

(12) UK Patent Application (19) GB (11) 2 425 212 (13) A

(43) Date of A Publication 18.10.2006

(21) Application No: 0507497.6

(22) Date of Filing: 14.04.2005

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(51) INT CL:
G09F 7/22 (2006.01) **G09F 3/10** (2006.01)
G09F 3/20 (2006.01)

(52) UK CL (Edition X):
G5C CER

(56) Documents Cited:
GB 2407429 A **GB 2388010 A**
EP 0762366 A1 **WO 2005/048220 A1**
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(58) Field of Search:
INT CL⁷ **G09F**
Other: **WPI, EPODOC**

(54) Abstract Title: **Display apparatus**

(57) A display apparatus comprises a securing assembly 10 for securing the display apparatus to a supporting surface, a display component 12 capable of displaying visible indicia. The securing assembly 10 and the display component 12 can be releasably interconnected and when connected can be pivotally moved with respect to one another. The securing assembly 10 preferably includes adhesive means, which may be covered by a protective membrane prior to the display apparatus being attached to the supporting surface. The securing assembly 10 may comprise a mounting component 14 for securing to the support surface, and a connecting component 34 for attachment to the display component 12, pivotally connected to one another. Preferably the connecting component 34 includes formations (36, fig 1) that can be passed through apertures in the display component 12 or alternatively the connecting component 36 has formations, such as flexible tabs, that can grip and edge portion of the display component 12. The display apparatus can be provided in kit form.

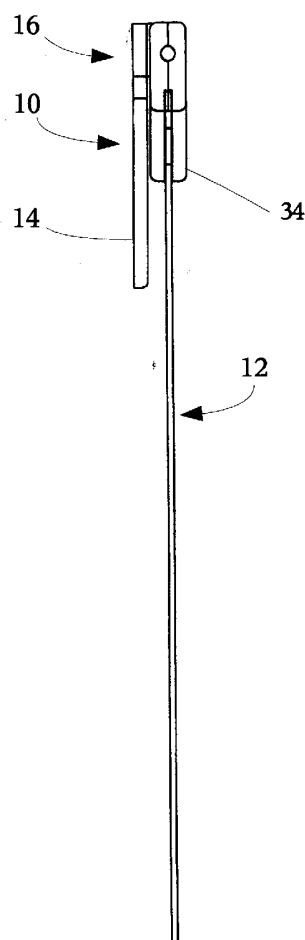


Fig 2

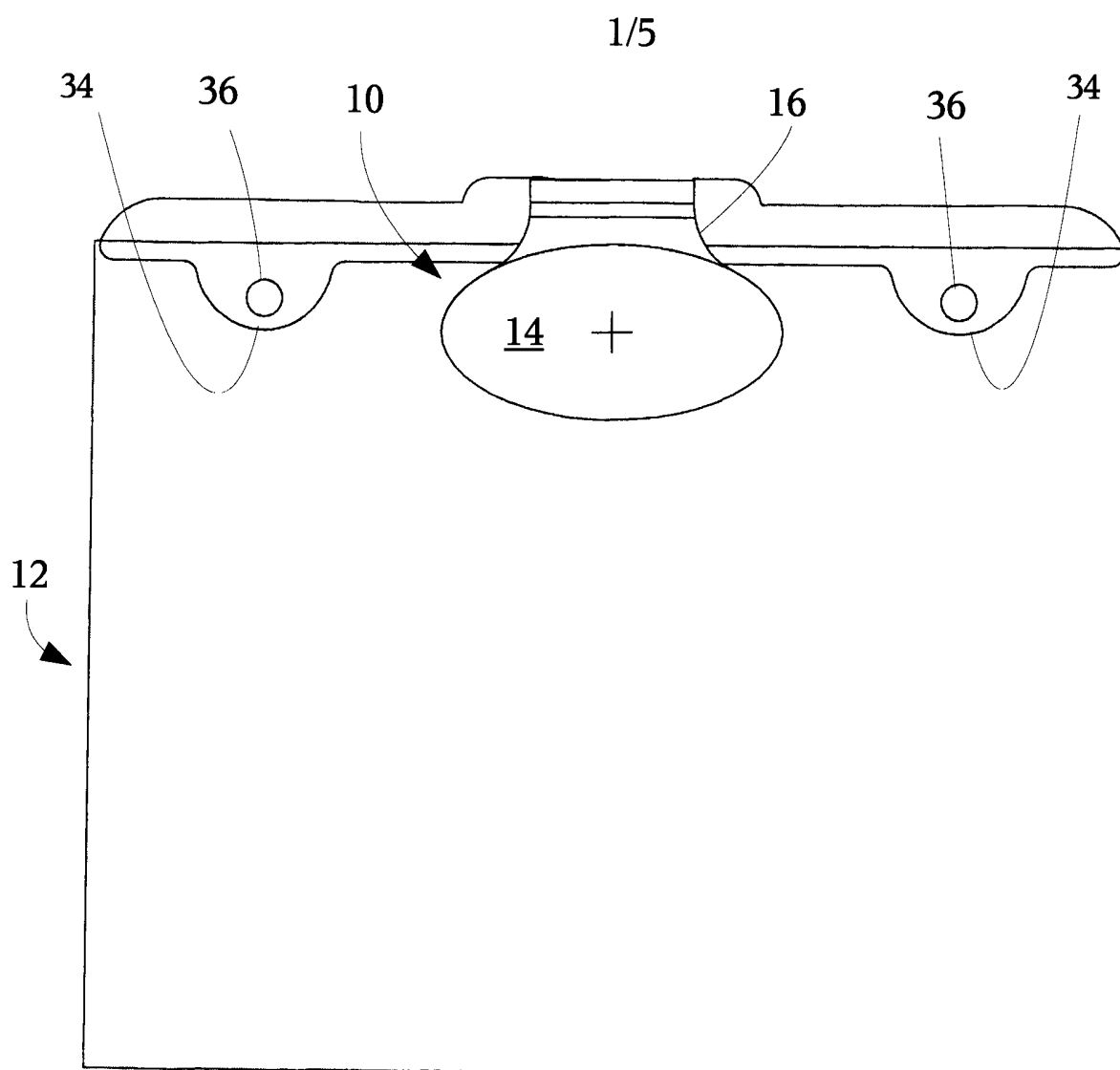


Fig 1

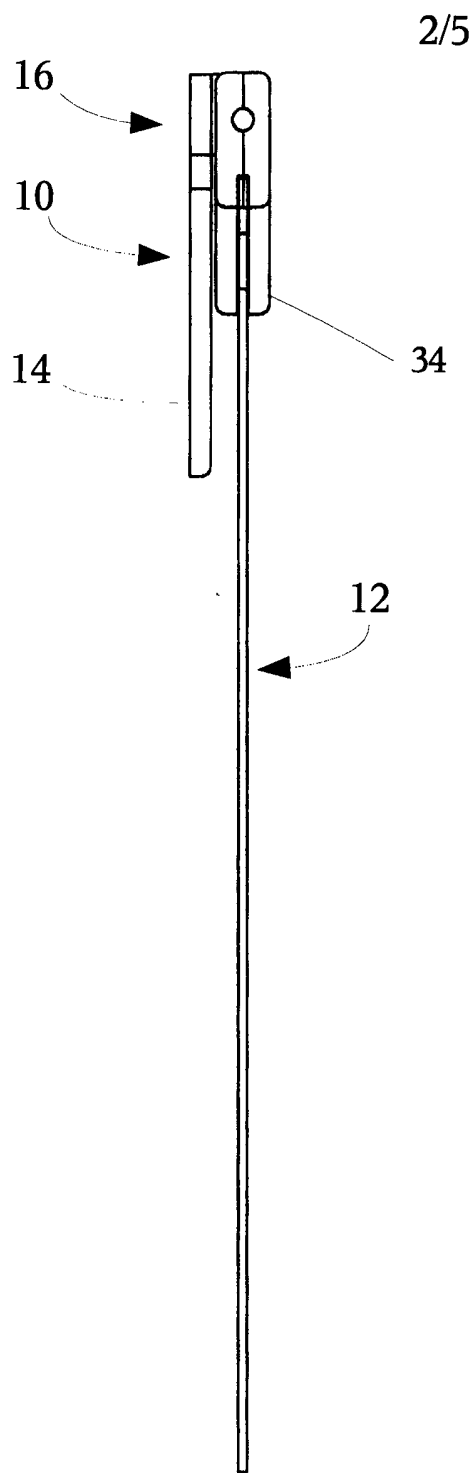


Fig 2

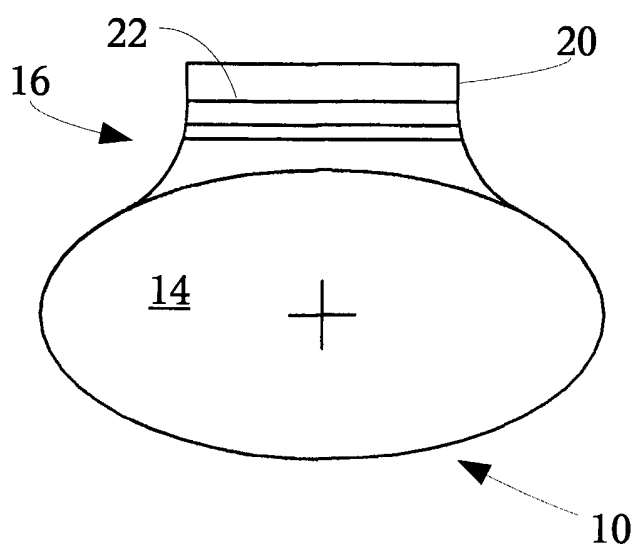


Fig 3

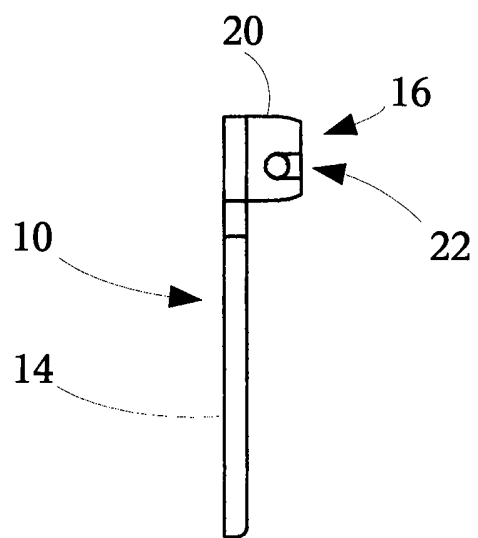


Fig 4

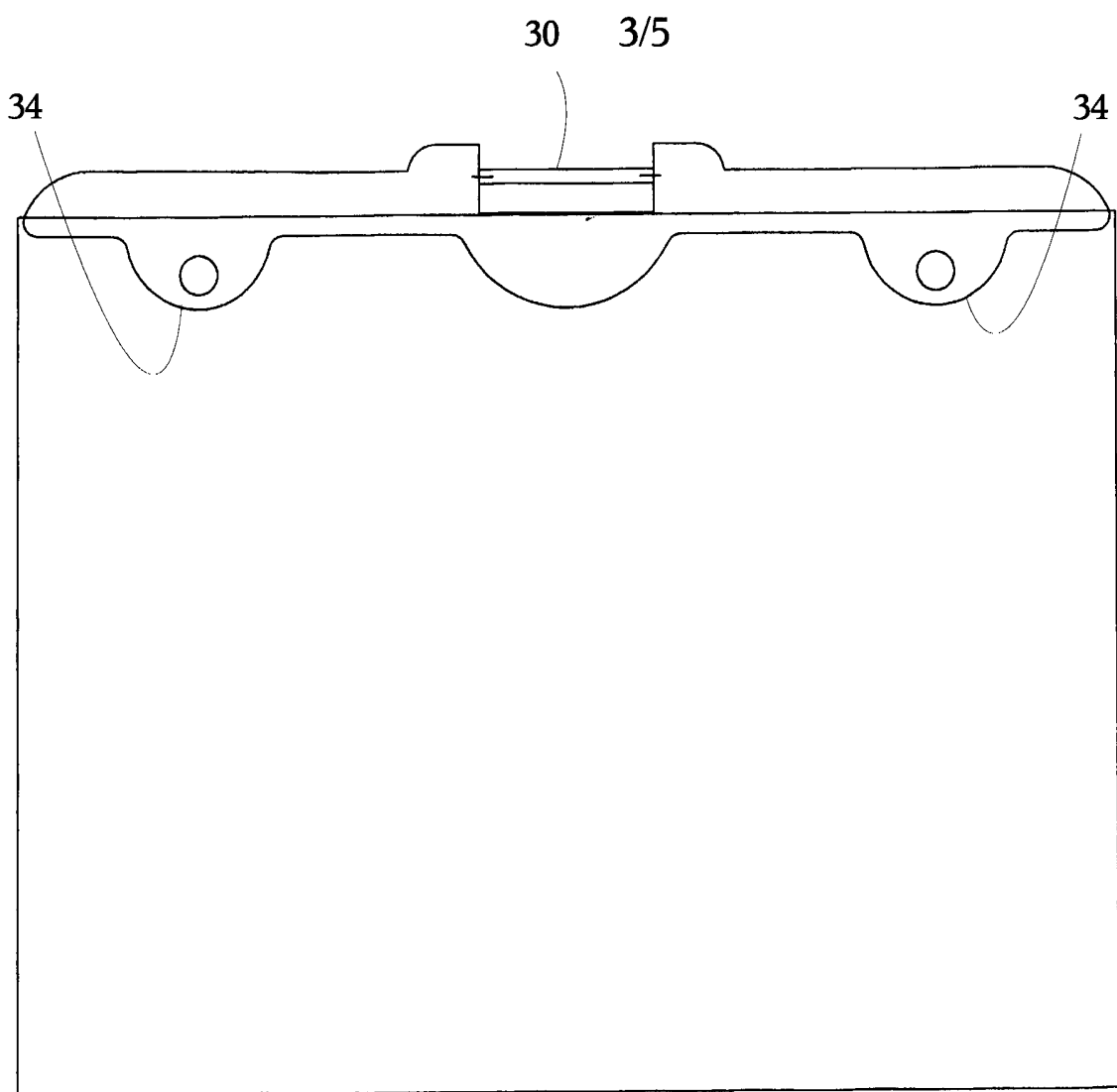


Fig 5

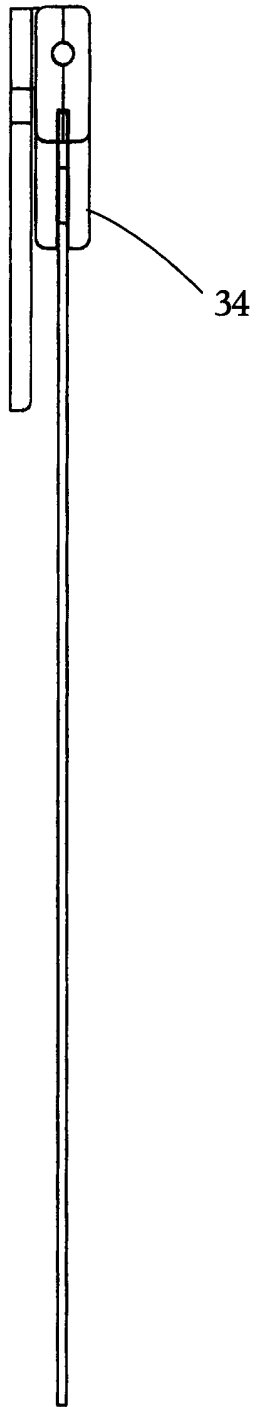


Fig 6

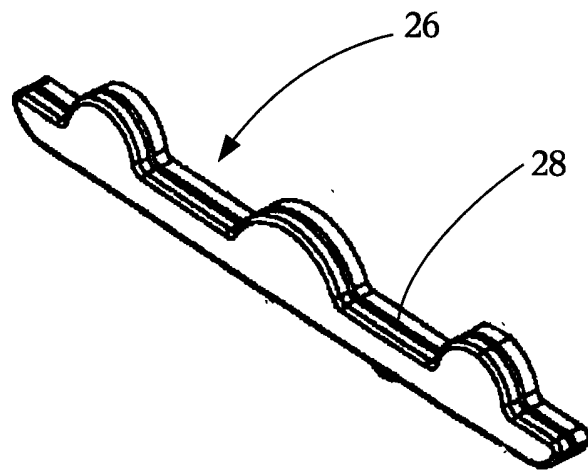
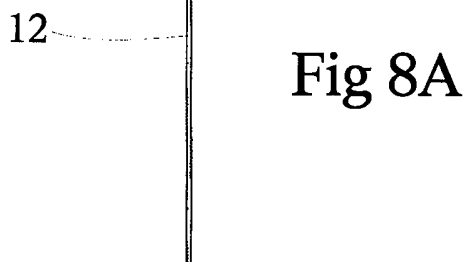
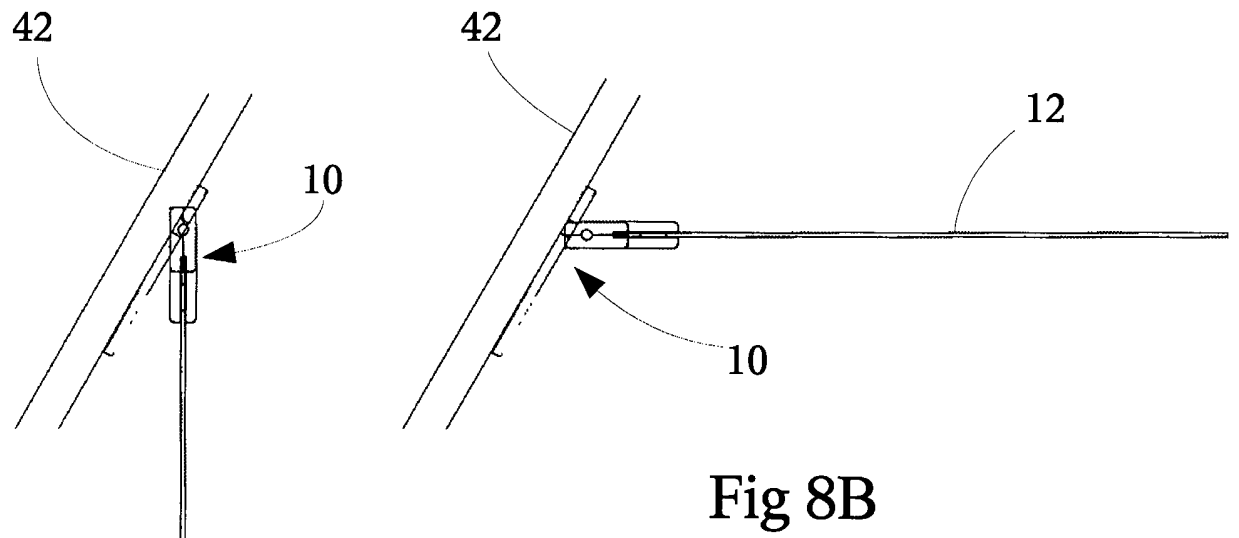
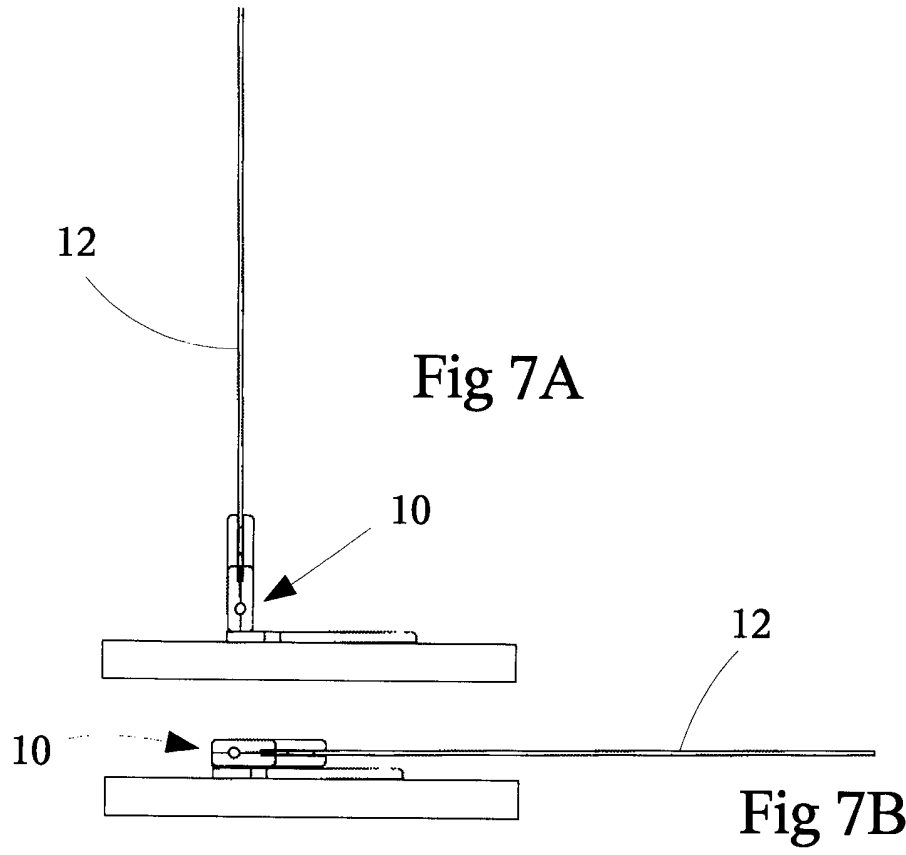


Fig 9



Display Apparatus

5 This invention relates to a display apparatus. Specifically, it relates to apparatus for displaying indicia, for example, in a vehicle.

There are many instances in which indicia have to be displayed in a manner that they are readily visible. Such indicia may include, amongst other things, identification documents, licence documents, and so forth. One area of particular importance is in
10 display of identification and licensing information relating to vehicles and their drives where the vehicles are used by the general public – such as buses or taxis. Information must often be displayed both where it is visible to passengers and to observers externally of the vehicle. Traditionally, the externally visible information is displayed upon a plate that is mounted on the outside of the vehicle and the internally visible information is
15 displayed on a badge that is positioned, typically in an *ad hoc* manner, where it can be seen by a passenger.

There are also occasions when indicia must not be displayed. For example, in the United Kingdom, disabled people are given permits that offer some dispensation from parking regulations. However, if a vehicle is shared between a disabled person and an able-
20 bodied person, it is unlawful for the permit to be displayed when the able-bodied person is using it.

This traditional approach works well in many circumstances, however it does have limitations. The internally visible information is often not clearly displayed. Also, when a driver stops working, it may be preferable that the externally visible information be
25 rendered invisible so members of the public are not confused into thinking that it is still a working taxi. It is inconvenient for a driver to have to leave the vehicle to attend to an externally mounted plate, so this task typically goes undone.

An aim of this invention is to provide display apparatus for displaying indicia in a versatile and flexible manner that improves upon the display apparatus presently in use.

From a first aspect, this invention provides display apparatus comprising:

- a securing assembly for securing the display apparatus to a supporting surface;
 - 5 a display component capable of displaying visible indicia;
- wherein the securing assembly and the display component can be releasably interconnected and, when interconnected, can be pivotally moved with respect to one another.

It is intended that the securing assembly be mounted permanently, for example on a 10 windscreen or a vehicle dashboard. When it is intended to display the indicia, the display component is positioned such that it can be seen from within the vehicle and also from outside of the vehicle, through the windscreen or a side or rear window. When the indicia are not to be displayed, the display component may be pivoted to a position where it is not readily visible (for example, upon the dashboard or above the top of the windscreen). 15 The display component need not be removed from the vehicle to remove it from view. The display component may be removed altogether by separating it from the securing assembly. The pivotal interconnection allows the device to be mounted on a wide range of surfaces having diverse orientations, it being possible to display the indicia to one side, above or below the securing assembly.

20 The securing assembly may include adhesive means by which it may be attached to a supporting surface. For example, the adhesive means may be, during manufacture, covered with a protective membrane, the membrane been removed prior to use.

In a preferred embodiment, the securing assembly comprises a mounting component and a connecting component, pivotally interconnected to one another. In such embodiments, 25 the connecting component can most typically be releasably connected to the display component. Preferably, the connecting component may be gripped at an edge portion by formations such as flexible tabs. These may be made of a plastics material that has a high coefficient of friction to enhance the effectiveness of its grip. Alternatively, the

connecting component may include formations that can be passed through apertures in the display component.

Most usually, the display component is generally flat and thin (say, less than 1mm thick). It may, for example, be rectangular in outline.

5The display component may have opposite surfaces upon which visible indicia are formed. Alternatively, the display component may be formed as a laminate, indicia being formed upon an internal component of the laminate, and being visible through external components of the laminate.

From a second aspect, this invention provides a kit for issuing identification devices, the
10kit will typically comprising multiple securing assemblies and components necessary to make up display components for assembly into display apparatus according to the first aspect of the invention.

A kit according to this aspect of the invention may further include apparatus for applying indicia to a display component, the indicia including data that is specific to an individual.

15Embodiments of the invention will now be described in detail, by way of example, and with reference to the accompanying drawings, in which:

Figures 1 and 2 illustrate a display apparatus being a first embodiment of the invention;

Figures 3 and 4 show a securing component, being a part of the embodiment of
20Figures 1 and 2;

Figures 5 and 6 show a display component, being a part of the embodiment of Figures 1 and 2;

Figures 7A and 7B illustrate the embodiment mounted on a generally horizontal surface in, respectively, a position in which indicia are displayed and a position in which
25the indicia are not displayed;

Figures 8A and 8B illustrate the embodiment mounted on a vehicle windscreen in, respectively, a position in which indicia are displayed and a position in which the indicia are not displayed; and

Figure 9 shows a retaining component, being part of the embodiment of Figure 1.

With reference first to Figure 1, a first embodiment of the invention comprises a securing assembly 10 and a display component 12.

The securing assembly 10 is intended to be mounted permanently or semi-permanently upon a foundation surface. The securing assembly 10 has an elliptical plate region 14 upon which an adhesive pad (not shown) is carried. The adhesive pad is covered by a removable cover sheet during manufacture. The pad cover sheet is removed to expose the adhesive upon the pad, whereupon the securing portion can be adhesively attached to a supporting surface. The adhesive pad will serve its purpose just once, and will have to be replaced in the event that the securing component is to be re-positioned.

A boss 16 projects peripherally from the plate region 14. The boss 16 has an inner portion 18 that is of the same thickness as the plate region 14, and an outer portion 20 that has a greater thickness. A groove 22 extends across the outer portion 20. The groove 22 has generally parallel sides and a rounded base.

The securing assembly 10 further comprises a retaining component 26. The retaining component 26 comprises an elongate plastic strip. A central region 28 of the strip includes a connection formation by which the retaining component 26 can be connected to the boss 16. The connection formation 28 includes a section shaped as an elongate cylindrical rod 30. The rod 30 is of a diameter such that it is a close fit within the groove 22, such that it can be pressed into the groove 22 and to be retained there, while allowing some pivotal movement of the retaining component to 26 with respect to the plate region 14. The fit of the rod 30 within the groove 22 is tight enough to ensure that the rod 30 is gripped so as to resist pivotal movement. In particular, it is tight enough to ensure that, when the display component 12 is in place (as will be described below), the weight of the display component 12 is insufficient of itself to cause pivotal movement. In other words, once the position of the display component 12 is established manually, it does not droop under its own weight.

In this embodiment, the components of the securing assembly 10 are formed as mouldings of transparent plastic.

The retaining component 26 further includes connecting formations. In this embodiment, the each connecting formations includes a pair of lugs 34 and a groove 38. Optionally, one of the lugs includes a projecting spigot 36 while the other has an aperture into which the spigot can be received. The material from which the lugs 34 are formed is sufficiently flexible and resilient that the lugs can be pulled apart. Provision of the spigots 36 can offer more secure retention of the display component, but with the disadvantage that provision to receive the spigots 36 must be made in the display component 12, as will be described. As shown in Figure 9, the retaining component 26 is not provided with the spigots.

10The display component 12 is a thin sheet which, in this embodiment, is substantially rectangular in outline. However, it could be many other shapes, for example, triangular or oval. The display component 12 is formed as a flat sheet, such that it has two (in this embodiment rectangular) surfaces. Indicia are visible upon the display component 12 when its surfaces are viewed. These indicia may be printed or otherwise formed on the 15surface. Alternatively, the display component 12 may be a composite structure formed, for example, by lamination, in which case the indicia are formed upon an internal component part of the display component 12 and its external surfaces are transparent such that the internal component can be seen. For example, the display component 12 may be performed using the method/system disclosed in European Patent Application number 201074961 of the present applicant.

The display component 12 can be connected to the securing assembly 10 by flexing the lugs 34 and introducing an edge portion of the display component 12 into the groove 28. The lugs 34 are then allowed to spring back and thereby grip the display component. In embodiments in which the lugs 34 include spigots, as described in the last-but-one 25preceding paragraph, two apertures are formed through the display component 12 close to one of its edges. The apertures are spaced apart and are sized such that the spigots 36 of the retaining component 26 can pass through them so as to connect the display component to the retaining component 26. The display component 12 can be connected to the securing assembly 10 by flexing the lugs 34 to expose the spigots 36 and then passing the 30spigots through the aperture in the display component 12. When the lugs 34 are subsequently released, the display component 12 is held by the retaining component 26.

In either of these embodiments, the display component 12 can be separated from the retaining component 26 by reversing this operation.

This embodiment is particularly, but not exclusively, intended for mounting within a vehicle to provide a display of indicia to passengers within the vehicle and to people 5external of the vehicle.

One way in which it can be mounted is by fixing the plate region 14 of the securing assembly 10 to the top of the dashboard 40, which is typically an approximately horizontal surface. This is illustrated in Figures 7A and 7B. When it is desired to display the indicia, the display component 12 is pivoted such that its surfaces are generally 10vertical, as shown in Figure 7A. In this condition, one surface of the display component 12 is readily visible to a person within the vehicle and the opposite surface can be seen by somebody outside of the vehicle through the windscreen (not shown in Figure 7A or 7B.). When it is desired that the indicia are not to be displayed, the display component 12 is pivoted such that it lies flat upon the dashboard. In this condition, it cannot be readily 15seen by a person external to the vehicle when it is approaching them.

An alternative way in which it can be mounted in a vehicle is shown in Figures 8A and 8B. In this arrangement, the plate region 14 of the securing assembly 10 is secured to the windscreen 42 itself. When it is intended that the indicia should be displayed, the display component 12 is pivoted such that it is generally vertical, as shown in Figure 8A. In this 20condition, one surface of the display component 12 is readily visible to a person within the vehicle and the opposite surface can be seen by somebody outside of the vehicle through the windscreen 42. When it is intended that the indicia are not to be displayed, the display component 12 is pivoted upwardly until it is approximately horizontal (or beyond to slope upwardly away from the securing assembly 10), whereupon it becomes 25substantially invisible to someone outside or inside the vehicle.

If it is desired that the indicia should not be displayed on a longer-term basis, the display component 12 can be detached from the securing assembly 10 and removed. Moreover, when an embodiment of the invention is installed free use in a taxi or private hire vehicle, the indicia to be displayed may typically relate to the driver rather than to the vehicle. If 30more than one person drives the same vehicle, it is a simple matter to provide each driver

with a respective display component 12 that the can fit to the securing assembly 10 while the vehicle is in their charge.

Embodiments of the invention may be provided as a kit for issuing identification devices such as are issued to taxi or private-hire drivers. In such cases, the kit will typically provide multiple securing assemblies 10 (which are, in no way, specific to an individual) and components necessary to make up display component 12 for issuance to individual drivers. In particular, it is contemplated that the display component 12 be made in accordance with the methods and systems disclosed in European Patent Application number 1074961, and that a kit being an embodiment of the invention may include apparatus as disclosed in that patent application.

Claims

- 5 1. Display apparatus comprising: a securing assembly for securing the display apparatus to a supporting surface; a display component capable of displaying visible indicia; wherein the securing assembly and the display component can be releasably interconnected and, when interconnected, can be pivotally moved with respect to one another.
- 10 2. Display apparatus according to claim 1 in which the securing assembly includes adhesive means by which it may be attached to a supporting surface.
3. Display apparatus according to claim 2 in which the adhesive means is, during manufacture, covered with a protective membrane, the membrane been removed prior to use.
- 15 4. Display apparatus according to claim 2 or claim 3 in which the securing assembly comprises a mounting component and a connecting component, pivotally interconnected to one another.
5. Display apparatus according to 4 in which the connecting component can be releasably connected to the display component.
- 20 6. Display apparatus according to 5 in which the connecting component includes formations that can be passed through apertures in the display component.
7. Display apparatus according to 5 in which the connecting component has formations that can grip an edge portion of the display component.
- 25 8. Display apparatus according to 7 in which the connecting component formations include flexible tabs.

9. Display apparatus according to 8 in which the flexible tabs are made of a plastics material that has a high coefficient of friction.
10. Display apparatus according to any preceding claim in which the display component is generally flat and thin.
- 5 11. Display apparatus according to claim 10 in which the display component has opposite surfaces upon which visible indicia are formed.
12. Display apparatus according to claim 10 in which the display component is formed as a laminate, indicia being formed upon an internal component of the laminate, and being visible through external components of the
10 laminate.
13. Display apparatus substantially as described herein with reference to the accompanying drawings.
14. A kit for issuing identification devices, the kit will typically comprising multiple securing assemblies and components necessary to make up
15 display components for assembly into display apparatus according to any preceding claim.
15. A kit according to claim 14 further including apparatus for applying indicia to a display component, the indicia including data that is specific to an individual.



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Application No: GB0507497.6

Examiner: Rhodri Evans

Claims searched: 1-15

Date of search: 3 August 2005

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-5, 10, 14	EP 0762366 A1 (Esselte) figure 7a and WPI abstract accession number 1997-146716 [14].
X	1, 10-12, 14	US 2002/0125397 A1 (Wear) figure 6 and paragraph 0042.
X	1, 10-12, 14	US 5241768 A (Thompson) figures 1 and 2 and lines 5-42 of column 4.
X,E	1, 10, 14	WO 2005/048220 A1 (Hodsdon) figures 3a to 4b and paragraph 0046.
X,E	1, 10, 14	GB 2407429 A (Keymite) figure 1 and lines 6-13 of page 2.
X	1, 10, 14	GB 2388010 A (Sanderson) figures 17-18 and line 15 page 5 to line 15 of page 6.
X	1, 10, 14	FR 2164998 A (Zarzev) figure 2.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

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Worldwide search of patent documents classified in the following areas of the IPC⁰⁷

G09F

The following online and other databases have been used in the preparation of this search report



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