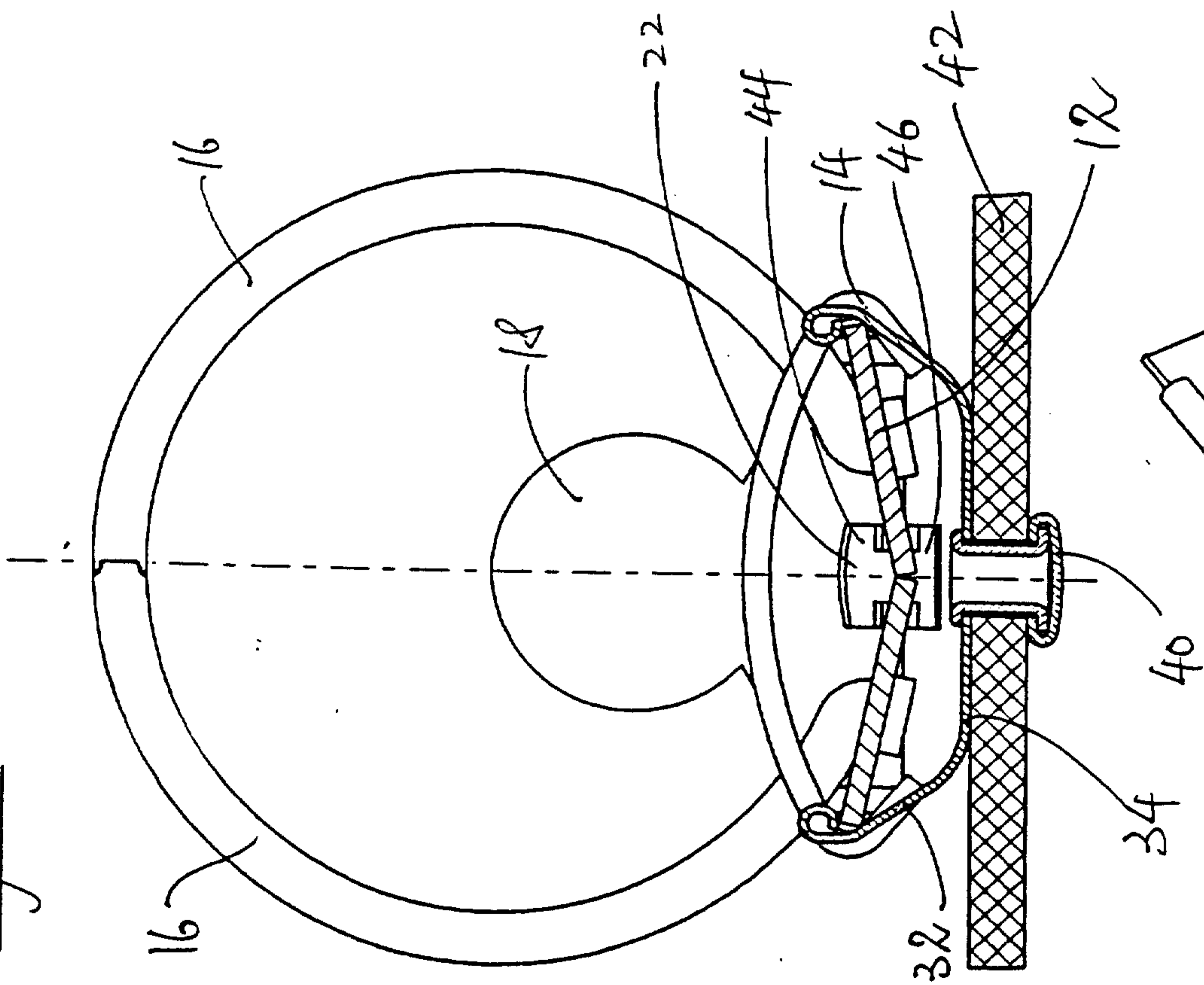


Fig. 6

Fig. 7

