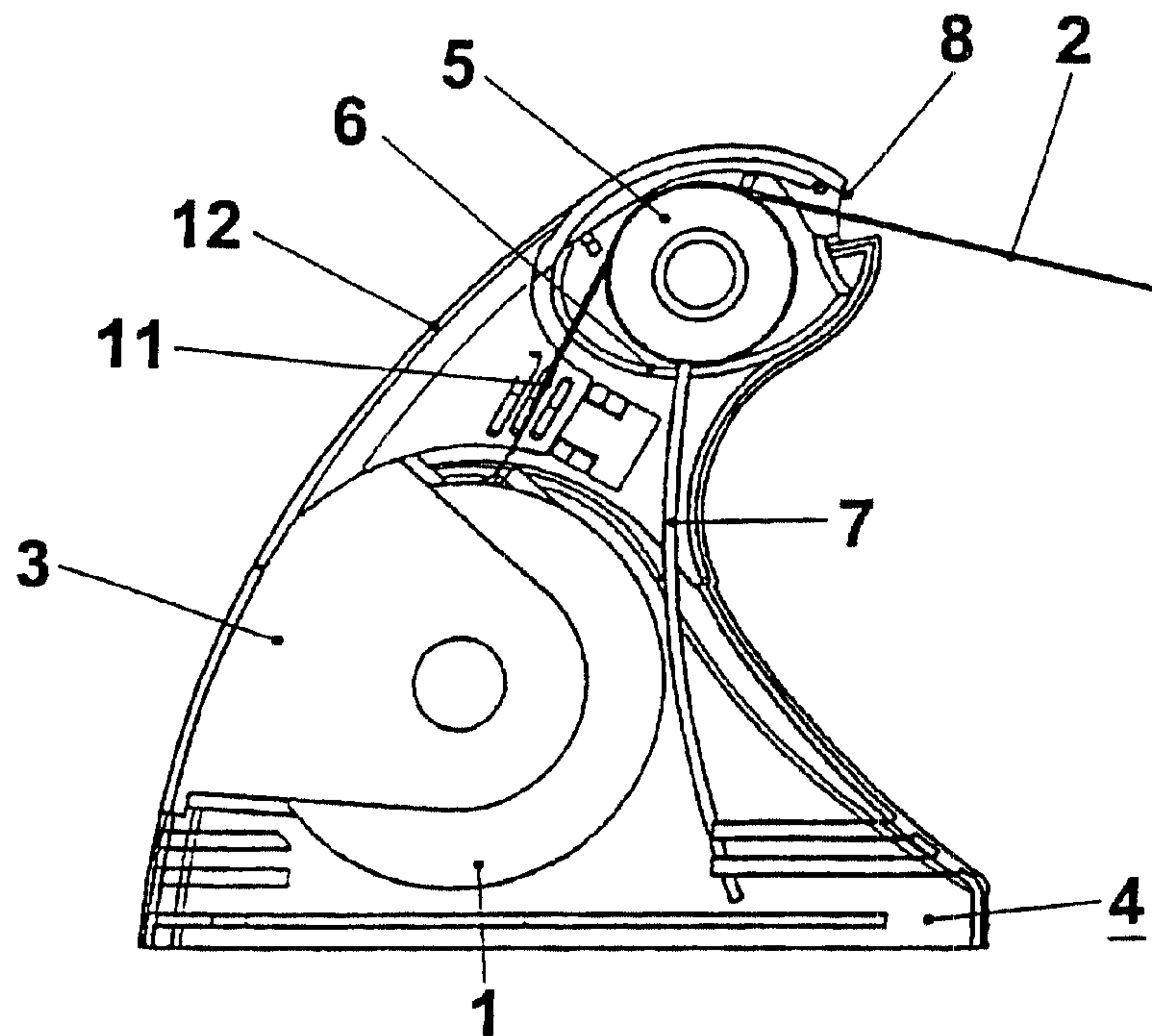




(86) Date de dépôt PCT/PCT Filing Date: 2000/05/24  
(87) Date publication PCT/PCT Publication Date: 2000/12/07  
(85) Entrée phase nationale/National Entry: 2001/11/27  
(86) N° demande PCT/PCT Application No.: IB 2000/000693  
(87) N° publication PCT/PCT Publication No.: 2000/073187  
(30) Priorité/Priority: 1999/05/31 (1017/99) CH

(51) Cl.Int.<sup>7</sup>/Int.Cl.<sup>7</sup> B65H 35/00  
(71) Demandeur/Applicant:  
KEL DEVELOPMENT B.V., NL  
(72) Inventeurs/Inventors:  
DE MAN, EELCO H., NL;  
BOES, ERWIN, NL  
(74) Agent: MOFFAT & CO.

(54) Titre : DISTRIBUTEUR DE RUBAN  
(54) Title: TAPE DISPENSER



(57) Abrégé/Abstract:

The invention relates to a tape dispenser for producing lengths of tape. Said tape dispenser comprises a rotatable roller (1) on which the tape (2) is wound up and a rotatable take-off roller (5) across which the tape (2) to be taken off is guided. The take-off roller (5) has at least one perforation element (6) that is directed against the surface of support of the tape (2) and that is used to perforate the tape (2). The dispenser is further provided with means (7, 9) that block the take-off roller (5) if the tape (2) has covered a certain distance once it has been perforated. Said means release the take-off roller (5) once the perforated section at the tape's end is removed from the tape (2).

**Summary**

The invention relates to a tape dispenser for producing length of tape. Said tape dispenser comprises a rotatable roller (1) on which the tape (2) is wound up and a  
5 rotatable take-off roller (5) across which the tape (2) to be taken off is guided. The take-off roller (5) has at least one perforation element (6) that is directed against the surface of support of the tape (2) and that is used to perforate the tape (2). The dispenser is further provided with means (7, 9) that block the take-off roller (5) if the tape (2) has covered a certain distance once it has been perforated. Said  
10 means release the take-off roller (5) once the perforated section at the tape's end is separated from the tape (2).

## Tape Dispenser

The present invention relates to a tape dispenser according to the introductory part of claim 1.

5

In many applications in daily life frequently tape strips of a given length are required - e.g. strips of adhesive tape for packets or similar items. For preparing such tape strips simple devices are known – so-called tape dispensers – using which the tape is unrolled from a roll and is guided over a cutting element. As soon  
10 as the free end of the tape has reached the length desired, it is cut off by the cutting element. In such devices the length of the tape strip to be cut is determined by the user by unrolling the desired length of tape and then cutting it. For cutting the tape end is to be guided across the cutting element in such a manner that the cutting device can exert its tape cutting action. The known devices are not feasible for  
15 generating strips of a given length. Furthermore handling such devices is complicated, especially for precisely cutting, and thus is awkward in prolonged use.

It thus is the objective of the present invention to create a simple tape dispenser of the type mentioned initially, which is easily operated, not requiring special user  
20 manipulation.

This objective is met using a tape dispenser presenting the features according to patent claim 1. Preferred further developments of the tape dispenser are described in the further patent claims.

25

The inventive tape dispenser is of very simple design and permits fast and simple generation of tape strips of given length. The tape strips are generated in a continuous process not requiring any particular manual movements. This ensures high productivity without tiring the user.

30

Further advantages of the present invention are stated in the dependent patent claims and in the following description, in which various design examples accord-

ing to the present invention are explained in more detail with reference to illustrations. It shows:

- Fig. 1 a side view of the tape dispenser,
- 5 Fig. 2 the main parts of the complete tape dispenser,
- Fig. 3-6 the functions of the tape dispenser,
- Fig. 7 a variant of the take-off roller, and
- Fig. 8 a second design of the tape dispenser.

10 Identical elements shown in the figures are designated by the same reference signs, and first explanations given apply to all figures unless stated otherwise.

In Figures 1 and 2 the main parts of the inventive tape dispenser are shown, a side view of the opened tape dispenser being shown in Fig. 1. Its main parts are a  
 15 base housing 4 and a housing extension 12 that can be attached to the base housing 4. The connection between the base housing 4 and the housing extension 12 is effected by snap-on elements 18. The base housing 4 consists of two separable housing halves 4a, 4b, which can be joined by fitting them together (compare the Fig. 2). Furthermore in Fig. 1 one half housing is omitted in order to show the  
 20 interior of the tape dispenser. On the housing extension 12 a support member 3 is provided on which a roll 1 with the wound-up tape 2 is rotatably mounted. On the base housing 4 a rotatable take-off roller 5 is provided, over which the tape 2 released from the roll 1 is guided. The free end of the tape 2 emerges via an opening 8 from the base housing 4. The take-off roller 5 comprises a perforating element 6 directed to the underside of the tape 2, i.e. to the tape surface lying on the  
 25 take-off roller 5. The perforating element 6 is formed by at least one knife of triangular shape, one point of which protrudes from the take-off roller 5. Also a plurality of such knife elements can be provided arranged side by side. Furthermore in the base housing 4 a latch element 7 is provided - e.g. a spring rod clamped at one of  
 30 its ends - which in a manner to be described in the following engages the take-off roller 5 which it blocks in a pre-determined position and releases it again. Furthermore, well-known tape guides are provided in the interior of the tape dispenser, if

required in order to guide the tape up to outflow. For replacing an empty roll 1 by a new one the housing extension 12 is detached from the base housing 4 and is provided with a new roll. It also can be imagined that the whole housing extension 12 including the roll 1 shall be replaced (see Fig. 2).

5

With reference to Figures 3 to 6 the function of the inventive tape dispenser is described in more detail, whereas only the elements being shown, which are required for better understanding. In Fig. 3 the starting position is shown in which the free end of the tape 2 exceeds the take-off roller 5 after a preceding tape strip has been cut off. If a further strip of tape is to be generated, the user pulls the free end of the tape 2 from the housing. In this process the take-off roller 5 rotates in the direction of the arrow and the perforating element 6 advances with it in the same direction. The free end of the spring rod 7 engages a groove 9 extending in the take-off roller 5 and during the rotational movement of the take-off roller 5 is guided therein. The groove 9 extends spirally on the surface of the take-off roller 5 from the outer side towards the inner side. In this manner the spring rod 7 is pre-tensioned as the tape 2 is unwound.

During the rotational movement of the take-off roller 5 the perforating element 6 reaches a position in which it first touches the tape 2 and then penetrates it (see Fig. 4). As the tape 2 moves on, the take-off roller 5 keeps rotating until it is blocked by the spring rod 7, which moves along the groove 9 and then rests against a stop 10 (Fig. 5). If now the tape 2 is pulled on in direction of the arrow the free end of the tape 2 is severed at the point where it had been partially penetrated by the perforating element 6. On that occasion the torque exerted onto the take-off roller 5 by the tensile force acting onto the tape 2 suddenly is released. Therefore the spring rod 7 owing to its pre-tension moves without delay from its position blocking the rotation of the take-off roller 5 to a position within the groove 9 in which the rotational movement is released. In this zone the groove 9 preferentially is laid out in z shape. The spring rod 7 moves back to its rest position with a low pre-tension. Thus the starting position according to the Fig. 1 is reached again, and a subsequent tape strip can be generated again while the user again pulls the

tape 2 at its free end from the housing 4. The length of the tape to be generated is determined by the outer circumference of the take-off roller 5.

In Fig. 7 a variant of the take-off roller 5 is shown, wherein the groove 9' is arranged approximately in the centre of the take-off roller 5 and two adjacent perforation elements 6' are provided laterally thereof. In particular the z-shaped layout of the groove 9' is provided with larger rounded portions in the zone of stop 10'. Groove 9' shown here functions exactly in the same manner as the one on the take-off roller 5 described with reference to Figures 3 to 6, i.e. the friction surfaces in the z-shaped zone of the groove 9' prevent the spring rod 7 from jumping back to its starting position as long as the adhesive tape 2 is not yet severed. The further recesses 20' provided on the take-off roller 5' ensure that the adhesive tape 2 is not clinging to its surface too intensely.

In Fig. 8 a tape dispenser is shown with an alternative design of the latch element. In Fig. 8a the interior of a housing half 4a is shown with a support member 3 for taking up the tape roll. The take-off roller 5 is provided with a support disc 14 arranged laterally on which a tension spring 13 is arranged functioning as a latch element (see Fig. 8b). The tension spring consists of a part 13a rigidly connected to the support disc 14 and of a spring arm 13b with a spring head 16. Inside the housing 4 a spirally extending groove 15 with a stop 17 is arranged. The disc 14 is arranged in such a manner that the spring head 16 engages the groove 15. In the starting position for generating a strip of tape the spring head 16 is located at the point designated "x" in the groove 15. As the take-off roller 5 rotates in the direction of the arrow, the spring head 16 moves from its starting position to stop 17, exerting a continually increasing pressure force onto spring arm 13b. On that occasion the spring arm 13b is pre-tensioned. The latch element shown here is made as a unit from a suitable two component synthetic material using an injection moulding method.

30

The function for generating a strip of tape in principle is the same as in the tape dispenser according Figures 1 to 6. As the spring head 16 moves on its way to

stop 17 the tape passing over the take-off roller 5 is penetrated by the perforating element 6. Thereupon the spring head 16 meets stop 17 and the take-off roller 5 is blocked. As the perforated tape is severed the spring head 16 jumps back to its starting position "x" without delay. The pre-tension of spring arm 13b is released  
5 and the tape dispenser is ready for generating a further strip of tape.

## Claims

1. An adhesive tape dispenser for producing lengths of tape, with a rotatably supported roll on which the adhesive tape (2) is wound up, and with a rotatably supported take-off roller (5) across part of which the adhesive tape (2) to be taken-off is guided, characterised in that on the take-off roller (5) at least one perforating element (6) is provided that is directed against the supporting surface of the adhesive tape (2), and that pre-tensioned latch elements (7, 9; 13, 15) are provided, which block the take-off roller (5) taken by the adhesive tape (2) after the adhesive tape (2) has been perforated and has moved over a predetermined path length, and which release the take-off roller (5) once the perforated section at the tape's end is separated from the tape (2).
2. An adhesive tape dispenser according to claim 1, characterised in that a groove (9), extending spirally as a closed loop, with a stop (10) on the take-off roller (5) is provided as a latch means, in which groove a spring rod (7) is guided.
3. An adhesive tape dispenser according to claim 1, characterised in that lateral to the take-off roller (5) a tensioning spring (13) as latch means is provided, comprising a spring arm (13a) with a spring head (16) that is guided in a groove (15), extending spirally as a closed loop, with a stop (17).
4. An adhesive tape dispenser according to claim 2 or the claim 3, characterised in that on the surface of the take-off roller (5) groove-type recesses (20') are provided in order to reduce adherence of the adhesive tape (2).
5. An adhesive tape dispenser according to one claims 2 through 4, characterised in that the stop (10, 17) is laid out essentially in z-shape.
6. An adhesive tape dispenser according to one claims 1 to 5, characterised in that a base housing (4) taking up the take-off roller (5) and a housing extension (12) taking up the adhesive tape roll (1) are provided.

7. Adhesive tape dispenser according to claim 6, characterised in that the housing extension (12) is designed attachable to the base housing (4).

1 / 3

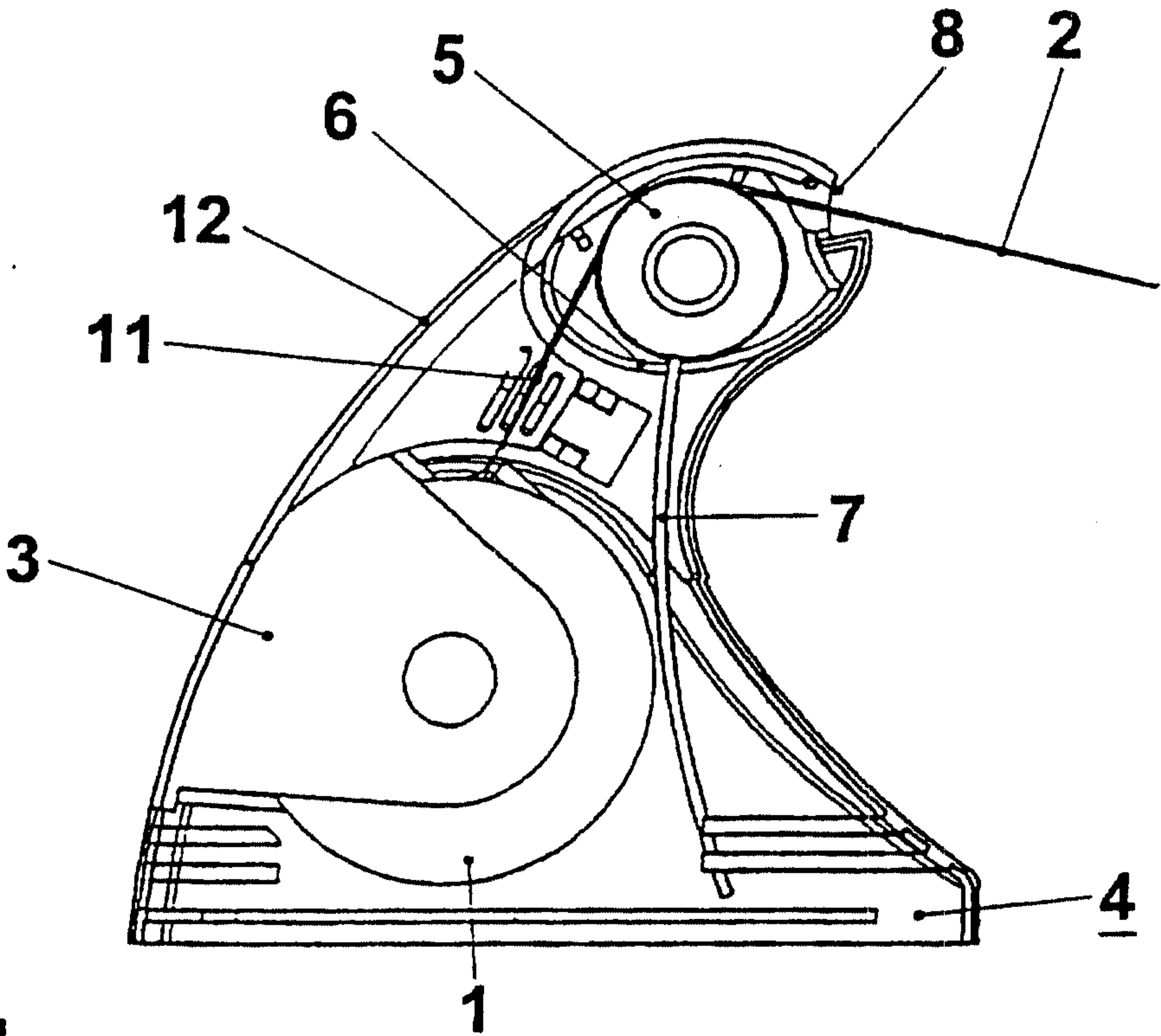


FIG. 1

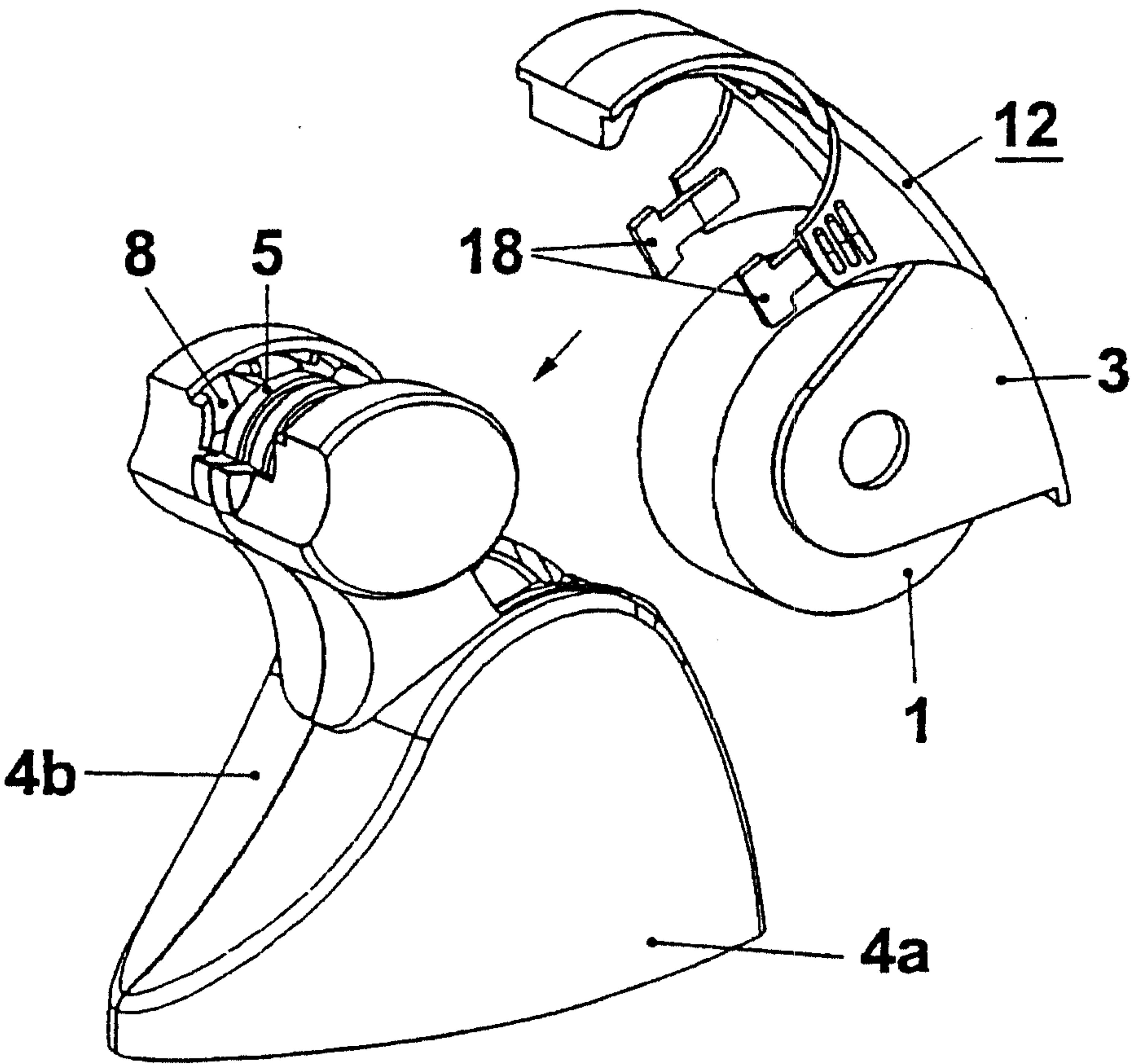
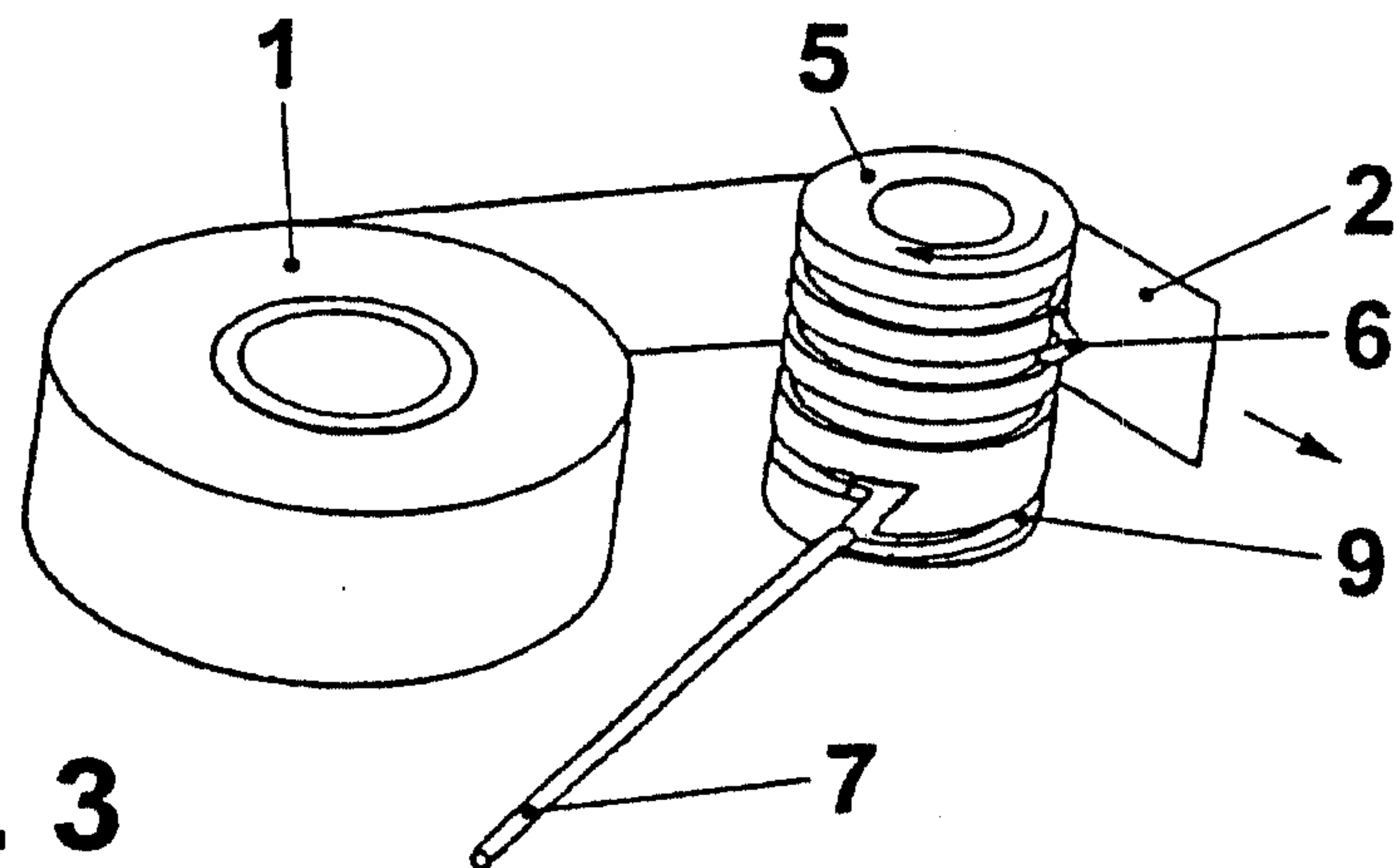
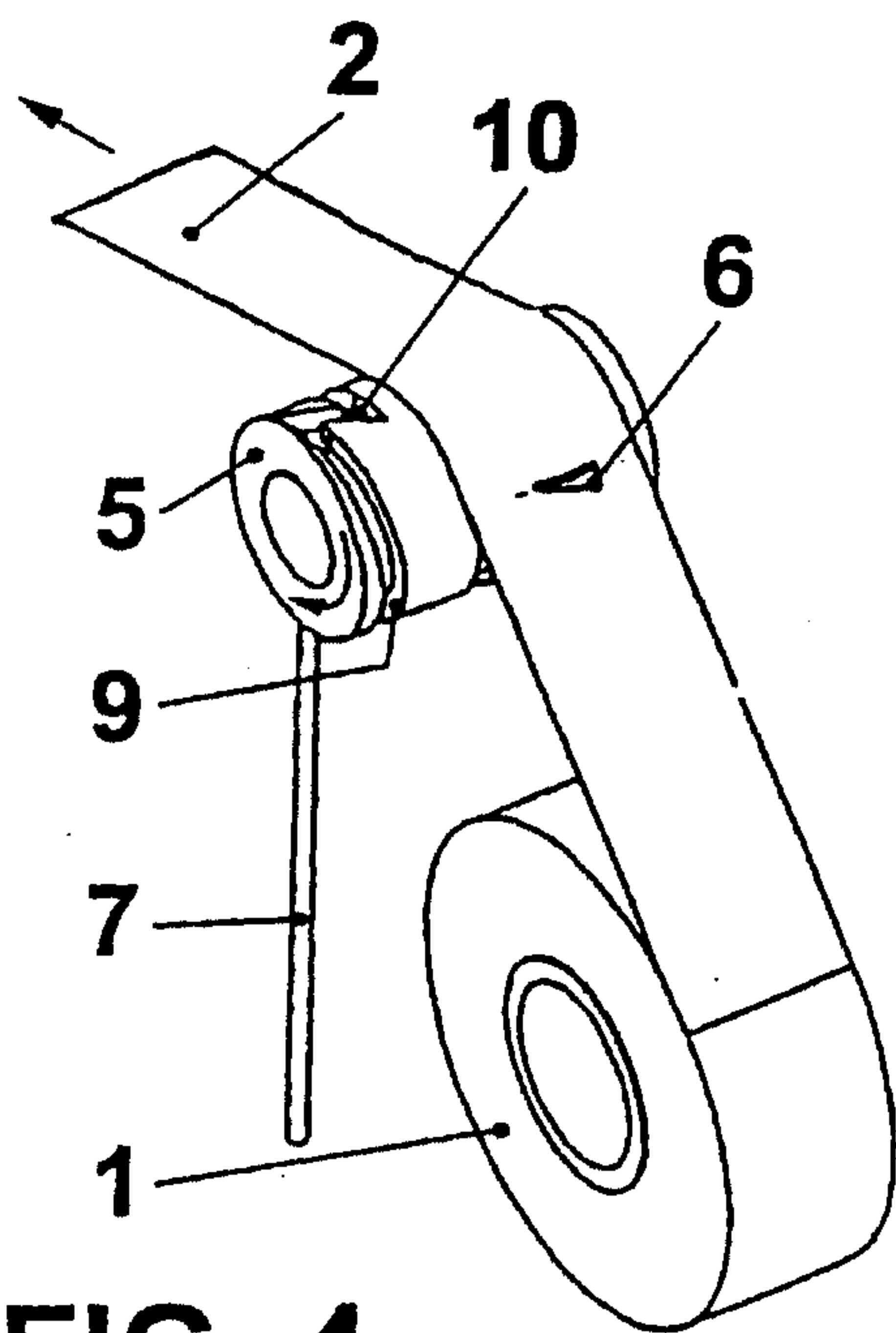
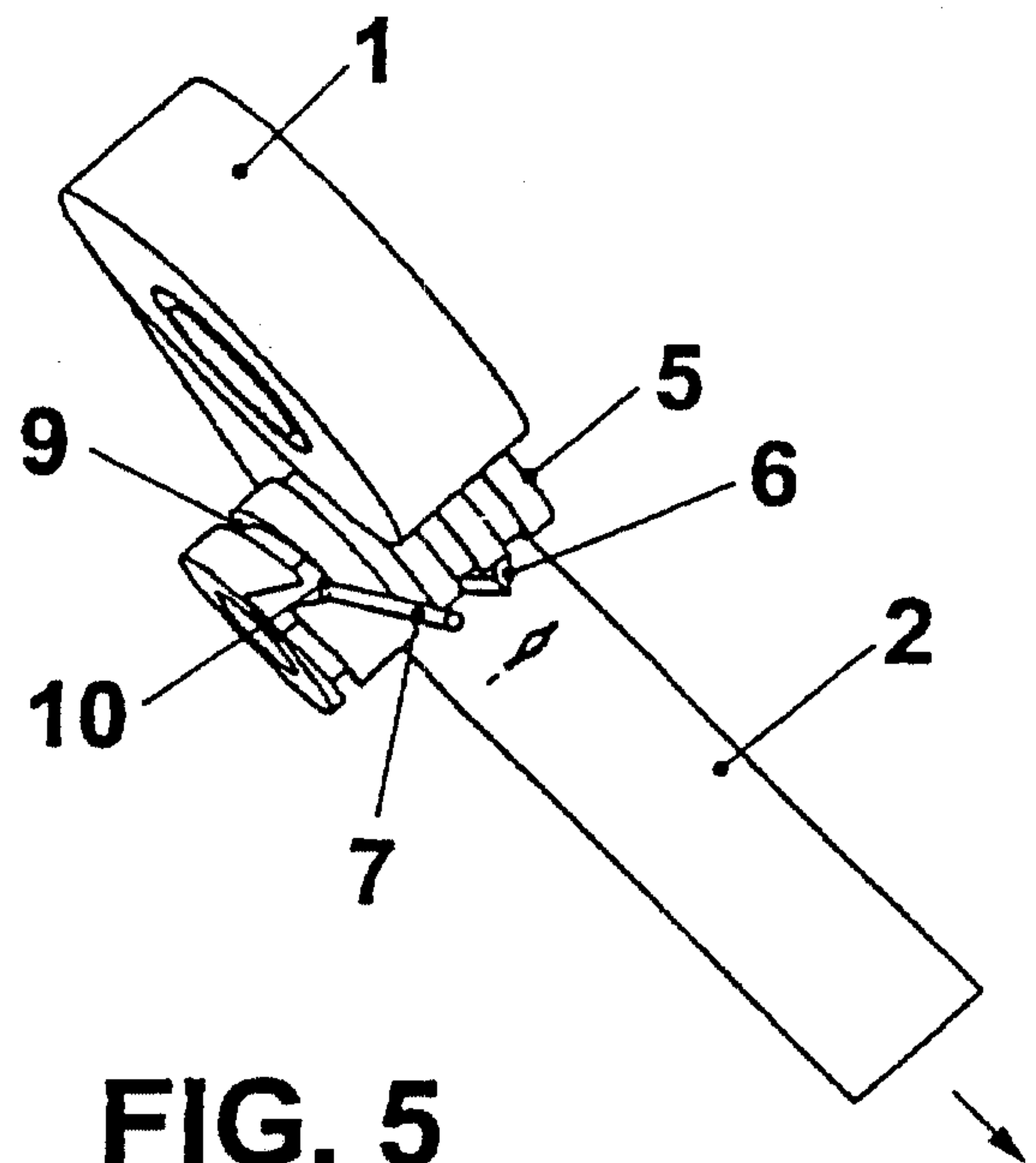
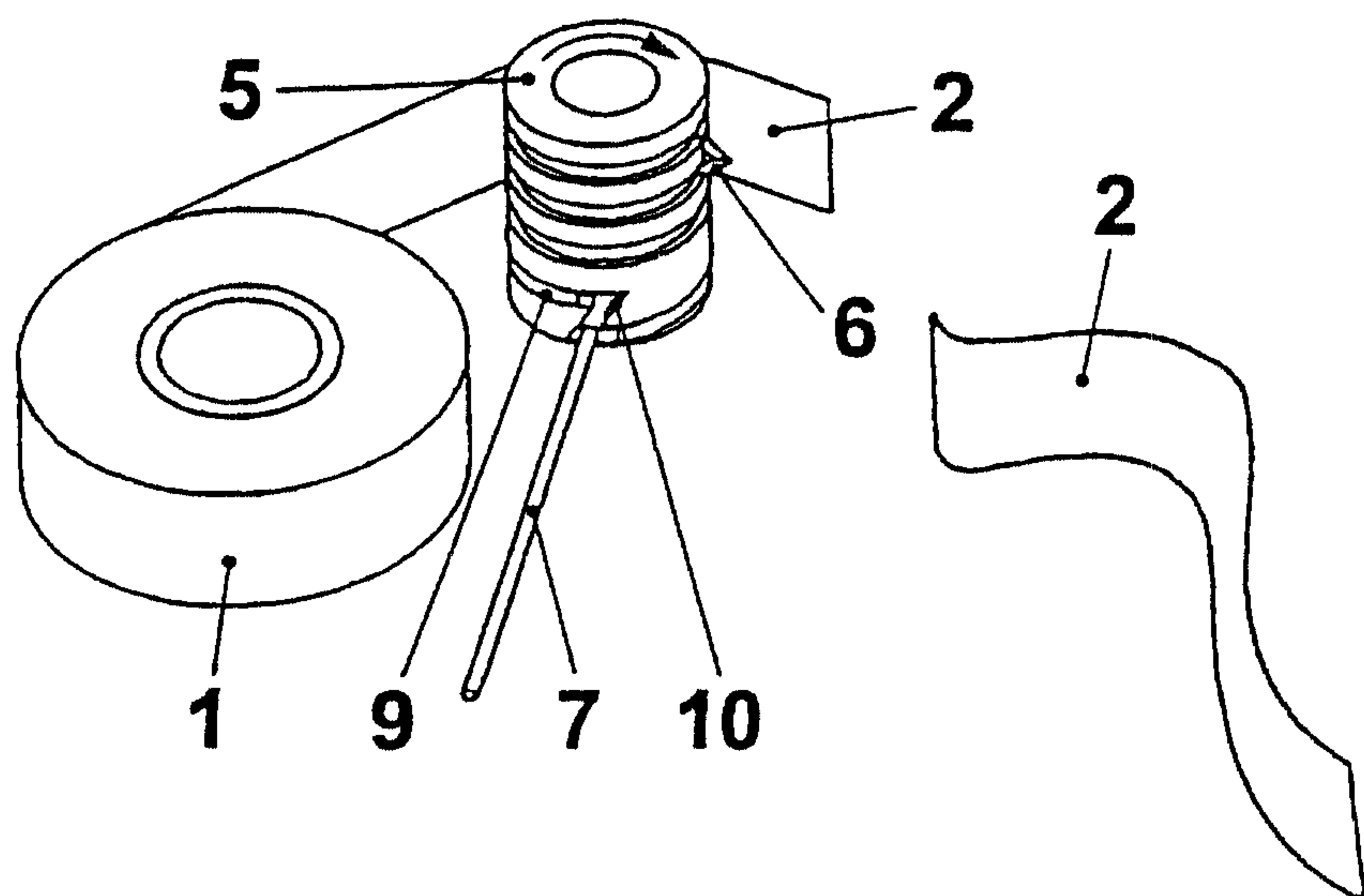


FIG. 2

2 / 3

**FIG. 3****FIG. 4****FIG. 5****FIG. 6**

3 / 3

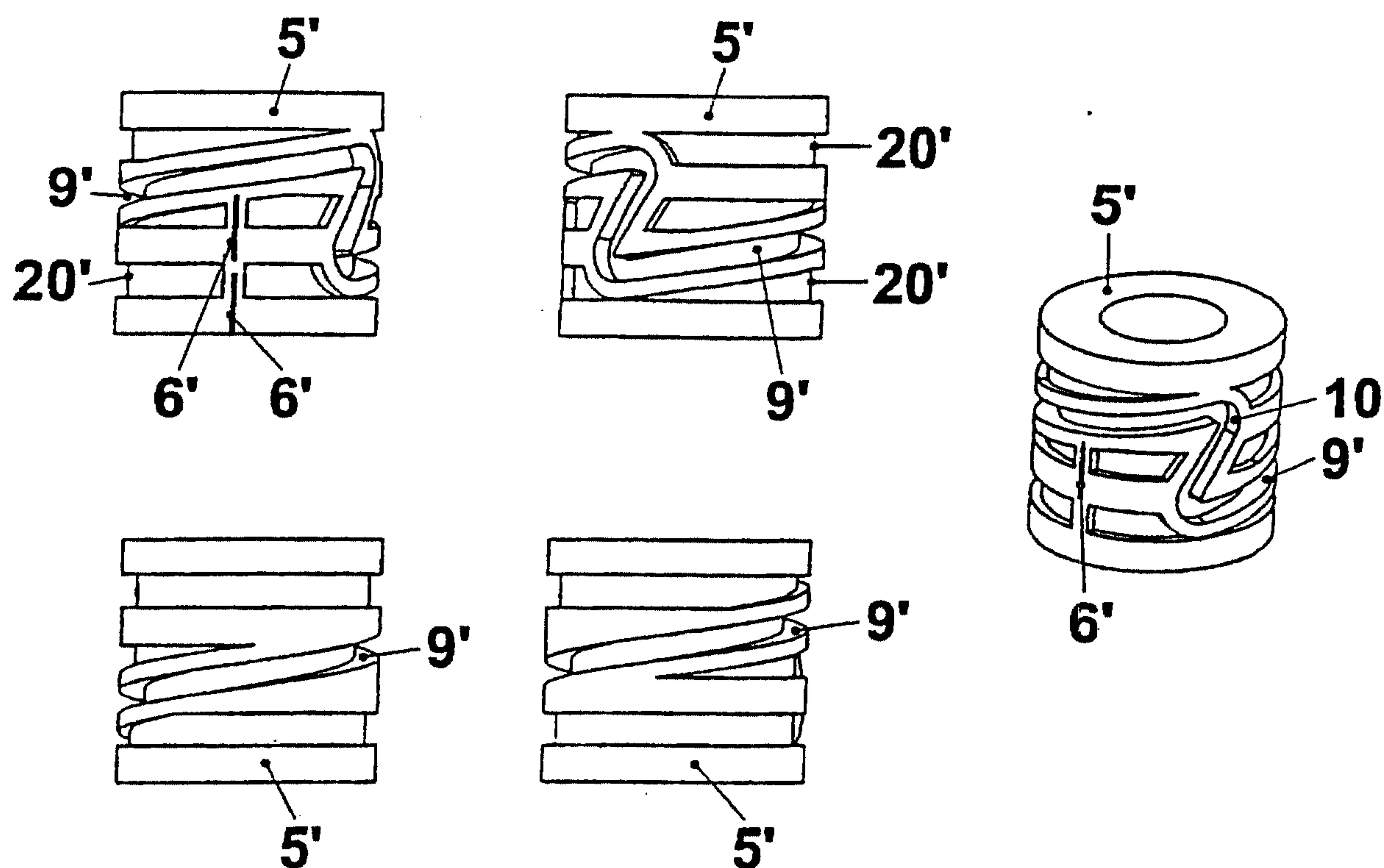


FIG. 7

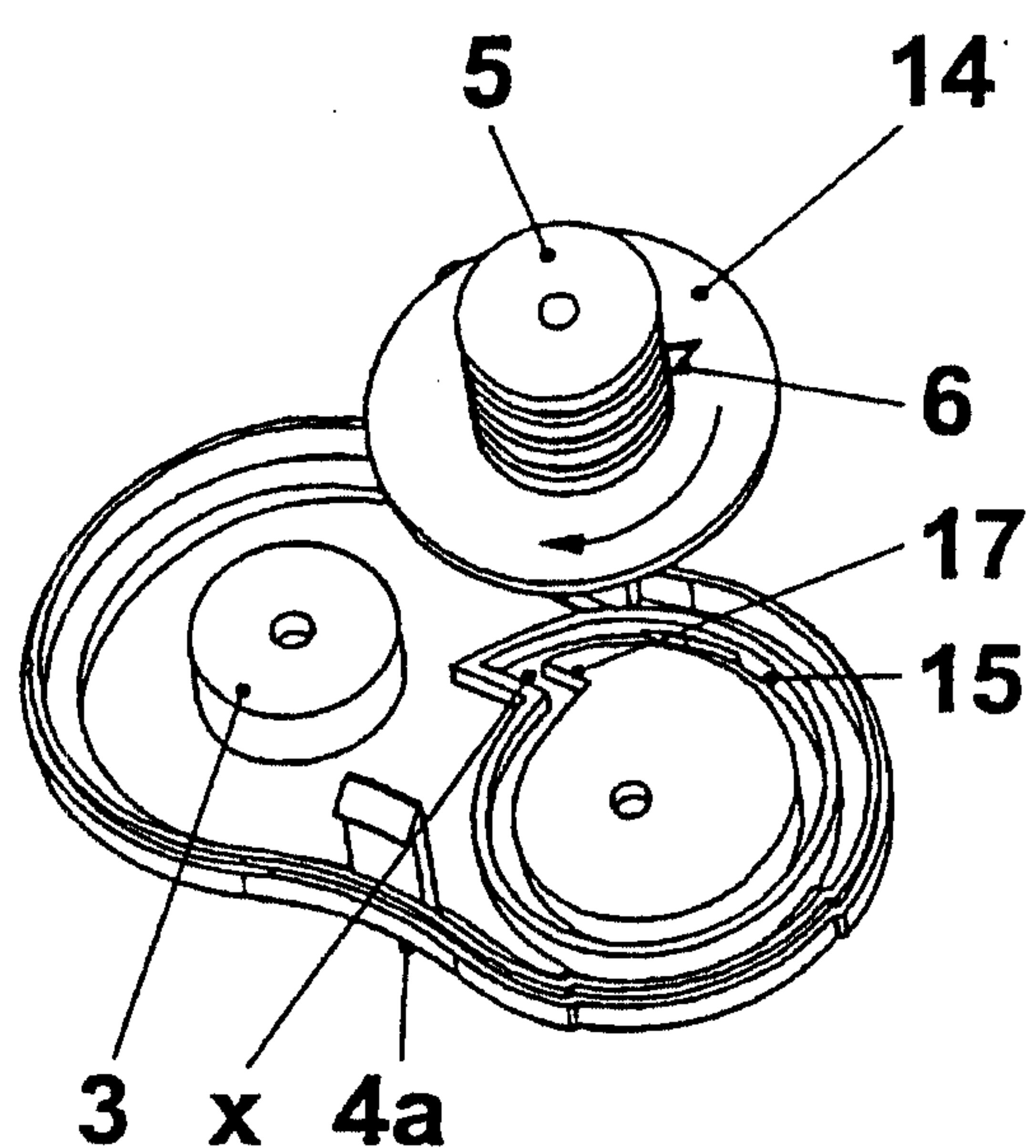


FIG. 8a

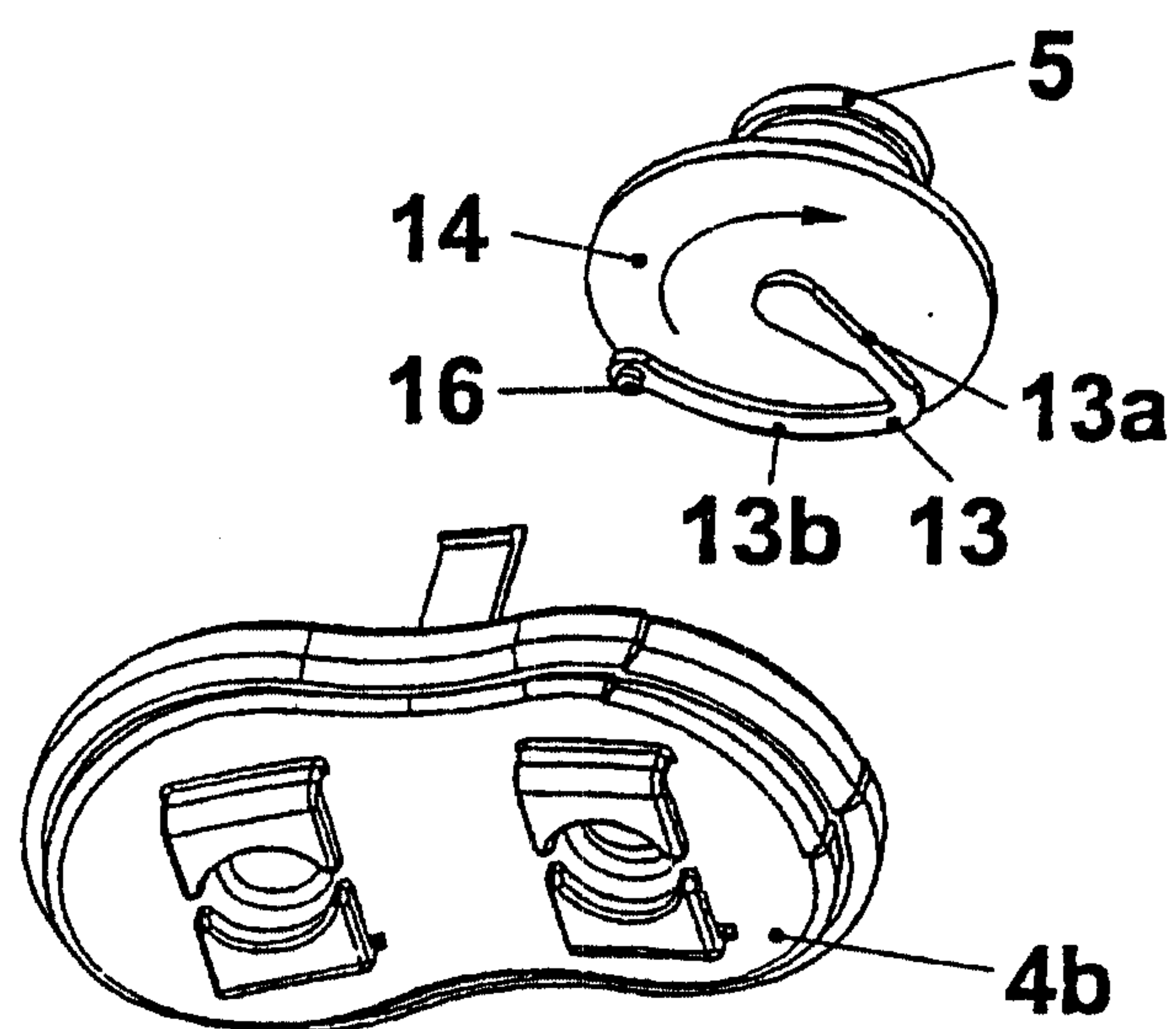


FIG. 8b

