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H. F. STEMKE ET AL

3,365,684

SHOWER CURTAIN RETAINING MEANS

Filed July 6, 1965

Fig-1

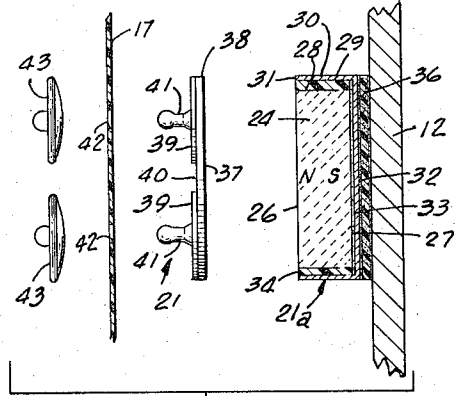
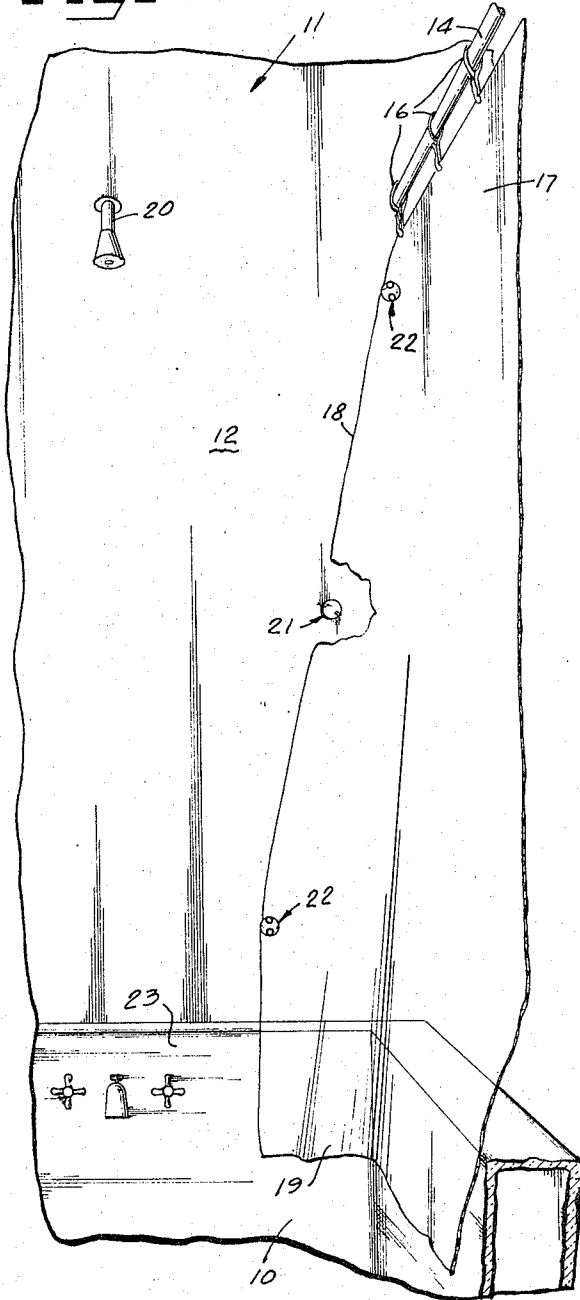


Fig-2

Fig-3

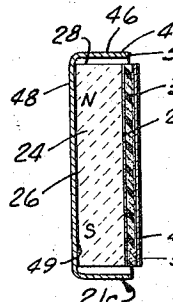
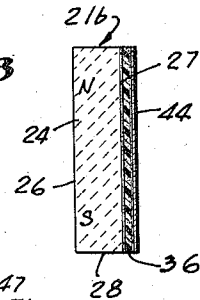
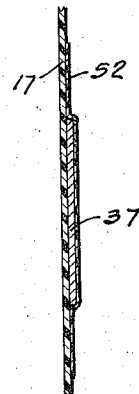


Fig-4

Fig-5



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**SHOWER CURTAIN RETAINING MEANS**

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**ABSTRACT OF THE DISCLOSURE**

Magnetic elements adapted for mounting on the loose end of a shower curtain and on an adjacent bath area defining wall to maintain the end of the curtain in closing relation with the wall to prevent water splashing outside the bath area.

*Background of the invention*

This invention relates generally to the subject of shower curtains and more particularly to a method and apparatus for maintaining a shower curtain enclosing an open side of a shower stall, shower-equipped bath tub, or the like, in suitable position for properly deflecting spray water from the shower nozzle and for preventing the shower water from splashing past the curtain along an adjacent side wall of the shower stall.

In tub or shower stalls equipped with a flexible shower curtain for drawing across the open side of the stall there is generally a tendency for the curtain to billow as a result not only of direct impingement of water spray but also as a result of air turbulence created by the spray.

Such billowing can cause the bottom of the shower curtain to rise above the side of the bath tub or the curb or ridge of the floor of the shower stall and allow the water to splash out of the tub or stall. Improvements have been made for eliminating this problem, however, such as the addition of weights in the bottom hem of the curtain as well as the provision of other suitable means for maintaining the lower end of the curtain inwardly of the curb or side of the stall or tub.

However the curtain is generally hung between a pair of stationary solid walls of the tub or shower enclosure, and in order to prevent the water from splashing out of the stall or tub zone as a result of billowing or merely the natural hanging of the curtain, it is necessary to maintain the opposite ends or edges of the shower curtain in contiguity with the stationary solid walls between which it is hung. Otherwise the spray water can splash past the open spaces between the ends of the shower curtain and the enclosure walls.

The present invention contemplates the provision of a method and means for maintaining the vertical edges of the flexible shower curtain up against or in close contiguity with the walls of the tub or shower enclosure. Accordingly, one or more magnetic elements are applied to the enclosure walls between the top of the shower curtain and the top of the side wall or the curb of the floor of the shower stall, and a corresponding number of complementary vertically aligned magnetic elements are secured to the adjacent edges of the shower curtain. As a consequence a user of the shower, after drawing the flexible shower curtain across the open space of the shower enclosure need merely grasp the magnetic elements secured to the edges of the shower curtain and engage them with their corresponding magnetic elements secured to the opposite side walls of the shower enclosure. After showering the user need merely grasp the curtain in the usual manner to draw it to one side, since the magnetic forces acting between the corresponding elements, while great enough to prevent pulling of the shower curtain away from the

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enclosure walls due to the billowing effect of the curtain, are not so great as to require much more than the usual force required to draw the curtain to one side away from the enclosure walls.

*Summary of the invention*

The present invention may be briefly defined as comprising a plurality of first magnetic elements adapted to be mounted in spaced relation on the side wall of a shower stall in a substantially vertical line between the top and bottom edges of an associated flexible shower curtain, and a corresponding plurality of second magnetic elements adapted to be secured to the edge of the shower curtain in vertical alignment with said first elements. Each of the first elements comprises a ceramic magnet having a side wall and a pair of spaced parallel end walls. A steel ring having an axial dimension which is greater than that of the magnet encircles the side wall of the magnet.

In one form of the invention one end of the steel ring is open and flush with one end of the magnet. A filler is disposed between the side wall of the magnet and the steel ring and the other end of the magnet is cemented to the closed end of the ring. A double coated adhesive foam tape is disposed on the outside surface of the closed end of the ring and a release paper backing is disposed on the outer surface of the foam tape.

In another form of the invention the open end of the ring extends axially beyond the magnet. The foam tape is disposed on the end of the magnet corresponding with the open end of the steel ring and is dimensioned so as to extend axially outwardly beyond the steel ring.

It is, therefore, an object of the present invention to provide a method and means for maintaining adjacent end portions of a vertically depending flexible shower curtain in substantially contiguous relationship with the stationary vertical side walls of a shower stall, tub enclosure or the like.

Another object of the invention is to provide magnetic elements which can be easily applied to the walls of the enclosure without the use of any tools whatsoever and which can be removed without damage to the walls.

Another object of the present invention is to provide corresponding magnetic elements which can be easily and conveniently secured to an existing shower curtain and which can be quickly and inexpensively added to new shower curtains during the manufacture thereof.

A further object of the invention is to provide magnetic elements which are sized sufficiently large to permit convenient engagement thereof but are not so large as to appear unsightly.

Yet another object of the invention is to provide complementary magnetic elements having magnetic properties sufficient to maintain the shower curtain in contiguity with the side walls of the shower enclosure during utilization of the shower but not so great as to require a particularly unusual or abnormal pulling force to draw the curtain away from the side walls upon completion of the shower and egress of the user from the enclosure.

Still another object of the invention resides in the ascertainment of extremely suitable materials of construction and design of the magnetic elements to accomplish the purpose intended.

Many other features, advantages and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description which follows and the accompanying sheets of drawings, in which preferred structural embodiments incorporating the principles of the present invention are shown by way of illustrative example only.

In the drawings:

FIGURE 1 is a fragmentary perspective view of a

shower stall or shower-equipped tub enclosure provided with a flexible shower curtain for drawing across the open side of the enclosure and illustrating the magnetic elements of the invention secured to the enclosure wall and to an edge of the curtain for maintaining the curtain in contiguity with the wall;

FIGURE 2 is an enlarged exploded side view with portions in section illustrating a pair of complementary magnetic elements and the means provided thereon for attachment respectively to the shower curtain and to the wall of the shower enclosure;

FIGURE 3 is a side view of another embodiment of that one of a pair of magnetic elements which is attached to the wall of the shower enclosure;

FIGURE 4 is similar to FIGURE 3 but illustrates another embodiment of the magnetic element; and

FIGURE 5 is a sectional side view of another embodiment of the invention wherein a magnetic element is secured to the shower curtain by means of sheet form material bonded to the curtain.

As shown in the drawings:

In FIGURE 1 reference character 10 denotes the bottom portion of a shower zone indicated generally at reference numeral 11 and numeral 12 indicates one of several of the usual fixed side walls which enclose the shower zone. The bottom portion 10 may comprise, for example, a bath tub or the floor of a stall, and in any event, a vertically raised ridge, curb, bath tub wall or the like at 13 surrounds the periphery of the bottom of the shower zone.

Extending horizontally between the enclosure wall 12 and an oppositely facing enclosure wall is a curtain rod 14 which has a plurality of slidable brackets 16 mounted thereon for traversing the rod and for supporting a flexible shower curtain 17 depending therefrom.

The curtain 17 may be drawn back and forth across the rod 14 to provide ingress and egress of a user of the shower into and out of the shower zone 11. When the shower is being used, of course, one side or vertical edge 18 is pulled across to the adjacent enclosure wall 12 and the other edge of the curtain is drawn across to the oppositely facing enclosure wall. A bottom portion 19 of the curtain is placed inwardly of the wall 13 so that shower water sprayed from a shower nozzle or head 20 projecting from the wall 12 will flow down to the floor of the shower zone.

As noted, direct impingement of the water spray and air turbulence created by the spray have a tendency to billow the curtain 17, as a result of which and also as a result of the natural hanging of the curtain, the edge 18 of the curtain 17 has a tendency to withdraw from the enclosure wall 12. The open space between the edge 18 of the curtain and the enclosure wall 12 affords a path through which some of the spray water can splash from the shower zone 11 onto adjacent floor areas.

In accordance with the principles of the present invention, one or more first magnetic elements as indicated at 21 are applied to the enclosure wall 12 as well as to the oppositely facing enclosure wall and a corresponding number of second magnetic elements indicated at 22 are secured to the shower curtain 17 along the edges or margins thereof as indicated at 18. Thus, as the edges 18 of the curtain are drawn across to their corresponding enclosure walls, as at 12, mere engagement of the magnetic elements 22 with the corresponding elements 21 has the effect of maintaining the edge of the curtain in contiguity with the enclosure wall 12, thereby precluding any substantial splashing or spraying of the shower water out of the shower zone 11. In a preferred embodiment, the edges of the second magnetic elements 22 closest to the edges 18 of the curtain are between about  $\frac{1}{2}$ " to 1" from the edges 18.

In the illustrative embodiment of FIGURE 1, a total of three magnetic elements 21 are applied to the wall 12 between the top of the curtain 17 and the top of the

curb or wall 13, and are spaced along a line which slopes downwardly from the curtain rod 14 and inwardly of wall 13, whereby the edge 18 of the curtain 17, after the complementary magnetic elements 21 and 22 have been engaged with one another, extends at the bottom thereof partially around a front portion 23 of the wall 13.

Referring to FIGURE 2, one embodiment of the magnetic element 21 is indicated at 21a and comprises a disc-shaped magnet 24 having a pair of axially spaced radial end walls 26 and 27 and a circular peripheral side wall 28. In a preferred form of the invention the magnet 24 is constituted of ceramic "hard" magnetic material as understood by those skilled in the art. The term "hard" is used to connote enduring or permanent magnetic properties, while the term "soft" as used hereinafter connotes material having only temporary magnetic retention.

In the embodiment shown in FIGURE 2, the magnetic disc 24 is housed within an annularly shaped ring 29 arranged concentrically with respect to the disc 24 and having a peripheral side wall 30, the inner diameter of which is greater than the diameter of the peripheral wall 28 of the disc 24.

One end of the ring 29 is open and terminates at a front edge 31 of the wall 30 which is flush with or in radial alignment with the end wall 26 of the magnet 24. The ring 29 has an axial dimension which is greater than that of the magnet 24 and is closed at an opposite end thereof by means of an end wall 32 which overlies the end wall 27 of the magnet 24 and is situated in axial spaced relation therewith.

In order to retain the magnet 24 within the ring 29, a layer of cement material 33 is deposited between the interfacing radial end walls of the magnet and the ring and the void between the peripheral walls 28 and 30 of the magnet and the ring is deposited a filler material 34. The material of which the ring 29 itself is constituted may preferably be cold rolled steel.

The magnet 24 is polarized such that the entire face or radial end wall 26 thereof constitutes a north pole and the opposite wall 27 constitutes the south pole although it will be appreciated that the polarity may be reversed whereby the outer wall 26 constitutes the south pole and the inner wall 27 the north pole.

One material which has been found highly satisfactory as the filler 34 is manufactured by M and H Laboratory of Chicago, Ill. and sold under the trademark "Ready Patch."

In order to secure the magnetic element 21a to the enclosure wall 12 adhesive material as at 36 is carried on the end wall 32 of the ring 30 and as a result the element 21a can be easily and simply applied to the wall 12 by merely pressing the element against the wall. In a preferred form of the invention the material 36 comprises a double coated foam tape manufactured by Minnesota Mining and Manufacturing Company and sold under the legend "No. 4032," and has a strippable backing paper on the exposed or outer surface thereof prior to assembly in order to retain the adhesive qualities of the tape, as will be described more fully in respect of FIGURE 3.

The magnetic element 21 comprises a thin, disc-shaped member 37 having a peripheral side wall 38 of a diameter substantially equal to the diameter of the peripheral wall 30 of the ring 29. Member 37 may be constituted of a "soft" magnetic material such as magnetic stainless steel to serve essentially as an armature of the magnet 24.

In order to secure the member 37 to the shower curtain 17 one or more snap assemblies are provided, each of which comprises a plate 39 connected in fixed assembly to a back wall 40 of the member 37 and from which extends a finger portion 41 adapted to project through an aperture 42 formed in the curtain 17 and to receive in removable snap-on assembly a complementary snap fastener member 43.

In FIGURE 3, wherein similar reference numerals are used to denote similar parts, another embodiment of the

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magnetic element 21 is indicated at reference numeral 21b, which is similar to the magnetic element 21a of FIGURE 2 except that in this embodiment the opposite quadrants of the end wall 26 have opposite polarity, and furthermore the ring 29 is omitted. Also in FIGURE 3 a sheet of release paper backing 44 is carried on the outer surface of the foam tape 36 in order to retain the adhesive qualities of the tape until the magnetic element is applied to the enclosure wall 12. One paper backing satisfactorily utilized is manufactured by Punch Products Company of Chicago, Ill., and sold under the catalog number "Y-500." This backing can be easily stripped from the foam tape 36 for applying the magnetic element 21b to the wall of the shower enclosure.

Another embodiment of the magnetic element 21 is shown at 21c in FIGURE 4 and comprises the disc-shaped ceramic magnet 24 polarized in a manner similar to that of FIGURE 3. In this embodiment a cap or ring 46 houses the magnet 24 and includes a peripheral wall 47 having a diameter greater than the diameter of the peripheral wall 28 of the magnet 24 and having an axial dimension which is also greater than that of the peripheral wall 28. The cap 46 comprises a closed or front end wall 48 which overlies the front wall 26 of the magnet 24 and is bonded to the magnet by means of a coating of cement 49.

A layer of foam tape 36 is applied to the back end wall 27 of the magnet 24 and the thickness of the tape 36 is such that an outer surface 50 thereof protrudes axially outwardly beyond an edge 51 of the cap 46. A paper backing 44 is applied to the tape 36 in a manner similar to that illustrated in FIGURE 3. The cap 46 is preferably constituted of aluminum or non-magnetic stainless steel. It will be appreciated that the same magnetic element 21 shown in FIGURE 2 may be utilized with the embodiments of the magnetic elements 21b and 21c shown in FIGURES 3 and 4.

In the embodiment illustrated in FIGURE 5 the disc-shaped armature 37 is secured to the curtain 17 by means of an enveloping member 52 which overlies the armature and is bonded to the curtain 17 in a suitable manner. In a preferred form the member 52 is made of transparent polyester film tape manufactured by Minnesota Mining and Manufacturing Company and sold under the catalog number "853." The tape 52 may also be supplied with a split release paper backing so that the armature 37 can be secured as easily to existing shower curtains as well as to new shower curtains during the manufacture thereof. This tape, which is of the adhesive type, is preferred to temperature-sensitive thermoplastic tapes since a source of heat is not required in order to bond the tape to the shower curtain.

With respect to the appearance of the magnetic elements, both on the enclosure wall as well as on the curtain, to convenience in bringing the corresponding elements into magnetic engagement with one another, and also to the magnetic forces required in maintaining the corresponding elements in engagement, it has been determined that the overall diameter of both elements 21 and 22 is desirably within the range of about  $\frac{1}{2}$ " to  $1\frac{1}{2}$ ", and the axial dimension of the first magnetic elements is desirably within the range of  $\frac{1}{8}$ " to  $\frac{3}{8}$ ". In the embodiment illustrated in FIGURE 2 the steel ring 29 more preferably has an overall diameter of  $2\frac{1}{2}$ " and an axial dimension of  $\frac{7}{32}$ ".

It will also be understood that the principles of the present invention may also find utility in situations where in a bath tub is used without a shower. For example, children often splash water while bathing in a tub, and by utilizing a shower curtain pulled completely across the open side of the bath tub and held against the side walls of the tub enclosure by means of the present invention, the floor area of the bathroom can be kept substantially dry.

Although minor modifications might be suggested by those versed in the art, it should be understood that we

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wish to embody within the scope of the patent warranted hereon all such modifications as reasonably come within the scope of our contribution to the art.

We claim as our invention:

1. Means for maintaining a vertical edge of a flexible shower curtain in contiguity with an adjacent vertical side wall of a shower stall across an open side of which the curtain is hung, comprising

a plurality of first magnetic elements adapted to be mounted in spaced relation on the side wall in a substantially vertical line between the top and bottom edges of the curtain, and

a corresponding plurality of second magnetic elements adapted to be secured to the edge of the curtain in vertical alignment with said first elements,

each of said first magnetic elements comprising

an annularly-shaped ceramic magnet having a circular peripheral side wall of a given diameter and a pair of axially spaced radial end walls, an annular ring having a circular peripheral side wall of a diameter greater than the diameter of the peripheral side wall of said magnet and encircling the peripheral side wall of said magnet, the axial dimension of said ring being greater than that of said magnet and one end of said ring being closed and overlying one of said end walls of said magnet and the other end of said ring being open and extending axially beyond the other of said end walls of said magnet,

a coating of cement on said one end wall of said magnet to secure the magnet to the inner surface of the closed end of said ring, and a double coated adhesive foam tape on said other of said end walls of said magnet for applying said magnet to the side wall of said shower stall,

said foam tape being dimensioned so as to extend axially beyond the open end of said ring.

2. The apparatus as defined in claim 1 in which said annular ring is constituted of aluminum.

3. The apparatus as defined in claim 1 in which said annular ring is constituted of non-magnetic stainless steel.

4. Means for maintaining a vertical edge of a flexible shower curtain in contiguity with an adjacent vertical side wall of a shower stall across an open side of which the curtain is hung, comprising

a plurality of first magnetic elements adapted to be mounted in spaced relation on the side wall in a substantially vertical line between the top and bottom edges of the curtain, and

a corresponding plurality of second magnetic elements adapted to be secured to the edge of the curtain in vertical alignment with said first elements,

each of said first magnetic elements comprising

an annularly-shaped ceramic magnet having a circular peripheral side wall of a given diameter and a pair of axially spaced radial end walls,

an annular steel ring having a circular peripheral side wall of a diameter greater than the diameter of the peripheral side wall of said magnet and encircling the peripheral side wall of said magnet, the axial dimension of said ring being greater than that of said magnet and one end of said ring being open and flush with one end of said magnet whereby said one end of said magnet is adapted to magnetically receive a corresponding second magnetic element and the other end of said ring being closed and in axial spaced relation to the other end of said magnet, a filler between the peripheral walls of said magnet and said ring and cement between said closed end of said ring and said other end of said magnet,

a double coated adhesive foam tape on the outside surface of the closed end of said ring for applying said first element to the side wall of the shower stall, and

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a release paper backing on the outer surface of said foam tape for maintaining the proper adhesive condition of the tape prior to the application thereof to the side wall of the shower stall.

5. The apparatus as defined in claim 4 in which said magnetic elements have an overall diameter which is within the range of about 1/2 inch to 1 1/2 inches.

6. The apparatus as defined in claim 4 in which the ceramic magnet is constituted of a hard magnetic material and the second magnetic element is constituted of a soft magnetic material.

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