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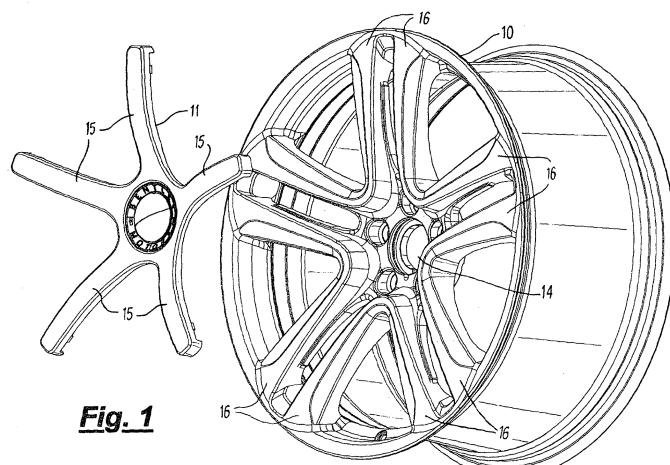
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(54) Title of the Invention: **Assembly for vehicle**
Abstract Title: **Component for vehicle**

(57) A vehicle trim assembly for mounting directly or indirectly to a vehicle wheel (10) has a centre cap (12), a locking member (13), and a cap badge (36). The locking member is mounted on the centre cap component, whereby a number of projecting portions (28) provided on the locking member (13) engage with a corresponding number of resilient catches (20) provided on the centre cap (12). The locking member is rotatable between a lock and an unlock position. In the lock position, separation of the centre cap component (12) from the vehicle wheel (10) is prevented by the locking member (13). A number of features (39, 40, 41) are provided on the rear face of the cap badge (36). When the cap badge is fitted to the assembly, these features engage with corresponding cooperating features (19, 24) provided on the centre cap (12) and the locking member (13), thereby preventing the locking member from moving relative to the centre cap (12). An interference locking arrangement, provided on a radially outside surface of the projecting portions (28) of the locking member and the resilient catches (20) of the centre cap component, prevents the locking member



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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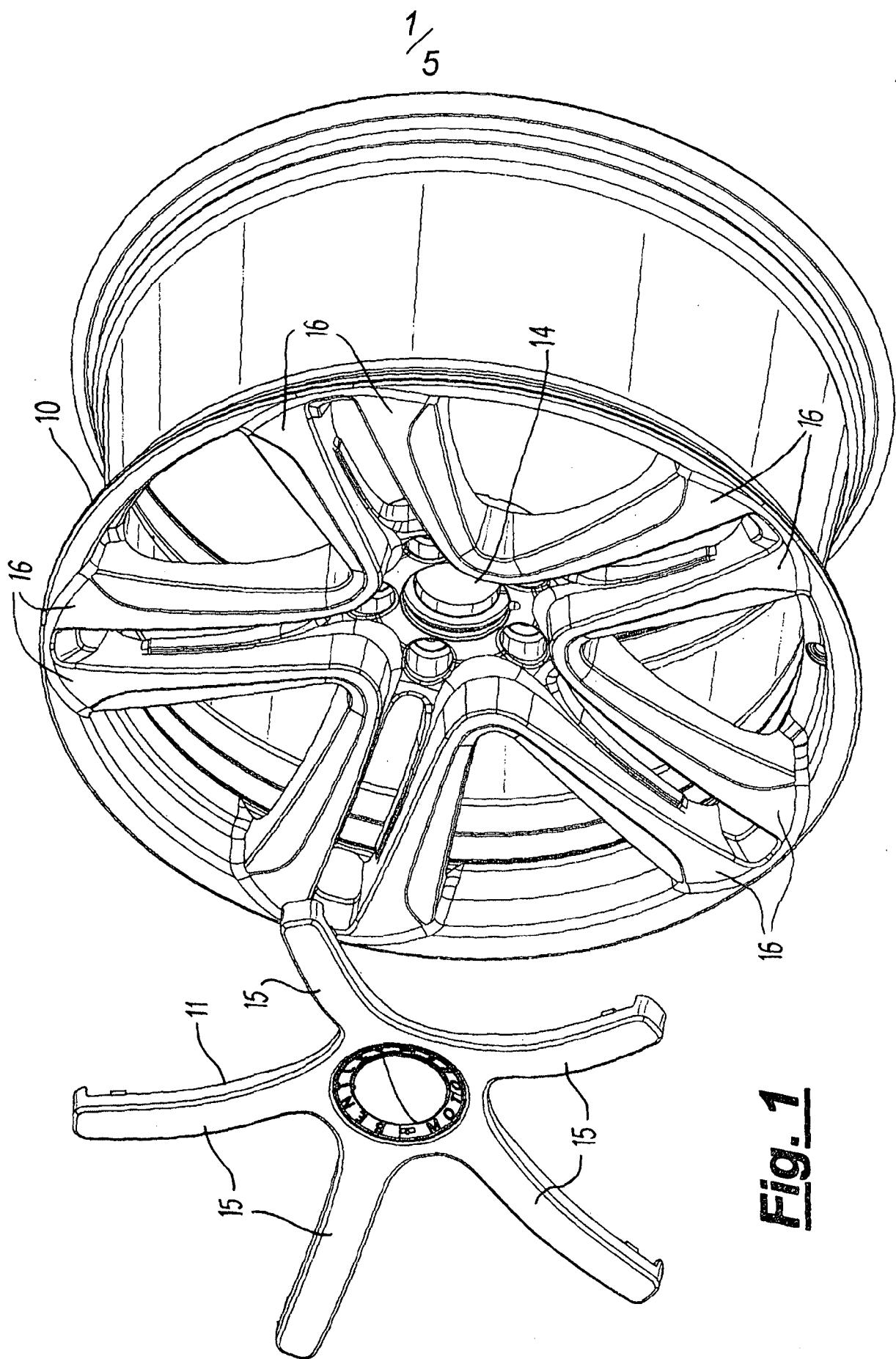
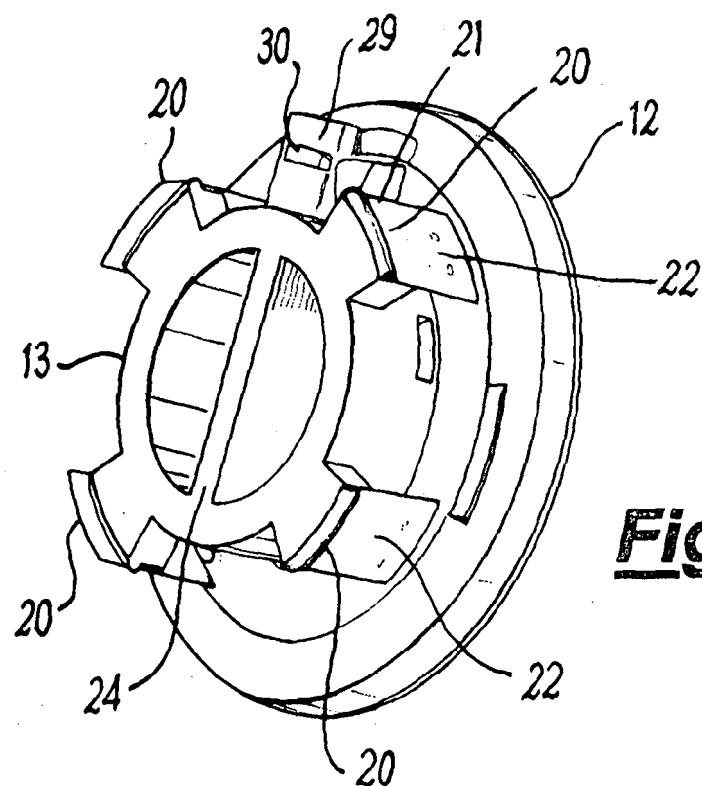
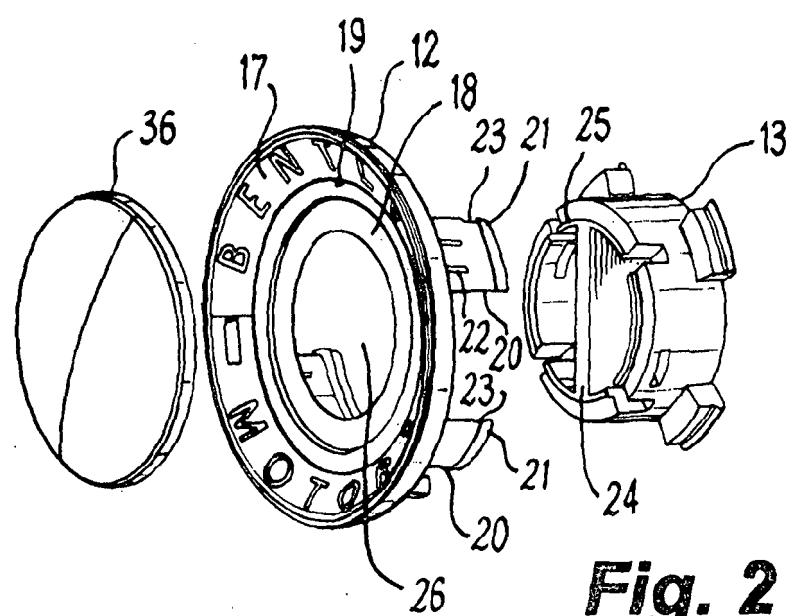


Fig. 1

13 14 15 16

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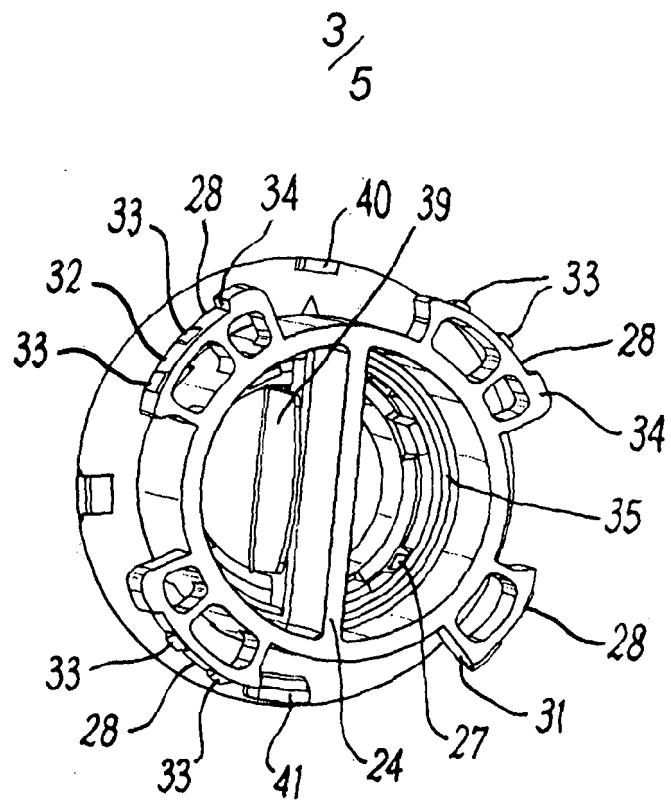


Fig. 4

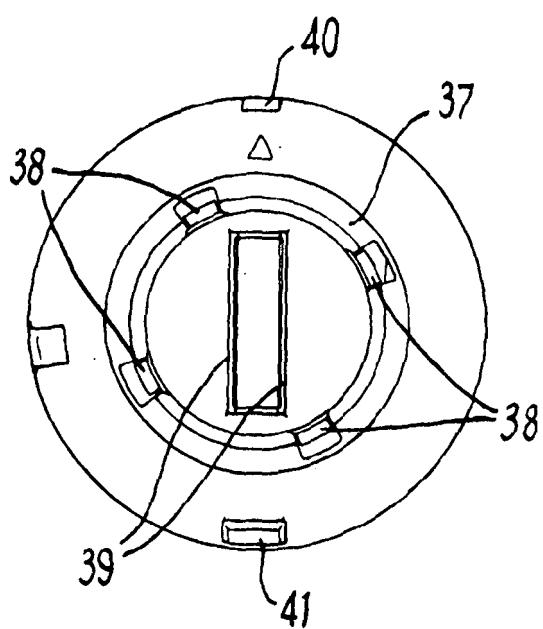


Fig. 5a

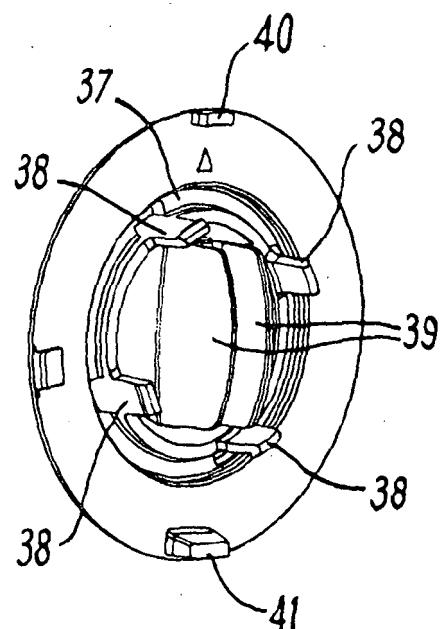


Fig. 5b

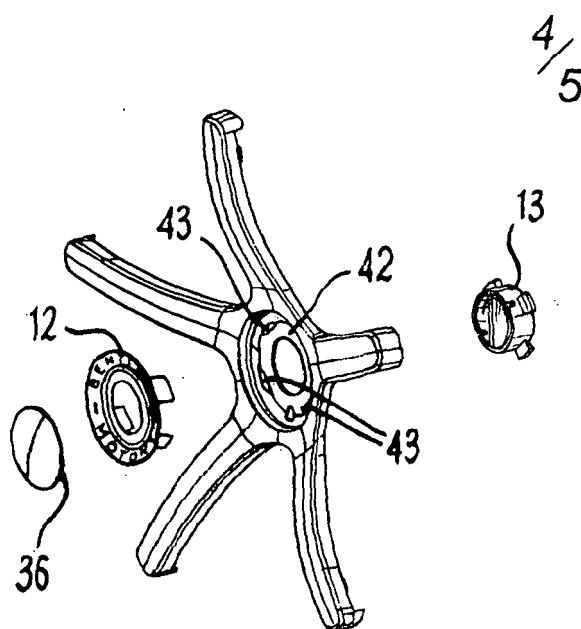


Fig. 6a

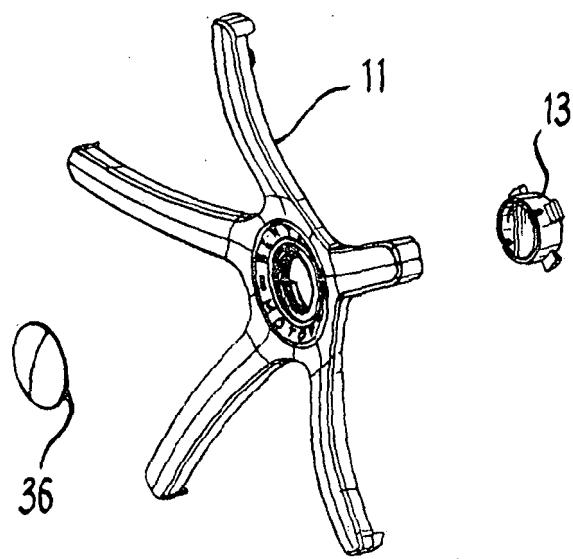


Fig. 6b

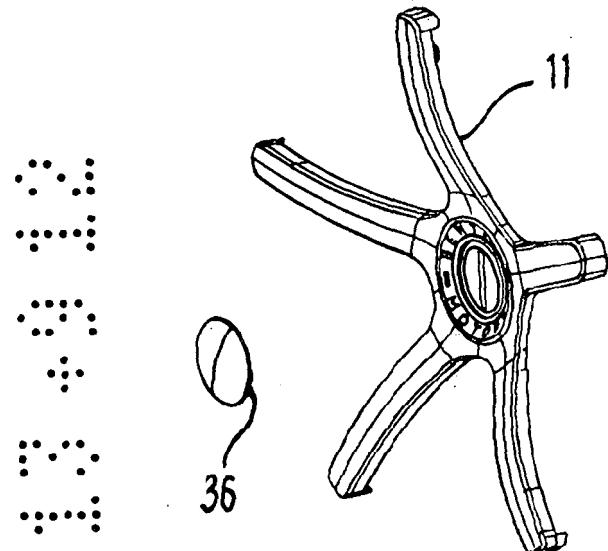


Fig. 6c

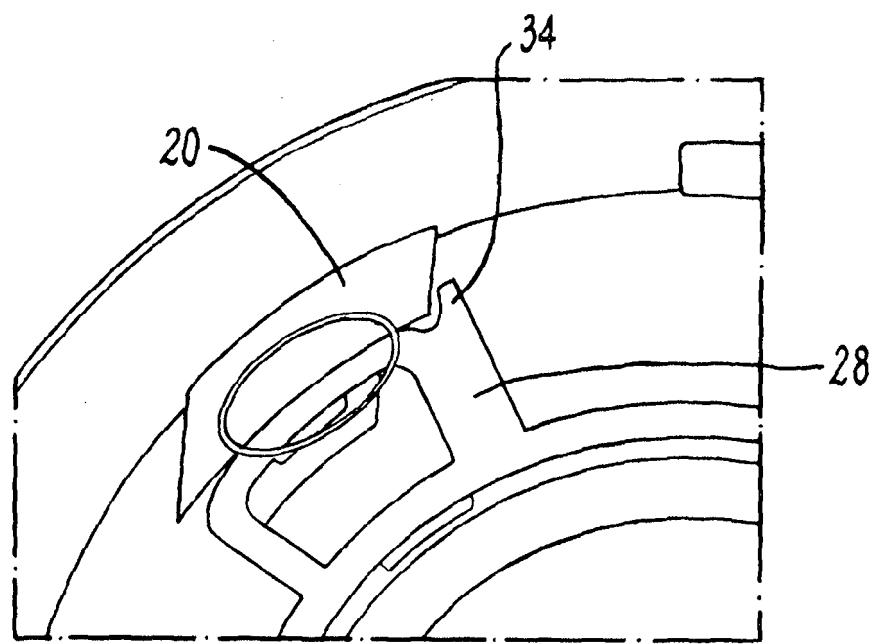
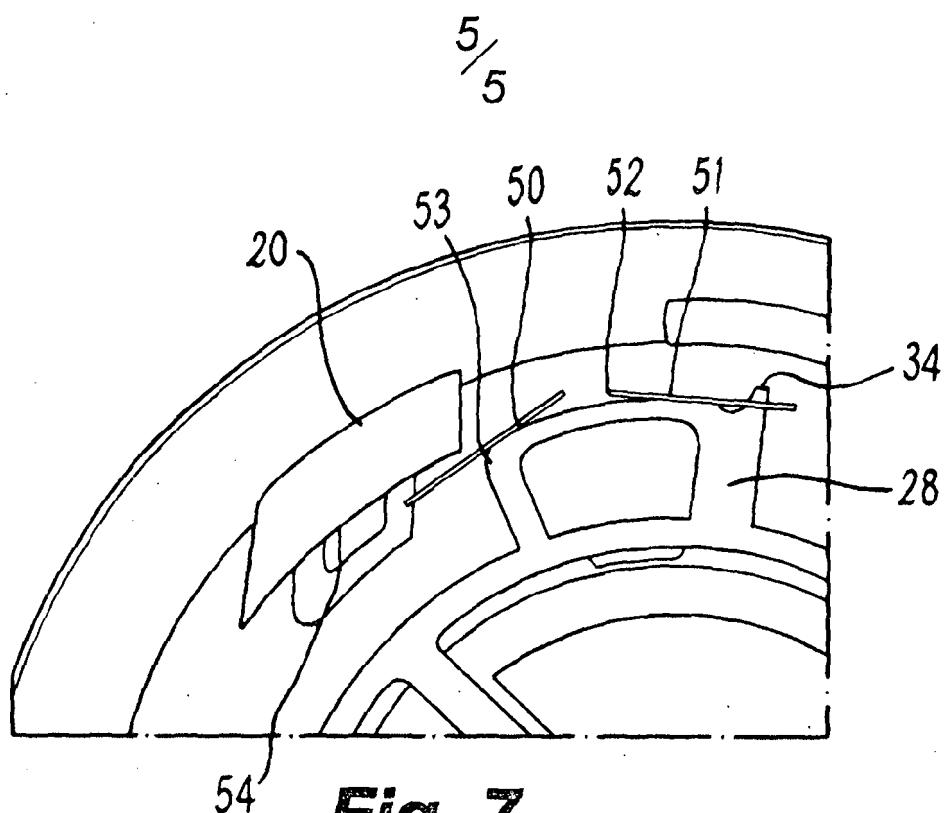


Fig. 8

ASSEMBLY FOR VEHICLE

Technical Field the Invention

The present invention relates to an assembly for a vehicle, in particular to a vehicle trim assembly intended for mounting on a vehicle, especially a road vehicle,
5 wheel.

Background to the Invention

Modern vehicles comprise a plurality of components which do not form part of the structural part of the vehicle itself. In particular, vehicles may have trim components fitted, either to improve the aesthetic characteristics of the vehicle, to reduce noise and/or
10 drag, or to improve certain other characteristics of the vehicle and its handling.

As they are commonly attached to the outside of a vehicle, trim components are subject to a number of forces and conditions when the vehicle is in operation, such as turning manoeuvres, high vehicle travelling speeds, or high rotational speeds (if for example said trim component is fitted to a wheel of the vehicle), and are therefore prone
15 to detach from the vehicle. This reduces the aesthetic appeal of a vehicle, and may even adversely affect performance of the vehicle.

Dislodgment and detachment of trim components may occur as a result of the components being fitted incorrectly, or may be due to the component fittings not being suitable for retaining the component to the vehicle.

20 Existing vehicle trim components commonly rely on resilient catches to keep the component attached to the vehicle, in particular its wheels. However, when external forces are applied to the trim components, such catches have a tendency to come undone.

A common solution is to increase the force necessary to remove a trim component from the vehicle. This however greatly increases the difficulty in removing the component for maintenance, for example to change a wheel.

The present invention seeks to address the above problems.

5 Summary of the Invention

According to a first aspect of the invention, there is provided an assembly comprising a component with at least one resilient catch, intended to be mounted on a second component and retained relative to the second component by way of the at least one resilient catch, and a locking member operable between unlocked and locked 10 positions and arranged such that when in the locked position it prevents movement of the at least one resilient catch in a release direction, and thereby prevents the component from being separated from the second component.

The component may be a trim component or a support for a trim component for a vehicle, in particular for an automobile. In one embodiment, the component is a trim 15 component intended to be mounted directly or indirectly on the wheel of a vehicle, such as a hub cap or wheel cap badge.

The at least one resilient catch may have any suitable shape for engagement with the second component, and may comprise formations or features that improve retention of the component through any suitable means. The resilient catch may be a snap fitting, 20 or it could be a movable fitting associated with a resilient member such as a spring. The resilient catch may be a resiliently biased catch.

The component may have any suitable number of resilient catches provided on one or several surfaces thereof. The catches may be arranged in any suitable

configuration. The resilient catches may be arranged in a symmetrical configuration, for example a circular configuration.

The locking member may have any suitable shape for preventing movement of the resilient catch in a release direction. The locking member may comprise one or 5 several engagement means for engagement with the component and/or resilient catch(es). Said engagement means may be provided on the surface of said locking member, and may be in a configuration adapted to engage with the component and/or the resilient catch(es). In one embodiment, the engagement means may comprise radial projections arranged circumferentially on the surface of the locking member, the outside surface of 10 each said projection comprising a surface adapted to engage with the or each component. The radial projections may be arranged to engage with respective resilient catches of the component.

Said engagement means may comprise suitable engageable formations or other features, so as to improve retention of said catch(es) when said locking member is in a 15 locked position. Said formations or features may be provided on any or all of said engagement means. In one embodiment, said engageable formations or features may be adapted so as to facilitate the locking and unlocking movement of the locking member. Said engageable formations or features may comprise a ridge, a plurality of ridges or other features.

20 The resilient catch may comprise cooperating formations or features corresponding to the engageable formations or features provided on the engagement means for engagement therewith during any or all of the unlocking and locking movements, or when said locking member is in a completely locked or unlocked

position. Said cooperating formations or features may be shaped so as to conform to the shape of the engageable formations or features provided on the engagement means. In one embodiment, said cooperating formations or features may comprise a groove provided on the at least one resilient catch.

5 The engageable formations and corresponding cooperating formations may have any suitable orientation relative to the direction of the locking and unlocking movement. In one embodiment, the engageable formations and cooperating formations are substantially parallel to the locking and unlocking movement directions and perpendicular to a central axis of the component.

10 In one embodiment, the engagement means of the locking member and the or each resilient catch comprise respective cooperating formations which cooperate when the locking member is in the locked position, so as to resist movement of the locking member from the locked to the unlocked position.

15 The locking and unlocking movement, during which the locking member is moved between a locked and an unlocked position, may be any suitable therefor, including but not limited to a rotation concentric with a central axis of the component, a rotation around an arbitrary axis, or a linear movement. In one embodiment, the locking and unlocking movement is a rotation around and concentric with a central axis of the component.

20 In one embodiment, the assembly may be fitted with a second locking member to prevent the locking member from accidentally performing an unlock movement. The second locking member may have any suitable shape therefor. The second locking member may, when fitted, engage with one or both of the component and the locking

member, and may comprise suitable engagement features or formations on a surface thereof. In one embodiment, one or both of the component and the locking member comprise reception or cooperating features or formations for engagement with the engagement features or formations of the second locking member. In one embodiment, 5 the second locking member may be a cap fitted to and arranged concentric with one or both of the component and the locking member. The second locking member may be arranged to prevent relative movement between the component and the locking member.

In one arrangement, the assembly may have an interference locking arrangement provided thereon. Said interference locking arrangement may comprise a lead-in and a 10 lead-out portion provided on a suitable surface of one of the locking member or the component. The lead-in portion may be adapted so as to urge the locking member away from a locked position and the lead-out portion may correspondingly be adapted so as to urge the locking member towards a locked position. The lead-in and lead-out portions may form a continuous surface. In one embodiment, said lead-in and lead-out portions 15 are formed on one or all of the engagement means of the locking member. In an alternative embodiment the lead-in and lead-out portions may be provided proximal or distant to the engagement means.

Said interference locking arrangement may comprise a stop, such as a notch, which may be provided in any suitable position for arresting the locking movement of the 20 locking member. In one embodiment, said stop is provided adjacent to said lead-in and lead-out portions. The stop may be adapted so as to conform to the shape of the resilient catch when the locking member is in a locked position.

The component may be adapted so as to have decorative elements or features attached thereto, such as badges, caps, other trim components, or similar. The component may further be provided with decorative features, such as embossed letters or numbers, stickers, or similar.

5 In one embodiment of the invention, the assembly is a vehicle trim assembly, in particular a centre cap assembly for a vehicle wheel, comprising a centre cap, a decorative cap, and a locking member. In this embodiment said centre cap comprises one or several resilient catches, and said locking member comprises a corresponding number of engagement means for engagement with the or each catch.

10 Detailed Description of the Invention

In order that the invention may be more clearly understood an embodiment thereof will now be described, by way of example only, with reference to the accompanying drawings, of which:

Figure 1 is a perspective view of a vehicle wheel and an associated trim component fitted with an assembly according to the present invention;

15 Figure 2 is an exploded perspective view of the assembly of Figure 1;

Figure 3 is a reverse perspective view of the assembly of Figure 2 in an assembled state;

20 Figure 4 is a reverse perspective view of the cap badge and the locking member of Figures 1 and 2 in an assembled state;

Figures 5 a-b are a reverse head-on view and a reverse perspective view of the cap badge;

Figures 6 a-c are perspective views of the assembly of Figure 1 being assembled and fitted to a wheel trim component;

Figure 7 is a perspective view of the locking arrangement between the resilient catch and the locking member of another embodiment of an assembly according 5 to the invention; and

Figure 8 is the same as Figure 7, but in a locked state.

Referring to Figures 1-3, an automobile wheel 10 is fitted with a decorative trim component 11. The decorative trim component is fastened to the wheel by way of a centre cap 12 locked in position by a locking means. A cap badge 13 is fitted over the 10 centre cap.

The automobile wheel is conventional in nature, save that it has a central substantially circular aperture 14 for receiving the centre cap 12. The circumferential wall of the aperture 14 includes a circumferential slot 14a. In the present example the wheel is formed from a lightweight alloy and has pairs of spokes 16 connecting a centre portion 15 which defines the circular aperture 14 to a rim. It could, however take any suitable form.

The components of the assembly, as well as the trim component, are moulded from a resilient plastics material with material properties such that the major parts of the components are substantially rigid whilst patches, tabs, and other similar features, are resiliently movable when force is imparted thereon. The patch or tab will return to its 20 original position when this force is removed.

The trim component 11 has a centre, defining a substantially circular recess within which is formed a substantially circular aperture of smaller diameter corresponding substantially to the diameter of the central aperture 14 in the wheel, from

which a plurality of evenly spaced arms 15 extend in a radial fashion. The number of arms, in this case five, corresponds to the number of pairs of spokes 16 of the wheel. When the trim component 11 is fitted to the wheel the arms fit between respective pairs of spokes to enhance the appearance of the wheel. The plastics material from which the trim component is formed has a similar appearance to the alloy of the wheel so that the trim component appears to be part of the wheel. Since the plastics material is of much lower density than the alloy, it gives the appearance of a more substantial wheel without significantly increasing the mass of the wheel.

The trim component 11 is mounted to the wheel by a centre cap 12 which is received into the recess in the trim component and extends through the aperture in the trim component to engage with the wheel.

The centre cap 12 is moulded from a plastics material and has a ring-shaped portion with an outside diameter sufficiently smaller than the inside diameter of the recess in the trim component to allow centre cap to be received into the recess with a close fit. The inside diameter of the centre cap is smaller than the diameter of the central aperture 14 in the wheel.

The cap has a front face which faces away from the wheel when the centre cap 12 is fitted to the trim component and wheel, and a rear face which faces the trim component 11 and wheel 10. The outer circumferential part 17 of the front face of the cap is visible when the cap and cap badge are fitted to a wheel and may carry decorative material, for example the name of a manufacturer or other indicia. The surface of this portion is shaped to conform to that of the trim component. The inner circumferential part 18 of the front face of the centre cap defines a substantially circular recess in the face for receiving

the cap badge 36. A pair of slots 19 are formed in the centre cap towards the edge of and at opposite sides respectively the recess. One slot is wider than the other slot. The slots are intended to receive tabs formed on a rear face of the cap badge, as discussed further below.

5 Four resilient catches 20 extend from the rear face of the centre cap 12 in an axial direction. The catches are mounted in a circular configuration concentric with the central axis of the centre cap. At their free end, each of said catches has a wedge shaped projection 21 extending radially outwards. When the trim component 11 is fitted to the automobile wheel, these wedge shaped projections 21 engage in the slot 14a of the wheel 10 aperture 14 of the automobile wheel to retain the trim component thereagainst.

On the radially inside surface of each of the resilient catches 20, a snap fitting 22 is provided. Each snap fitting is intended to engage with the rear face of the trim component 11 when the centre cap is fitted thereto, so as to prevent accidental dislodgment of the centre cap from the trim component and so as to ensure a continuously 15 close fit between these. On the inside surface of each of the resilient catches 20 is further provided a groove 23. Collectively, the grooves extend along the circumference of a circle which is perpendicular to and concentric with the central axis of the centre cap 12.

A projection 29 extends axially from the rear face of the centre cap 12. The projection has a stop 30 formed on the radially inside surface thereof at a distance from 20 the rear face of the centre cap substantially identical to the distance between the rear face of the centre cap and grooves 23. The projection 29 is disposed between two of the catches 20 and closer to one of those catches than the other.

A locking member 13 is intended to be fitted to the centre cap 12 and to act as a locking means to prevent the accidental dislodgment or removal of the centre cap, and hence the trim component 11, from the automobile wheel.

The locking member 13 has a substantially tubular shape with substantially 5 circular inner and outer cross sections. A central rib 24 divides the locking member into two equal halves, the central rib extending from one end face of the locking member to the other. A collar 25 is formed on one end face of the locking member. The outer diameter of the collar is sufficiently smaller than the inside diameter of the aperture 26 of the centre cap that the collar may be received thereinto. Four snap fittings 27 are formed 10 as part of the collar, and are adapted so as to engage with the rim of the aperture 26 when the locking member 13 is seated thereagainst. The catches thereby ensure that the locking member remains correctly seated during locking and unlocking movements, and prevents accidental or inadvertent dislodgment of the locking member when in an unlock position.

Referring now to Figure 4, four projecting portions 28 are formed on the outside 15 surface of the locking member at the opposite end of the locking member to the collar, each of these portions extending radially outwards from the locking member 13. The projecting portions are dimensioned and placed in a configuration so as to engage with the four resilient catches 20 of the centre cap 12 when the locking element 13 is correctly fitted to the centre cap and in a lock position.

20 One of the projecting portions 28 is narrower than the remaining three projecting portions. To fit the locking member 13 to the centre cap 12, the locking member is rotated so that the narrowest projecting portion 28 is received between the projection 29 and the resilient catch 20 furthest from that projection. When the locking member is

inserted correctly and turned in an unlock direction, the rear face 31 of the narrowest projection portion 28 will come into contact with stop 30. When a user performs the unlock operation, the rotation of the locking member 13 will be arrested when the rear face 31 comes into contact with the stop 30, thus indicating to the user that the locking 5 member is in the unlock position. This facilitates the quick and safe operation of the assembly, even under potentially adverse conditions like low visibility or darkness.

Each projection has a radially outside surface 32 upon which is formed a number of ridge portions 33. Each of the ridge portions are positioned and dimensioned so as to be received into the grooves 23 provided on the four catches of the centre cap when the 10 locking member is correctly seated and in a locked position. Each projection portion has also formed a stop 34 on the outside surface thereof. When turned towards a lock position, each stop will come into contact with the corresponding resilient catch 20 and the locking member unable to turn further. This provides a clear indication to the user that the locking member is now fully in a lock position.

15 The inside surface of the locking member has a shoulder 35 formed thereon, towards the first end where the collar 25 is formed. The shoulder extends circumferentially around the inner surface of the locking member, and divides the inner surface longitudinally into two portions. The portion closer to the collar has a smaller inside diameter than the portion closer to the opposite end of the locking member. This 20 shoulder is intended to cooperate with the snap fittings formed on the rear face of the cap badge 36 when the cap badge is correctly fitted to the locking member, as will be explained in further detail subsequently

The cap badge 36 has a front face which faces away from the automobile wheel 10 when the cap badge is fitted to the centre cap 12. The front face is accordingly visible when fitted and may therefore carry decorative material which may, in conjunction with any decorative material on the front face of the centre cap, act to create a distinctive 5 visual impression.

Referring to Figures 5a-b, the cap badge 36 has a rear face, which is substantially flat. A ring shaped recess 37 is formed on the rear face and concentrically therewith. The recess has an inner diameter sufficiently smaller than the diameter of the collar 25 provided on the locking member 13 for ensuring a close fit therebetween when the cap 10 badge 36 is fitted to the locking member. Along the inner edge of the ring shaped recess and arranged in a circular configuration, four snap fittings 38 extend in an axial direction from the cap badge. The snap fittings are intended to engage with the shoulder 35 formed on the inner surface of the locking member when the cap badge is in a correctly and completely fitted position, so as to secure the cap badge thereagainst.

15 Two parallel lip portions 39 are positioned centrally on the rear face of the cap badge. The lip portions are intended to engage with opposite sides respectively of the central rib 24 of the locking element 13. Accordingly, the lip portions are positioned at a relative distance so as to afford a close fit with the central rib, but so as not to substantially impact or hinder insertion or retrieval operations.

20 Two tabs 40, 41 are formed on the rear face of the centre cap, intended for insertion into the slots 19 formed in the centre cap 12. The tabs are formed on opposed edges of the rear face of the cap badge and are aligned longitudinally with the lip portions. The tabs have a substantially rectangular cross sections of different widths,

dimensioned so as to fit into the slots on the centre cap. The wider of the two tabs is too wide to be received into the smaller of the slots 19 in the centre cap 12.

When the cap badge is fitted to the locking member 13, the lip portions 39 are in engagement with the central rib 24 of the locking member 13 (as shown in Figure 4), and 5 the oppositely arranged tabs 40, 41 are in engagement with the slots 19 of the centre cap 12. The cap badge thereby prevents the locking member from rotating relatively to the centre cap and hence providing a safeguard against accidental unlocking of the locking member.

Referring to Figures 6a-c, a method of fitting the assembly will now be described.

10 The centre cap 12 is seated in the recess 42 of the trim component 11, the resilient catches 20 being inserted through corresponding apertures 43 formed in the recess. The locking member 13 is then fitted to the rear face of the centre cap 12, the snap fittings 27 formed on the collar 25 of the locking element 13 engaging with the rim of the aperture 26 of the centre cap. The assembly may then be fitted to the automobile wheel (not 15 shown in Figure 6, but shown in Figure 1). The centre cap 12 is received into the aperture 14 of the wheel 10, and the wedge shaped projections 21 on the catches 20 are received into the slot 14a of the wheel aperture with a snap fit, retaining the locking member 13 and the trim component 11 relative to the wheel. Once the assembly is correctly fitted to the wheel, the locking member 13 is turned in a lock direction. The four projecting 20 portions 28 of the locking member engage with the four resilient catches 20 formed on the centre cap 12, by way of the outside surface 32 of the projecting portions engaging with the inside surface of the catches. This locks the resilient catches and prevents them from moving radially inwardly and out of engagement with the slot 14a, and thereby accidentally or prematurely disengaging the assembly from the automobile wheel.

In addition to the tactile feedback provided by the cooperation between the resilient catches 20 and the stops 34, the user may verify that the locking member is in a lock position by checking that the central rib of the locking member is aligned with the slots formed in the centre cap. Other indicators, such as arrows or the like, may be 5 formed on or affixed to either or both of the locking member or the centre cap to further aid the user verifying a lock position.

The cap badge 36 is then fitted to the assembly, the lip portions 39 of the cap badge engaging with the central rib 24 of the locking member, and the tabs 40, 41 being inserted into the slots 19 of the centre cap. This prevents the locking member from 10 rotating relative to the centre cap, thereby preventing accidental detachment of the assembly from the automobile wheel. The cap badge 36 cannot be fitted unless the locking member is in the lock position, as the central rib 24 of the locking member 13 will otherwise not be in alignment with slots 19 of the centre cap 12. As one of the tabs 40, 41 is too wide to be received into one of the slots 19, the badge can only be fitted in 15 one orientation relative to the centre cap 12.

It will be obvious to a skilled person that the embodiment of the invention described in the preceding has several advantages over the prior art.

A first advantage is a reduced risk of a trim component accidentally or prematurely dislodging from an automobile wheel, whether the automobile is moving or 20 is stationary, through the use of the locking member and cap badge to prevent relative movement between the various components.

A further advantage of the present invention is that less force is required during mount and removal operations than for similar prior art devices. Whilst prior art devices

rely purely on the material properties, and thus require a certain amount of brute force to use, the assembly of the present invention can be fitted and removed without the use of excessive amounts of force.

A third advantage of the present invention is the tactile feedback provided by the 5 assembly whilst in operation. Accordingly, the assembly may be fitted and removed even under low visibility or other adverse conditions.

An alternative embodiment of the centre cap and locking member is shown in Figure 7. In this embodiment the outside surface 32 of each of the projecting portions 28 of the locking member 13 has a lead-in portion 50 and a lead-out portion 51. The outside 10 surface 32 further has an over-centre portion 52 and a stop notch 34.

The lead-in portion 50 is adjacent to leading edge 53 of the projecting portion 28 in a lock direction. The over-centre portion 52 is adjacent to the lead-in portion 50 on one side, and adjacent to the lead-out portion 51 on the opposite side. The lead-out portion 51 is adjacent to the stop notch 34 on an opposite side to said over-centre portion 52.

15 The radius R_{LE} from the centre of the locking member 13 to the leading edge 53 is smaller than the radius R_C from the inner surface 54 of each of the catches 20 to the centre of the centre cap 12. The radius R_{OC} between the centre of the locking member 13 to the over-centre portion 52 is larger than the radius R_C , thereby providing an interference. Accordingly the lead-in portion 50 slopes radially outwards from the 20 leading edge 53 to the over-centre portion 52. Similarly the radius R_{SN} at the join between the lead-out portion 51 and the stop notch 34 is smaller than the radius R_C . The lead-out portion 51 slopes radially inwards from the over-centre portion 52 to the join between the lead-out portion 51 and the stop notch 34.

When the locking member 13 is turned in a lock direction from an unlock position, the lead-in portion 50 will coact with the resilient catch 20 to urge the locking member 13 away from a lock position, i.e. the user will feel a resistance against the movement, until it reaches the over-centre position 52. If the rotation in the lock direction 5 is continued, the lead-out portion 51 will coact with the resilient catch 20 to urge the locking member 13 towards a lock position.

Figure 8 shows the locking member 13 in a lock position. In the lock position, the stop notch 34 abuts the resilient catch 20, so as to retain the locking member 13 securely against the catch 20. The stop notch is adapted so as to conform with the shape of the 10 resilient catch.

To unlock the locking member 13, a user may rotate the locking member in an unlock direction. The lead-out portion 51 coacts with inner surface 54 of resilient catch 20 to urge the locking member 13 towards the stop notch 34. The user will feel a resistance to the unlock movement until the over-centre position 52 is reached. If the user 15 now continues the rotation of the locking member, the lead-in portion 50 will coact with the inner surface 54 of the resilient catch 20 to urge the locking member towards an unlock position.

The above embodiments are described by way of example only. Many variations of the above embodiment is possible without departing from the scope of the invention as 20 defined by the appended claims.

CLAIMS

1. An assembly comprising a component with at least one resilient catch, intended for mounting on a second component and retained relative to said second component by way of the at least one resilient catch, wherein the assembly further comprises a locking member operable between unlocked and locked positions and arranged such that when in the locked position it prevents movement of the at least one resilient catch, and thereby prevents the assembly from being separated from the second component.
5
2. An assembly according to claim 1, wherein the component is a trim component for a vehicle.
10
3. An assembly according to claim 2, wherein the component is a trim component intended to be mounted directly or indirectly on the wheel of a vehicle.
4. An assembly according to any preceding claim, wherein the locking member comprises engagement means for engagement with the at least one resilient catch to prevent movement of said at least one resilient catch.
15
5. An assembly according to claim 4, wherein the engagement means comprises at least one radial projection on an outside surface of the locking member
6. An assembly according to either of claims 4 or 5, wherein the engagement means comprises at least one engageable formation.
7. An assembly according to claim 7, wherein said engageable formation comprises at least one ridge portion.
20

8. An assembly according to either of claims 6 or 7, wherein the resilient catch comprises at least one cooperating formation arranged to engage with said engageable formation when said locking member is in a substantially locked position.
- 5 9. An assembly according to claim 8, wherein said cooperating formation comprises at least one groove.
10. An assembly according to claim 9, wherein the at least one groove extends in a direction substantially parallel to the direction of the locking/unlocking movement.
- 10 11. An assembly according to any preceding claim, wherein the locking member is rotatably mountable on the component.
12. An assembly according to any preceding claim, further comprising a second locking member which is releasably attachable to the assembly, and arranged such that when attached it retains the locking member in a locked position.
- 15 13. An assembly according to claim 12, wherein said second locking member comprises first engagement means for engaging with the locking member
14. An assembly according to claim 13, wherein said locking member comprises cooperating means for engaging with said first engagement means.
15. An assembly according to any of claims 13 or 14, wherein said first engagement means comprise at least one of a resilient catch or a lip portion.

16. An assembly according to any of claims 12 to 15, wherein said second locking member comprises second engagement means for engaging with the component so as to prevent an unlock movement of said locking member.
17. An assembly according to claim 16, wherein said second engagement means comprises one or several projections extending substantially axially from a surface of said second locking component.
5
18. An assembly according to claim 17, wherein said component comprises reception means for receiving said second engagement means.
19. An assembly according to claim 18, wherein said reception means comprises one or several apertures arranged in a surface of said component.
10
20. An assembly according to any preceding claim, wherein an interference locking arrangement is provided on the assembly between a surface of the component and a corresponding surface of the locking member.
21. An assembly according to claim 20, wherein the interference locking arrangement comprises a lead-in portion and a lead-out portion provided on a surface on one of either said component or said locking member.
15
22. An assembly according to claim 21, wherein said lead-in and lead-out portions form a continuous shape.
23. An assembly according to either of claims 21 or 22, wherein said lead-in and lead-out portions coact with a corresponding surface on the other one of either said component or said locking member to urge the locking member away from or towards a locked position, dependent on the position of the locking member.
20

24. An assembly according to claim 23, wherein said lead-in and lead-out portions are provided on a surface of said locking member.

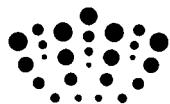
25. An assembly according to any of claims 20 to 24, wherein the interference locking arrangement comprises a stop.

5 26. An assembly component according to claim 25, wherein the stop is provided on the locking member.

27. An assembly according to either of claims 25 or 26, wherein the stop is a notch.

28. An assembly according to any preceding claim wherein the component is a centre cap for a vehicle wheel.

10 29. An assembly substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB1111251.3

Examiner: Damien Huxley

Claims searched: 1 to 29

Date of search: 20 October 2011

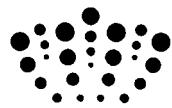
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	1	GB 2369605 A (HANNA) See the whole document, the figures especially
A	1	US 5845972 A (BAKER) See the whole document, the figures especially
A	1	FR 2734206 A1 (MECAPLAST) See the whole document, the figures and WPI Abstract Accession Number 1997-023697 especially
A	1	FR 2470836 A1 (GREFFE) See the whole document, the figures and Abstract Accession Number 1981-H0936D especially
A	1	DE 3532991 A1 (WOLTER) See the whole document, the figures and WPI Abstract Accession Number 1987-087307 especially
A	1	US 2011/0006589 A1 (McCORMY ET AL) See the whole document, the figures especially
A	1	US 7775604 B2 (CHEN) See the whole document, the figures especially
A	1	US 2006/0279135 A1 (SABANES ET AL) See the whole document, the figures especially
A	1	US 6978544 B1 (EIKHOFF ET AL) See the whole document, the figures especially

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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&	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.



Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

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

B60B

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

ONLINE: WPI, EPDOC

International Classification:

Subclass	Subgroup	Valid From
B60B	0007/06	01/01/2006