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⑤④ **Device for successive display of different images.**

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Description

The invention relates to a device for the successive display of different images, for example, in the form of pictures, texts and the like, comprising a frame and image members adapted to turn about axes of rotation and journaled in said frame, said image members having a plurality of image faces at an angle to one another and being adjustable in the frame in a manner such that each time a plurality of image faces of adjacent image members display the desired image, each image member comprising a plurality of lamellae extending at least substantially parallel to the axes of rotation and being provided on both sides with an image face, said lamellae being arranged in the image member so as to be rotatable through 180° about their longitudinal axes and being supported by supporting members forming part of the image member and being rotatable about the axis of rotation of the image member, there being provided setting means with the aid of which lamella is turned about its longitudinal axis during the turn of the image member concerned.

From British Patent Specification 1,551,230 such a device is known in which the lamellae are turned about their longitudinal axes occupying a fixed position in the image member. In order to allow a turn of a given lamella through 180° neighbouring lamellae have to be turned to and fro, which involves a comparatively complicated driving mechanism for the lamellae. Apart therefrom it will not be possible in practice to use lamellae of such a width that the lamellae of neighbouring image members coming into view adjoin one another at least substantially, since with such a broad design of the lamellae the lamellae of a given image member can practically not be turned one along the other.

In order to obviate this inconvenience French Patent Specification 433,182 proposes a construction of a similar device of which each lamella is subdivided into two parts which are relatively slidable in the direction of width of the lamella. This brings about a still more complicated mechanism for turning the lamellae and for setting the parts of the lamellae relatively to one another.

Due to the complication of the known constructions they are not only expensive, but also highly susceptible of wear so that maintenance is also expensive.

According to the invention the lamellae are capable of reciprocating with respect to the supporting members in a direction away from the axis of rotation and in a direction towards the axis of rotation, whilst guide means are provided with the aid of which each lamella as a unit is guided between two consecutive positions in which it is located on the front side of the device, gradually in a direction away from the axis of rotation and subsequently in a direction towards the axis of rotation, whilst the lamellae and the frame of the device are provided with relatively co-operating

cams and/or stops causing a turn of the lamella concerned about its longitudinal axis during the reciprocatory movement of the lamella with respect to the axis of rotation.

By using the construction embodying the invention a simple design of the device can be obtained in which the means for displacing and turning the lamellae can be constructed in a simple manner and the lamellae, without the need for composing them from several parts, can have such a width that the lamellae forming a picture or the like getting into view in neighbouring image members adjoin one another at least substantially.

The invention will be described more fully hereinafter with reference to the accompanying Figures which schematically show and embodyment of the construction in accordance with the invention.

Fig. 1 is a front view of a device embodying the invention.

Fig. 2 is a plan view of an image member comprising three lamellae.

Fig. 3 is an elevational view of a catching member for the lamellae.

Fig. 4 is an elevational view of a guide curve for the lamellae in which the turn of a lamella about its longitudinal axis is represented in different positions.

Referring to Fig. 1, the device embodying the invention comprises a frame 1 in the form of a framework accommodating a plurality of image members 3 adapted to turn about vertical, relatively parallel axes of rotation 2. Although in the embodiment shown the image members 3 can turn about vertical axes of rotation 2, it will be obvious that the axes of rotation may be arranged, as an alternative, at a different angle, for example, in horizontal positions.

The shafts 4 of the image members arranged coaxially with the axes 2 can be simultaneously turned with the aid of a driving motor 5 and a transmission mechanism 6.

In the embodiment shown and image member of the kind schematically shown in Fig. 2 comprises three lamellae 7, 8 and 9, which are provided at their ends with stub shafts 10, which are coaxial with the longitudinal axes of the lamellae extending parallel to the axes of rotation 2 so that the lamellae are capable of turning about their longitudinal axes in the image member 3 concerned. The stub shafts 10 fastened to the lower and top ends of the lamellae 7 and 9 are arranged in slots 11 in plate-shaped catches 12 fastened near the top and bottom ends of the lamellae to the shaft 4. From Fig. 3 it will be apparent that the slots relatively off-set through an angle of 120° about the centre line 2 of the shaft 4 extend in a radial direction with respect to the centre line 2 of the shaft 4. Therefore, the stub shafts 10 are capable of sliding to and fro in the slots 11 with respect to the shaft 4.

At least near one end of each display member 3 a guide curve 13 is stationarily arranged for the stub shafts 10 located at the end concerned, the

arrangement being such that the stub shafts 10 concerned will move through the curve during the turn of the image member 3 concerned. Referring to Fig. 4 the lamella 7 extends parallel to the front side of the device. From this Figure it will furthermore be apparent that the curve or groove 13, in which the ends of the pins 10 are moving during operation, is concentric by its part 14 directed towards the front side of the device with the shaft 4 through an angle of about 210°. The ends of the part 14 of the curve 13 concentric with the rotary shaft 4 are adjoined by parts 15 and 16 being at least substantially at right angles to the front side of the device, which parts communicate with one another through a curved part 17 of the groove. Near said curved part 17 of the groove four stops 18 are fixed in the device so that these stops 18 are arranged symmetrically to a plane at right angles to the front side of the device and going through the axis of rotation 2 of the image member 3 concerned. Each lamella is provided at the end concerned with a cam 19 co-operating with the fixed stops 18 concerned.

From Figs. 2 and 4 it will be apparent that when an image member is turned with the aid of the driving motor 5 through 120°, the lamella 7 will get into the position 7' shown in Fig. 4, whereas the lamella 9 gets at the front side of the device. Upon a further turn of the image member the stub shafts 10 fastened to the lamella 7 are compelled to move through the groove 13, whilst the stub shafts concerned are displaced in the slots 11. The cam 19 fastened to the lamella 7 will co-operate with the stops 18 so that, as shown in Fig. 4 the lamella 7 is gradually turned through an angle of 120° about its longitudinal axis into the position 7". When the lamella has attained the position 7", this lamella will again lie at the front of the device after a next turn of the image member 3 through an angle of 120°. Owing to the turn described of the lamella 7 about its longitudinal axis the image face A first visible is replaced by the image face B at the front of the device.

During operation, when the image members 3 are turning, all lamellae are turned about their longitudinal axes and in the embodiment shown in total six different image faces will be consecutively displaced on the front side of the device.

By using the turning mechanism described above in which the lamellae are not only turned about their longitudinal axes but also shifted with respect to a central shaft 4 of the image member, it remains possible to maintain a compact construction of the device, whilst the image surfaces visible at the front on neighbouring lamellae at least substantially join one another by their longitudinal edges.

As a matter of course, many variations and/or supplements are possible. For example, the lamellae may have a different shape than the rhombic form shown in the Figures, they may be rectangular or elliptical. The drive of the lamellae may be constructed in any desired manner. In the drive shown all image members are turning in the same direction, but as an alternative a drive is

conceivable in which adjacent image members turn in opposite senses. It will be obvious that also in these cases the construction embodying the invention can be used by correctly arranging the various image faces on the various lamellae.

The figures used in the claims are only meant to explain more clearly the intention of the invention and are not supposed to be any restriction concerning the interpretation of the invention.

Claims

1. A device for successively displaying different images, for example pictures, texts and the like, comprising a frame (1), and image members (3) adapted to turn about axes of rotation (2) and journaled in said frame (1) said image members having a plurality of image faces at an angle to one another, and being adjustable in the frame (1) in a manner such that each time a plurality of image faces of adjacent members display the desired image, each image member (3) comprising a plurality of lamellae (7 to 9) extending at least substantially parallel to the axes of rotation (2) and being provided on both sides with an image face, said lamellae being arranged in the image member so as to be rotatable through 180° about their longitudinal axes (10) and being supported by supporting members (12) forming part of the image member (3) and being rotatable about the axis of rotation (2) of the image member (3), there being provided setting means (17 to 19) with the aid of which each lamella is turned about its longitudinal axis during the turn of the image member (3) concerned, characterized in that the lamellae are capable of reciprocating with respect to said supporting members (12) in a direction away from the axis of rotation (2) and in a direction towards the axis of rotation (2) whilst guide means (11, 13) are provided with the aid of which each lamella (7) as a unit is guided between two consecutive positions in which it is located on the front side of the device, gradually in a direction away from the axis of rotation (2) and subsequently in a direction toward the axis of rotation, whilst the lamellae (7) and the frame (1) of the device are provided with relatively co-operating cams and/or stops (18, 19) causing a turn of the lamella (7) concerned about its longitudinal axis (10) during the reciprocatory movement of the lamella (7) with respect to the axis of rotation (2).

2. A device as claimed in Claim 1 characterized in that with respect to the axis of rotation (2) the lamellae (7) can reciprocate in an at least substantially radial direction.

3. A device as claimed in Claim 1 or 2 characterized in that each lamella (7) is provided with a cam (19) which co-operates for the turn of the lamella (7) about its longitudinal axis (10) with stops (18) affixed stationarily in the frame (1) of the device and arranged symmetrically to a plane at right angles to the front face of the device and going through the axis of rotation (2) of the image member (3) concerned.

4. A device as claimed in any one of the preceding Claims characterized in that the guide members (11, 13) for a lamella (7) comprise two arcuate guide parts (14, 17), the centres of which are located in a plane at least substantially orthogonal to a displayed image, whilst the ends of the arcuate guide parts (14, 17) communicate by guide parts (15, 16) extending transversely of the displayed image.

5. A device as claimed in any one of the preceding Claims characterized in that an image member (3) comprises a shaft (4) extending at least substantially throughout the height of the image member and being rotatable about the axis of rotation (2), to the ends of which shaft are fastened plate-shaped catches (12) having slots (11) extending radially with respect to the rotary axis, in which slots are located stub shafts (10) fastened to the ends of the lamellae (7).

6. A device as claimed in Claims 4 and 5 characterized in that during operation at least one of the stub shafts (10) moves along the two arcuate guide parts (14, 17) and the guide parts (15, 16) interconnecting said arcuate guide parts.

Patentansprüche

1. Vorrichtung zur aufeinanderfolgenden Anzeige verschiedener Bilder, z.B. von Bildern, Texten oder dergleichen, mit einem Rahmen (1) und mit Bildelementen (3), die um eine Drehachse (2) drehbar und im Rahmen (1) gelagert sind, wobei die Bildelemente eine Vielzahl Bildflächen aufweisen, die miteinander einen Winkel einschließen, und die im Rahmen (1) derart einstellbar sind, daß jederzeit eine Vielzahl Bildflächen benachbarter Bildelemente das gewünschte Bild anzeigen, wobei jedes Bildelement (3) eine Vielzahl Lamellen (7 bis 9) aufweist, die sich mindestens annähernd parallel zur Drehachse (2) erstrecken und die auf beiden Seiten mit einer Bildfläche versehen sind, wobei die Lamellen in dem Bildelement um 180° um ihre Längsachse (10) drehbar und durch Halteelemente (12) gehalten sind, die einen Teil des Bildelementes (3) bilden und um die Drehachse (12) des Bildelementes (3) drehbar sind, wobei Einstelleinrichtungen (17 bis 19) vorgesehen sind, mit denen jede Lamelle während der Drehung des betreffenden Bildelementes (3) um ihre Längsachse gedreht wird, dadurch gekennzeichnet, daß die Lamellen in Bezug zu den Halteelementen (12) eine hin- und hergehende Bewegung in Richtung weg von der Drehachse (2) und in Richtung hin zur Drehachse (2) ausführen können, und daß Führungseinrichtungen (11, 13) vorgesehen sind, mit denen jede Lamelle (7) als eine Einheit zwischen zwei aufeinanderfolgenden Positionen geführt ist, in denen die Lamelle an der Vorderseite der Vorrichtung angeordnet ist, allmählich in einer Richtung weg von der Drehachse (2) und anschließend in einer Richtung hin zur Drehachse bewegt, während die Lamellen (7) und der Rahmen (1) der Vorrichtung diesbezüglichen Nocken und/oder Anschlägen (18, 19) aufweisen zusammen-

wirkenden, wodurch sich während der hin- und hergehenden Bewegung der Lamelle (7) in Bezug zur Drehachse (2) eine Drehung der betreffenden Lamelle (7) um ihre Längsachse (10) ergibt.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Lamellen (7) in Bezug zur Drehachse (2) in einer mindestens annähernd radialen Richtung hin- und herbewegbar sind.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß jede Lamelle (7) mit einem Nocken (19) versehen ist, der zur Drehung der Lamelle (7) um ihre Längsachse (10) mit Anschlägen (18) zusammenwirkt, die am Rahmen (1) der Vorrichtung ortsunveränderlich befestigt und zu einer zur Vorderfläche der Vorrichtung rechtwinkligen Ebene symmetrisch angeordnet sind und die sich durch die Drehachse (2) des betreffenden Bildelementes (3) hindurch erstrecken.

4. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Führungseinrichtungen (11, 13) für eine Lamelle (7) zwei bogenförmige Führungsteile (14, 17) aufweisen, deren Zentren in einer Ebene angeordnet sind, die mindestens annähernd senkrecht zu einem angezeigten Bild liegen während die Enden der bogenförmigen Führungsteile (14, 17) durch Führungsteile (15, 16) miteinander verbunden sind, die sich zum angezeigten Bild quer erstrecken.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß ein Bildelement (3) eine Welle (4) aufweist, die sich mindestens annähernd vollständig über die Höhe des Bildelementes erstreckt und die um die Drehachse (2) drehbar ist, wobei an den Enden der Welle plattenförmige Mitnehmer (12) befestigt sind, die Schlitz (11) aufweisen, die sich in Bezug zur Drehachse in radialer Richtung erstrecken, und wobei in den Schlitz Wellenzapfen (10) angeordnet sind, die an den Enden der Lamellen (7) befestigt sind.

6. Vorrichtung nach Anspruch 4 und 5, dadurch gekennzeichnet, daß sich während des Betriebes mindestens einer der Wellenzapfen (10) entlang den beiden bogenförmigen Führungsteilen (14, 17) und den diese bogenförmigen Führungsteile miteinander verbindenden Führungsteilen (15, 16) bewegt.

Revendications

1. Un dispositif pour l'affichage successif d'images différentes, par exemple de photos, de textes et analogues, comprenant un cadre (1) et des organes à image (3) prévus pour tourner autour d'axes de rotation (2) et tourillonnés dans ledit cadre (1), lesdits organes à image présentant plusieurs faces à image disposées selon un certain angle l'une par rapport à l'autre et étant réglable dans le cadre (1) d'une manière telle qu'à chaque fois un ensemble de faces à image d'organes à image adjacents affiche l'image désirée, chaque organe à image (3) comprenant un ensemble de lamelles (7 à 9) s'étendant de manière au moins sensiblement parallèle aux axes de

rotation (2) et comprenant, sur les deux côtés, une face à image, lesdites lamelles étant prévues dans l'organe à image de manière à pouvoir tourner de 180° autour de leurs axes longitudinaux (10) et étant portés par des organes de support (12) faisant partie de l'organe à image (3) et pouvant tourner autour de l'axe de rotation (2) de l'organe à image (3), des moyens de réglage (17 à 19) étant prévus à l'aide desquels chaque lamelle est amenée à tourner autour de son axe longitudinal pendant la rotation de l'organe à image (3) concerné, caractérisé en ce que les lamelles peuvent effectuer un mouvement de va-et-vient par rapport aux organes de support (12) dans une direction écartée de l'axe de rotation (2) et dans une direction vers l'axe de rotation (2) alors qu'on prévoit des moyens de guidage (11, 13) à l'aide desquels chaque lamelle (7) est guidée dans son ensemble entre deux positions consécutives dans lesquelles elle est située le côté antérieur du dispositif de manière graduelle dans une direction écartée de l'axe de rotation (2) et ensuite dans une direction vers l'axe de rotation, alors que les lamelles (7) et le cadre (1) du dispositif comprennent des cames et/ou butées (18, 19) coopérant ensemble en provoquant une rotation de la lamelle (7) concernée autour de son axe longitudinal (10) pendant le mouvement de va-et-vient de la lamelle (7) par rapport à l'axe de rotation (2).

2. Un dispositif selon la revendication 1, caractérisé en ce que, par rapport à l'axe de rotation (2), les lamelles (7) peuvent effectuer un mouvement de va-et-vient dans au moins une direction sensiblement radiale.

3. Un dispositif selon la revendication 1 ou 2, caractérisé en ce que chaque lamelle (7) présente

une came (19) qui coopère en vue de la rotation de la lamelle (7) autour de son axe longitudinal (10) avec des butées (18) montées fixes dans le cadre (1) du dispositif et disposées de manière symétrique par rapport à un plan à angle droit de la face antérieure du dispositif et traversant l'axe de rotation (2) de l'organe à image (3) concerné.

4. Un dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que les organes de guidage (11, 13) d'une lamelle (7) comprennent deux parties de guidage courbes (14, 17) dont les centres sont situés dans un plan au moins sensiblement orthogonal à une image affichée, alors que les extrémités des parties de guidage courbe (14, 17) communiquent par des parties de guidage (15, 16) s'étendant transversalement à l'image affichée.

5. Un dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce qu'un organe à image (3) comprend un arbre (4) s'étendant au moins sensiblement sur toute la hauteur de l'organe à image et pouvant tourner autour de l'axe de rotation (2), arbre aux extrémités duquel sont fixées des cliquets (12) en forme de plaques présentant des fentes (11) s'étendant radialement par rapport à l'axe de rotation, fentes dans lesquelles sont placés des arbres tronqués (10) fixés aux extrémités des lamelles (7).

6. Un dispositif selon les revendications 4 et 5, caractérisé en ce que, en cours de fonctionnement, au moins l'un des arbres tronqués (10) se déplace le long des deux parties de guidage courbes (14, 17) et des parties de guidage (15, 16) reliant entre elles lesdites parties de guidage courbes.

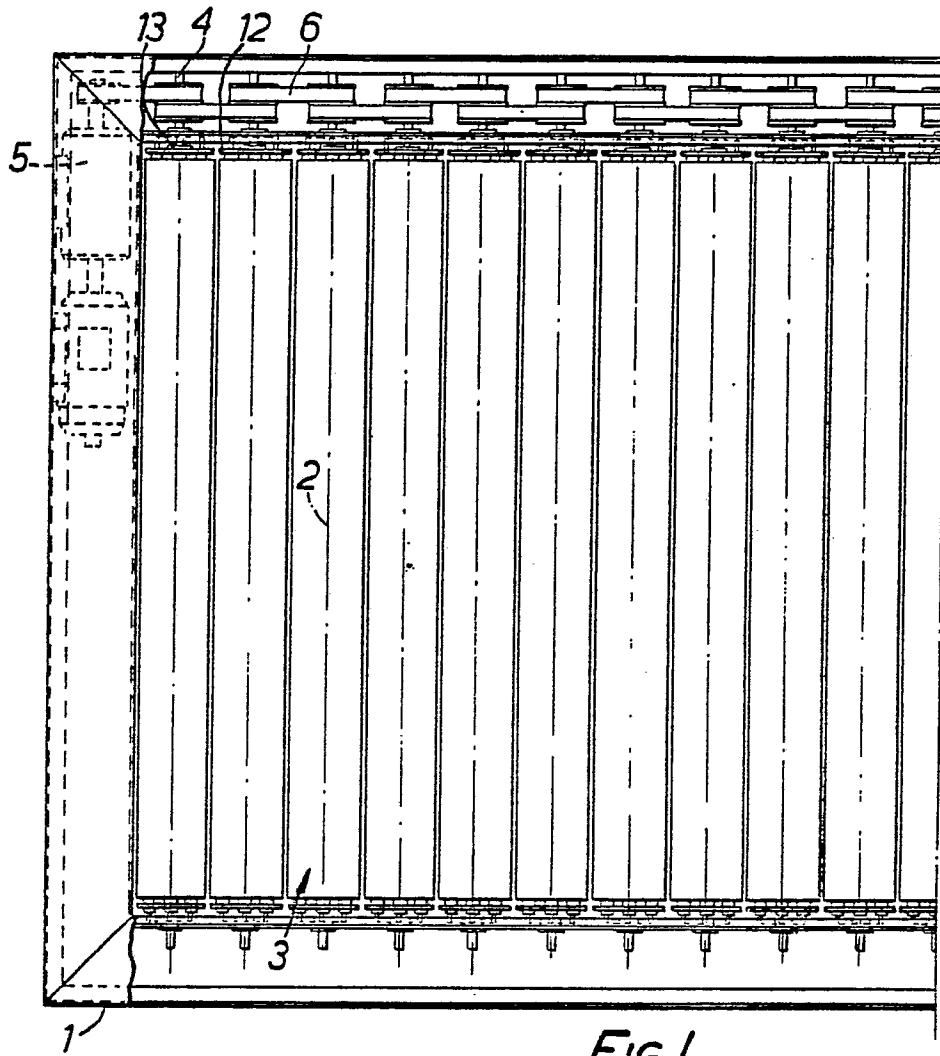


FIG. 1.

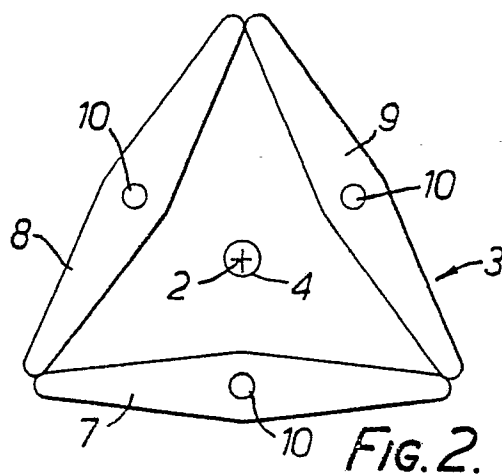


FIG. 2.

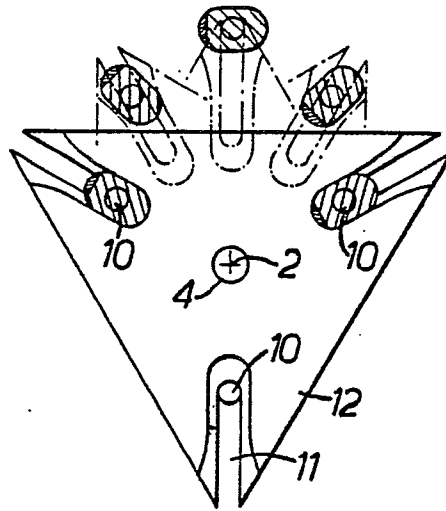


FIG. 3.

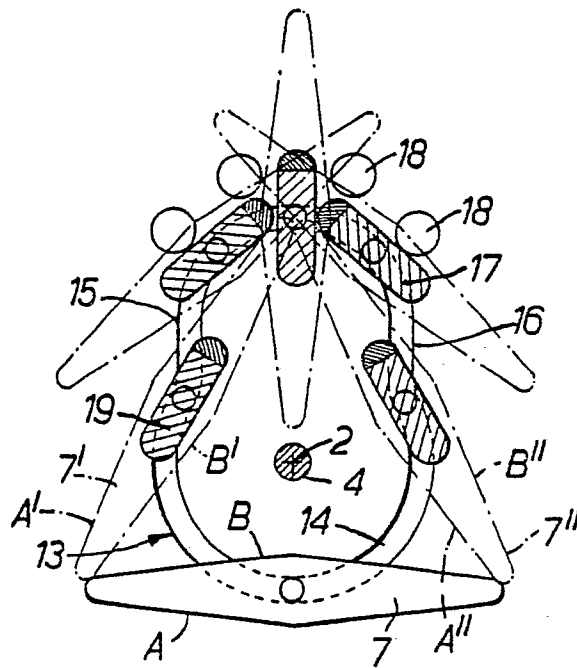


FIG. 4.