MODULAR PAPER TOWEL DISPENSER

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ABSTRACT

A system for dispensing paper hand towels comprises a universal frame installed in a fixed location, a first modular paper towel dispenser detachably mounted on the universal frame, and a second modular paper towel dispenser having a dispensing mechanism distinct from a dispensing mechanism of the first modular paper towel dispenser. The second modular paper towel dispenser may be detachably mounted on the universal frame in place of the first modular paper towel dispenser. In another embodiment, a damaged modular paper towel dispenser may be replaced with another modular paper towel dispenser.
FIG. 1
FIG. 10

1. RECESS WALL OPENING PREPARATION
2. UNIVERSAL FRAME INSTALLATION
3. FINISH FRAME IN RECESS OPENING
4. USER MODULE SELECTION
5. USER MODULE INSTALLATION
MODULAR PAPER TOWEL DISPENSER

FIELD OF THE INVENTION

[0001] The present invention relates to a system and method for mounting a modular hand towel dispensing unit.

BACKGROUND

[0002] Wall mounted dispensers for paper or hand towing have long been known. They find their widest application in institutional settings such as schools, airports, movie theaters, stadiums, and recreation parks, as well as in office buildings, restaurants and other public areas. The dispensers may be provided as individual surface mounted units, or they may be recessed into wall openings. In the latter case, a complete dispenser assembly usually comprises both the towel dispenser itself as well as a frame fixed in place in the wall opening for receiving the dispenser. It is common to rivet, spot weld or otherwise permanently attach the towel dispenser to the frame during construction of the dispenser assembly. At present, such assemblies may be factory pre-assembled, crated, and shipped to a job site for installation of the complete dispenser assembly as a single unit in a recessed opening in a wall.

[0003] Because these towel dispenser assemblies are generally installed in high traffic areas and may be used up to several hundred times a day, it is possible that the dispenser could become damaged or vandalized and need to be replaced. Alternately, it may be desirable to switch from one type of dispenser to another to provide a different type of towel (folded, rolled or center pulled or another method known to one skilled in the art), a different mode of operation (manual to semi manual and/or to electronic), or due to a change in the work environment.

[0004] Currently, because the frame and dispenser assembly are permanently attached to one another and installed together in a recessed opening as a completed assembly, such a change usually requires the costly replacement of the entire dispenser and frame assembly. This at least requires the additional expense of providing a new frame assembly in addition to providing a new dispenser, and may also necessitate refinishing work be done around the frame. As an alternative to this approach, the dispenser only may be replaced. However, since the dispenser fixedly assembled to the frame such that it becomes an integral part of the frame, this requires forcibly separating the towel dispenser from the frame by cutting through portions of the frame. While this may achieve the desired end and functionality, with this approach the new assembly has an undesirable aesthetic look.

SUMMARY

[0005] A system for dispensing paper hand towels comprises a universal frame installed in a fixed location, a first modular paper towel dispenser detachably mounted on the universal frame, and a second modular paper towel dispenser having a dispensing mechanism distinct from a dispensing mechanism of the first modular paper towel dispenser. The second modular paper towel dispenser may be detachably mounted on the universal frame in place of the first modular paper towel dispenser. In an alternative embodiment, a method of assembling a paper hand towel dispenser and frame assembly comprises a first step of fixably attaching a universal frame to a support surface, a second step of mounting a first modular paper towel dispenser on the universal frame, and a third step of replacing the first modular paper towel dispenser with a second modular paper towel dispenser having a dispensing mechanism distinct from a dispensing mechanism of the first modular paper towel dispenser.

[0006] In another exemplary embodiment, a system for providing toiletries to a user comprises both a universal frame installed in a fixed location and at least one user module removably mounted on the universal frame using a fastener assembly accessible from an interior of the user module. In a further embodiment, the user module dispenses paper products, and the fastener assembly includes at least one nut and screw pair. In yet another embodiment, a damaged modular paper towel dispenser may be replaced with another modular paper towel dispenser.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 shows an isometric view of a modular paper towel dispenser according to an exemplary embodiment of the present invention;

[0008] FIG. 2 shows the isometric view of FIG. 1 wherein the user module is mounted within the frame to form a completed assembly;

[0009] FIG. 3 shows a detailed isometric view of the point of attachment between the user module and the frame of FIG. 2;

[0010] FIG. 4 shows the detailed isometric view of FIG. 3 wherein the fastener assembly is used to join the user module and the frame;

[0011] FIG. 5 is a simplified overhead schematic view of a user module mounted within a frame, the frame in turn being mounted in a recessed wall opening;

[0012] FIG. 6 shows an isometric view of an alternative embodiment of a modular paper towel dispenser wherein a slide-lock assembly is used to join a user module and a frame;

[0013] FIG. 7 shows a side view of yet another alternative embodiment of a modular paper towel dispenser wherein a retaining tab and lock assembly are used to join a user module and a frame;

[0014] FIG. 8 shows a top view of yet another alternative embodiment of a modular paper towel dispenser wherein a slide and snap assembly are used to join a user module and a frame;

[0015] FIG. 9 shows a side view of the embodiment of FIG. 8, and

[0016] FIG. 10 is a flowchart detailing the assembly and installation process of the modular paper towel dispenser according to one embodiment of the present invention.

[0017] Before any embodiment of the invention is explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangements of components set forth in the following description, or illustrated in the drawings. The invention is capable of alternative embodiments and of being practiced or being carried out in various ways. For example, numerical
dimensions and other specified numerical limitations, where they appear on the following drawings represent those of exemplary embodiments only and may be modified by one skilled in the art as conditions warrant. Also, it is to be understood, that the terminology used herein is for the purpose of illustrative description and should not be regarded as limiting.

DETAILED DESCRIPTION

[0018] In an exemplary embodiment of the present modular paper towel dispenser, a towel dispensing unit is provided as a separate module to be removably mounted on a frame after the installation of the frame in a recessed wall opening. The frame may be a “universal” frame, designed to receive various types of towel dispensers each having a standard profile which may be compatibly received by the frame. With this embodiment, a fast, convenient and economically viable solution may be provided for replacement of the towel dispenser unit. In addition this embodiment is a highly configurable system which allows a greater ease of customization of the completed assembly.

[0019] In another exemplary embodiment, a unit is providing for dispensing various types of toiletries to a user. The toiletry dispensing unit may also be provided as a separate module removably mounted on a “universal” frame, designed to receive various types of toiletry dispensers including but not limited to paper towel dispensers, each dispenser having a standard profile to be received by the frame. In this embodiment, the toiletry dispensing unit is removably mounted in the frame using a fastener assembly which may include at least one nut and screw pair, and may be accessible from an interior of the dispensing unit.

[0020] Furthermore, developers may install the universal frame before a choice is made as to which dispenser module will be used at a particular location, or need they wait for delivery of the module to do any required aesthetic finishing work around the frame. Moreover with the present embodiment, replacing the dispenser unit becomes an economical and viable possibility. Because in an exemplary embodiment of the present modular paper towel dispenser the universal frame is a common part which can work with a variety of dispenser modules, manufacturers of the frame benefit from an increased economy of scale and a minimized inventory which comes from needing to construct and keep on hand supplies of a single frame design.

[0021] As shown in FIG. 1, a completed modular paper towel dispenser 100 is constructed by assembling a user module 120, which may be a towel dispensing unit, together with a universal frame 110. The frame 110 is provided with a pair of vertical frame walls 111 at the sides of the frame 110, which walls 111 intersect orthogonally with a pair of horizontal frame walls 112 to form a rectangular recess or enclosure for receiving the user module 120.

[0022] In one embodiment of the present invention, the frame 110 may be constructed of folded or stamped sheet metal, and more specifically satin finish stainless steel. The frame 110 may be installed recessed into a wall opening, and may be provided with dedicated mounting slots or openings to allow the frame 110 to be mounted on framing members within the wall using known fastening means. Alternatively, the frame 110 may be mounted in a recessed wall opening using rivets, welds, construction adhesives, or another method known to one skilled in the art.

[0023] The frame 110 may be provided with edges 114 at the periphery of the frame 110 for overlapping the edges of an opening in which the frame 110 is installed to present a more finished exterior appearance. The additional folds in the material of the frame 110 at the frame edges 114 also serve to reinforce and add rigidity to the frame 110. The frame is also provided with mounting apertures 115 to allow the mounting of the user module 120. As shown in FIG. 1, other modules in addition to the user module 120, such as a waste receptacle 119, may be attached to the frame 110.

[0024] A variety of user modules 120 may be provided for use with the frame 110. These units may be of modular construction so that many different units may be installed in the same universal frame. As such, the module of operation of a particular user module in use on a frame can be changed by simply exchanging it for a new module. In an exemplary embodiment, it is envisioned that the user module 120 will be a paper towel dispensing module for use in a public restroom or other similar facility, although any module useful in a large scale institutional setting such as a school, airport or stadium may be substituted. In an alternative embodiment, the use of a universal frame system with modules which may be removably mounted thereon need not be limited to washroom facilities. For example, the frame may be installed in a hallway or other thoroughfare, and modules may be provided thereon for drinking fountains, ashtrays, fire alarms, etc.

[0025] Returning now to towel dispensing units, multiple designs exist for these systems including folded towel and roll towel units, among others. The type and the design of the towel dispensing unit depends on the type of the paper towels used and the way the unit is operated. For example, in two contrasting methods, towels may be provided in either single folded form or in a roll, and the dispenser module may be operated by manually pulling the folded towel, manually pulling the rolled towel which is in horizontal or in vertical position, or by using a crank (metered or otherwise) or lever which the user operates to dispense towing. The crank and lever mechanisms are continuously operable so that the user can withdraw any length of towel, whereas the metered crank mechanism allows the user to withdraw only a predetermined length of towel and thereby conserves paper. The dispenser module may also be operated by an electronic dispensing mechanism having an electronic sensor activated by the motion of a hand or other object in the field of the sensor.

[0026] In the exemplary embodiment shown in FIG. 1, the user module 120 is a manual pull horizontal roll towel unit having a body 128 housing a dispenser mechanism 121 and a module door 129. In a further embodiment both the body 128 and module door 129 may be constructed of folded or stamped satin finish stainless steel to match the frame 110 on which the user module 120 will be mounted, although other materials such as injection molded ABS plastic are also possible for the user module 120. The dispensing mechanism 121 may have a metered crank and paper feed rollers, as well as a cutting element to sever a dispensed length of paper towel. Hinge elements may also be provided to connect a module door 129 to the body 128, as well as a lock for the module door 129 to inhibit unauthorized entry. Each
of these parts may be mechanically fastened to the body 128, such as by riveting. The user module 120 may also be provided with one or more mounting apertures 125 to provide for the mounting of the module to the frame 110.

[0027] FIG. 2 shows the completed assembly of FIG. 1 wherein the user module 120 is mounted within the frame 110 to form a completed assembly. As with FIG. 1, the frame 110 comprises pairs of frame walls 111 and frame walls 112. Frame edges 114 are provided to allow the frame 110 to sit flush in the opening in which it is placed. To install, the user module 120 is placed in the frame 110 such that mounting apertures 125 provided on the user module 120 align with mounting apertures 115 provided on the frame 110, after which the user module 120 may be attached to the frame 110 as shown in further detail in FIG. 3.

[0028] FIG. 3 is an isometric view of the point of attachment between the user module 120 and the frame 110 of FIG. 2, showing a fastener assembly 130 which may be passed through the mounting aperture 125 provided on the body 128 of the user module to communicate with a mounting aperture provided on the frame behind (not shown). The mounting aperture 125 and the mounting aperture provided on the frame may be of a matching keyhole type so that the fastener assembly 130 may be passed through the apertures and maneuvered into the slotted portion as shown before tightening to securely join the body 128 of the user module and the frame assembly together. The door 129 may be attached to the body 128 using a hinge 127, and as mentioned above a lock may be provided for the module door 129 to inhibit unauthorized opening. Given this and given that the fastener assemblies 130 are normally only accessible through the interior of the user module 120, this prevents unwanted tampering with components in the interior of the user module, including the fastener assemblies themselves.

[0029] FIG. 4 shows the detailed isometric view of FIG. 3 wherein the fastener assembly has been tightened accordingly to detachably mount the user module on the frame assembly (not shown). Although FIGS. 3 and 4 shows the fastener assembly 130 as a nut and machine screw pair, alternative embodiments such as sheet metal screws or other appropriate fasteners will be apparent to one skilled in the art to allow a user module to be detachably mounted to a frame assembly. In other alternative embodiments, slide or snap-on connectors may be used, as well as other detachable fastener methods known to those skilled in the art. In this manner one user module may be exchanged for another on a frame assembly using only simple tools, in the case of the nut and machine screw pair, or without tools, in the case of the slide or snap-on connectors. Furthermore, the user module may be exchanged for another without structural damage to either the module itself or the frame on which it is mounted.

[0030] FIG. 5 is a simplified overhead schematic view of a user module mounted within a frame, the frame in turn being mounted in a recessed wall opening. As shown, a completed assembly 500 consists of a frame 510 having a user module 520 mounted therein using at least one fastener assembly 530. The recessed opening provided in the wall 550 allows the frame to remain flush with the surface of the wall 550 after installation. In the arrangement shown, the frame 510 is secured to the wall 550. Because the fastener assemblies 530 are accessible from the interior of the user module 520, it is possible to mount the module to the frame after the frame 510 has been permanently and fixably installed in the recessed wall opening so that neither its exterior nor its interior will be easily accessible once the user module 520 has been put in place for mounting. This is done simply by manipulating the fastener assemblies 530 as described above, which process may be reversed and repeated when a replacement user module is to be installed. In an alternative embodiment, the frame 510 need not be recessed into a wall opening, rather it need only be fixedly attached in a location to provide an easily accessible mounting platform for the user module 520 detachably mounted thereon.

[0031] FIG. 6 shows an isometric view of another embodiment of a modular paper towel dispenser wherein a slide-lock assembly is used to join a user module and a frame. In this embodiment, a frame 660 is provided having frame edges 662. The frame 660 receives a user module 661, which user module 661 is supported in the frame 660 using the rails 665 and 667, the former of which is attached to a side of the user module 661 in the vicinity of the jogged or indented area 663 and the latter is attached to the frame 660. Rails 665 and 667 together provide an interlocking assembly allowing the user module 661 to slide into the frame 660. The rail 667 is positioned along a side wall of the frame 660 such that a gap is left between the rail 667 and a rear wall 690 of the frame 660. Accordingly, a lock assembly 664 is provided on the rear of the user module 661 such that after the module is slid into the frame 660, the lock assembly 664 may be rotated so that a portion moves behind the jogged area 663 and into position in the gap between the rail 667, fixing the user module 661 in position within the frame 660 and preventing removal except to those with access to the interior of the user module 661. The lock assembly 664 comprises in one embodiment a cam tumbler lock.

[0032] FIG. 7 shows a side view of yet another alternative embodiment of a modular paper towel dispenser wherein a retaining tab and lock assembly are used to join a user module and a frame. In this embodiment, the user module 761 is attached to the frame 760 at two points, a tab 772 extending through a slot in the top of the user module 761, and by a lock assembly 770, mounted to the frame 760 in a bracket 773 and also having a tab 771 extending through a slot in the user module 761. In alternative embodiments, the lock assembly 770 may be positioned within the user module 761 so that the tab 771 extends through a slot in the user module 761 to engage with a bracket or other mounting point located exteriorly to the module. In this way the lock assembly 770 is protected within the body of the user module 761 itself, which may be provided with a separate lock assembly 770 to prevent entry. Alternately, a spring latch may be provided within the user module 761 in place of this interiorly mounted lock assembly.

[0033] FIG. 8 shows a top view of yet another alternative embodiment of a modular paper towel dispenser wherein a slide and snap assembly are used to join a user module and a frame. Rails 866 are provided within a joggled area 863 of the user module 861 as an interlocking assembly mounted to both the user module 861 and the frame 860, allowing the former to slide into the latter. A spring latch 880 is provided mounted to the interior of the user module 861, and having a deflecting tab 891 extending through a cutout in the module to engage behind a rail mounted on the frame 860. In this way the user module 861 may be slid into the frame.
and automatically lock therein when the spring latch snaps into position behind the rail mounted on the frame. A user wishing to exchange the user module need only access the interior of the module and deflect the deflecting tab of the spring latch to free the user module from the frame. FIG. 9 shows a side view of the embodiment of FIG. 8. The rails allowing the frame to receive the user module are shown in outline within the joggled area. The spring latch is also shown having a deflecting tab extending through the cutout to engage behind one of the rails.

Finally, in FIG. 10 a flowchart is shown detailing the assembly and installation process of the modular paper towel dispenser according to one embodiment of the present invention. A recessed wall opening is prepared to receive a universal frame as shown in box 610. In box 620, the frame is installed in the opening. Box 630 shows the optional step of finishing the opening around the frame with the application of a layer of plaster, specialty trim pieces or other means. Boxes 640 and 650 show the selection and installation of a user module to complete the dispenser assembly. Using this exemplary method, the paper towel assembly has both a desired functionality, the aesthetic look and the flexibility of being able to switch back and forth between different types of towel dispenser units. Accordingly, this approach provides a fast, convenient and economically viable solution when a replacement of the towel dispenser unit is needed and or desired.

What is claimed is:

1. A system for dispensing paper hand towels comprising:
   a universal frame installed in a fixed location;
   a first modular paper towel dispenser detachably mounted on the universal frame; and a second modular paper towel dispenser having a dispensing mechanism distinct from a dispensing mechanism of the first modular paper towel dispenser;
   wherein the second modular paper towel dispenser may be detachably mounted on the universal frame in place of the first modular paper towel dispenser.

2. The system for dispensing paper hand towels of claim 1, wherein the universal frame comprises two pairs of walls meeting at approximately orthogonal angles to form a rectangular enclosure for receiving the first modular paper towel dispenser.

3. The system for dispensing paper hand towels of claim 1, wherein the first modular paper towel dispenser is removably mounted on the universal frame using screws accessible from an interior of the first modular paper towel dispenser.

4. The system for dispensing paper hand towels of claim 1, wherein the first modular paper towel dispenser is removably mounted on the universal frame using a locking assembly and one or more tabs extending from the universal frame to engage with the first modular paper towel dispenser.

5. The system for dispensing paper hand towels of claim 1, wherein the first modular paper towel dispenser mounted on the universal frame using a slide rail assembly.

6. The system for dispensing paper hand towels of claim 5, further comprising a locking assembly mounted on the first modular paper towel dispenser and engaging with the slide rail assembly to prevent removal of the first modular paper towel dispenser from the universal frame.

7. The system for dispensing paper hand towels of claim 5, further comprising an elastically deformable spring latch mounted on the first modular paper towel dispenser and engaging with the slide rail assembly to prevent removal of the first modular paper towel dispenser from the universal frame.

8. The system for dispensing paper hand towels of claim 5, further comprising a locking assembly on the first modular paper towel dispenser and engaging with the slide rail assembly to prevent removal of the first modular paper towel dispenser from the universal frame.

9. The system for dispensing paper hand towels of claim 5, further comprising an elastically deformable spring latch mounted on the first modular paper towel dispenser and engaging with the slide rail assembly to prevent removal of the first modular paper towel dispenser from the universal frame.

10. A method of assembling a paper hand towel dispenser and frame assembly, the method comprising:
    a first step of fixably attaching a universal frame to a support surface;
    a second step of detachably mounting a first modular paper towel dispenser on the universal frame; and
    a third step of detachably mounting a second modular paper towel dispenser on the universal frame in place of the first modular paper towel dispenser, the second modular paper towel dispenser having a dispensing mechanism distinct from a dispensing mechanism of the first modular paper towel dispenser.

11. The method of claim 10, further comprising an additional step carried out between the first step and second step of finishing a border of the universal frame with the support surface.

12. The method of claim 11, wherein the step of finishing comprises at least one of the application of plaster or a trim piece.

13. The method of claim 10, wherein the first modular paper towel dispenser is removably mounted on the universal frame.

14. The method of claim 13, wherein the first modular paper towel dispenser is removably mounted on the universal frame using screws accessible from an interior of the first modular paper towel dispenser.

15. The method of claim 10, wherein the support surface is a wall having a recessed opening in which the universal frame is fixably attached.

16. The method of claim 10, wherein the universal frame comprises two pairs of walls meeting at approximately orthogonal angles to form a rectangular enclosure for receiving the first modular paper towel dispenser.

17. The method of claim 10, wherein the universal frame is constructed of at least one of folded or stamped satin finish stainless steel.

18. The method of claim 17, wherein the universal frame includes one or more frame edges.

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