

- [54] **PAPER TOWEL DISPENSER**
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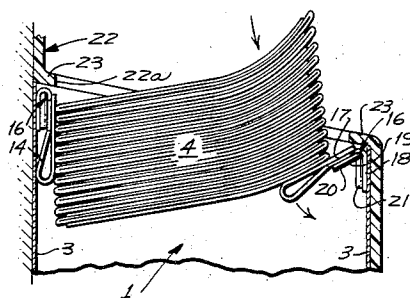
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- [52] U.S. Cl..... **221/45, 221/59, 221/244, 221/310**
- [51] Int. Cl..... **B65h 1/26**
- [58] Field of Search..... 221/33-63, 221/244, 310

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[57] **ABSTRACT**  
 A dispenser for folded paper towels utilizing a pair of opposed towel retainers which are hinged to opposite sides of a storage container so as to be movable between a towel dispensing position in which the retainers are essentially coplanar and cover the side margins of a stack of folded towels, and a towel receiving position in which the retainers are folded inwardly toward the side walls of the container.

**3 Claims, 7 Drawing Figures**



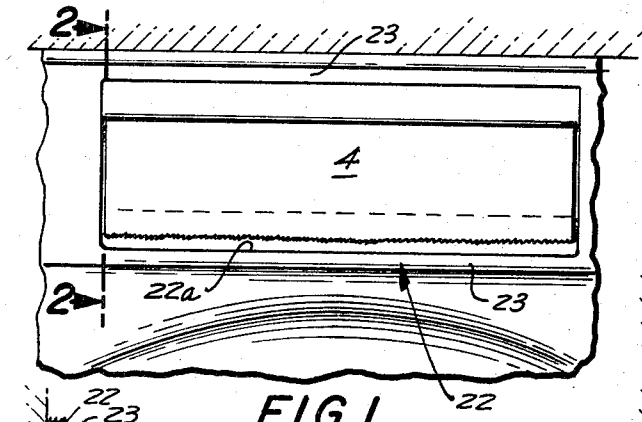


FIG. 1

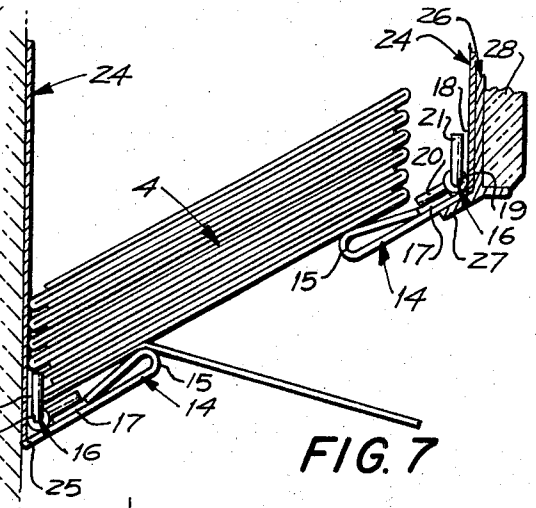


FIG. 7

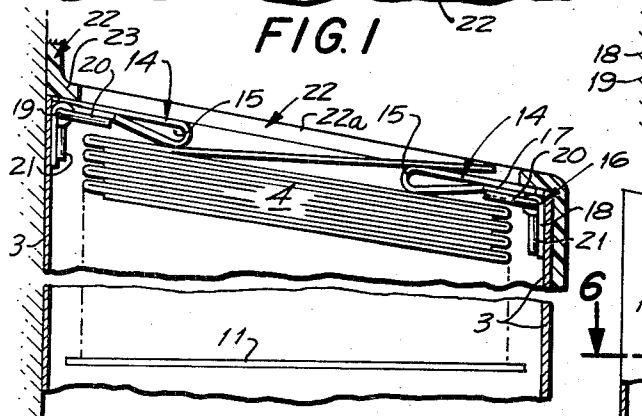


FIG. 2

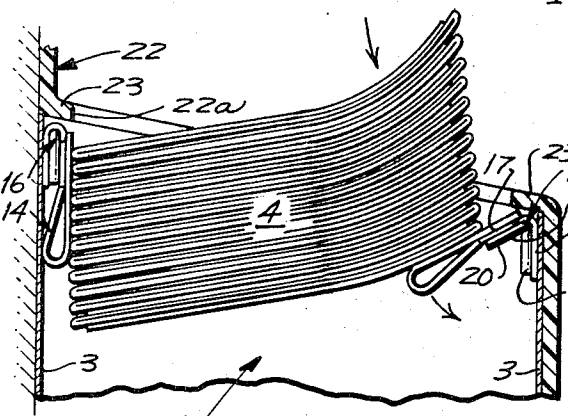


FIG. 3

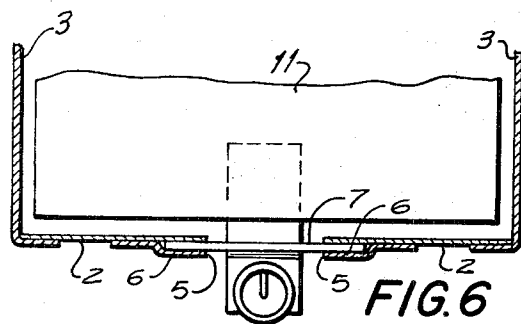


FIG. 6

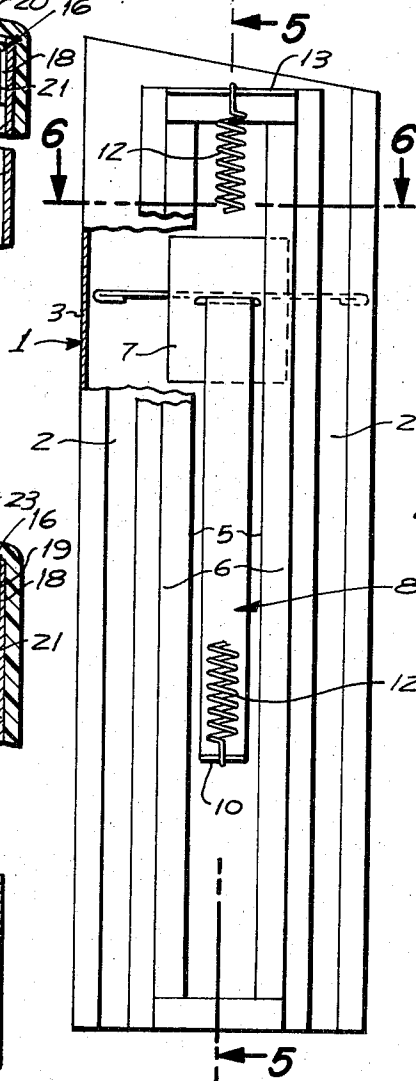


FIG. 4

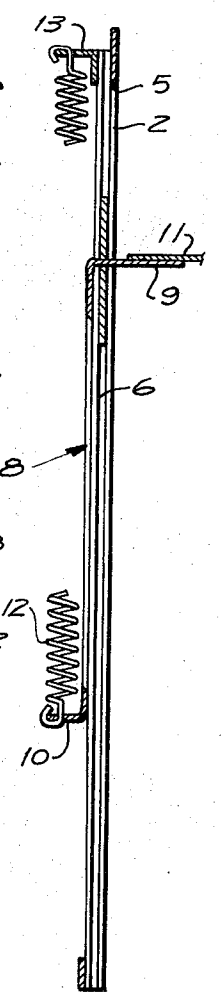


FIG. 5

## PAPER TOWEL DISPENSER

## BACKGROUND AND SUMMARY OF THE INVENTION

Conventional paper towel dispensers require, in addition to an exposed towel dispensing slot, a means for opening the storage chamber in order to restock with towels. Usually this has required a hinged or removable cover at the front of the dispenser or at its end opposite from the dispensing slot. As a result the dispenser is exposed to view or must be removed for restocking. The present invention is directed to an improved towel dispenser which requires exposure only of the end of the dispenser containing the dispensing slot, yet may be restocked from the same end without removal, and is summarized in the following objects:

First, to provide a paper towel dispenser wherein the dispensing end is bordered by an opposed pair of hinged retainer members movable between an essentially coplanar towel dispensing position and an inwardly projecting position to widen the dispensing slot sufficiently to permit ready insertion of towels for restocking the dispenser.

Second, to provide a paper towel dispenser an embodiment of which is so arranged that its dispensing end is uppermost and permits installation in such a manner that only the retainer members bordering the dispensing slot need be exposed.

Third, to provide a paper towel dispenser another embodiment of which is so arranged that its dispensing end lowermost and which also permits installation in such a manner that only the retainer members bordering the dispensing slot need be exposed.

Fourth, to provide a paper towel dispenser indicated in the other objects which may be constructed so that the dispensing end may be inclined at various angles or arranged at right angles to the side walls, and the dispenser may be disposed vertically, or in an inclined position or horizontally to meet a wide range of installation conditions.

Fifth, to provide a paper towel dispenser as indicated in the other objects wherein the paper towels may be urged toward the dispensing slot by spring force or gravity force depending on the conditions of installation.

## DESCRIPTION OF THE FIGURES

FIG. 1 is a plan view showing one embodiment of the paper towel dispenser set in a lavatory which is indicated fragmentarily.

FIG. 2 is a fragmentary sectional view taken through 2-2 of FIG. 1 showing the paper towels and the retainer means in elevation and in position for dispensing the paper towels.

FIG. 3 is a similar enlarged fragmentary sectional view showing the paper towels and the retaining means as positioned during insertion of a bundle of towels.

FIG. 4 is an end view of the dispenser with portions broken away to illustrate internal structure.

FIG. 5 is a fragmentary sectional view thereof taken through 5-5 of FIG. 4.

FIG. 6 is an enlarged fragmentary sectional view thereof taken through 6-6 of FIG. 4.

FIG. 7 is a fragmentary sectional view corresponding to FIG. 2 but showing another embodiment of the

paper towel dispenser wherein the paper towels dispense from the lower side of the dispenser.

Reference is first directed to FIGS. 1 through 6 which illustrate an upwardly dispensing paper towel dispenser. The dispenser includes a housing structure 1, preferably formed of sheet material, the housing structure is rectangular in plan and comprises end walls 2 and side walls 3 dimensioned to receive a stack of paper towels 4. The end walls 2 are provided with slots 5 bordered by guide tracks 6. Each pair of guide tracks 6 receives a guide plate 7. A lifting strap 8 is provided at each end and includes an inwardly folded upper end 9 which extends through a slot provided in the corresponding travel plate and also includes an outwardly folded lower end 10. The inwardly folded upper ends 9 are secured to a towel supporting plate 11. Springs 12 are secured at their lower ends to the outwardly folded lower ends of the straps 8 and to suitable projections 13 located near the upper ends of the end walls 2.

The upper end of the housing structure 1 is open and receives a pair of retainer strips 14. One margin of each retainer strip is folded upon itself to form a marginal loop 15. A hinge 16 having hinge leaves 17 and 18 joined by a hinge pin 19 is provided for each retainer strip 14 and is connected thereto by their respective hinge leaves 17. The hinge leaves 18 are secured to the upper margins of the side walls 3.

It is desirable to provide a biasing force which will tend to rotate both retainer strips 14 in an upwardly direction as viewed in FIG. 2. This may be accomplished by providing the hinge pin 19 with angularly disposed ends 20 and 21. The angular position of the ends being such that the hinge pin 19 functions as a torsion spring.

It is intended that the housing structure be placed in an enclosure indicated by 22. Such enclosure may be in the form of a raised shelf behind a laboratory as suggested in FIG. 1 and is provided with an opening 22a of sufficient dimension to pass folded paper towels. The longitudinal margins of the opening overlie the hinge margins of the retainer strip 14 in a normal coplanar position as indicated as in FIG. 2. If stops forming a part of an enclosure are not available, the upper margins of the side walls 3 may be folded inwardly to accomplish the same purpose.

The upper end of the housing structure is constructed to conform to the shelf or the like forming the enclosure 22, such enclosure may be horizontal in which case the upper end of the housing structure is horizontal or may be inclined as shown in which case the upper end of the housing is inclined at a corresponding angle.

Operation of the housing structure shown in FIGS. 1 through 6 is as follows:

When in dispensing position, the retainer strips 14 overlie the margins of the uppermost paper towels of a stack of paper towels. By reaching into the slot between the retainer strips, the uppermost surface of the top paper towel may be grasped and the towel pulled free of the dispenser. Whenever it is desired to replenish the towels a bundle of towels arranged in stacked relation and about an inch or so in thickness is pressed downwardly against the retainer strips 14 causing the retainer strips to pivot downwardly away from each other and open sufficiently to permit passage of a bundle for placement on the supporting plate 11 or previously stacked paper towels.

Even though the upper end of the housing is at a slight incline and the supporting plate 11 is horizontal causing a greater pressure at the forward margin of the stack of paper towels, the stack is sufficiently compressible that the rear margin of the top towel will engage the rear retainer strip until almost all of the towels are exhausted. Dispensing of the towels is not hindered even though the rear margin of the uppermost towel does not engage the rear retainer strip.

Paper towels are folded in various manners, some in a manner that causes one margin of the paper towel to be exposed such as indicated in FIG. 2 however this is not essential to operation as the exposed portion of the uppermost towel may be pinched so as to be grasped by the user even though the margin is not exposed.

Reference is directed to FIG. 7. The structure here illustrated involves a housing structure 24 which may be identical to the housing structure 1. The mounting structure 24 is inverted so that the towels are urged against the retainer strips 14 by gravity which may be supplemented by a weight, not shown; however, it has been found that the towels are readily dispensed without the use of an added weight.

If the dispenser is placed so that the towels issue from the lower side it is preferred to increase the angular position of the retainer strips 14. In so doing the rear retainer strip disposed at an acute angle may have an extension 25 which engages the lower edge of the rear side wall. The front wall may be provided with an in-turned projection or for example, a mounting strip 26 may be provided which includes an underlying stop 27. If desired, the mounting strip 26 may also serve to support a mirror 28 covering the housing structure.

While particular embodiments of this invention have been shown and described, it not intended to limit the same to the details of the constructions set forth, but instead, the invention embraces such changes, modifications and equivalents of the various parts and their relationships as come within the purview of the appended claims.

I claim:

1. A dispenser for folded paper towels, comprising:

- a. a housing structure having end and side walls dimensioned to receive a stack of paper towels, and an open dispensing and loading end having fixed inturned coplanar stop flanges along the side walls;
- b. a pair of opposed retainer strips hinged to the side walls at the dispensing and loading end of the housing structure contiguous to the stop flanges;
- c. the retainer strips normally occupying a dispensing position wherein the retainer strips are held in essentially coplanar relation by the stop flanges and the retainer strips engage opposite margins of the end paper towel of a stack of paper towels contained in the housing structure;
- d. the retainer strips being yieldably movable under the stop flanges toward the side walls to increase the spacing therebetween in response to force exerted through a bundle of paper towels for insertion of the bundle therebetween into the housing structure.

2. A paper towel dispenser, as defined in claim 1, wherein:

- a. the dispensing and loading end is disposed at the upper end of the housing structure;
- b. a supporting member underlies the stack of paper towels;
- c. slots are provided in the end walls;
- d. springs are disposed externally of the housing;
- e. and means extending through the slots to the supporting member for exerting an upward force thereon.

3. A paper towel dispenser, as defined in claim 1, wherein:

- a. the dispensing and loading end is disposed at the lower end of the housing structure;
- b. the retainer strips when in their dispensing position define an inclined plane;
- c. and the stack of paper towels are urged by gravity toward the retainer strips.

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