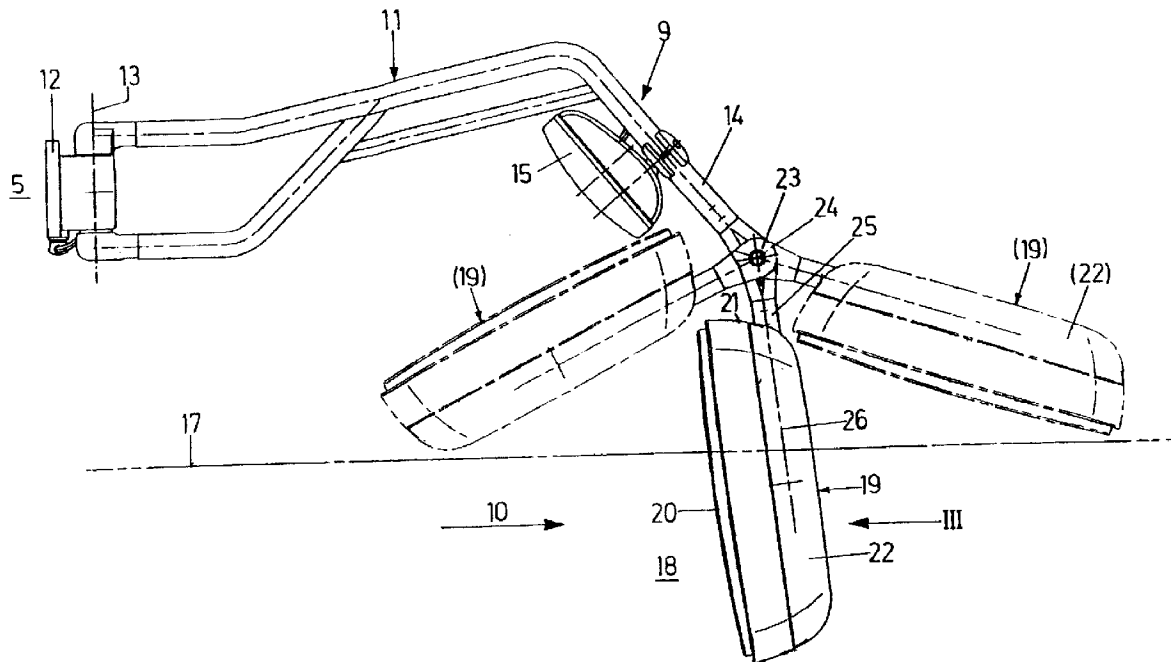




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(54) **VEHICULE UTILITAIRE EQUIPE D'UN MIROIR A L'AVANT**
(54) **UTILITY VEHICLE WITH A MIRROR IN FRONT**



(57) Véhicule utilitaire, en particulier un autobus, comprenant un miroir (19) à l'avant. Ce miroir peut pivoter autour d'un axe de pivotement horizontal (24) d'une articulation (23) se prolongeant à angle droit par rapport à la direction de la course (10) depuis une zone de sécurité (18) d'une hauteur prédéterminée au-dessus du sol et peut se replier au-dessus de la zone de sécurité (18).

(57) A utility vehicle, in particular a bus, is provided with a mirror (19) in its forward area, said mirror being capable of swiveling around a horizontal swivel axis (24) of an articulation (23) extending at a right angle to the direction of travel (10) from a safety zone (18) of predetermined height above the ground into a yielding position above this safety zone (18).

Abstract of the Invention

A utility vehicle, in particular a bus, is provided with a mirror (19) in its forward area, said mirror being capable of swiveling around a horizontal swivel axis (24) of an articulation (23) extending at a right angle to the direction of travel (10) from a safety zone (18) of predetermined height above the ground into a yielding position above this safety zone (18).

- Fig. 2 -

Utility vehicle with a mirror in front

The present invention relates to a utility vehicle, in particular a bus, with at least one mirror in front.

Such mirrors which are mainly external rear-view mirrors, must be at a distance of at least 2 m above the ground at this time. If this is not the case, these mirrors must be able to give way in case of contact with an object or a person located outside the utility vehicle. Such mirrors are usually adjustable around a vertical axis. Experience has shown however that the mirrors are not reliably swiveled out of the way around this vertical axis in so-called pendulum impact tests.

It is therefore the object of the present invention to design a utility vehicle, in particular a bus, in such manner that an external mirror located in the safety zone is reliably swiveled out of the way in case of a pendulum impact.

This object is attained by the invention through the characteristics of claim 1. The mirror is either swiveled forward, in direction of travel, or against the direction of travel, and in every case up and out of the visual area by the swivel articulation with horizontal swivel axis extending at a right angle to the direction of travel, located above an predetermined safety zone. Very simple and reliable means thus ensure reliable yielding of the mirror. The measures according to the invention have special significance with so-called dropped-frame buses which have a low overall height and

on which the external mirrors are regularly found within the above-mentioned safety zone. Even with mirrors installed above a level of 2 m it is an advantage if the mirror yields around a horizontal axis in case of collision with persons or objects so that injury and/or damage can be avoided.

Advantageous further developments and embodiments of the invention are given in the sub-claims and in the following description of an example embodiment through the drawing.

Fig. 1 shows a lateral view of a bus with a mirror system

Fig. 2 shows the mirror system enlarged over the size shown in Fig. 1 and

Fig. 3 shows part of a mirror system according to the viewing arrow III in Fig. 2.

The utility vehicle shown in Fig. 1 is a bus, which normally has a body 1 which is supported on a frame with wheels 2 on the ground 3. The driver's station is in the front area 4 of the bus. A mirror system 9 which - as seen in the direction of travel 10- extends forward beyond the front 7 and to the right from the right side 8 is installed at in the transitional zone 5 between the roof 6 and the front 7 and the right side 8 of the body 1. On the left side which cannot be seen on the drawing, an identical mirror is installed in a mirror-symmetrical manner.

This mirror system 9 has a bearing arm 11 which is attached to the body 1 by means of a holder 12 in the above-mentioned transitional area 5 and is capable of being swiveled around a vertical axis 13. This bearing arm 11 which extends essentially at a right angle to the vertical axis 13, i.e. essentially horizontally and - as viewed in direction of travel 10 - forward and to the side, is provided in its forward area with a bearing arm segment 14 which is bent down at an angle in its forward area, to which a so-called front mirror 15 is attached and by means of which the driver is able to view the entire forward area 16 of the bus directly forward of front 7, as far as the ground 3. This front mirror 15 is located above a safety zone 18 indicated by line 17 above the ground 3. This safety zone 18 extends as far as line 17 over a predetermined safety distance which measures 2 m according to EC Guideline 71/127 (88/321)4.2.

At the free end of the bent bearing arm segment 14 an external rear-view mirror 19 is installed. Its mirror side 20 extends in the extended operating position shown in Fig. 2 approximately at a vertical. This mirror 19 is articulately attached above the top 21 of its housing 22 by means of an articulation 23 to the bearing arm segment 14, this on its free end. This articulation 23 has a horizontal swivel axis 24 which extends at a right angle to the direction of travel 10. The mirror 19 can thus be swiveled in two direction - as indicated in Fig. By means of lines with long and short dashes - i.e. towards the front 7, that is to say counter to the direction of travel 10, or away from the front 7 and forward, i.e. in the direction of travel 10, upwards in either case, so that the lowest point of the housing 22 after swiveling is located above the safety zone 18, i.e. at a distance of at least 2 m above the ground 3. This upward swiveling around the horizontal swivel

axis 24 takes place when the mirror 19 collides with an obstacle, e.g. with a passenger waiting at a bus stop, or with some other obstacle.

The articulation 23 is configured so that the mirror remains in its swiveled position when it has been swiveled away from its operating position. For this purpose the articulation 23 is made in form of either a friction articulation or a snap-in articulation or a ball articulation. In addition an electric motor which is not shown can be provided, by means of which the mirror 19 can be swiveled away by the driver when approaching an obstacle or can be swiveled back into operating position following a swiveling event.

The articulation 23 is mounted on a holding rod 25 which is supported in housing 22 of the mirror 19 and which supports the mirror 19. The mirror 19 can be adjusted in the usual manner around the central longitudinal axis 26 of the holding rod 25 which extends substantially in a vertical direction when in operating position.

CLAIMS

1. **Utility vehicle, in particular a bus.**
 - with a mirror (19) capable of being swiveled out of the way and held by means of a bearing device (bearing arm 11) in a forward area (16) ,
 - with an articulation (23) connecting the mirror (19) to the bearing device (bearing arm 11),
 - which is located above a safety zone (18) of predetermined height extending from the ground (3) upwards,
 - the swivel axis (24) of which extends horizontally at a right angle to the direction of travel (10) and
 - which makes it possible to swivel the mirror (19) from an operating position in which the mirror (19) is located at least in part within the safety zone 18, into a yielding zone above the safety zone (18).

2. **Utility vehicle as in claim 1, whereby the articulation (23) is a friction articulation.**

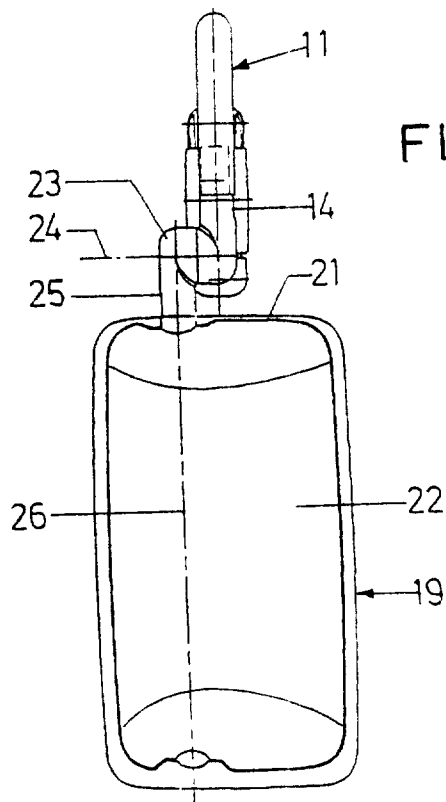
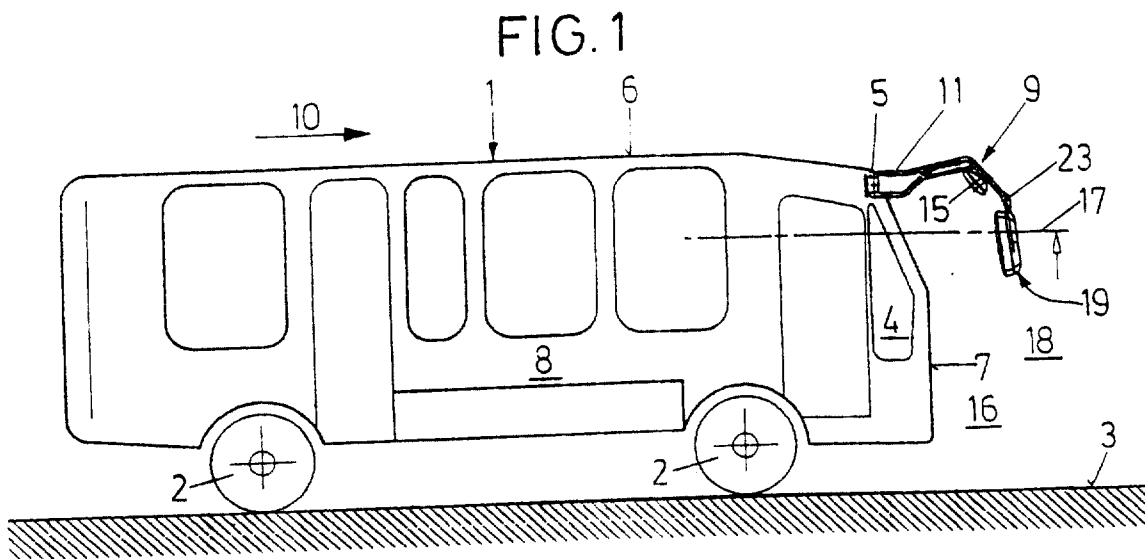
3. **Utility vehicle as in claim 1, whereby the articulation 23 is a snap-in articulation.**

4. **Utility vehicle as in claim 1, whereby the articulation (23) is a ball-and-socket joint.**

5. Utility vehicle as in one of the claims 1 to 4, whereby the mirror (19) can be swiveled around the swivel axis (24) of the articulation (23) by means of an electric motor.

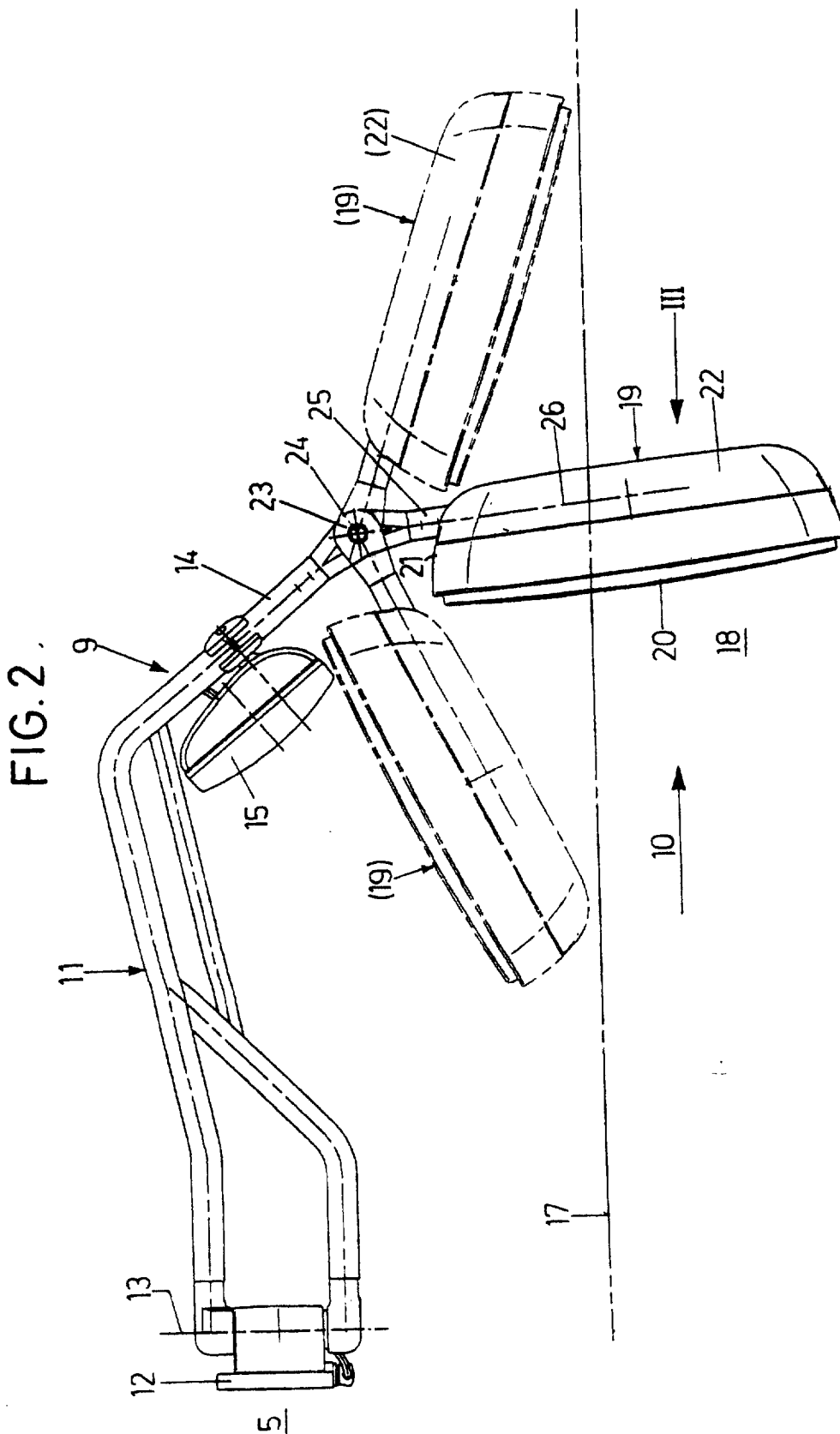
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FIG. 1

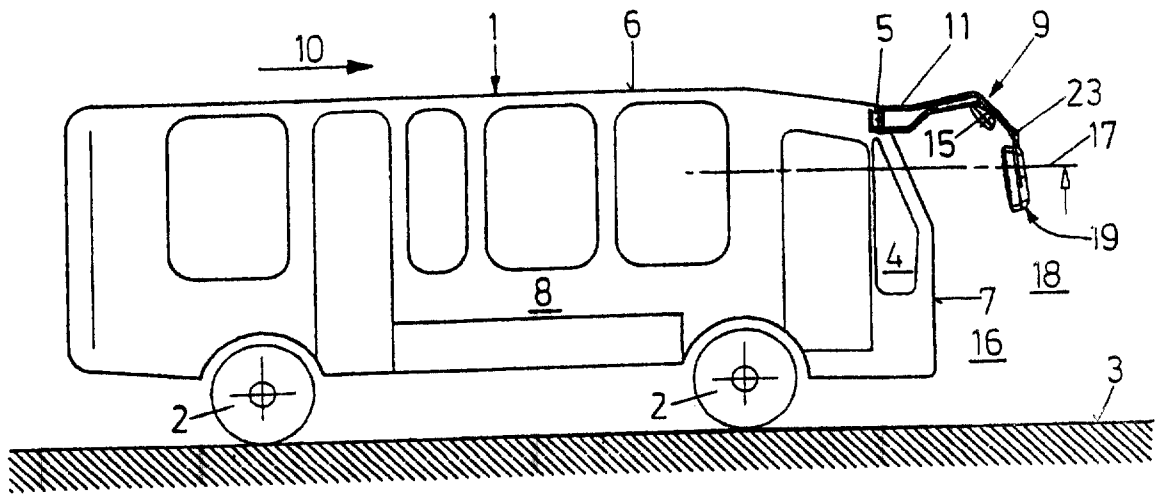
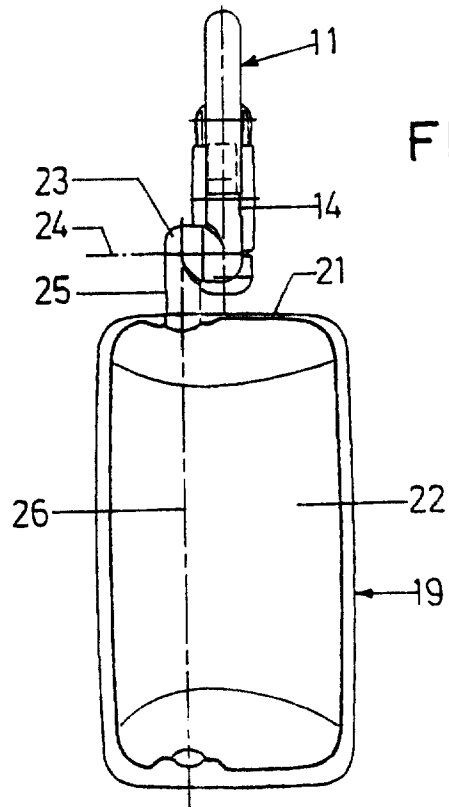


FIG. 3



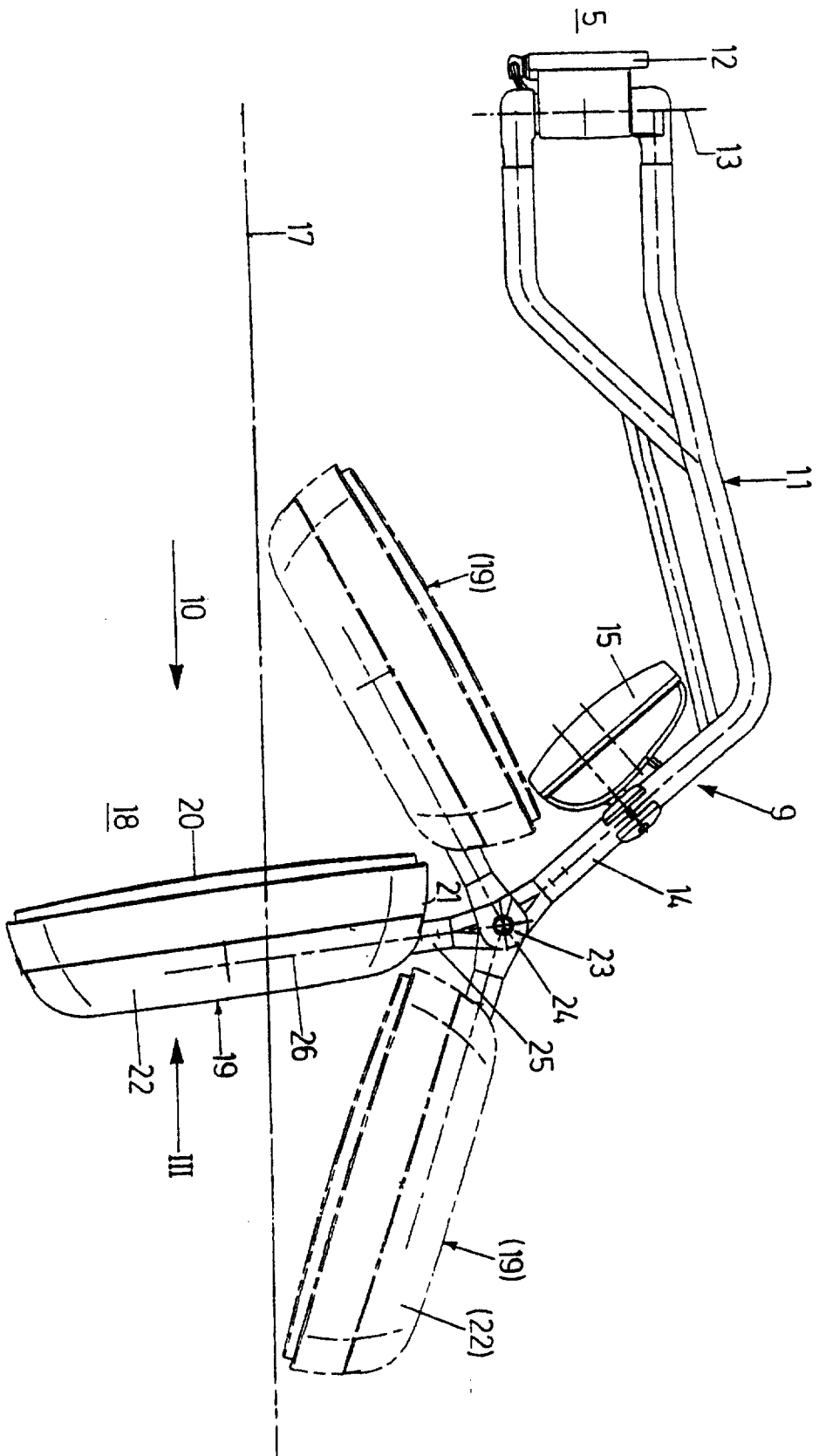


FIG. 2.

