VENT MOUNTABLE TISSUE DISPENSER

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ABSTRACT

A vent mountable tissue dispenser includes a tissue receptacle and one or more clips for attaching the receptacle to an air vent. Each clip includes first and second clamping elements bias by a spring and may be used to clamp the tissue dispenser to a vane of the air vent.
VENT MOUNTABLE TISSUE DISPENSER

BACKGROUND

[0001] Drivers and passengers of vehicles sometimes have need of a tissue. As a convenience, tissues may be purchased in small packs for use outside of the home. In a vehicle, the tissues packs are often carried in the glove box, on the dashboard of the vehicle or in a center console. Since the tissue pack is not secured, retrieval of a tissue requires the use of two hands - one to hold the pack of tissues and one to remove the tissue. Thus, it may be dangerous for a driver to retrieve a tissue.

BRIEF DESCRIPTION OF THE FIGURES

[0002] The accompanying figures, in which like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to further illustrate various embodiments and to explain various principles and advantages all in accordance with the present invention.

[0003] FIG. 1 is a perspective view of a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0004] FIG. 2 is a cross-sectional view of a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0005] FIG. 3 is an exploded view of an exemplary clip of a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0006] FIG. 4 is a further exploded view of an exemplary vent clip in accordance with certain embodiments of the present invention.

[0007] FIG. 5 is a further view of an exemplary vent clip shown in FIG. 4.

[0008] FIG. 6 is a cross-sectional view of a further embodiment of a vent-mountable tissue dispenser.

[0009] FIG. 7 shows a further embodiment of a clip of a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0010] FIG. 8 shows a still further embodiment of a clip of a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0011] FIG. 9 is a perspective view of a tissue receptacle with glasses holder in accordance with certain embodiments of the present invention.

[0012] FIG. 10 is a perspective view of a tissue receptacle with a hook in accordance with certain embodiments of the present invention.

[0013] FIG. 11 is a perspective view of a tissue receptacle with a magnetic element in accordance with certain embodiments of the present invention.

[0014] FIG. 12 shows a pen holder for use with a vent-mountable tissue dispenser in accordance with certain embodiments of the present invention.

[0015] FIG. 13 is a diagrammatic view of a tissue dispenser attached to a vertical vent.

[0016] FIG. 14 is a diagrammatic view of a tissue dispenser attached to a horizontal vent.

[0017] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions of some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of embodiments of the present invention.

DETAILED DESCRIPTION

[0018] Before describing in detail embodiments that are in accordance with the present invention, it should be observed that the embodiments reside primarily in combinations of method steps and apparatus components related to a vent mountable tissue dispenser. Accordingly, the apparatus components and method steps have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present invention so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

[0019] In this document, relational terms such as first and second, top and bottom, and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions. The terms “comprises,” “comprising,” or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not exclude the presence of other elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. An element preceded by “a” “an”, “the”, does not, without more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises the element.

[0020] FIG. 1 is a perspective view of a vent-mountable tissue dispenser 100 in accordance with an embodiment of the present invention. The tissue dispenser 100 is attached to a flowing deflecting vane of an air vent 102 in the dashboard 104 of a vehicle such as an automobile, truck or light aircraft. Typically, some air vents in a vehicle are positioned to provide a flow of heating or cooling air to the occupants. These air vents are in proximity to the occupants and so provide a convenient location for the tissue dispenser. The cross-section 2-2 is shown in FIG. 2.

[0021] FIG. 2 is a cross-sectional view of an exemplary tissue dispenser 100 that comprises a strap 202 coupled to a clip 204 that, in turn, is clamped to a flow deflection vane 206 of the vent. The upper clamping element 208 and lower clamping element 210 are biased together by a spring force. In one embodiment, the clamping elements 208 and 210 clamp across the smaller dimension of the vane 206 and extend beyond the vane. The distal ends of the clamping elements (the ends farthest from the tissue receptacle 214) are shaped to hook over or under the interior edge of the vane 206. The strap 202 is coupled to the lower clamping element 210 using a swivel joint 212. The swivel joint allows the clip 204 to be mounted on horizontal or vertical vanes and vanes at other angles. The strap 202 supports the tissue receptacle 214 and is coupled to it by element 216. Element 216 may be an adhesive, for example, or a removable coupling such as a magnet or a hook-and-loop fastener. In this embodiment, the tissue receptacle may be positioned below the air vent, so that it has minimal effect on air flow from the vent. Tissues may be inserted and removed from tissue receptacle via opening 218. It is noted that strap 202 may be a material that is flexible or substantially rigid; a substantially rigid strap 202, for
example, will provide some welcome resistance when a user pulls a tissue from tissue receptacle 214.

[0022] FIG. 3 is an exploded view of an exemplary clip 204. The clip 204 includes upper and lower clamping elements, or jaws, 208 and 210. The clamping elements are held together by pin 304 that allows the jaws to pivot with respect to one another. The distal ends of the clamping elements are biased together by the spring 302, which forces the proximal end of the clamping elements apart. In an alternate embodiment, the distal ends of the clamping elements are biased together by a spring that acts on the distal portions.

[0023] FIG. 4 is an exploded view of an exemplary vent clip in accordance with certain embodiments of the present invention. Some elements, shown in FIG. 3 for example, are omitted for clarity. In the embodiment shown in FIG. 4, a spring element 402 is positioned between the clamping elements 208 and 210. The spring element may be a coil spring, for example. One end of the spring element 402 is restrained by the clamping elements, while the other end applies a biasing force to an end piece or stop 404. The stop may be a rubber like material. The stop 404 may be glued to the spring element 402 or fitted as a plug into the end of the spring element.

[0024] FIG. 5 is a diagram of a vent clip 204 attached to a vane 206 of an air vent. At least one of the distal ends of the clamping elements 208 and 210 wraps around the back edge of the vane 206. The stop 404 is pushed against the front edge of the vane 206 by the spring element 402. Thus, the clip is securely attached to the vane. The pressure provided by the spring element 402 and the stop 404 reduces any tendency of the clip to rattle. In addition, when the distal ends of the clamping elements 208 and 210 are moved apart to remove the clip, the spring element 402 and stop 404 aid in the removal of the clip by pushing the clip 204 away from the vane 206.

[0025] In this embodiment at least one of the first and second clamping elements 208 and 210 has a hooked end (the distal end). The first spring element (302 in FIG.3, for example) is operable to bias the first and second clamping elements together around a first cross-dimension of the flow deflection vane, as illustrated by arrows 502 in FIG. 5. The second spring element 402 is operable to bias the stop 404 and a hooked end of a clamping element together across a second cross-dimension of the flow deflection vane, as illustrated by arrows 504 in FIG. 5. In this manner, the vane is gripped in both cross-dimensions.

[0026] In some embodiments, the clamping elements are sized to clamp vanes ranging in width from 1.7 cm. to 2.7 cm. The spring element and stop allow the vent clip to be attached securely to narrower vanes, while still allowing use with wider vanes.

[0027] In a further embodiment, discussed below with respect to FIG. 7, the clamping elements are at least partially coated or wrapped in a soft rubber-like material. This reduces any tendency of the clip to slide along the vane and further reduces any chance of rattling. In the embodiment discussed below with respect to FIG. 8, the functions of spring element and stop are performed by a single compliant element, such as single shaped block of rubber or silicone.

[0028] FIG. 6 is a cross-sectional view of a further embodiment. In this embodiment, the swivel joint 212 is oriented substantially perpendicular to the lower clamping element 210. Again, this allows the tissue dispenser to be mounted on vanes are different angles.

[0029] FIG. 7 shows a further embodiment of a clip 204. In this embodiment, the upper and lower clamping elements, 208 and 210 respectively, are partially covered in a flexible material 702, such as rubber or silicone. The flexible material reduces any tendency of the clip 204 to slip when mounted on a vane. The flexible material at least partially covers the surface of the clamping elements that makes contact with the vane. It may be applied only to the clamping surfaces, or, as shown in the figure, it may wrap the clamping element.

[0030] FIG. 8 shows a further embodiment of a clip 204. In this embodiment, the space between the upper and lower clamping elements, 208 and 210 respectively, is partially filled by a complaint material 802. The vanes of an air vent have varying dimensions. When the upper and lower clamping element have sufficient length to grip deeper vanes, the clip may be loose on shallower vanes. The complaint material 802 holds vane 206 against the distal end of the clamping elements and provides a secure grip. The complaint material 802 is compressed more for a deeper vane than for a shallower vane.

[0031] The tissue receptacle 214 may serve a mounting point for other devices. For example, FIG. 9 is a perspective view of a tissue receptacle 214 on which a clip 902 for eye glasses or sunglasses is mounted. The glasses clip 902 comprises a section of split flexible tube. An arm of the glasses may be pushed into the tube through the split and the glasses are supported in the clip. The glasses may be removed by simply pulling them from the clip. This process for insertion and removal of the glass is easier than threading an arm of the glasses through a loop. Although the split in the flexible tube is shown as a slot in FIG. 9 for clarity, the edges of the slit may be in contact with one another or may even overlap one another, so that the glasses are held securely.

[0032] FIG. 10 is a perspective view of a tissue receptacle 214 on which a hook 1002 is mounted. The hook may used for a variety of purposes, such as holding an earpiece for a wireless telephone.

[0033] FIG. 11 is a perspective view of a tissue receptacle 214 on which a magnetic element 1102 is mounted. The magnet may be used to support a variety of objects. For example, FIG. 12 shows a pen holder 1200. The pen holder 1200 comprises a flexible ring 1202 that may be placed around a pen, and a magnet 1204 that may be used to attach the holder and its pen to the tissue receptacle. Magnetic attraction between the magnet 1024 and the magnetic element 1102 (in FIG. 11), supports the holder 1200, but allows it to be easily removed for use. An intermediate element 1206 may be used to support the magnet 1204 and the flexible ring 1202.

[0034] FIG. 13 is a diagrammatic view of a tissue dispenser attached to a vent 102 having vertical vanes 206. This embodiment corresponds to the embodiment shown in FIG. 6. The swivel joint 212 allows the clip 204 to be attached perpendicular to the strap 202, thereby allowing the tissue receptacle to be oriented correctly. In this embodiment, the tissue receptacle 214 supports both a glasses holder 902 and a magnetic element 1102.

[0035] FIG. 14 is a diagrammatic view of a tissue dispenser attached to a vent 102 having horizontal vanes 206. This embodiment corresponds to the embodiment shown in FIG. 6. The swivel joint 212 allows the clip 204 to be attached in line with the strap 202, thereby allowing the tissue receptacle to be oriented correctly. In this embodiment, the tissue receptacle is supported by two clips, thereby eliminating any ten-
dency of the receptacle to twist when the glasses holder 902 and the magnetic element 1102 are in use.

Although the invention has been specifically described with reference to a tissue dispenser, it will be apparent to those of ordinary skill in the art that the vent mountable receptacle of the present invention may be adapted for holding other personal items.

In the foregoing specification, specific embodiments of the present invention have been described. However, one of ordinary skill in the art appreciates that various modifications and changes can be made without departing from the scope of the present invention as set forth in the claims below. Accordingly, the specification and figures are to be regarded in an illustrative rather than a restrictive sense, and all such modifications are intended to be included within the scope of the present invention. The benefits, advantages, solutions to problems, and any element(s) that may cause any benefit, advantage, solution to occur or become more pronounced are not to be construed as a critical, required, or essential features or elements of any or all the claims. The invention is defined solely by the appended claims including any amendments made during the pendency of this application and all equivalents of those claims as issued.

What is claimed is:

1. A vent mountable tissue dispenser comprising:
   a first clip comprising:
   a first clamping element;
   a second clamping element, moveably coupled to the first clamping element; and
   a spring operable to bias the first and second clamping elements together around a flow deflection vane of an air vent; and
   a tissue receptacle, coupled to the first clip, the tissue receptacle comprising a box having an opening for insertion and removal of tissues.

2. A vent mountable tissue dispenser in accordance with claim 1, wherein the first clip further comprises a layer of compliant material attached to at least one of the first and second clamping elements and positioned to contact the flow deflection vane.

3. A vent mountable tissue dispenser in accordance with claim 1, further comprising a strap coupled to the first clip at a swivel joint, wherein the tissue receptacle is coupled to the first clip via the strap.

4. A vent mountable tissue dispenser in accordance with claim 1, further comprising a second clip, wherein the second clip comprises:
   a third clamping element;
   a fourth clamping element, moveably coupled to the third clamping element; and
   a spring operable to bias the third and fourth clamping elements together around a flow deflection vane of an air vent.

5. A vent mountable tissue dispenser in accordance with claim 1, wherein the first and second clamping elements are configured to clamp across the smaller dimension of a vane.

6. A vent mountable tissue dispenser in accordance with claim 5, the first and second clamping elements comprise pivoted jaws.

7. A vent mountable tissue dispenser in accordance with claim 6, wherein the clip further comprises:
   a compliant material positioned between the pivoted jaws, wherein the compliant material provides a biasing force substantially parallel to the jaws when compressed by a vane, to hold the vane against the distal ends of the pivoted jaws.

8. A vent mountable tissue dispenser in accordance with claim 6, wherein the clip further comprises:
   a spring element having first and second ends and positioned between the pivoted jaws, the spring element being restrained at the first end by the pivoted jaws; and
   a stop element coupled to the second end of the spring element, wherein the spring element and stop are positioned to provide a biasing force substantially parallel to the jaws when compressed by a vane, such that the vane is held between the stop element and the distal ends of the pivoted jaws.

9. A vent mountable tissue dispenser in accordance with claim 1, wherein the first clamping element comprises a hook and the second clamping element comprises a plate through which the hook can slide.

10. A vent mountable tissue dispenser in accordance with claim 1, further comprising:
    a glasses holder coupled to a surface of the tissue receptacle, the glasses holder comprising a split flexible tube that is sized to accommodate an arm of a pair of glasses.

11. A vent mountable tissue dispenser in accordance with claim 1, further comprising:
    a magnetic element coupled to a surface of the tissue receptacle, the magnetic element configured to receive a magnetic surface of an object to be supported by the magnetic element.

12. A vent mountable tissue dispenser in accordance with claim 11, further comprising:
    a magnetic pen holder comprising a magnet and a flexible sleeve, wherein the magnetic element is configured to receive the magnetic of the magnetic pen holder.

13. A vent mountable tissue dispenser in accordance with claim 1, further comprising a hook coupled to a surface of the tissue receptacle.

14. A vent clip for mounting a receptacle for personal items on a flow deflection vane of an air vent, the vent clip comprising:
    a first clamping element having a hooked end;
    a second clamping element, moveably coupled to the first clamping element;
    a first spring element;
    a second spring element having first and second ends, the second spring element being restrained at the first end; and
    a stop element coupled to the second end of the second spring element, wherein the first spring element is operable to bias the first and second clamping elements together across a first cross-dimension of the flow deflection vane and the second spring element is operable to bias the stop element and the hooked end of the first clamping element across a second cross-dimension of the flow deflection vane.

15. A vent clip in accordance with claim 14, further comprising:
    a strap coupled to a clamping element of the first and second clamping elements at a swivel joint; and
    a receptacle for holding personal items, the receptacle being coupled to the to the vent clip via the strap.
16. A vent clip in accordance with claim 15, wherein the receptacle for holding personal items comprises a tissue dispenser having an opening for insertion and removal of tissues.

17. A vent clip in accordance with claim 14, further comprising a layer of compliant material attached to at least one of the first and second clamping elements and positioned to contact the flow deflection vane.

18. A vent clip in accordance with claim 14, wherein the first and second clamping elements and the second spring element are sized to clip to an air deflection vane having a larger cross-dimension in the approximate range of 1.7 centimeters to 2.7 centimeters.

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