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(54) **A device for displaying illustrations, texts or the like**

Vorrichtung zur Anzeige von Abbildungen, Texten und dergleichen

Dispositif pour afficher des illustrations, des textes et autres

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(56) References cited:  
**EP-A- 0 162 254**                      **EP-A- 0 539 308**

**EP 0 741 378 B1**

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## Description

**[0001]** The invention relates to a device for displaying illustrations, texts or the like provided with a frame and with a plurality of display means which are rotatable about parallel axes of rotation, said display means comprising a few surfaces extending at least substantially parallel to said axes of rotation and including an angle with each other, said surfaces being provided with parts of the illustrations, texts or the like to be formed, whilst wheel-shaped driving means are disposed near ends of said display means, which wheel-shaped driving means can be rotated about their central axes extending transversely to the axes of rotation of the display means in order for said display means to be rotated, whereby said wheel-shaped means cooperate with pins secured to the ends of said display means, the pins are disposed in regularly spaced-apart relationship on a circle extending concentrically about the axis of rotation of the display means, whilst said wheel-shaped means is provided with a projecting nose, on either side of which passages for the pins are formed in said wheel-shaped means, all this in such a manner that when the wheel-shaped means is rotated, one of said pins is engaged by the nose so as to effect a rotation of the respective display means.

**[0002]** By such a device which is known from EP-A1-0 162 254 three pins extend in radial direction with respect to the display means. Said pins cooperate with a wheel-shaped means. Said wheel-shaped means is rotatable about a central axis extending transversally to the axis of rotation of the display means. The wheel-shaped means is provided with a pin extending in a radial direction with respect to the axis of the wheel-shaped means. By rotating the wheel-shaped means the pin is engaged with one of the pins of the display means causing the display means to be rotated.

**[0003]** A disadvantage of this known device is that the display means is freely rotatable about its axis if the pin of the wheel-shaped means is not coupled with the pins of the display means.

**[0004]** The object of the invention is to provide a device whereby the display means are not freely rotatable.

**[0005]** With the device according to the invention this object is accomplished in that the pins secured to the display means extend parallel to the axis of rotation of the respective display means, the projecting nose provided on the wheel-shaped means extends parallel to the axis of rotation of the respective wheel-shaped means, whereby two of the pins are each guided through one of said passages from one side of the wheel-shaped means to the other side of said wheel-shaped means.

**[0006]** By the device according to the invention the wheel-shaped means prevent the display means from an undesired rotation.

**[0007]** When using the construction according to the invention it will be possible to use a wheel-shaped

means, whereby the two passages in the wheel-shaped means are designed to have a simple shape, so that they are easy to form, whilst the wheel-shaped means may be disposed in line with the respective display means, so that the device can be designed to have a small depth.

**[0008]** Furthermore it has to be noted that a device for displaying illustrations etc. is known from European Patent Application No. 0 539 308. Various illustrations, texts or the like can be displayed in succession with such a device by rotating the display means. In this known device three pins extending in radial direction with respect to the display means are secured to each display means. Said pins cooperate with a wheel-shaped means which is circumferentially provided with a helical groove in which said pins engage and through which said pins move in order to rotate the respective display means. Especially the construction of the wheel-shaped means with a helical groove formed therein makes this a complicated and costly construction. In this known construction the wheel-shaped means must furthermore be disposed beside the extension of the axis of rotation of the display means, which leads to a comparatively great width of the device, seen in a direction perpendicularly to the plane through the axes of rotation of the wheel-shaped means.

**[0009]** One embodiment of the device according to the invention is characterized in that said wheel-shaped means is provided with two parallel flanges positioned as seen in axial direction on the same side of said nose, said flanges near said nose being provided with passages for guiding one of said pins from a side facing said nose of the flange located near said nose to a side facing away from said nose of the other flange, and vice versa.

**[0010]** The nose is in engagement with said pins only over a particular part of a revolution of the wheel-shaped means. When the wheel-shaped means is rotated while the nose is not in engagement with the pins, the flanges provide an accurate guiding and positioning of the pins positioned between the flanges.

**[0011]** The invention will be explained in more detail hereafter with reference to parts of the device according to the invention diagrammatically illustrated in the accompanying Figures.

**[0012]** Figure 1 is schematically shows one end of a display means with pins secured thereto and a wheel-shaped means cooperating with said pins.

**[0013]** Figure 2 is a larger-scale view of a wheel-shaped means.

**[0014]** Figure 3 is a side view of Figure 2.

**[0015]** Figure 4 is a sectional view of Figure 3, along line IV-IV in Figure 3.

**[0016]** Figures 5a-5g schematically show relative positions, seen from the central axis of the wheel-shaped means in the direction of the outer circumference of the wheel-shaped means, which pins secured to a display means and the wheel-shaped means take up with respect to each other when the wheel-shaped means is

rotated in order to effect a rotation of the display means.

**[0017]** Figure 6 is a perspective view of a second embodiment of a device according to the invention.

**[0018]** Figure 7 is a perspective view of the device shown in Figure 6, in another position thereof.

**[0019]** Figure 8 is a larger-scale view of a wheel-shaped means according to the invention shown in Figure 6.

**[0020]** Figure 9 is a side view of Figure 8.

**[0021]** Figure 10 is a sectional view of Figure 8, along line X-X in Figure 8.

**[0022]** Figures 11A-G schematically show relative positions, seen from the central axis of the wheel-shaped means in the direction of the outer circumference of the wheel-shaped means, which pins secured to a display means and the wheel-shaped means take up with respect to each other when the wheel-shaped means is rotated in order to effect a rotation of the display means.

**[0023]** Like parts are numbered alike in the Figures.

**[0024]** Figure 1 shows one end of a display means 1, which is provided with three surfaces 2 including an angle with each other, which surfaces 2 form an equilateral triangle, seen in sectional view of the display means 1. A plurality of such display means are arranged in parallel relationship, and are journalled in supports 3 in such manner as to be rotatable about axes of rotation extending in the longitudinal direction of the display means, said supports 3 forming part of a frame of a device for displaying illustrations of which display means 1 forms part. The surfaces 2 are thereby intended for being provided with illustrations, texts or the like.

**[0025]** Devices of this kind are generally known, for example from the aforesaid European Patent 0 539 308 or from European Patent 0 162 254. For a description of the general design and operation of said devices for displaying illustrations, texts or the like reference is therefore made to the said publications, and a detailed explanation thereof will not be included herein.

**[0026]** As is shown in Figure 1, a shaft 4 is mounted on one end of display means 1, the central axis of said shaft coincides with the axis of rotation of display means 1. A disc 5 extending perpendicularly to shaft 4 is mounted on the end of said shaft 4. Three pins 6 - 8 are mounted on said disc, on the side facing away from shaft 4, said pins extending parallel to shaft 4 and thus parallel to the axis of rotation of display means 1.

**[0027]** As is apparent in particular from Figure 5, the pins are thereby arranged at regular angular distances apart on a circle extending concentrically about the axis of rotation of display means 1.

**[0028]** The pins co-operate with a wheel-shaped means 9 illustrated in more detail in Figures 1 - 4. Said wheel-shaped means comprises a hub 10, in which a (preferably unround) hole 11 is formed, said hole being hexagonal in the illustrated embodiment.

**[0029]** A plate-shaped disc 12 extending perpendicularly to the central axis of hole 11 is mounted on said hub, said disc extending through approximately 270°

about the central axis of hole 11. Mounted on the outer circumference of said disc is a rim or strip 13 extending concentrically about the disc, the ends of which rim or strip project slightly beyond the ends of plate 12.

**[0030]** Furthermore a radially extending arm 14 is secured to hub 10, which arm divides the angle between boundary edges 15 and 16 of plate 12 in half, seen in the longitudinal direction of the central axis of hub 10. A plate-shaped means or nose 17 is mounted on the free end of arm 14. As will be apparent from Figure 3, said plate-shaped means or nose 17 is curved in the longitudinal direction of the central axis of hub 10, in such a manner that said plate-shaped means or nose 17 extends concentrically about the central axis of hub 10, whereby the spacing between the hub and the outer and the inner boundary surfaces of nose 17 is the same as the spacing between the hub and the inner and the outer boundary surfaces of rim 13.

**[0031]** As is furthermore apparent from Figure 2, the width of the part of nose 17 positioned between the facing ends of rim 13 gradually decreases. The boundary edges 18 and 19 of rim 13 facing towards nose 17 thereby extend more or less parallel to the boundary edges of said nose positioned opposite said boundary edges 18 and 19. Thus passages 20 and 21 are formed on either side of nose 17, between the boundary edges 18 and 19 of said rim 13 and the opposite boundary edges of nose 17, the longitudinal axes of said passages including an angle deviating from 90° with an imaginary plane extending through the central axis of hub 10 and the longitudinal axis of arm 14, whereby said passages 20 and 21 extend in opposed oblique directions with respect to said imaginary plane.

**[0032]** As is shown in Figure 1, a wheel-shaped means of this kind is disposed beside disc 5, in such a manner that the central axis of hub 10 is intersected perpendicularly by the extension of the axis of rotation of display means 1. In the position of rest of display means 1, which is shown in Figure 1, pins 6 and 8 will be positioned on one side of rim 13 of wheel-shaped means 9 and pin 7 will be positioned on the other side of said rim 13, as a result of which said wheel-shaped means 9 prevents rotation of display means 1 about its axis of rotation.

**[0033]** The wheel-shaped means 9 will be rotated so as to cause rotation of the display means about its axis of rotation, as is indicated by means of arrow A in Figure 5. Said diagrammatic Figure 5 shows the illustrated parts as seen from the central axis of wheel-shaped means 9 in the direction of the outer circumference of the wheel-shaped means, in particular in the direction of nose 17, as is indicated by arrow B (Figure 3). When wheel-shaped means 9 is rotated, the part of nose 17 that projects beyond rim 13 in a direction perpendicularly to the central axis of wheel-shaped means according to arrow B will come into contact with pin 7, which will cause display means 1 to rotate in the direction according to arrow B, as is indicated in Figure 5b. Said rotation

of display means 1 will cause pin 7 to move through passage 20 from one side of rim 13 to the other side of rim 13, as is shown in Figures 5c-5f, whilst pin 6 will move through passage 21 in opposite direction from one side of the wheel-shaped means to the other side of said wheel-shaped means. It will be apparent that a rotation of wheel-shaped means 9 through 360° will thus result in a rotation of the display means through 120°. In this position, in which display means is rotated through 120°, pin 6 will be positioned on one side of rim 13, whilst the two pins 7 and 8 are positioned on the other side of the wheel-shaped means, as is shown in Figure 5g, whereby wheel-shaped means 9 will prevent rotation of the respective display means 1 after it has been stopped.

**[0034]** The wheel-shaped means 9 of display means 1 disposed in side-by-side relationship in the device may be mounted on a common unround shaft inserted into holes provided in the wheel-shaped means. The unround shaft is preferably twisted about a central axis extending in its longitudinal direction, so that a more or less "wavy" rotating movement of the display means 1 disposed in parallel relationship is effected, since it will be possible in a simple manner in that case for the pins 6-8 of successive display means to be positioned at different parts of the continuous part of the respective rim 13 in the position of rest.

**[0035]** Figures 6 - 11 show a second embodiment of the device according to the invention, which is provided with another wheel-shaped means 25. Said wheel-shaped means comprises a hub 10, in which a (preferably unround) hole 11, a hexagonal hole in the illustrated embodiment, is formed. Two flanges 26, 27 extending transversely to the central axis of hole 11 are secured to said hub 10, which flanges extend parallel to each other. An annular guide slot 28 is located between flanges 26, 27. Furthermore a radially extending arm 14 is secured to the hub 10. A plate-shaped means or nose 17 is secured to the free end of arm 14. Nose 17 is configured to extend concentrically about the central axis of hub 10, whilst the tip of the nose is directed towards flanges 26, 27. Flanges 26, 27 are provided with passages 29, 30 on either side of nose 17. The tip of nose 17 extends to within passage 29 of flange 26.

**[0036]** In the position shown in Figure 6 pins 6, 8 are positioned within slot 28 and pin 27 is positioned on a side facing nose 17 of the flanges 26. Pins 6, 8 are precisely maintained in the position shown in Figure 6 by the flanges 26, 27 bounding slot 28. By rotating a shaft 31 extending through slot 11 in a direction indicated by arrow A the various positions A - G shown in Figure 11 are successively obtained until, after a single revolution of shaft 31, pins 7 and 8 are positioned within slot 28 and pin 6 is positioned on a side of flange 26 facing nose 17. As a result of the position of the pins being changed the display means connected therewith has at the same time been tilted through 120°.

**[0037]** The positions shown in Figures 11A-G of the disc 5 and the pins 6, 7, 8 connected therewith largely

correspond with the positions of disc 5 shown in Figures 5A-G. By pivoting shaft 31 in the direction indicated by arrow A nose 17 is brought into engagement with pin 7, as a result of which disc 5 will rotate in the direction indicated by arrow B. Pin 6 is thereby moved along another side of the nose 17 by the passage 29 in flange 26, whilst pin 8 is moved out of slot 27 to a side of flange 27 facing away from nose 17 by the passage 30 in flange 27. In the position shown in Figure 11C a pin 6, 7 is present on either side of nose 17. The position shown in Figure 11D corresponds with the position shown in perspective view in Figure 7, wherein nose 17 extends transversely to shaft 4.

**[0038]** From this position pin 8 is led back to slot 28 via passage 30 as a result of the further pivoting of the nose in the direction indicated by arrow A, whilst pin 7 is moved into said slot via passage 29 (see Figures 11E-F). In the position shown in Figure 11G pins 7 and 8 are positioned within slot 28. When nose 17 is pivoted further in the direction indicated by arrow A, nose 17 is no longer in contact with either one of said pins, until the position of nose 17 with respect to said pins as shown in Figure 11A is reached again, with the understanding that in that position disc 5 has meanwhile rotated through 120°, so that nose 17 will abut against pin 6 instead of against pin 7. During the pivoting of nose 17 between the position shown in Figure 11G and the position shown in Figure 11A pins 7, 8 are maintained in the position shown in Figure 11G by means of the flanges 26, 27, and any undesirable rotation of disc 5 is prevented. Flanges 26, 27 thus provide a precisely defined position of disc 5, and thus of display means 1, with stationary surfaces 2.

## Claims

1. A device for displaying illustrations, texts or the like provided with a frame and with a plurality of display means which are rotatable about parallel axes of rotation, said display means comprising a few surfaces (2) extending at least substantially parallel to said axes of rotation and including an angle with each other, said surfaces (2) being provided with parts of the illustrations, texts or the like to be formed, whilst wheel-shaped driving means (9) are disposed near ends of said display means, which wheel-shaped driving means (9) can be rotated about their central axes extending transversely to the axes of rotation of the display means in order for said display means to be rotated, whereby said wheel-shaped means (9) cooperate with pins (6-8) secured to the ends of said display means (1), the pins (6-8) are disposed in regularly spaced-apart relationship on a circle extending concentrically about the axis of rotation of the display means, whilst said wheel-shaped means (9) is provided with a projecting nose (17), on either side of which passages (20,

- 21, 29, 30) for the pins (6-8) are formed in said wheel-shaped means (9), all this in such a manner that when the wheel-shaped means (9) is rotated, one of said pins (6-8) is engaged by the nose so as to effect a rotation of the respective display means (1), characterized in that the pins (6-8) secured to the display means (1) extend parallel to the axis of rotation of the respective display means (1), the projecting nose provided on the wheel-shaped means extends parallel to the axis of rotation of the respective wheel-shaped means, whereby two of the pins (6-8) are each guided through one of said passages (20, 21, 29, 30) from one side of the wheel-shaped means (9) to the other side of said wheel-shaped means (9).
2. A device according to claim 1, characterized in that the axis of rotation of each display means (1) intersects the central axis of the associated wheel-shaped means (9) at least substantially perpendicularly.
3. A device according to claim 1 or 2, characterized in that said wheel-shaped means (9) is provided with two parallel flanges (26, 27) positioned as seen in axial direction on the same side of said nose (17), said flanges near said nose being provided with said passages (29, 30) for guiding one of said pins from a side facing the nose (17) of the flange (26) located near said nose (17) to a side facing away from said nose of the other flange (27), and vice versa.
4. A device according to claim 1 or 2, characterized in that the position and the width of said wheel-shaped means (9) are such that said wheel-shaped means (9) fits between the pins (6-8) positioned on either side of said wheel-shaped means (9).
5. A device according to claim 4, characterized in that said wheel-shaped means (9) is provided with a rim (13) extending along part of the circumference of said wheel-shaped means (9), said rim (13) being connected to a hub (10) of said wheel-shaped means (9) by means of a plate-shaped part (12) extending perpendicularly to the central axis of said wheel-shaped means (9).
6. A device according to claim 5, characterized in that said plate-shaped part (12) extends through an angle about the central axis of said wheel-shaped means (9) which is smaller than the angle through which said rim (13) extends about the central axis of said wheel-shaped means.
7. A device according to claim 5 or 6, characterized in that said nose (17) is positioned between the facing ends of the rim (13), and projects beyond said rim

(13) on one side thereof.

8. A device according to claim 7, characterized in that the width of the part of the nose (17) positioned between the facing ends of said rim (13) gradually decreases in a direction away from the part of the nose (17) projecting beyond said rim (13), whilst the boundary edges of the facing ends of said nose extend at least substantially perpendicularly to the opposite boundary edges of said nose (17).
9. A device according to any one of the preceding claims, characterized in that the wheel-shaped means (9) of display means arranged in side-by-side relationship are mounted on a shaft (31) which is twisted about the central axis.

#### Patentansprüche

1. Einrichtung zur Anzeige von Abbildungen, Texten oder dergleichen mit einem Rahmen und mehreren Anzeigevorrichtungen, die um parallele Drehachsen drehbar sind, wobei die Anzeigevorrichtungen einige Flächen (2) aufweisen, die sich zumindest im wesentlichen parallel zu den Drehachsen erstrecken und in einem Winkel zueinander angeordnet sind, wobei die Flächen (2) mit Teilen der zu bildenden Abbildungen, Texte oder dergleichen versehen sind, wobei in der Nähe von Enden der Anzeigevorrichtungen radförmige Antriebsvorrichtungen (9) angeordnet sind, die um ihre Mittelachsen drehbar sind, welche sich senkrecht zu den Drehachsen der Anzeigevorrichtungen erstrecken, damit die Anzeigevorrichtungen gedreht werden, wobei die radförmigen Vorrichtungen (9) mit Stiften (6 bis 8) zusammenwirken, die an den Enden der Anzeigevorrichtungen (1) angeordnet sind, wobei die Stifte (6 bis 8) in regelmäßigen Abständen zueinander auf einem zur Drehachse der Anzeigevorrichtung konzentrischen Kreisbogen angeordnet sind, wobei die radförmige Vorrichtung (9) eine vorspringende Nase (17) aufweist, zu deren beiden Seiten in der radförmigen Vorrichtung (9) Durchtrittsöffnungen (20, 21, 29, 30) für die Stifte (6 bis 8) ausgebildet sind, derart, daß beim Drehen der radförmigen Vorrichtung (9) einer der Stifte (6 bis 8) von der Nase ergriffen wird, so daß die jeweilige Anzeigevorrichtung (1) gedreht wird, dadurch gekennzeichnet, daß sich die an der Anzeigevorrichtung (1) angeordneten Stifte (6 bis 8) parallel zur Drehachse der jeweiligen Anzeigevorrichtung (1) erstrecken, und daß sich die an der radförmigen Vorrichtung angeordnete vorspringende Nase parallel zur Drehachse der jeweiligen radförmigen Vorrichtung erstreckt, wobei zwei der Stifte (6 bis 8) jeweils durch eine der Durchtrittsöffnungen (20, 21, 29, 30) von der einen Seite der radförmigen

Vorrichtung (9) auf die andere Seite der radförmigen Vorrichtung (9) geführt werden.

2. Einrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Drehachse jeder Anzeigevorrichtung (1) die Mittelachse der zugehörigen radförmigen Vorrichtung (9) zumindest im wesentlichen rechtwinklig schneidet. 5
3. Einrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die radförmige Vorrichtung (9) zwei parallele Flansche (26, 27) aufweist, die in axialer Richtung gesehen auf derselben Seite der Nase (17) angeordnet sind, wobei die Flansche nahe der Nase mit den Durchtrittsöffnungen (29, 30) versehen sind, um einen der Stifte von einer der Nase (17) zugewandten Seite des nahe der Nase (17) angeordneten Flansches (26) zu einer von der Nase abgewandten Seite des anderen Flansches (27) und umgekehrt zu führen. 10
4. Einrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Position und die Breite der radförmigen Vorrichtung (9) so gewählt sind, daß die radförmige Vorrichtung (9) zwischen die Stifte (6 bis 8) paßt, die beiderseits der radförmigen Vorrichtung (9) angeordnet sind. 15
5. Einrichtung nach Anspruch 4, dadurch gekennzeichnet, daß die radförmige Vorrichtung (9) einen Rand (13) aufweist, der sich über einen Teil des Umfangs der radförmigen Vorrichtung (9) erstreckt, wobei der Rand (13) mit einer Nabe (10) der radförmigen Vorrichtung (9) mittels eines plattenförmigen Teiles (12) verbunden ist, der sich senkrecht zur Mittelachse der radförmigen Vorrichtung (9) erstreckt. 20
6. Einrichtung nach Anspruch 5, dadurch gekennzeichnet, daß sich der plattenförmige Teil (12) über einen Winkel um die Mittelachse der radförmigen Vorrichtung (9) erstreckt, der kleiner ist als der Winkel, über den sich der Rand (13) um die Mittelachse der radförmigen Vorrichtung erstreckt. 25
7. Einrichtung nach Anspruch 5 oder 6, dadurch gekennzeichnet, daß die Nase (17) zwischen den gegenüberliegenden Enden des Randes (13) positioniert ist und über den Rand (13) auf einer Seite desselben hinaussteht. 30
8. Einrichtung nach Anspruch 7, dadurch gekennzeichnet, daß die Breite des Teiles der Nase (17), die zwischen den gegenüberliegenden Enden des Randes (13) positioniert ist, in abgewandter Richtung von dem Teil der Nase (17), der über den Rand (13) hinaussteht, allmählich ab- 35

nimmt, wobei sich die Begrenzungskanten der gegenüberliegenden Enden der Nase zumindest im wesentlichen senkrecht zu den gegenüberliegenden Begrenzungskanten der Nase (17) erstrecken.

9. Einrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die radförmigen Vorrichtungen (9) von nebeneinanderliegenden Anzeigevorrichtungen auf einer Achse (31) angeordnet sind, die um die Mittelachse gedreht ist. 40

#### Revendications 45

1. Un dispositif pour afficher des illustrations, des textes ou analogues muni d'un bâti et d'une pluralité de moyens d'affichage qui peuvent tourner autour d'axes de rotation parallèles, lesdits moyens d'affichage comprenant quelques surfaces (2) s'étendant de manière au moins sensiblement parallèle auxdits axes de rotation et formant un angle les unes avec les autres, lesdites surfaces (2) présentant des parties des illustrations, des textes ou analogues devant être formés, alors que des moyens d'entraînement (9) en forme de roue sont disposés près des extrémités desdits moyens d'affichage, ces moyens d'entraînement (9) en forme de roue pouvant tourner autour de leur axe central s'étendant transversalement aux axes de rotation des moyens d'affichage pour que lesdits moyens d'affichage soient entraînés en rotation, de sorte que lesdits moyens (9) en forme de roue coopèrent avec des tiges (6-8) fixées aux extrémités desdits moyens d'affichage (1), les tiges (6-8) sont disposées selon une relation régulièrement espacée sur un cercle s'étendant concentriquement autour de l'axe de rotation des moyens d'affichage, alors que lesdits moyens (9) en forme de roue sont munis d'un bec saillant (17) sur chaque côté duquel des passages (20, 21, 29, 30) pour les tiges (6-8) sont formés dans lesdits moyens (9) en forme de roue, tout ceci de telle manière que, lorsque les moyens (9) en forme de roue sont entraînés en rotation, l'un des axes (6-8) est engagé par le bec de manière à faire effectuer une rotation des moyens d'affichage respectifs (1), caractérisé en ce que les tiges (6-8) fixées aux moyens d'affichage (1) s'étendent parallèlement à l'axe de rotation des moyens d'affichage respectifs (1), le bec saillant prévu sur les moyens en forme de roue s'étend parallèlement à l'axe de rotation des moyens en forme de roue respectifs, de sorte que deux des tiges (6-8) sont chacune guidées à travers l'un desdits passages (20, 21, 29, 30) depuis un côté des moyens (9) en forme de roue jusqu'à l'autre côté desdits moyens (9) en forme de roue. 50

2. Un dispositif selon la revendication 1, caractérisé en ce que l'axe de rotation de chaque moyen d'affichage (1) coupe, de manière au moins sensiblement perpendiculaire, l'axe central des moyens (9) en forme de roue associés. 5
3. Un dispositif selon la revendication 1 ou 2, caractérisé en ce que lesdits moyens (9) en forme de roue sont munis de deux brides parallèles (26, 27) mises en place, vues dans la direction axiale, sur le même côté dudit bec (17), lesdites brides proches dudit bec étant munies desdits passages (29, 30) pour guider une desdites tiges depuis un côté dirigé vers le bec (17) de la bride (26) placée près dudit bec (17) jusqu'à un côté dirigé à l'opposé dudit bec de l'autre bride (27), et vice versa. 10  
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4. Un dispositif selon la revendication 1 ou 2, caractérisé en ce que la mise en place et la largeur desdits moyens (9) en forme de roue sont telles que lesdits moyens (9) en forme de roue s'adaptent entre les tiges (6-8) mises en place de chaque côté desdits moyens (9) en forme de roue. 20
5. Un dispositif selon la revendication 4, caractérisé en ce que lesdits moyens (9) en forme de roue sont munis d'un rebord (13) s'étendant le long d'une partie de la circonférence desdits moyens (9) en forme de roue, ledit rebord (13) étant relié à un moyeu (10) desdits moyens (9) en forme de roue par l'intermédiaire d'une partie (12) en forme de plaque s'étendant perpendiculairement à l'axe central desdits moyens (9) en forme de roue. 25  
30
6. Un dispositif selon la revendication 5, caractérisé en ce que ladite partie (12) en forme de plaque s'étend, autour de l'axe central desdits moyens (9) en forme de roue, sur un angle qui est inférieur à l'angle dont ledit rebord (13) s'étend autour de l'axe central desdits moyens en forme de roue. 35  
40
7. Un dispositif selon la revendication 5 ou 6, caractérisé en ce que ledit bec (17) est mis en place entre les extrémités en regard du rebord (13), et fait saillie au-delà dudit rebord (13) sur un côté de celui-ci. 45
8. Un dispositif selon la revendication 7, caractérisé en ce que la largeur de la partie du bec (17) mise en place entre les extrémités en regard dudit rebord (13) diminue de manière graduelle dans une direction s'éloignant de la partie du bec (17) faisant saillie au-delà dudit rebord (13), alors que les bords limites des extrémités en regard dudit bec s'étendent de manière au moins sensiblement perpendiculaire aux bords limites opposés dudit bec (17). 50  
55
9. Un dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que les moyens (9) en forme de roue des moyens d'affichage prévus dans une relation de juxtaposition sont montés sur un arbre (31) qui est tordu autour de l'axe central.

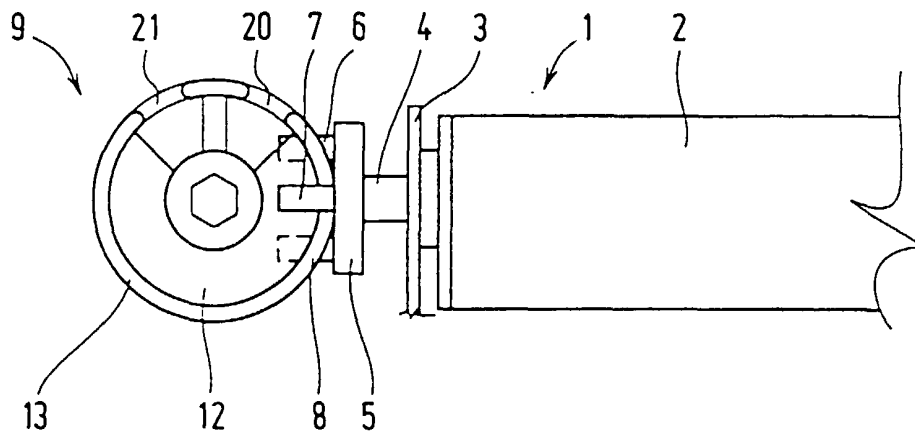


FIG. 1

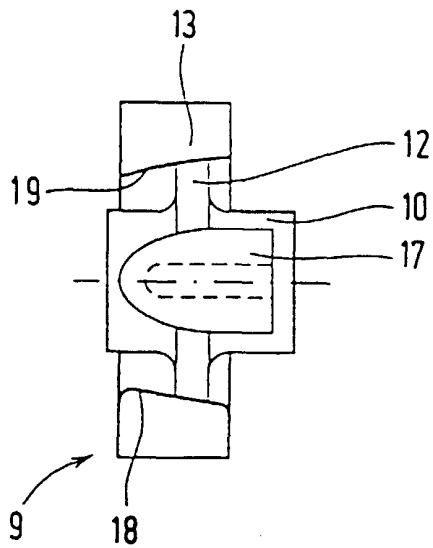


FIG. 2

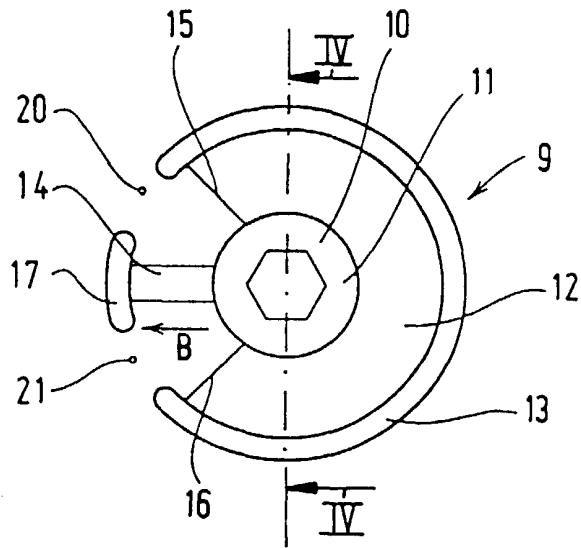


FIG. 3

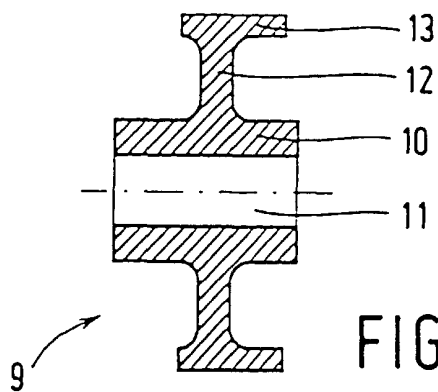


FIG. 4

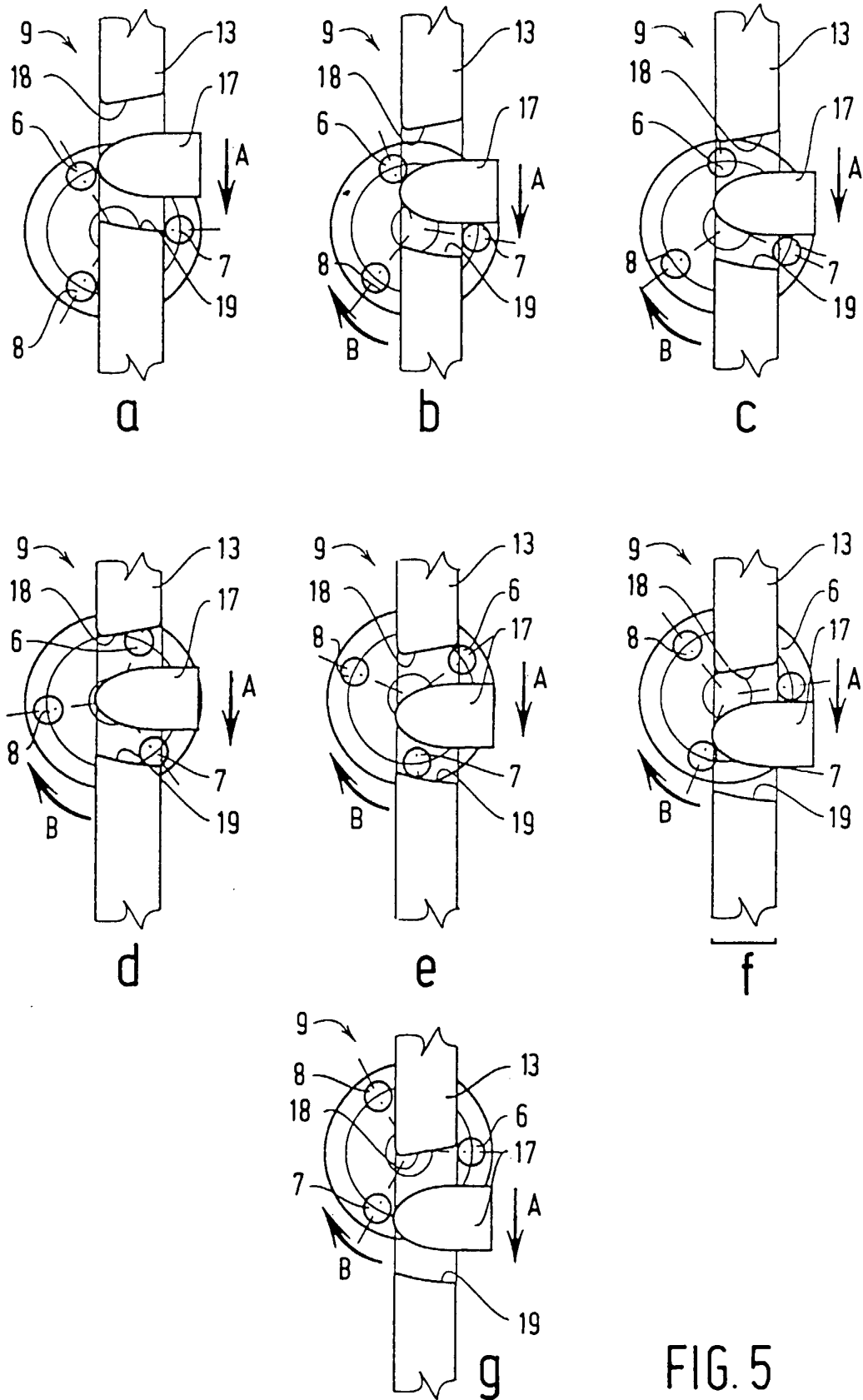


FIG. 5

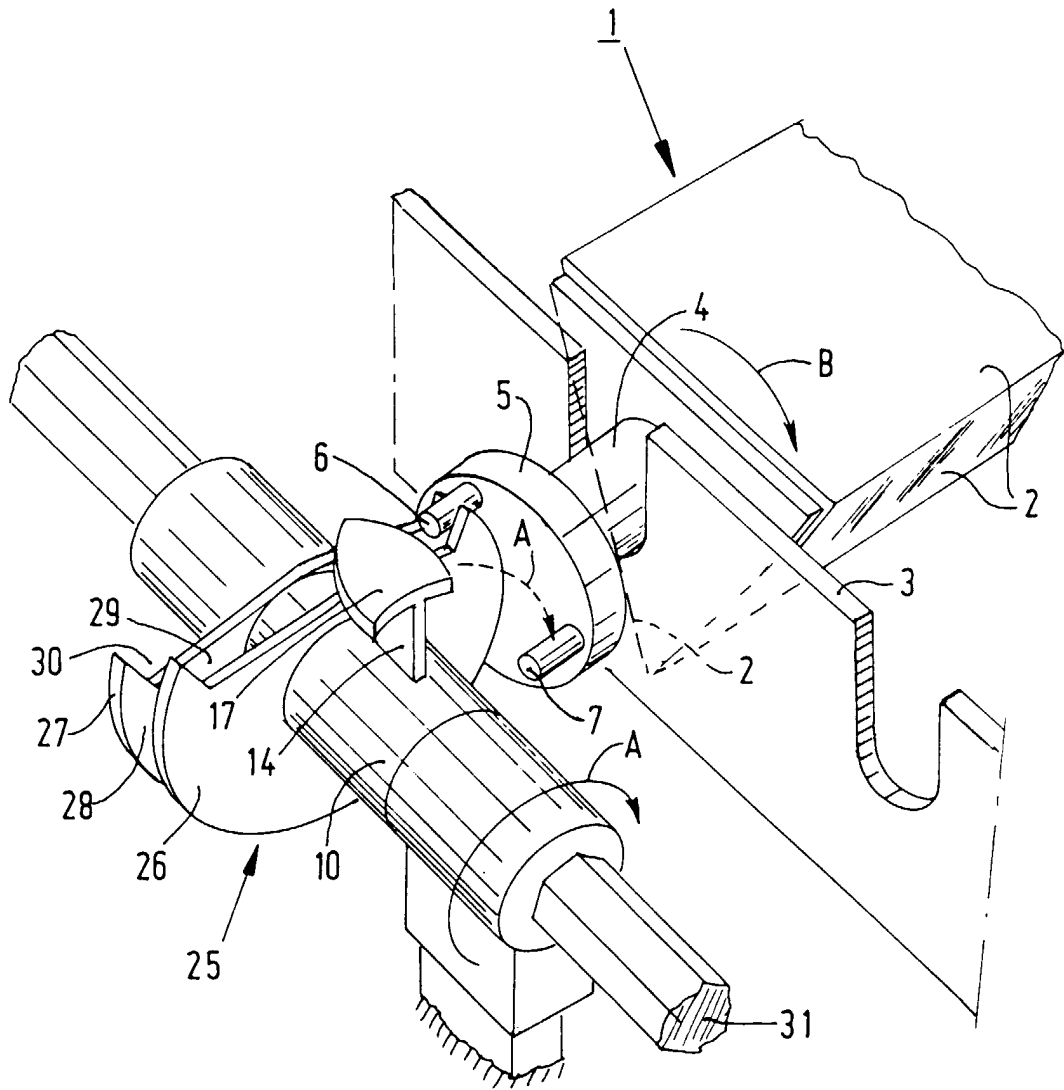


FIG. 6

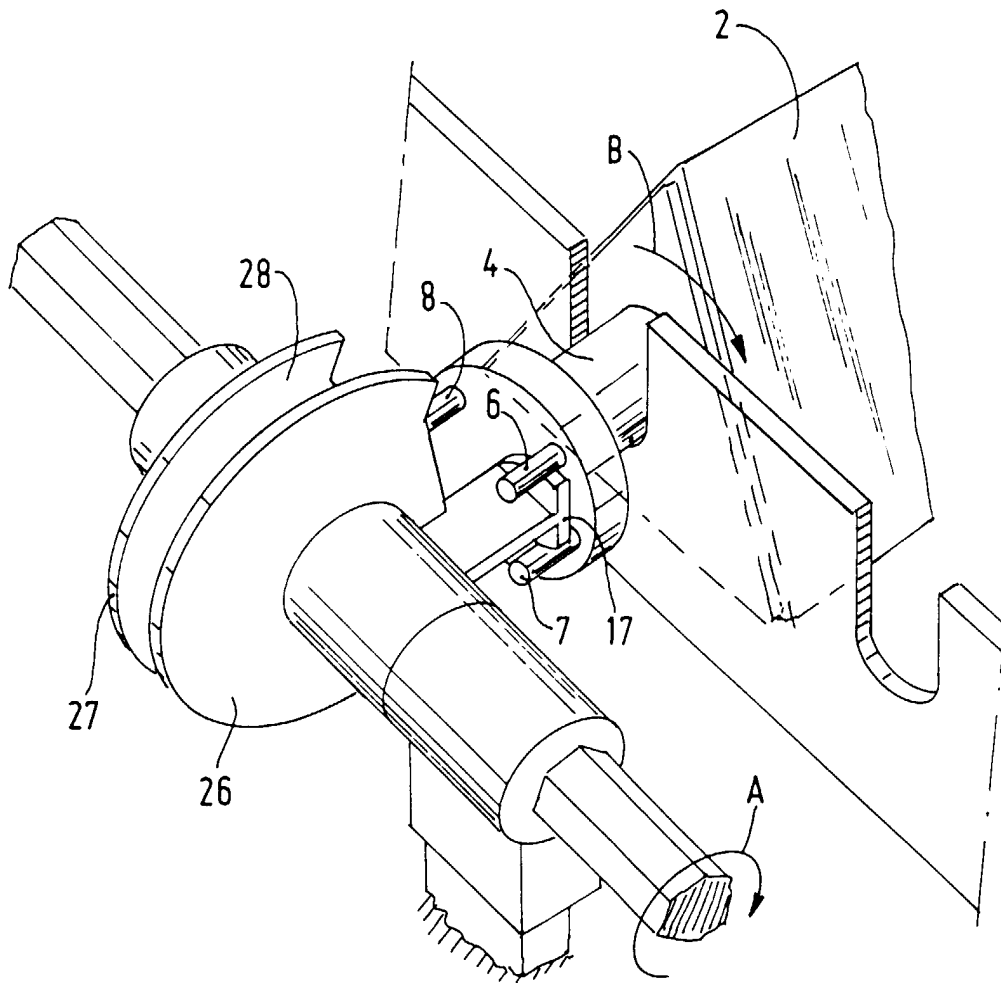


FIG. 7

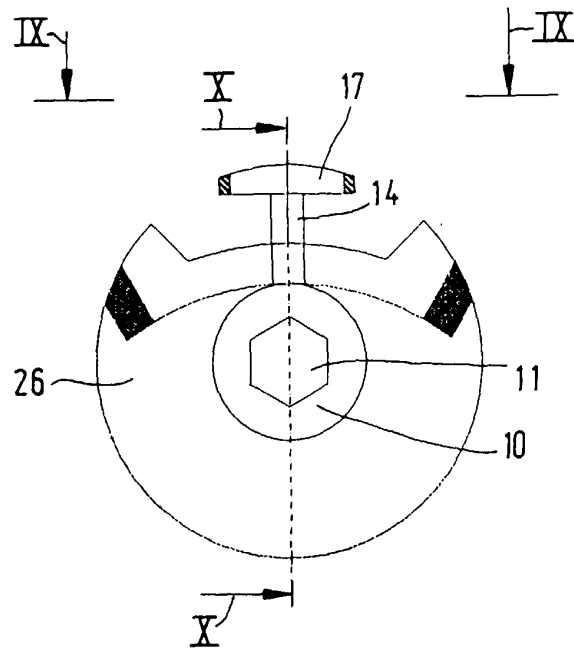


FIG. 8

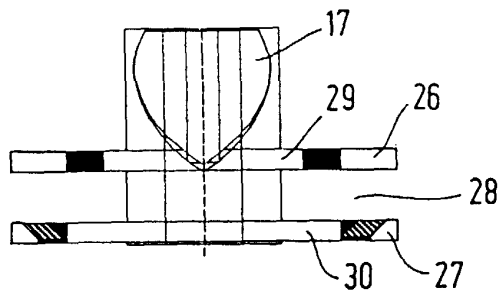


FIG. 9

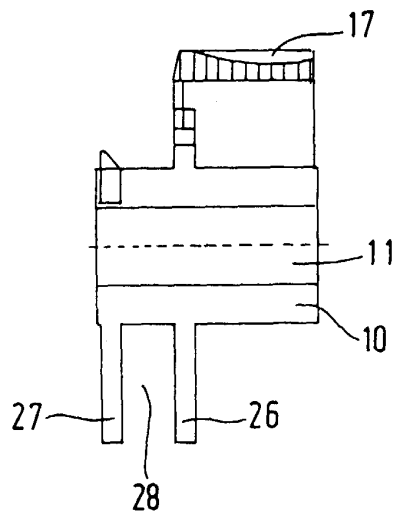
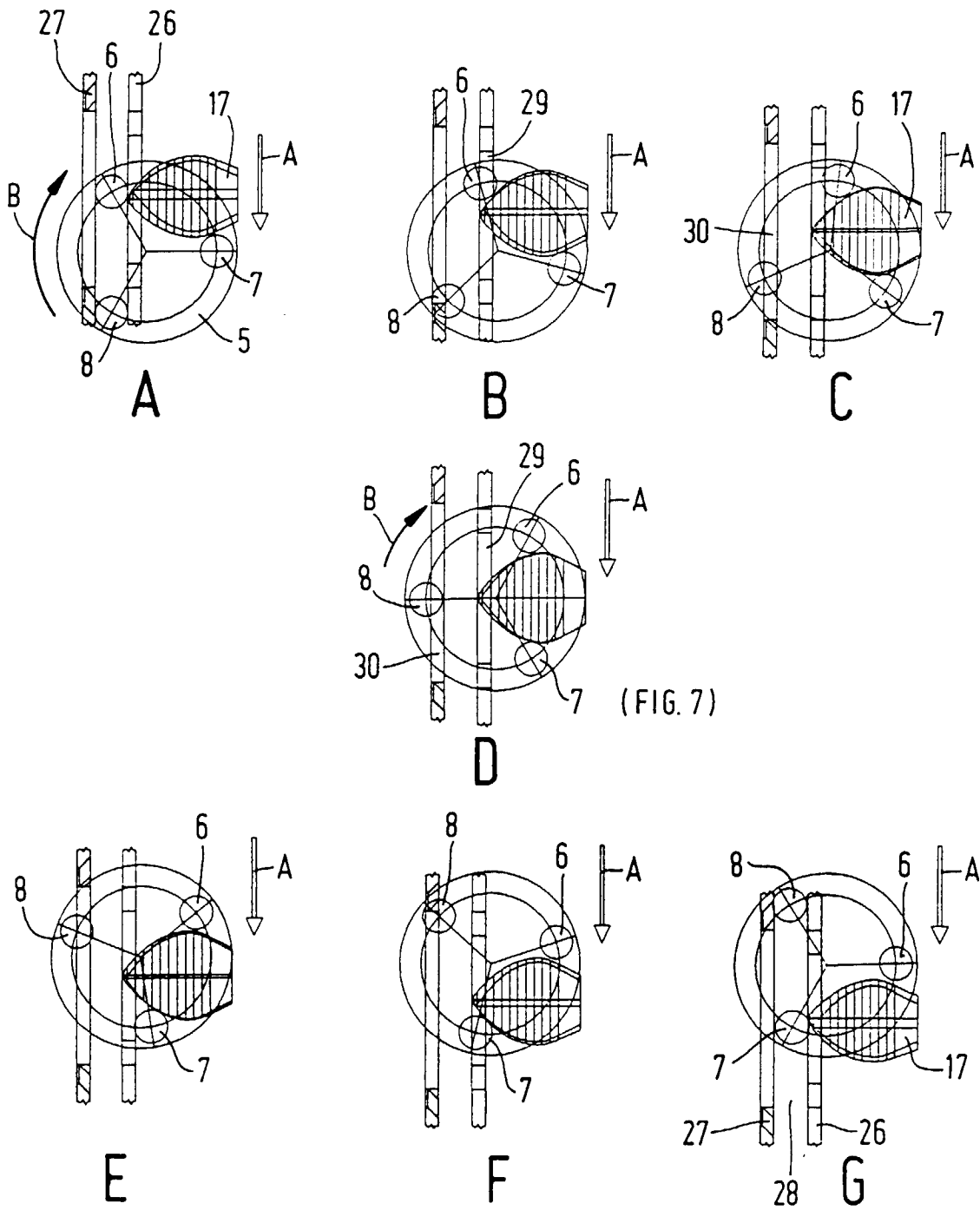


FIG. 10



(FIG. 7)

FIG. 11