June 12, 1962 J. W. MAYER 3,038,676

TOWEL ROLL HOLDER

Filed July 31, 1958 2 Sheets-Sheet 1

Fig. 1.

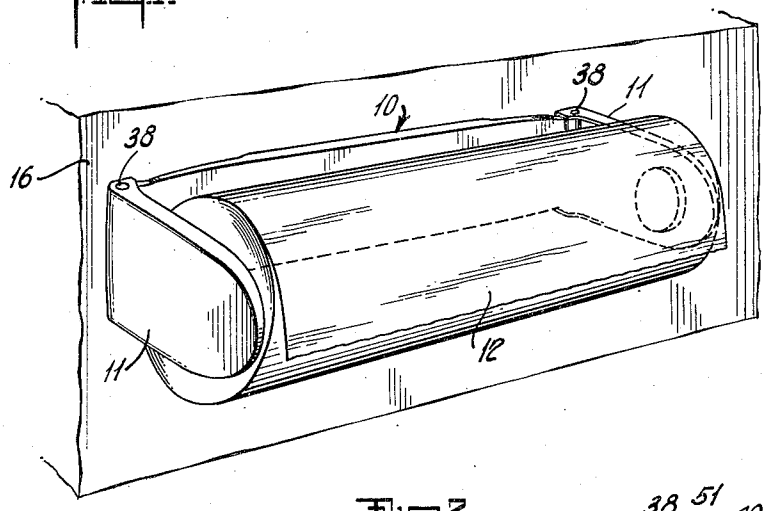


Fig. 2.

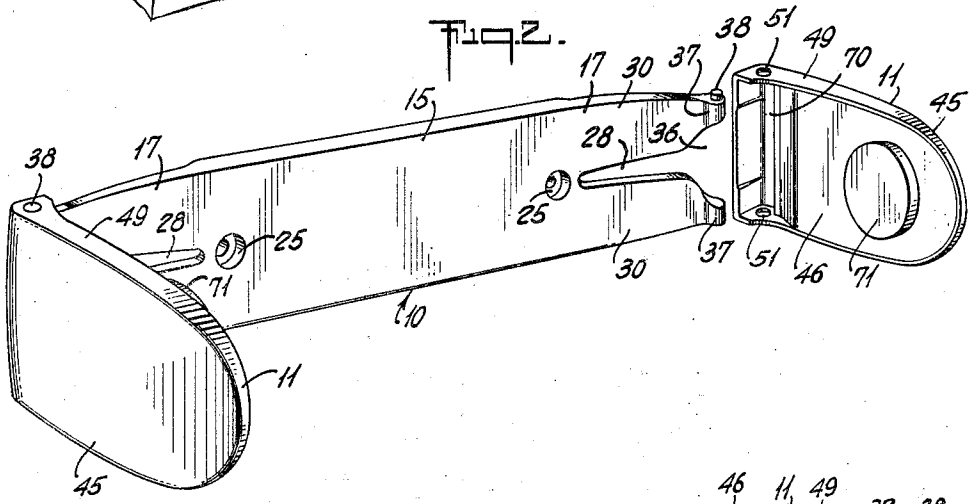
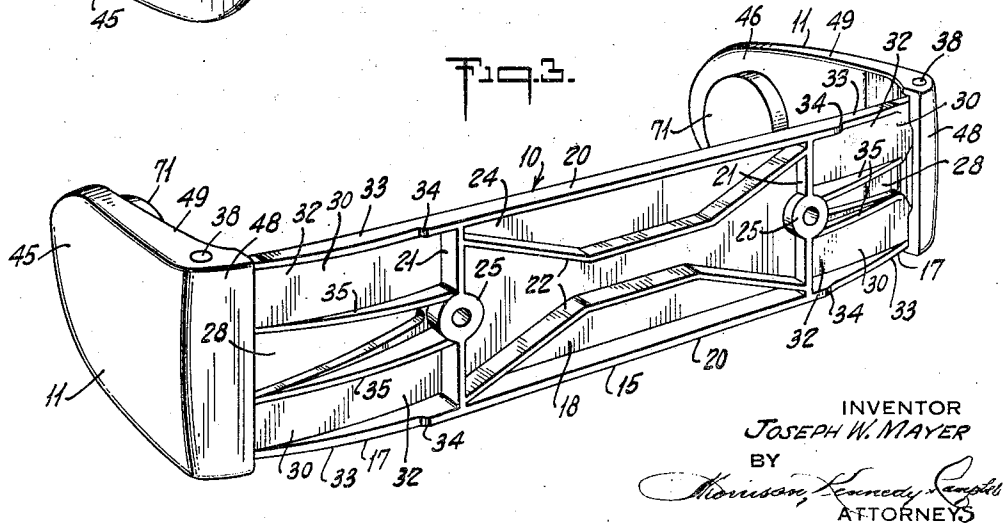


Fig. 3.



INVENTOR
JOSEPH W. MAYER
BY
Harrison, Kennedy & Campbell
ATTORNEYS

June 12, 1962 J. W. MAYER 3,038,676

TOWEL ROLL HOLDER

Filed July 31, 1958 2 Sheets-Sheet 2

Fig. 4.

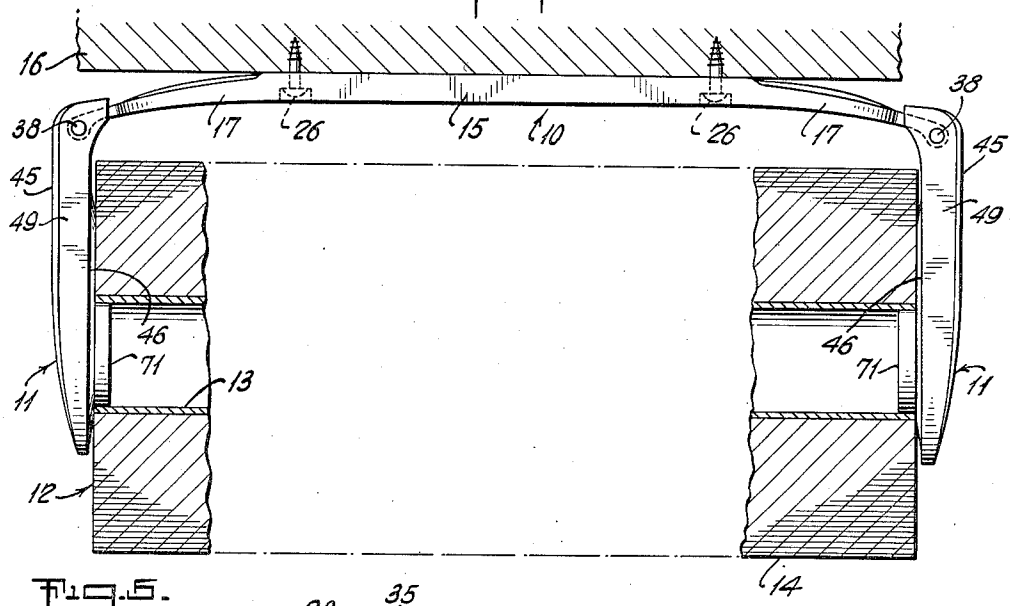


Fig. 5.

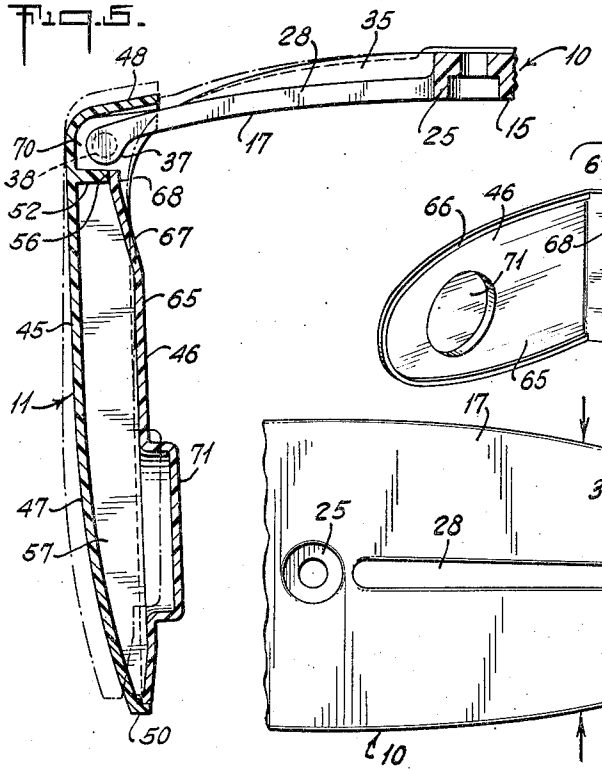


Fig. 7.

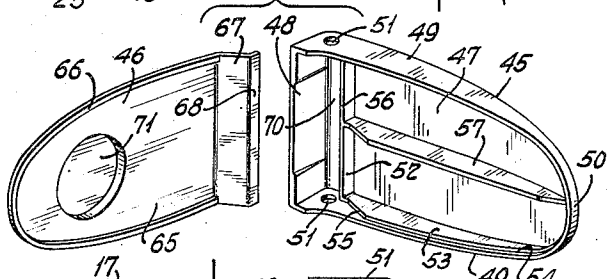


Fig. 6.

INVENTOR
JOSEPH W. MAYER
BY
Morrison, Kennedy & Campbell
ATTORNEYS

United States Patent Office 3,038,676 Patented June 12, 1962

3,038,676

TOWEL ROLL HOLDER

Joseph W. Mayer, Troy, N.Y., assignor to Johnson & Johnson, a corporation of New Jersey

Filed July 31, 1958, Ser. No. 752,280
12 Claims. (Cl. 242—55.2)

The present invention relates to a towel roll holder.

The standard type of paper towel roll holder consists of a back bar, two end brackets which are not interchangeable, and which have intermeshing knuckle engagements with the ends of the back bar for hinge connection therewith, permitting said end brackets to be folded against the back bar for storage and/or transportation or to be extended laterally of the back bar to hold the towel roll therebetween in use, and metallic hinge pins passing through these knuckles to pivotally connect the end brackets to the back bar. To attach the end brackets to the back bar, it is necessary to intermesh the knuckles of the back bar and of the end brackets and this may be difficult, if the knuckles are designed to interfit snugly and if these knuckles are affected with edge excrescences, burrs, or other irregularities interfering with this assembling operation. Moreover, after the hinge knuckles are interfitted into alignment, it is necessary to employ some special means, such as air hammers, to drive the hinge pins through the intermeshing knuckles.

A paper towel roll holder constructed as described, is comparatively expensive to manufacture and assemble.

One object of the present invention is to provide a new and improved towel roll holder, which is made entirely of plastic material and which is designed to lend itself to manufacture by such efficient, expeditious and inexpensive automatic operations as injection molding, which has a less number of parts than the standard towel roll holder, which can be assembled expeditiously without the use of any tools, which is designed to afford sufficient resiliency to permit a fresh towel roll to be easily latched on to the holder between the end brackets or an empty roll tube to be easily removed from between said brackets, but which at the same time has sufficient rigidity to hold the towel roll in operative service, even against the roughest kind of usage normally encountered, and which has utilitarian features for the purpose described enhancing the ornamental appearance of the holder.

In accordance with certain features of the present invention, the towel roll holder is made entirely of plastic and comprises a back bar and two interchangeable end brackets. The back bar has a main straight section adapted to be attached to a wall, as for example by screws, and two end sections slanting forwardly of said intermediate section at a small angle therewith, to permit said end sections to be flexed backwardly towards the supporting wall and to permit thereby the end brackets to be spread apart to receive the towel roll therebetween in the process of latching a fresh towel roll onto the holder.

As an important feature of the present invention, each of the slanting end sections of the back bar is bifurcated by a slot extending lengthwise thereof to define two spaced upper and lower branches. Each end bracket has upper and lower walls or flanges adapted to receive there between the two branches of the corresponding end section of the back bar and plastic hinge pins are formed integral with these branches and extend upwardly and downwardly from said branches respectively to fit into holes in these bracket walls and to hinge thereby the end bracket to the corresponding end of the back bar. The two branches fit snugly between the two walls of the end bracket but are sufficiently resilient to permit them to be pressed towards each other edgewise to allow the hinge pins to slide along the insides of these bracket walls until they reach the holes in said bracket walls, whereupon they snap therein

to complete the hinge connection in the process of assembly.

As far as certain aspects of the invention are concerned, the pin and hole hinge connection between the end bracket and the back bar may be reversed from that described by making the pins integral with and project inwardly from the upper and lower walls of the end bracket and by providing the hinge holes to receive these pins in the ends of the branches of the back bar.

The bifurcations of the end sections of the back bar not only afford resiliency necessary to press the branches of the bifurcations together for latching the end brackets to the ends of the back bar, but also permit these end sections to be more easily flexed against the wall and also to be twisted to align axially the journal parts of the end brackets when latching a fresh towel roll onto the holder or when removing an empty roll tube.

Various other objects, features and advantages of the invention are apparent from the following description, and from the accompanying drawings, in which:

FIG. 1 is a perspective of a paper towel roll holder embodying the present invention and shown assembled, attached to a wall in operative position and supporting a paper towel roll thereon;

FIG. 2 is a perspective of the towel roll holder shown mainly in front and side view with one of the end brackets detached and in the process of being latched onto the corresponding end of the back bar;

FIG. 3 is a perspective of the assembled towel roll holder shown mainly in back and side view;

FIG. 4 is a fragmentary top plan view of the paper towel roll holder shown assembled, attached to a wall in operative position and supporting a paper towel roll shown partly in top plan view and partly in horizontal section;

FIG. 5 is a horizontal section on an enlarged scale of an end bracket and an end section of the back bar, showing the details of the hinge connection therebetween;

FIG. 6 is a detail view partly in front elevation and partly in vertical section showing the back bar in the process of being inserted into and latched onto one of the end brackets; and

FIG. 7 is a perspective of the two component parts of an end bracket shown separated before assembly.

Referring to the drawings, the paper towel roll holder of the present invention comprises essentially a back bar 10, and interchangeable end brackets 11 hinged to the ends of the back bar and adapted to support therebetween the conventional paper towel roll 12 consisting of a paper tube 13 serving as the shaft or core of the roll and a continuous roll 14 of absorbent towel paper thereon. The component parts of the towel roll holder are made of plastic and desirably of thermoplastic material, such as polystyrene and are so designed that they can be made automatically by injection molding.

The back bar 10 which is of one piece comprises a straight intermediate wall engageable section 15 extending along the major length of the bar and adapted to be attached flat against a vertical supporting wall 16, as shown in FIGS. 1 and 4, and similar end wing sections 17 slanting away from the general plane of the intermediate section at a small angle therewith to space said wing sections from said wall in attached position of the holder, as shown in FIG. 4. The back bar 10 is of skeletonized construction and comprises a front continuous web 18 (FIG. 3) substantially rectangular in outline except for a slight tapering of the end wing sections 17 towards their outer ends, and a network of reinforcing ribs on the back side thereof comprising side ribs 20 extending along the intermediate section 15 of the back bar, a pair of cross ribs 21 spaced short distances inwardly from the ends of the side ribs 20 and

connecting integrally thereinto, two angular ribs 22 between the cross ribs 21 extending from the ends of said cross ribs diagonally and towards each other at their end sections and parallel to the side ribs 20 and to each other at their intermediate sections. The intermediate section 24 of the web 18 within the area bounded by the ribs 20 and 21 is flat and the ribs 20, 21 and 22 join into and are integral with this intermediate web section. These ribs 20, 21 and 22 are of the same uniform height and in connection with the intermediate web section 24 form the intermediate straight section 15 of the back bar 10 adapted to be secured flat against the supporting wall 16.

To provide means by which the back bar 10 may be secured to the supporting wall 16, there are molded two bosses 25 on the intermediate section 15 of the bar in the middle of the cross ribs 21 integral with the web 18. These bosses 25 have the same height as the ribs 20, 21 and 22 and are apertured and countersunk to receive screws 26 for attachment to the wall 16 as shown in FIG. 4.

Each end wing section 17 of the back bar 10 is provided with a V-slot 28 extending therealong from the end of the intermediate wall engaging section 15 of the back bar 10 near the boss 25 to the outer end of the bar and tapering toward said boss to define two branches 30.

The end wing sections 17 of the back bar 10 are constructed to permit them to be flexed back towards the supporting wall 16 in mounting a fresh paper roll between the end brackets 11, and for that purpose, the end sections 32 of the web 18 of the back bar 10 forming parts of said wing sections curve gently away from the general plane of the intermediate section 15 of the back bar. The side ribs 20 are continued along the sides of the end web sections 32 with gradual diminution of height and edgewise curvature to define tapering ribs 33. These end side ribs 33 are separated from the intermediate side ribs 20 by weakening conformations shown in the form of steps 34, to define broadly pivot axes across the back bar 10 in the regions of these steps about which the end wing sections 17 can flex towards the supporting wall 16 for the purpose described.

To reinforce further each of the end wing sections 17 structurally, ribs 35 are provided on the rear side of the web 18 integral with said web and extending from the cross ribs 21 along the sides of the V-slot 28. These ribs 35 taper in height with edgewise curvature towards the outer ends of these ribs.

At their outer ends 36, the V-slots 28 widen out suddenly at an increased angle to define aligned hinge lugs 37 at the ends of the branches 30. These hinge lugs 37 are molded in enlarged solid cylindrical form and have molded integral therewith short axially aligned hinge posts or pins 38 extending outwardly from the sides of said branches at the ends of said lugs.

Although the sides of the end wing sections 17 of the back bar may curve taperingly towards their outer ends, they are parallel in the regions of the hinge lugs 37 to present flat bearing surfaces to the parallel side walls of the end brackets 11 in assembled position, as will be described more fully hereinafter.

Each of the end brackets 11 is made of two pieces permanently secured together and consisting of a main body 45 in the form of a shallow dish of approximately semielliptical outline, straight at its rear end and rounded at its front end, and a liner or cover 46 therefor, as shown in FIG. 7. The main bracket body 45 has a flat bottom wall or web 47 peripherally bounded by a substantially flat rear wall 48, upper and lower side walls 49, and a front rounded wall 50, all of said peripheral walls forming a continuous reinforcing rib around the edge of the bottom wall 47. The rear flat wall 48 is of uniform depth, but the side walls taper in depth toward the front rounded wall 50.

To receive the hinge pins 38 on the ends of the back bar 10, the side walls 49 of each end bracket 11 have near their rear ends respective axially aligned holes 51 adapted to receive said hinge pins with snug rotative fits.

Molded inside the main bracket body 45 and integral with the bottom wall 47 and peripheral walls 49 and 50 is a skeleton structure serving not only as reinforcement for the end bracket 11 but also as a seat for the liner 46. This skeleton structure is substantially in the form of a semi-elliptical loop and comprises a rear flat rib 52, which extends between the side walls 49 of the end bracket 11 clear of the holes 51 therein, and which is parallel to the rear wall 48 of the end bracket, and side and front ribs 53 along the inside of the side and front walls 49 and 50 forming with said walls 49 and 50 in effect a single integral wall. The rear rib 52 has a height substantially less than the height of the side bracket walls 49 where said rib 52 joins said side bracket walls and the side and front ribs 53 have a depth which is less than the side and front bracket walls 49 and 50 where they join the latter walls, to define side and front seats 54 at the edges of said side and front ribs 53 for the liner 46. The side sections of the ribs 53 where they join into the ends of the rear rib 52 are inclined to define bevelled rear side seats 55 for the liner 46, and the edge 56 of said rear rib 52 serves as a rear seat for said liner. A rib 57 extending from the mid-section of the rear rib 52 to the midsection of the front of the ribs 53 and molded integral with said ribs 52 and 53 and with the bottom bracket wall 47 serves as additional reinforcement. The rib 57 is tapered, bevelled and otherwise shaped to provide an edge 58 in the same planes as the seats 54 and 55 to seat the liner 46.

The liner 46 covers and conceals the internal skeleton structure of the end bracket 11, thereby serving to improve the appearance of the assembled towel roll holder but is also shaped to support the towel roll. This liner 46, molded also from plastic material similar to that from which the other parts of the holder are made, comprises a plate 65 having a substantially semi-elliptical outline similar to that of the inside of the main body 45 of the end bracket to fit conformably in the inside of said main body and is provided with a molding 66 around its edge to seat on the seats 54. The plate 65 has an inclined offset 67 corresponding to the inclination of the bevelled rib seats 55 and of the corresponding seat on the rib 57, and a lip extension 68 at the rear adapted to seat on the edge 56 of the rear bracket rib 52. The liner 46 is permanently secured to the main body 45 of the bracket in the seated position described by means of adhesive between said liner and the skelton structure of the end bracket 11 where said liner seats. In this attached position of the liner 46, there will be formed in the rear of each end bracket 11 between the wall 48 and the rib 52 an open chamber 70 to receive the hinge lugs 37 of the back bar 10, as will be described hereinafter.

The liner 46 is designed to support rotatably one end of a towel roll thereon. For that purpose, the liner has a round depression molded therein to define a projecting journal 71 adapted to extend snugly into one end of the roll tube 13.

The liner 46 constructed as described covers the internal structure of the end bracket 11 and the end bracket 11 formed therewith presents a smooth, continuous appearance. Since the back bar 10 also has all of its internal rib structure concealed when mounted on a supporting wall, it will blend aesthetically with the end brackets 11.

The back bar 10 is unstressed condition when not attached to the end brackets 11 has its branches 30 at each end with its projecting hinge pins 38 spread sufficiently apart to prevent them from being inserted into the bracket chamber 70 between the side walls 49 of the end bracket. In assembling the parts of the towel roll holder together,

after the liner 46 has been adhesively secured to the main body 45 to form the completed end bracket 11, this bracket is attached to the end of the back bar 10 by pressing the two branches 30 of the back bar 10 edgewise towards each other until the hinge pins 38 clear the side walls 49 of the end bracket 11 and then sliding the end of the back bar into the bracket chamber 70, as shown in FIG. 6, until the pins reach the holes 51 in said side walls 49, whereupon said pins will spring and latch into said holes when the pressure on the two branches is released. With the end brackets 11 so attached to the back bar 10, the flat outer ends of the hinge lugs 37 will press against the inner surfaces of the side walls 49 of the end brackets 11 with slight spring pressure and the end brackets will thereby be latched to the back bar 10 with steady hinge connections free of undesirable play. The end brackets 11 so hinged to the back bar 10 can be folded against the back bar for compact storage and transportation, and can be extended to positions substantially at right angles to the back bar to support the towel roll thereon. The end brackets 11 are positively stopped against movement beyond this fully extended position by the abutting engagement of the rear walls 48 of the bracket with the rear of the back bar 10 near its ends, as shown in FIG. 5. In this limited position of the end brackets 11, their confronting faces are spaced a distance slightly shorter than the length of the towel roll and a fresh towel roll cannot be moved beyond the projecting journals 71 to fit said journals into the ends of the roll tube 13, in the mounting of said fresh roll. However, the end wing sections 17 of the back bar 10 slanting away from the intermediate wall engaging section 15 of the back bar afford enough resiliency to permit said wing sections to be flexed back towards the supporting wall 16 approximately about pivot axes at the ends of said intermediate section, and thereby to cause the end brackets 11 to be spread apart sufficiently to permit the tube 13 of the towel roll 12 to be fitted easily onto the journals 71, as shown in dot and dash lines in FIG. 5. The bifurcations in the end wing sections 17 of the back bar 10 adds to the resiliency of these end sections in their rearward flexing action described and also permit the end brackets 11 to be moved relatively vertically in case their journals 71 are not in proper alignment with the ends of the roll tube 13.

The empty roll tube 13 can be removed just as easily by pushing out the end brackets 11 to release the journals 71.

It is seen that the towel roll holder of the present invention, is made of a small number of parts, is easy to assemble and inexpensive to manufacture, and is easy to manipulate for roll mounting or dismounting operation. The two end interchangeability of the brackets 11 facilitates and reduces cost of manufacture.

While the invention has been described with particular reference to a specific embodiment, it is to be understood that it is not to be limited thereto, but is to be construed broadly and restricted solely by the scope of the appended claims.

What is claimed is:

1. A towel roll holder comprising a back bar having an intermediate portion which is adapted to be secured to a supporting wall and which has rear portions disposed in a plane and adapted to lie against the wall and having at the ends thereof integral resilient wings which extend away from each other and the rearward portions of which slope forwardly from said plane to normally space the ends of the wings forwardly of said plane, two brackets adapted to support the ends of a towel roll thereon, resilient latch means hingedly connecting said brackets to the ends of said wings respectively for swinging movement toward and away from each other, and means on each of said brackets adapted to engage its wing when a bracket is swung away from the other to press rearwardly the wing to which it is hingedly connected against the resiliency of the wing upon continued swinging movement of the bracket away from the other, whereby each bracket so swung will be urged toward the other bracket by the resiliency of the wing to which it is hingedly connected.

2. A towel roll holder made entirely of plastic and comprising a back bar member having an intermediate portion which is adapted to be secured to a supporting wall and which has rear portions disposed in a plane and adapted to lie against the wall and having at the ends thereof integral resilient wings which extend away from each other and the rearward portions of which slope forwardly from said plane to normally space the ends of the wings forwardly of said plane, bracket members adapted to support the ends of a towel roll thereon, a resilient snap hinge connection between the end of each wing and the corresponding end bracket member including a pair of axially aligned hinge pins integral with one of said last two members and axially aligned holes in the other of said last two members for receiving said pins for swinging movement toward and away from each other, and means on each of said brackets adapted to engage its wing when a bracket is swung away from the other to press rearwardly the wing to which it is hingedly connected against the resiliency of the wing upon continued movement of the bracket away from the other, whereby each bracket so swung will be urged toward the other bracket by the resiliency of the wing to which it is hingedly connected.

3. A towel roll holder comprising a back bar having an intermediate section adapted to be secured to a supporting wall and having opposite end sections, each of said end sections being longitudinally slotted to define two branches having throughout their length a greater extent in the direction of the width of said intermediate section than in the direction of the thickness of the said intermediate section and being resiliently movable towards each other in the first-mentioned direction, two brackets adapted to support the ends of a towel roll thereon and each having a pair of opposed side walls, and a hinge connection between each branch and the corresponding side bracket wall comprising a hinge pin conformation extending into a hole conformation, one of said conformations being provided on the corresponding branch and the other conformation being provided on the corresponding side bracket wall, the two branches of each end section when free from restraining stress being spread too far apart to fit between the two side walls of the corresponding end bracket but being resilient enough to permit them to be resiliently pressed towards each other during assembly, so that they can slide between the two latter bracket walls until said conformations snap into latching inter-engagement.

4. A towel roll holder as described in claim 3, wherein said towel roll holder is made entirely of plastic, and said hinge pin and hole conformations are integral with said end bracket walls and said branches.

5. A towel roll holder as described in claim 3, wherein said back bar is formed of resilient material and said end sections slant away forwardly from said intermediate section to form wing extensions, abutment engagements on said brackets limiting said brackets and the end portions of said end sections to extended operative positions where they receive the towel roll snugly therebetween, said brackets being adapted to be spread apart beyond said limited positions to permit the mounting of a fresh roll thereon or the dismounting of an empty roll therefrom, said bracket spreading action being permitted by the resilient flexing of the end sections rearwardly about the ends of intermediate section as said brackets are spread apart beyond said limited positions.

6. A towel roll holder as described in claim 3, wherein the slots in the end sections of the back bar are V-shaped with their wider sections at the outer ends of said end sections.

7. A towel roll holder and comprising a plastic back

bar adapted to be secured to a supporting wall and having opposite end sections, each of said end sections being longitudinally slotted to define upper and lower branches which have a generally vertical widethwise extent throughout their length and the free ends of which are resiliently movable vertically towards each other on a substantially horizontal axis extending thru the end section and having coxial hinge pins integrally formed therewith and extending from the outer sides of said branches respectively, two brackets adapted to support the ends of a towel roll thereon and each having a pair of opposed upper and lower side walls with axially aligned holes respectively to receive said pins with a hinge fit, the upper and lower branches of each end section when free from restraining stress being spread too far apart with their hinge pins to fit between the two side walls of the corresponding end bracket but being resilient enough to permit them to be resiliently pressed towards each other during assembly, so that they can slide between the latter bracket walls until said hinge pins snap into the holes in the latter bracket walls.

8. A towel roll holder made entirely of plastic and comprising a back bar adapted to be secured to a supporting wall and having an intermediate section adapted to engage the supporting wall in supported position of the holder and having opposite resilient end sections slanting forwardly away from said intermediate section to define wing extensions spaced from the supporting wall in supported position of the holder, each of said end sections being longitudinally slotted to define upper and lower branches resiliently movable towards each other, and having coaxial hinge pins integrally formed therewith and extending from the outer sides of said branches respectively, two brackets adapted to support the ends of a towel roll thereon, and each having a pair of opposed upper and lower side walls, with axially aligned holes respectively to receive said pins with a hinge fit, the upper and lower branches of each end section when free from restraining stress being spread too far apart with their hinge pins to fit between the two side walls of the corresponding end bracket but being resilient enough to permit them to be resiliently pressed towards each other during assembly, so that they can slide between the latter bracket walls until said hinge pins snap into the holes in the latter bracket walls, said end sections having abutment engagements with said brackets limiting said brackets to extended operative positions where they receive the towel roll snugly therebetween, said brackets being adapted to be spread apart beyond said limited positions to permit the mounting of a fresh roll thereon or the dismounting of an empty roll therefrom, said bracket spreading action being permitted by the resilient flexing of the end sections rearwardly about the ends of the intermediate section as said brackets are spread apart beyond said limiting positions.

9. A towel roll holder comprising a back bar adapted to be secured to a supporting wall, two brackets adapted to support the ends of a towel roll thereon, each of said brackets comprising a main body substantially in the form of a shallow dish comprising a base having a surface which faces in a direction toward the other of the brackets when in roll-supporting position and a peripheral wall member including opposed side walls extending in said direction and having an internal reinforcing rib structure carried on said surface and extending in said direction, and a liner seated on said rib structure and secured to said main body, said liner having a journal conformation upon which the end of a towel roll tube may be fitted, said liner being spaced from the rear end of the bracket to define an open chamber on the rear of the bracket to receive the corresponding end of the back bar, and resilient pin and hole snap hinge connections between the ends of said back bar extending into said bracket chambers and the opposed side walls of the brackets.

10. A towel roll holder as described in claim 1, wherein said brackets are the same and interchangeable.

11. A towel roll holder as described in claim 9, wherein said brackets are the same and interchangeable.

12. A towel roll holder as set forth in claim 1 wherein said rear portions and said rearward portions are provided by reinforcing ribs.

References Cited in the file of this patent

UNITED STATES PATENTS

1,803,016	Harsted	Apr. 28, 1931
1,999,759	Hope	Apr. 30, 1935
2,072,519	Carpenter et. al.	Mar. 2, 1937
2,561,972	Cederberg	July 24, 1951
2,566,883	Gove	Sept. 4, 1951
2,693,602	Meath	Nov. 9, 1954

FOREIGN PATENTS

12,030	Great Britain	May 15, 1914