

ELECTROMAGNETIC SUCTION ELEMENT COMPRISING A LIGHT SOURCE

[0001] The present invention relates to improvements to electromagnetic suction elements, more particularly those adapted to be surface-mounted.

[0002] The suction element is comprised of a prism-shaped electromagnet, arranged under a box open on one side to allow contact with the counterplate.

[0003] The aforementioned box is formed by a U-shaped profiled element, having a U-shaped cross-section, whose length is greater than that of the electromagnet for housing various electronic components required for proper functioning of the suction element, the space thus provided being closed by a lid. The assembly is completed by end caps, each, in the form of a prism, fitting into the U-shaped profiled element and comprising a shoulder that limits penetration in said profiled element, in which it is held by screws.

[0004] The caps are made of an injected plastic material.

[0005] The suction element is complemented by a low power light source for indicating the electrical state of the suction element.

[0006] This source is comprised of a light-emitting diode or LED, whose light rays leave the box through an opening provided on the flange of the profiled element, the end of said LED extending out of said box.

[0007] Experience has shown that, regardless of the position of the suction element (whether vertical or horizontal at the upper portion of the door), the light emitted by the LED is not very visible from a distance and requires, in order to be seen by an observer, in particular the monitoring staff, that the latter be positioned substantially in the plane of the partition comprising the suction element.

[0008] Added to this is the fact that the opening provided on the flange of the profiled element, whose diameter is necessarily on the order of several millimeters, promotes undesired acts of vandalism.

[0009] The present invention, which overcomes these disadvantages, is characterized in that the cap, arranged at the end of the suction element comprising the LED, is made of a translucent material.

[0010] In this way, the cap, in addition to its usual function of sealing the ends of the suction element, also serves to scatter the light in a horizontal plane, this light, although emitted by a low power source, being clearly visible to an observer located in front of the door, the end portion of the suction element appearing in the form of a thick line of light.

[0011] The present invention will be better understood from the following description, with reference to the annexed drawings, provided by way of example only, and in which:

- Figure 1 is a front view of a door showing the use of a known suction element;
- Figure 2 is a cross-sectional view taken along the line II-II of Figure 1;
- Figure 3 is a view similar to that of Figure 1 showing the use of the suction element of the invention;
- Figure 4 is the top view of Figure 3;
- Figures 5 and 6 are perspective views of an end piece shown from different angles.

[0012] Referring to the drawings, the figures schematically show a door 1 and the partition 2 comprising the opening closed by said door.

[0013] The suction element 3 is fixed, surface-mounted against the partition 2 and can cooperate with a counterplate 4 attached to the inner surface of a mounting element 5 having a substantially Z-shaped cross-section. The door opens by pulling inward to move it along the arrow F.

[0014] The electrical portion of the suction element 3 is comprised of a prism-shaped electromagnet 6 housed in a U-shaped profiled element 7, whose length is greater than that of said electromagnet so as to provide, at the ends of said profiled element, a space 9 that is sufficient to engage blocking end caps 8. These end caps are held by screws, whose axes are schematically illustrated by the reference numerals XX₁.

[0015] The space 9 also makes it possible to house the components that are necessary to power a LED 10. This space is closed by a lid 11 attached by any suitable means.

[0016] The profiled element 7 has an opening 12 in which the LED is arranged.

[0017] The figures, which are drawn substantially to scale 1, show that access to the LED is particularly easy with all of the drawbacks this presents.

[0018] Experience has shown that the light delivered by the LED is visible to an observer only from a restricted angle. Practically, if one refers to Figure 2, the latter should be positioned to the right of the suction element and should be close to the partition 2.

[0019] The present invention, which overcomes these disadvantages, is characterized in that the end cap 8, located on the side of the LED 10, is made of an injection molded translucent material, and in that the suction element is attached so as to extend slightly beyond the upper edge 5a of the element supporting the counterplate 4.

[0020] In this way, the shouldered end of the end cap is visible from all angles.

[0021] The translucent end cap of the invention is made with the same tools as the previous ones, that is to say, it comprises holes, cavities, channels that are necessary for the passage of attachment screws and especially for avoiding the presence of overly large solid masses which would be incompatible with the injection molding technique.

[0022] Surprisingly and unexpectedly, the transparent end cap acts like a light guide that promotes the diffusion of light up to its shouldered upper portion and increases the visual effect.

[0023] Added to this is the fact that it is no longer necessary to provide a wide opening in the profiled element (such as that 12 in Figure 2).

[0024] The machining of the profiled element 7 is simplified, and the LED is fully protected against vandalism.

CLAIMS

1 - Electromagnetic suction element (3), comprising a light source (10), comprised of a prism-shaped electromagnet (6) housed in a profiled element having a U-shaped cross-section, whose ends are closed by end caps (8) each comprising a shoulder (8a), characterized in that the end cap, arranged at the end of the suction element comprising the light source at least, is made of a translucent material.

2 - Suction element according to claim 1, characterized in that the suction element is attached so that the shouldered portion (8a) of the end cap extends beyond the end (5a) of the mounting element (5) supporting the counterplate.