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54 **Rotary display unit.**

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**CH-A- 160 304**  
**DE-A- 2 726 352**  
**US-A- 3 475 845**

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## Description

This invention relates generally to a rotary display unit of the kind in which a set of parallel vanes are rotatable about their longitudinal axes to enable the presentation across the set of vanes of two or more display surfaces.

The conventional rotary display uses vanes of an isometric triangular cross-section that allow the vanes to be mounted closely adjacent to provide three essentially continuous display surfaces. The vanes are normally mounted between opposite sides of a generally rectangular housing. On one side of the housing each vane assembly may have a drive arrangement cooperating with a common drive means extending the length of that one side to synchronously rotate the vanes through 120° at intervals to display the next of the three display surfaces.

The conventional display also has a surround or frame which overlaps the display surface at the front to hide the mounting and drive arrangements and thereby frame only a wanted display area.

While a conventional rotary display unit can provide three sequential displays of advertising, promotional or other information, there is often need to change the material. Doing this on-site may pose problems in demounting parts of the frame or the means by which the vanes are supported in the housing. This support may rely in part on the frame. It may be preferable to simply remove the vane assemblies for the affixing of fresh display material or replacement. Where the display unit has been fixed in position, removal of the whole unit may be difficult in any case. What is desired is to be able to remove the vanes without use of tools or any complicated procedure so that this operation may be done on the premises, in a shop for example.

Of the many designs of rotary display which have been proposed, one that seeks to provide readily changeable vanes is described in US-A-3475845, another one in GB 2 134 301A (Prismavision AB). It discloses a rotary display of the type under discussion having elongate vanes of triangular cross-section which are assembled for rotation about their longitudinal axes in a manner that permits removal of the individual vanes by simple manual manipulation. In the arrangement described each vane is mounted vertically, the upper end being slid over a resilient support member and the lower end shaped to seat on a dog through which rotary drive is applied to the vane. The lower end of the vane is held in engagement with the dog under its own weight.

This arrangement has the disadvantage that it can only be reliably used in this one vertical orientation. In any other orientation there is a risk of the vanes not reliably engaging the drive dogs because the weight of the vane is no longer acting on the dog. In many displays it is preferred to have the vanes hori-

zontally disposed and to be able to locate the plane of the display in any orientation. There will be described hereinafter a rotary display embodying the present invention in which the vanes are readily removable and replaceable and which may be used in any orientation.

The individual vanes disclosed in GB 2 134 301A have a relatively complex structure. The three display surfaces are provided by slats that are snap-fitted to a central body portion. The complexity and consequent cost of this structure may be mitigated to some extent by the weight it provides that is necessary to maintain the drive engagement above-mentioned.

The preferred embodiment of the present invention is implemented using vanes of a simple, relatively low cost form, namely a triangular (or possibly other polygonal shape) extrusion of light weight. Each vane is mounted to support parts at each end.

Another factor influencing the ready interchange of vanes is the access to vane assembly. As already discussed the vane assembly is usually mounted in a frame which hides the end mounting portions of the vanes and the drive arrangement for rotating them so as to show only a clean display window occupied by the vane surfaces.

In some circumstances it may be required to incorporate the display unit in a fascia as part of a wider display. In this case the frame may be incorporated in the fascia or omitted altogether, the fascia being designed to mask the parts of the unit to be hidden from view. In this case also, there is advantage in being able to easily remove the display unit vanes from the unit as mounted in the fascia.

In order to facilitate access to the vanes where they are mounted within a frame, the preferred embodiment of the invention utilises a housing structure which allows ready access to the assemblies by having a pivotable front surface member that overlies the vane ends on at least one side of the vanes.

Broadly stated, the present invention provides a rotary display unit of the kind having a set of parallel vane assemblies mounted in bearings in a housing and rotatable to provide plural display surfaces characterised in that each vane assembly is located in position in its bearings by retaining means that is movable independently of the vane assembly between a first, retaining, position in which the vane assembly is secured in its bearings for rotation and a second, release, position in which the vane assembly is manually removable from the unit.

The retaining means may be yieldably urged to its first position so as to normally retain the vane assemblies in position. The retaining means may act on all the vane assemblies simultaneously or each vane assembly be provided with its individual retaining means. By this means the vane assemblies are mountable in a manner that allows them to be readily demounted from the housing after having released

the retaining means.

In the embodiment of the invention described later each vane assembly has its own yieldably-urged retaining means. The latter comprises first means forming a part of the length of the vane assembly, and second means biasing the first means to an extended position, said first means being movable to a retracted position at which the length is shortened to allow the vane assembly to be removed from bearings in the housing. A particularly convenient, light and economic construction can be realised by having each vane assembly comprise a hollow display vane, e.g. an extrusion, and at least one end support member having a portion for receiving and locating one end portion of the vane, and another portion that provides a bearing spindle. The or one of the end support members can be provided with the retaining means just described.

To further assist easy removal of the vane assemblies in the construction described below the yieldably-urged retaining means already mentioned are located adjacent one side wall of the housing, and drive means for rotating the vane assemblies extends adjacent an opposite side wall of the housing. The drive means cooperates with the vane assemblies through a mechanism allowing the vane assemblies to be lifted free of the drive means without other disassembly. Preferably the drive means comprises cams engageable with cam surfaces on the vane assemblies.

To still further assist ease of access to the vane assemblies, in the rotary display unit to be described, the retaining means extend(s) along one side of said housing and the unit further comprises a frame defining the viewable display area and having a portion masking the retaining means, this latter portion being openable to allow access to the said retaining means. Preferably the masking portion is detachably mounted to an adjacent portion of the frame in such manner as to be manually openable without the use of a tool.

Similar provision may be made in cases where the unit is incorporated as part of a fascia.

At least that portion of the frame which provides the masking portion may be formed as a channel section having a pivotable and detachable side wall.

The preferred embodiment of the invention, which has been discussed above, will be more particularly described with reference to the accompanying drawings, in which:

Fig. 1 shows a side view of a support/bearing member by which one end of a vane assembly is mounted to a housing of a rotary display unit; Figs. 2 and 3 show respectively bearing end and vane support end views of the member; Fig. 4 shows a cross-section through a channel-shaped member used in making the frame, and Fig. 5 shows a cross-section through a display apparatus incorporating the features of Figs. 1-4

and showing a vane mounted in a housing and the cam means for it.

The rotary display unit embodying the invention comprises a rectangular housing having a tray-like shape best seen in Fig. 5. Between opposite parallel sides of the housing a set of parallel vane assemblies is mounted for rotation about the longitudinal axes of the vanes. The vane assemblies are supported in bearings mounted on each of the two sides adjacent the open top of the tray so that the vanes are located to provide a three-fold display surface. To this end each vane comprises a hollow, elongate aluminium vane having the cross-section of an equilateral triangle. This basic structure will be well understood by those in the art and will not be described further, other than is necessary to understand the practice of the present invention.

Each aluminium vane is mounted to the housing at each end by a support/bearing member whereby the vane is rotatable about its longitudinal axis. The support/ bearing members are of similar construction for each end of the vane. However, the members located along one side of the housing are used to apply the rotary drive to the vanes. The members located along the other side of the housing are adapted for ready manual release from cooperating bearing members secured at the inner surface of that side. One of these members will now be described with reference to Figs. 1 to 3. In these figures the arrow V indicates the orientation of the member in one of its three stationary positions in the display unit with respect to the direction from which the display is viewed.

The member 10 seen in Fig. 1 has a vane-support end portion 20 seen in Fig. 3 and a releasable bearing end portion 40 seen in Fig. 2, the two portions being separated by a triangular flange 60.

The support portion 20 comprises a short, triangular cross-section part 22 sized to receive thereon as a snug slide-fit the end of a hollow vane member. The part 22 terminates in the flange 60 which as well as extending outwardly from part 22 to provide a stop 24 locating the end of the vane as it is slid on, also extends inwardly at 26 providing both strength and a support for parts of the bearing portion of the member 10. The triangular flange 60 has an axial hole 28 in interior part 26 for receiving a set screw 30 that provides part of the release arrangement to be described.

The bearing end portion 40, comprises an axial circular tube 42 whose interior is aligned with hole 28 and threaded at the flange end to receive the screw 30. Slidably mounted in the outer end of this tube is a bearing pin or spindle 44 that is outwardly biased to locate and rotate in a bearing of the housing. Such a bearing is indicated in dash-line at 46 having a hole therein that receives the outer end of pin 44 and that is of sufficient depth to accommodate the pin so that the outer end 43 of tube 42 forms a locating shoulder abutting bearing 46.

The biasing of the pin 44 is effected by a compression spring 48 located in the tube 42 between the respective inner ends of the screw 30 and pin 44. The tube has a longitudinal slot 50 which extends to a point 51 adjacent, but short of, the outer end of the tube and which guides a lug 45 carried by pin 44. The lug 45 provides a readily accessible means by which the pin 44 can be manually withdrawn from the bearing 46 to release the vane assembly from the housing. The vane assembly then readily pulls out of the bearing on the other side as will be further discussed below. In mounting a set of vane assemblies, their orientation is preferably such that the slots are all in the same relative position so that they can be simultaneously oriented to face the open top of the housing and be released.

It will be noted that the bearing end portion 40 has three 120° displaced wings 52a-52c extending from the tube 42 toward the apices of flange 50. These wings not only provide rigidity but are shaped to provide cam surfaces for rotating the vane assemblies at the other side of the housing. The support end portion 20, flange 50, tube 42 and wings 52 are all made as a unitary moulding in a plastics material and it is economic to use this same moulding in the bearing/support member at both ends of the vanes.

Considering the structure as used at the driven end of the vane, the only difference is that the movable pin 44 can be conveniently replaced by a fixed pin secured, as by adhesive, in the tube 42. The spring 48 can be omitted and a longer pin 44 used that is correctly located when its inner end abuts set screw 30. The pin projects from the tube 42 whose outer end again provides a locating shoulder abutting the bearing at that end.

It will be noted that all the wings 52 are provided with chamfered surfaces 54 on their radially outer edges and similarly at 56 on their axially forward edges to provide cam surfaces for turning the vane assemblies. Along the driven side of the set of vane assemblies a long spindle is disposed parallel to the inner surface of the adjacent side of the housing and nearer the bottom of the tray. The axis of such a spindle relative to the support/ bearing member is indicated at 58 in Fig. 2 and is further described below with reference to Fig. 5. The spindle is rotated by a motor at one end and carries a cam for each vane assembly. As the spindle turns each cam engages the current inward directed wing 52a of the associated vane assembly to turn the assemblies through 120° in the same direction and reveal a fresh one of the three display surfaces.

It is noted that because the spindle and cams are located below the vane assembly and have no direct connection to it, the vane assembly is readily lifted away from the drive means to withdraw it from the housing.

It will be appreciated that other release means

could be used. The described vane assembly has a portion of its length retractable against a biasing means to enable the assembly to be withdrawn from the fixed housing bearings. The vane assembly could be of fixed length and each bearing down one side of the housing have a spring-loaded, manually retractable portion nearer the open side of the tray to allow the associated pin 44 to be lifted out of the bearing. An alternative to this is to have bearings that are all open-sided towards the open side of the tray to allow the pins 44 to be removed with a common member extending the length of the housing side and biased to normally close the open bearing sides but being retractable from this position to expose the open bearing sides for pin removal. Such an arrangement could be released by the opening of the overlying front surface member of the frame in the construction that will now be described.

The display unit thus far described will normally be contained within a frame. This may be made of rectangular channel section, such as extruded aluminium, with the mouth of the channel facing inwards and the sides of the tray-like housing received within the channel section whereby the channel walls overlap the tray to a sufficient extent to mask from view the mechanism and frame the wanted display area. The advantage of the easy removal of the vane assemblies is largely lost if the presence of the frame obscures access to them and itself requires the use of tools to disassemble the frame to a sufficient extent allowing the necessary access.

To enable ease of access, at least the channel member at the side of the housing adjacent the retractable portions of the vane assemblies can have its side wall overlaying the display, i.e. the side wall seen from direction V in Figs. 1 to 3, made hinged or outwardly slidable to allow access. There will now be described a hinged structure which is built into the extrusion thereby avoiding the need for separate hinges and the need to position separate hinges with regard to the frame size. Displays are offered in various sizes. The built-in hinge structure to be described enables the frame side to be cut to any length from stock with the hinge automatically in place.

Referring to Fig. 4, this shows a cross-section of a channel member 70. The side of the tray-like housing, at which the releasable bearing portions 40 (Figs. 1 and 2) are located, will enter the open mouth of the channel so that the channel side wall 72 underlies the bottom of the tray and the side wall 74 overlays the releasable portions 40 and defines one edge of the viewed display area indicated by arrow V. For clarity the housing is not shown in the figure nor will the means of locating it in the channel be discussed. It can be done in various ways as will be readily appreciated.

The channel section base 76 provides the outer side of the frame and the side wall 74 is detachably

mounted to it by the configuration generally indicated at 80. The inward edge of side wall 74 is terminated by an inwardly directed flange 82 at right angles to the main wall and this leads to a depending edge portion 84 at right angles to the flange and terminating in a circular cross-section bead 86 that extends the length of the side wall 74.

The base 76 of the channel terminates in a complementary structure having a lengthwise semi-circular cross-section channel 88 in which bead 86 seats. Upstanding from the base and inward of channel 88 is a wall portion 90 that engages the depending edge of the side wall 74 and that leads to an outwardly turned flange or ledge 92 that engages flange 82 of the side wall. The base structure is thickened as seen at 94 to provide sufficient strength but the ledge 92 is yieldable with respect to it to a limited degree. If the side wall 74 is rotated clockwise as seen in Fig. 4, the corner 83 between the flange 82 and depending edge 84 cams along ledge 92 while the bead rotates in channel 88. The ledge yields sufficiently to allow this action and the edge finally snaps out of engagement allowing the side wall 74 to be released from the base 76 and giving access to the display mechanism for removal of the vane assemblies as previously described. The side wall 74 is replaced by a reverse operation. To this end the channel 86 can be slightly widened at 96 to allow an initial combination of sliding and rotational movement of the bead 86 as it is inserted into the channel 88.

Another way of detachably mounting the side wall 74 would be for a sliding movement with respect to the remainder of the frame channel. For example, one end of the frame parallel to the vane assemblies could be detachably mounted in clips one of which cooperated with the side wall 74 to hold it in place until the other end frame member was removed. The side of the frame overlying the driven ends of the vane assemblies may also be constructed as described for ready removal to give access to those ends of the assemblies.

In either case the assembly and disassembly of the frame is by simple manual operation without the need of tools. Likewise the vane assemblies can be removed and replaced by simple manipulation of the spring loaded pins. The tube 42 of each support bearing assembly could have further slots at 120° intervals with the pin 44 having a projecting lug in each slot so that whatever the present position of a vane assembly, one lug is accessible for removal of the assembly.

It will be noted from Figs. 1 to 3 that the slot 50 extends to and through the wall of flange 60 as seen at 51 so that the pin 44 can be inserted into tube 42 through the hollow of support portion 20 followed by the spring 48 and then the set screw 30. Mention was made of securing the longer pin 44 at the driven side by adhesive. Since in the arrangement described the tube will carry the unused slot 50, the pin in this case

could also be provided with a lug pressed against the outer end of the slot by the screw bearing on the inner end of the pin.

Mention has been made on the mounting of a display unit directly in a fascia, that is to say the housing carrying the vane assemblies is mounted in a fascia without any surrounding frame. The demounting of the housing may be difficult in such a case and makes the ready removal of and replacement of the vane assemblies of particular value. In this case the fascia surrounding the housing would be designed with portions overlapping the housing sides to provide a masking frame defining the viewed display area. These fascia portions are also preferably arranged for ready access by hinged opening or by removal without the aid of tools.

A fuller illustration of the practical implementation of the invention utilising the features already described is afforded by Fig. 5. In this lateral cross-section, the tray-like housing 100 is shown as having side frames 102 and 104 between which the set of vane assemblies is supported. The frame is completed by transverse end members that are not shown. In this illustration each side 102, 104 comprises a hinged channel member of the kind 70 described with reference to Fig. 4, the hinged flaps of which, 106 and 108, are movable between a closed (horizontal) position shown in full line and an open (vertical) position shown in broken line that respectively cover the vane mountings end allow access to the vane ends. A bottom member 110 is seated between the sides 102 and 104 to complete the tray which is open at the top.

The channel members 102 and 104 are formed internally to support respective extrusions 110 and 112 which each carry a series of bearing members 114 and 116 respectively along its length providing the bearing members indicated at 46 in Fig. 1. The vane assemblies are of the kind illustrated in Fig. 1. Fig. 5 exemplifies one vane 120 of triangular-cross section which is supported at each end by a support member 122 and 124 respectively which is of the kind illustrated in Figs. 1-3. The vane is slid onto and forms a snug fit on the portion 20 of the support member at each end. One of the support members - that on the left of Fig. 5 - is provided with the spring-loaded retractable pin 44 already described whereby the vane can be readily released from its bearing by manual manipulation, the flap 106 having been moved to the open position. The wings 52 on member 122 play no part in the operation of the assembly. However, the wings on support member 124 to the right of Fig. 5 are used to apply the rotary drive to the vane. As already described the support member 124 can use the fixed, non-retractable pin 44.

Fig. 5 also shows a cam shaft 128 which is mounted between the end members of the frame to rotate about the axis 58 (Fig. 2) and which is driven continuously or intermittently by a motor. Along the cam shaft

128 there is provided a respective cam 130 for each vane. As the cam shaft rotates the cams 130 simultaneously engage the depending wing 52a of the associated support member 124 and rotate it through 120° - all vanes rotating in the same direction - so as to present a new display surface.

More particularly, the cam provides a double camming action. The cam, which is also seen in Fig. 5A, has a first, rising, cam surface 140 that extends radially outwardly and also axially, and acts to turn the wing 52a into the plane of the drawing as the cam rotates counterclockwise. As wing 52a rises the next wing 52b descends towards the plane of the paper where it is engaged by a descending cam surface 142 which extends both radially and axially (in the same axial direction as surface 140 rises) to continue the rotation of the vane assembly until the next vane 52b is located vertically and the next display surface is thus positioned horizontally. The cam is provided with a circumferential dwell groove 144 in which the tapered cam edge of the wing sits during the stationary period of the display. This ensures accurate location of the display. The cam surfaces 140 and 142 respectively rise from and descend to this groove.

## Claims

1. A rotary display unit of the kind having a set of parallel vane assemblies mounted in bearings in a housing and rotatable to provide plural display surfaces characterised in that each vane assembly is located in position in its bearings (46) by retaining means (44) that is movable independently of the vane assembly between a first, retaining, position in which the vane assembly is secured in its bearings for rotation and a second, release, position in which the vane assembly is manually removable from the unit.

2. A unit as claimed in Claim 1 in which the retaining means (44) is yieldably urged (48) to its first position.

3. A unit as claimed in Claim 2 in which the yieldably urged retaining means (44, 48) comprises, for each vane assembly, first means (44) forming a part of the length of the vane assembly, and second means (48) biasing the first means to an extended position, said first means (44) being movable to a retracted position at which the length is shortened to allow the vane assembly to be removed from a bearing (46) in the housing.

4. A unit as claimed in Claim 3 in which the first means (44, 48) of each vane assembly comprises a member (44) that locates in a fixed housing part that provides a bearing (46) for one end of the vane assembly.

5. A unit as claimed in Claim 3 or 4 in which each vane assembly includes a hollow display vane (120) and an end support member (20) that has a first por-

tion (22) for receiving and locating one end portion of the hollow display vane (120) and a second portion (40) that guidably receives said first means (44) and locates the second means (48) biasing said first means (44).

6. A unit as claimed in any preceding claim in which drive means (128) for rotating the vane assemblies extends adjacent one side wall (104) of the housing (100), the drive means cooperating with the vane assemblies through a mechanism (130,140,52a-c) allowing the vane assemblies to be lifted free of the drive means without other disassembly.

7. A unit as claimed in Claim 6 in which the drive means (128) comprises cams (130,140) engageable with cam surfaces (52a-c) on the vane assemblies.

8. A unit as claimed in any preceding claim in which said yieldably urged means (44,48) extend(s) along one side (120) of said housing (100) and further comprising a frame defining the viewable display area and having a portion (106) masking said retaining means (44,48) said portion (106) being openable to allow access to the said retaining means.

9. A unit as claimed in any one of Claims 1 to 7 incorporated as part of a fascia in which said retaining means extend(s) along one side of said housing and in which said fascia has a portion masking said yieldably urged means from view and openable to allow access to said yieldably urged means.

10. A unit as claimed in Claim 8 in which said masking portion (106) is detachably mounted (80) to an adjacent portion of the frame or fascia, as the case may be, in such manner as to manually openable without the use of a tool.

11. A unit as claimed in Claim 10 in which the masking portion (106) is part of a frame that comprises a channel section (70) comprising two side walls (72,74), one of said side walls (74) constituting said masking portion (106) and being pivotally and detachably mounted to the base (76).

## Patentansprüche

1. Drehbare Anzeigevorrichtung der Art, die einen Satz von parallelen Flügelanordnungen hat, die in Lagern in einem Gehäuse angebracht und drehbar sind, um mehrere Anzeigeflächen zu liefern, dadurch gekennzeichnet, dass jede Flügelanordnung in der richtigen Lage durch ein Rückhaltemittel (44) in ihren Lagern (46) angeordnet ist, wobei das Rückhaltemittel unabhängig von der Flügelanordnung zwischen einer ersten Rückhaltlage, in der die Flügelanordnung in ihren Lagern zur Drehung befestigt ist, und einer zweiten Ausklinklage, in der die Flügelanordnung mit der Hand von der Vorrichtung abnehmbar ist, bewegbar ist.

2. Vorrichtung nach Anspruch 1, in der das Rück-

haltemittel (44) nachgiebig (48) in seine erste Lage gedrängt wird.

3. Vorrichtung nach Anspruch 2, in der das nachgiebig gedrängte Rückhaltemittel (44, 48) für jede Flügelanordnung ein erstes Mittel (44), das ein Teil der Länge der Flügelanordnung bildet, und ein zweites Mittel (48), das das erste Mittel in eine ausgestreckte Lage drückt, umfasst, wobei das erste Mittel (44) in eine eingezogene Lage bewegbar ist, in der die Länge gekürzt ist, um zu gestatten, dass die Flügelanordnung von einem Lager (46) in dem Gehäuse entfernt werden kann.

4. Vorrichtung nach Anspruch 3, in der das erste Mittel (44, 48) jeder Flügelanordnung ein Glied (44) umfasst, das in einem festen Gehäuse ein Teil anordnet, das ein Lager (46) für ein Ende der Flügelanordnung liefert.

5. Vorrichtung nach Anspruch 3 oder 4, in der jede Flügelanordnung einen hohlen Anzeigeflügel (120) und einen Endträger (20) einschliesst, der ein erstes Teil (22) zum Empfangen und Anordnen eines Endteiles des hohlen Anzeigeflügels (120) hat, und ein zweites Teil (40), das das erste Mittel (44) führbar empfängt, und das zweite Mittel (48) gegen das erste Mittel (44) gedrückt anordnet.

6. Vorrichtung nach einem der vorhergehenden Ansprüche, in der sich ein Antriebsmittel (128) neben einer Seitenwand (104) des Gehäuses (100) erstreckt, um die Flügelanordnungen zu drehen, wobei das Antriebsmittel mit den Flügelanordnungen durch einen Mechanismus (130, 140, 52a-c) zusammenwirkt, der gestattet, dass die Flügelanordnungen ohne weitere Zerlegung von dem Antriebsmittel abgenommen werden können.

7. Vorrichtung nach Anspruch 6, in der das Antriebsmittel (128) Nocken (130, 140) umfasst, die in Nockenoberflächen (52a-c) auf den Flügelanordnungen eingreifbar sind.

8. Vorrichtung nach einem der vorhergehenden Ansprüche, in der sich das nachgiebig gedrängte Mittel längs einer Seite (120) des Gehäuses (100) erstreckt, und weiterhin einen Rahmen umfasst, der das sichtbare Anzeigebereich definiert und ein Teil (106) hat, das das Rückhaltemittel (44, 48) abdeckt, wobei das Teil (106) geöffnet werden kann, um Zugang zu dem Rückhaltemittel zu gestatten.

9. Vorrichtung nach einem der Ansprüche 1 bis 7, die als Teil einer Fronttafel eingebaut ist, in der sich das Rückhaltemittel längs einer Seite des Gehäuses erstreckt, und in der die Fronttafel ein Teil hat, das das nachgiebig gedrängte Mittel von der Sicht abdeckt, und geöffnet werden kann, um Zugang zu dem nachgiebig gedrängten Mittel zu gestatten.

10. Vorrichtung nach Anspruch 8, in der das Abdeckteil (106) abnehmbar (80) an ein angrenzendes Teil des Rahmens oder der Fronttafel, wie der Fall sein mag, derart angebracht ist, dass es ohne Gebrauch eines Werkzeuges geöffnet werden kann.

11. Vorrichtung nach Anspruch 10, in der das Abdeckteil (106) Teil eines Rahmens ist, der einen Kanalabschnitt (70) umfasst, welcher zwei Seitenwände (72, 74) umfasst, wobei eine der Seitenwände (74) das Abdeckteil (106) darstellt und schwenkbar und abnehmbar an dem Untergestell (76) angebracht ist.

## 10 Revendications

1. Dispositif d'affichage rotatif comportant une série d'ensembles de pales parallèles montés en roulements dans un logement et susceptibles de rotation pour présenter une série de surfaces d'affichage **caractérisé en ce que** chaque ensemble de pales parallèles est retenu en position dans ses roulements (46) par des moyens de retenue (44) admettant indépendamment de l'ensemble de pales, le déplacement entre une première position de retenue, dans laquelle l'ensemble de pales est retenue dans ses roulements pour la rotation, et reste libre dans une deuxième position admettant le retrait manuel de l'ensemble de pales depuis le dispositif.

2. Dispositif selon la revendication 1 dont les moyens de retenue (44) admettent le refoulement flexible (48) vers leur première position.

3. Dispositif selon la revendication 2 dont les moyens de refoulement flexible (44,48) comportent pour chaque ensemble de pales, des premiers moyens (44) formant un élément de la longueur de l'ensemble de pales, et des deuxièmes moyens (48) faisant dévier les premiers moyens en position avancée, lesdits premiers moyens (44) étant décalables en position de rappel en laquelle la longueur est raccourcie pour permettre le retrait de l'ensemble de pales d'un roulement (46) dans le logement.

4. Dispositif selon la revendication 3 dont les premiers moyens (44,48) de chaque ensemble de pales comporte un élément (44) qui vient se centrer dans un élément fixe de logement prévoyant un roulement (46) pour une extrémité de l'ensemble de pales.

5. Dispositif selon la revendication 3 ou la revendication 4 dont chaque ensemble de pales comporte une pale creuse d'affichage (120) et un élément de support d'extrémité (20) ayant un premier élément (22) pour recevoir et centrer un élément d'extrémité de la pale creuse d'affichage (120) et un deuxième élément (40) admettant la réception guidée des premiers moyens (44) et le centrage des deuxièmes moyens (48) en effectuant la déviation desdits premiers moyens (44).

6. Dispositif selon l'une quelconque des revendications précédentes, dont les moyens d'entraînement (128) de rotation des ensembles de pales s'allongent à proximité d'une paroi latérale (104) du logement (100), les moyens d'entraînement étant fonctionnels avec les ensembles de pales par l'intermédiaire d'un

mécanisme (130, 140, 52a-c) permettant de lever et libérer les ensembles de pales depuis les moyens d'entraînement sans autre dépose.

7. Dispositif selon la revendication 6 dont les moyens d'entraînement (128) comportent des cames (130, 140) susceptibles d'engagement avec les surfaces de cames (52a-c) sur les ensembles de pales. 5

8. Dispositif selon l'une quelconque des revendications précédentes dont des moyens de refoulement flexible (44,48) sont situés le long d'un côté (120) dudit logement (100) et comportant en outre un cadre démarquant la zone d'affichage et ayant un élément (106) qui masque lesdits moyens de retenue (44,48) ledit élément (106) étant susceptible d'ouverture pour donner l'accès auxdits moyens de retenue. 10 15

9. Dispositif selon l'une quelconque des revendications 1 à 7 incorporé comme élément d'un bandeau dans lequel les moyens de retenue sont allongés sur un côté dudit logement, lequel bandeau prévoyant un élément masquant lesdits moyens de refoulement flexible et susceptible d'ouverture pour permettre l'accès auxdits moyens de refoulement flexible. 20

10. Dispositif selon la revendication 8 dans lequel l'élément masquant (106) est monté détachable (80) sur un élément voisin du cadre ou du bandeau, selon le cas, de telle façon à en permettre l'ouverture manuelle sans outillage. 25

11. Dispositif selon la revendication 10 dont l'élément masquant (106) est un élément de cadre prévoyant un profil en U (70) comportant deux parois latérales (72,74), dont une paroi (74) forme l'élément masquant (106) monté pivotant et détachable sur le socle (76). 30

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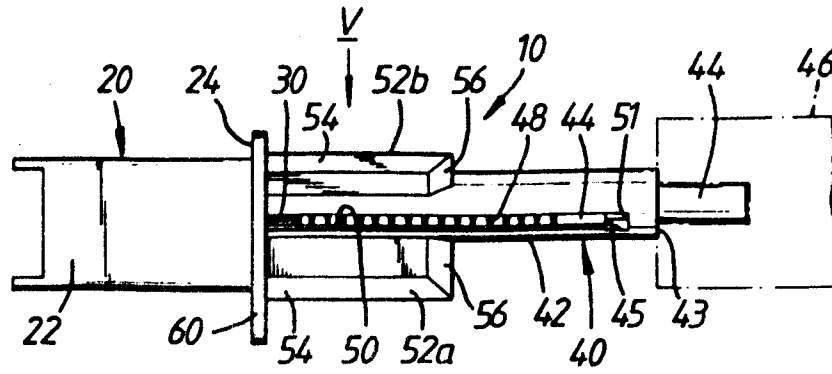


FIG. 1.

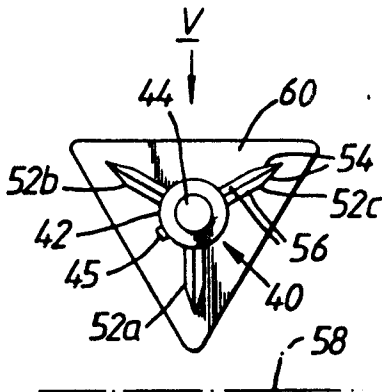


FIG. 2.

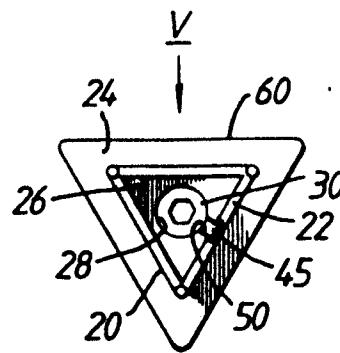


FIG. 3.

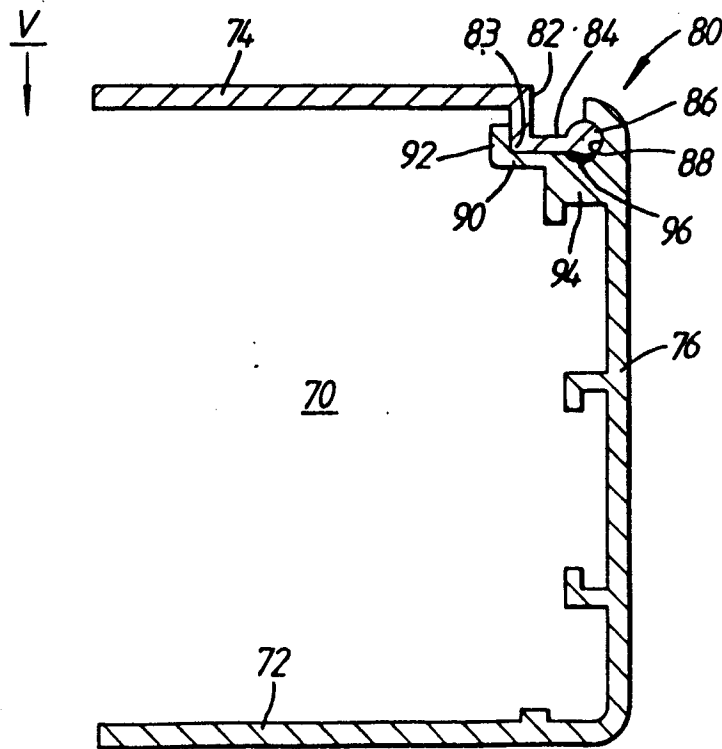


FIG. 4.

