

- [54] **ROD SUPPORTED SHOWER SLIDE WITH ECCENTRIC CLAMP**
- [75] Inventors: **Ernst Lüder; Günter Buzzi**, both of Schiltach, Black Forest, Germany
- [73] Assignee: **Firma Hans Grohe KG.**, Schiltach, Germany
- [22] Filed: **July 16, 1971**
- [21] Appl. No.: **163,266**

[30] **Foreign Application Priority Data**  
 July 17, 1970 Germany ..... G 70 26 951.1

- [52] U.S. Cl. .... **248/230, 248/125**
- [51] Int. Cl. .... **F16b 21/12**
- [58] Field of Search ..... 248/230, 221, 124, 248/125, 245, 411, 404, 336, 337, 354 C

[56] **References Cited**

**UNITED STATES PATENTS**

2,499,011	2/1950	Weeks .....	248/231 X
2,551,971	5/1951	Sandager .....	248/183
2,998,953	9/1961	O'Connor .....	248/183
2,878,673	3/1959	Christensen .....	248/125 X
2,931,613	4/1960	Grohe .....	248/230

3,211,406 10/1965 Averett ..... 248/183

**FOREIGN PATENTS OR APPLICATIONS**

1,132,421 10/1968 Great Britain ..... 248/221

*Primary Examiner*—J. Franklin Foss  
*Attorney*—John J. McGlew et al.

[57] **ABSTRACT**

A rod supported shower slide includes a sliding body having a bore at one side for engagement around a rod on which it is slidable and a bore at an opposite end which is provided for a shower-spray holding pin. A blind bore extends substantially perpendicular to the bore for the rod and in this bore is rotatably supported a pin which carries an eccentric having a curvature corresponding to the curvature of the rod upon which the device is engaged. The pin may be rotated to cause the eccentric to engage in holding engagement with the rod. The slide body has a form of approximately an isosceles trapezoid. The side faces on each side are planar and they taper conically toward each other from one side at the large diameter bore for receiving the rod to the other side to the small diameter bore for receiving the holding pin, and each side end is rounded.

**9 Claims, 2 Drawing Figures**

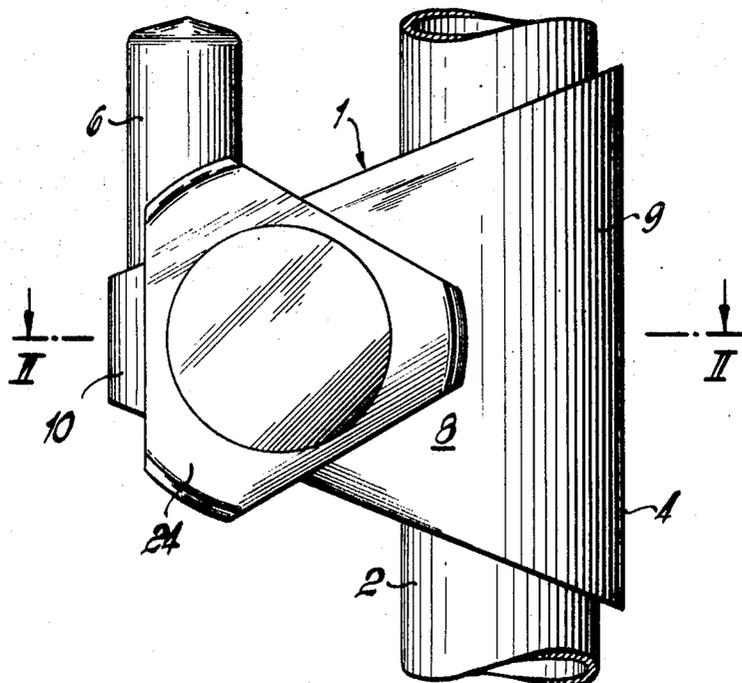


FIG. 1

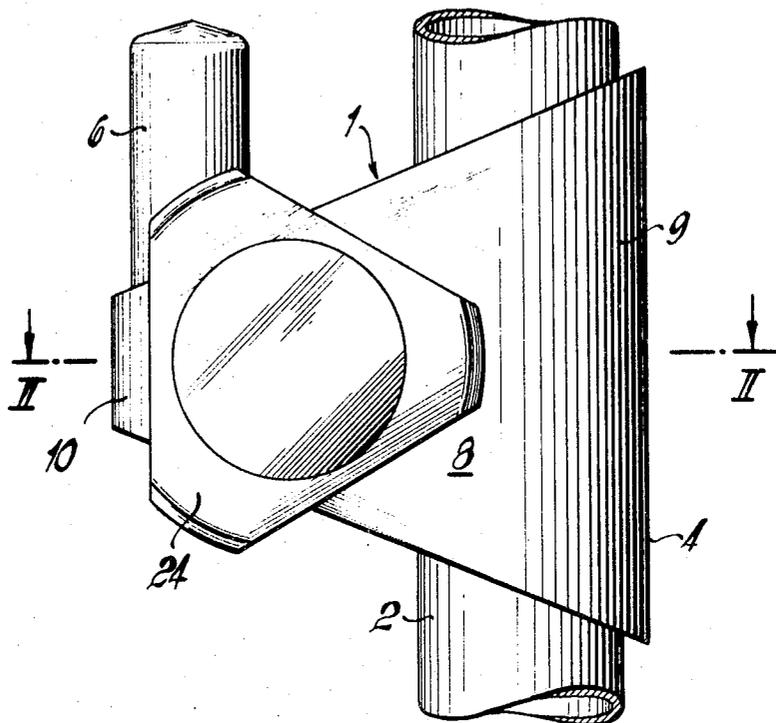
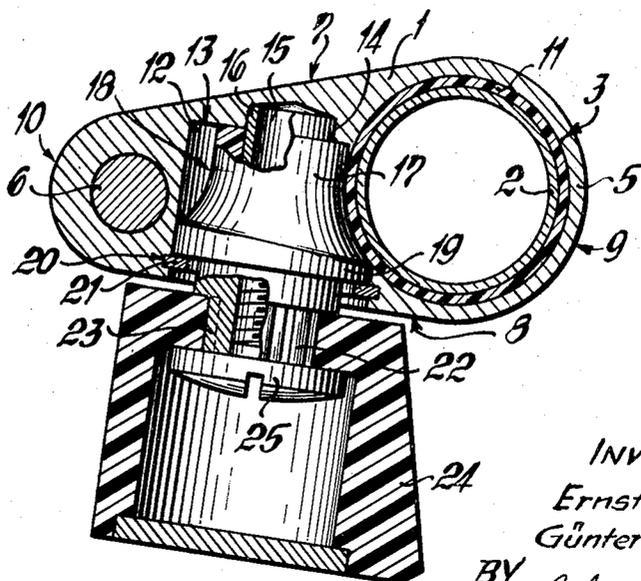


FIG. 2



INVENTORS  
Ernst LUDER  
Günter BUZZI  
BY John J. Mc Clew  
their ATTORNEY

## ROD SUPPORTED SHOWER SLIDE WITH ECCENTRIC CLAMP

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

This invention relates in general to the construction of slide holders and in particular to a new and useful hand shower holder which is displaceably mounted on a rod member and which has a blind bore extending substantially perpendicular to the axis of the rod member which carries an eccentric for clamping the device at a position along the rod member.

#### 2. Description of the Prior Art

The present invention relates in particular to a device for displaceably holding a hand shower on a rod and which comprises a slide body which has a sleeve bore receiving the rod and a cross bore normal thereto which contains an eccentric clamp. The eccentric clamp serves to secure the hand shower holder on the vertically extending rod which may be fastened to a wall for example. The body also carries a holding pin at its opposite end which may be engaged with a hand shower. Hand shower holders are known including those which have clamping devices in the form of a pressure piece which is movable radially in relation to the rod and in which the pressure piece is pressed by means of a threaded part connected with a turning knob onto the surface of the rod when the holder is to be fixed in position. Usually due to the type of clamping device employed and the requirement that the sliding body should have a good sliding engagement on the rod so that it can be easily displaced, this requires a long sleeve bore for the slide and the known slide bodies aren't satisfactory in their design in several respects. The sliding bodies are made as a rule of a material such as solid brass, so that it is material to keep the body as small as possible both in respect to the cost and in respect to the weight. It is also important that the body form not only appear attractive but that it exhibit a flat smooth and uninterrupted surface to the greatest possible extent so that there will be no dirty corners and the sliding body will be easy to clean.

### SUMMARY OF THE INVENTION

In accordance with the present invention there is provided a hand shower holder which comprises an improvement over the known shower holders inasmuch as it provides an attractively appearing body which is capable of easy sliding movement and which has an eccentric clamping device which has the advantage over the previously known devices in that it can be accommodated completely within the sliding body itself and it is capable of producing a more desirable clamping effect.

In accordance with the preferred form of the invention the sliding body is provided with opposite side faces of approximately isosceles trapezoid form and they extend into curved end portions at each end with one end being larger than the other in order to have a bore sufficient to accommodate the engagement rod so that the side faces extend substantially conically to each other and merge steadily from the widened end to the smaller end in which is located the pin for the shower holder.

The sliding body of the invention has many advantages over the prior forms of construction. It is very attractive and of very simple geometric form and it may

be formed of a very small mass volume. It has practically only three external faces which are perfectly flat and smooth and exhibit no negative or positive discontinuities whatsoever, such as grooves, corners or projections. In addition, the sleeve bore, although it is limited above and below the areas extending trapezoidally obliquely, exhibits very good guiding properties as the tilt diagonal responsible for this is relatively long.

An advantageous form of the invention comprises a construction in which one of the side faces contains a blind bore which extends perpendicular to this face and which provides a flat bottom face with a cylindrical pivot bearing. The pivot bearing provides a mounting for an eccentric contained in the blind bore and a handle is connected to the pin and projects from the side face of the body in a position in which it may be easily turned in order to tighten the eccentric against the rod member which is received in a bore which is in communication with a blind bore. The eccentric is formed of the curvature of the rod so that a line contact or even an area contact with the rod is effected rather than a point contact. This means that a much higher clamping force is attainable without danger of damage to the rod surface. The eccentric is advantageously made up of material such as plastic, or is coated with a plastic covering, so that there will be no damage to the rod during any clamping engagement thereof.

The eccentric comprises a cylindrical member with a surface formed in an axial direction corresponding to the curvature of the rod member which is accommodated in the rod receiving bore adjacent the blind bore. This insures that the eccentric will have a good frictional adhesion with the rod when it is clamped thereto, particularly when the eccentric is made of a plastic material or is coated with a plastic covering. A simple installation and reliable support for the eccentric shaft in an axial direction is obtained by an annular locking element which is seated in an annular groove of the cross bore so that it defines a surface at the end of the bore against which the eccentric may bear during its rotation. The eccentric shaft includes a projecting portion with a plurality of radial detent elements or projections which engage into the interior bore of a knob of plastic which is mounted thereover and secured by an axially extending screw.

Accordingly it is an object of the invention to provide an improved slide member which is engageable on a rod member for movement therealong and which is adapted to hold a shower and which is formed of a shape to provide a maximum slide area engagement with the rod member over which it is movable and is provided with an eccentric clamping element contained in a bore defined in the body which extends it in an angle to the axis of the rod member.

A further object of the invention is to provide a hand shower holder which includes a body made of generally isosceles trapezoidal configuration and which has a flat surface at each side which extends substantially conically from a larger diameter bore portion, to accommodate a rod member on which the holder is slidable, to a smaller diameter bore portion for accommodating a shower pin holder, and having a body with smooth surfaces which are not subject to the accumulation of dirt and a shape providing a maximum of bearing surface area for sliding engagement with a minimum of mass volume.

A further object of the invention is to provide a shower holder which is simple in design, rugged in construction and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and specific objects attained by its uses, reference should be had to the accompanying drawing and descriptive matter in which there is illustrated a preferred embodiment of the invention.

#### BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a side elevational view of a shower holder constructed in accordance with the invention;

FIG. 2 is a section taken along the lines II—II of FIG. 1;

#### GENERAL DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in particular the invention embodied therein comprises a holder including a sliding body 1 which is engaged over a rod member 2 for vertical upward and downward movement therealong.

In accordance with the invention the slide body 1 includes a large diameter sleeve bore 3 for the reception of the guide rod 2 and the opposite end is provided with a small diameter bore for receiving a holding pin 6 on which a hand shower may be inserted. The body has the form of an isosceles trapezoid with the sleeve bore 3 being arranged along the base line 4 of the trapezoid. The outer part of the circumference has a thin wall 5 which forms a smooth curved transition between a first planar side wall 7 and a second planar side wall 8. The bore for the pin 6 and the sleeve bore 3 extend parallel to each other so that the holding pin 6 may be held at a fixed distance from the tubular support rod 2. The side faces of the side wall 7 and 8 are perfectly flat and extend conically to each other from the large diameter sleeve bore 3 to the small diameter bore for the pin 6 and they merge steadily into the rounded end wall 10 from the opposite rounded end wall 9.

In order to increase the sliding properties of the sleeve bore 3, the bore is lined with a plastic covering 11 which bears against the outer surface of the rod 2.

Extending perpendicular to the side face 8 there is arranged a cylindrical cross bore or blind bore 12 which partly overlaps the sleeve bore 3. The blind bore 12 has a flat bottom or interior face 13 with a pivot bearing recess 14 extending inwardly therefrom.

Clamping means in the form of an eccentric having a shaft 16 includes a concentrically arranged free end 15 which is rotatably supported in the pivot bearing 14. The shaft 16 carries an eccentric 17 which is affixed to the shaft 16 for rotation therewith. The eccentric 17 is in the form of a truncated cone with a concave generated side surface 18 adapted to the rounding of the rod 2. The eccentric 17 is made of a plastic material and it has a cylindrical guiding portion 19 which is guided during its rotation with the shaft 16 within the blind bore 12. The shaft 16 with the eccentric 17 is secured against axial displacement by an annular lock element 21 in the form of a washer which is mounted in an annular groove 20 of the cross bore 12 adjacent the outer end thereof. The eccentric 17 or the shaft 16 is provided with a concentrically arranged cylindrical part

which projects outwardly from the blind bore 12 and is provided with a plurality of radial detent elements or projections 22 which tightly engage within corresponding formations within a knob member 24. The knob member 24 is made of a plastic material and which is secured to the eccentric 17 and the shaft 16 by an axial screw 25.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A hand shower holder displaceable on a rod, comprising a sliding body with a large sleeve bore receiving the rod and a cross bore directed substantially perpendicularly thereto and partly overlapping the sleeve bore, a rotatable adjustable eccentric member rotatably mounted in the cross bore, said body having a small holding pin bore, a holding pin on said body located in said bore in spaced relation to the sleeve bore and directed parallel thereto, said slide body having, in side view, (FIG. 1), the form of at least approximately an isosceles trapezoid and having smooth side faces which are flat and extend conically in relation to each other and merge in rounded parts at the respective ends in a direction from the larger sleeve bore end to the smaller pin bore end, said body having a trapezoidal base line extending parallel to the sleeve bore, said cross bore extending inwardly from one of said side faces and having a flat bottom interior face with a cylindrical pivotal bearing rotatably supporting said eccentric, said eccentric comprising a truncated cone having a concave generated surface complimentary to the rounding of the rod which is engageable with the rod for clamping the slide body in position along the rod.

2. A hand shower holder according to claim 1, wherein said eccentric comprises a plastic material at least on its outer surface which is engageable with the rod for clamping.

3. A hand shower holder according to claim 1, wherein said eccentric includes a cylindrical base portion rotatably supported within said cross bore.

4. A hand shower holder according to claim 3, wherein said cross bore includes an annular groove adjacent the outer end thereof and a locking washer positioned in said groove and supporting said eccentric within said bore.

5. A hand shower holder according to claim 4, wherein said eccentric includes a shaft portion with an outer end extending outwardly from said cross bore and a knob of plastic material secured to the outer end of said shaft portion.

6. A slide holder according to claim 1, wherein said means for supporting an object comprises a pin extending substantially parallel to the cross bore and arranged at the opposite end of said side end walls, said first and second side walls being tapered inwardly from said end with the cross bore toward the end moving said pin.

7. A slide holder which is adapted to be slid along a support rod particularly for hand shower sprays, comprising, a slide body having spaced first and second side walls of generally triangular shape and side-end walls between the sides of the side walls with a support rod bore extending therethrough adjacent one end for receiving the support rod therethrough for sliding engagement therewith, means adjacent the opposite end

5

of said slide body side-end walls for supporting an object, a blind bore extending inwardly from one of said side walls and into the support rod bore, an eccentric clamp rotatably supported in said blind bore and being engageable with the support rod for fixing the slide in a position therealong, said slide body being rounded at each front and back end between said side walls forming merging smooth front and back wall parts at each end between the spaced first and second side walls, the support rod bore extending through the widest part of said slide body to form a large slide engagement surface, said blind bore including an inner flat wall surface having a central cylindrical recess, said eccentric clamp including a shaft rotatably supported within said central recess and an eccentric in the form of a truncated

6

cone secured to said shaft for rotation therewith located within said blind bore and having a generated surface complimentary to the surface of the rod for engagement therewith.

5 8. A slide holder according to claim 7, including a plastic liner in said support rod bore for facilitating sliding engagement of said slide body with said support rod.

10 9. A slide holder according to claim 7, including a knob connected to said shaft and extending outwardly from one of said first and second side walls for rotating said shaft to shift said eccentric toward and away from the support rod.

\* \* \* \* \*

20

25

30

35

40

45

50

55

60

65