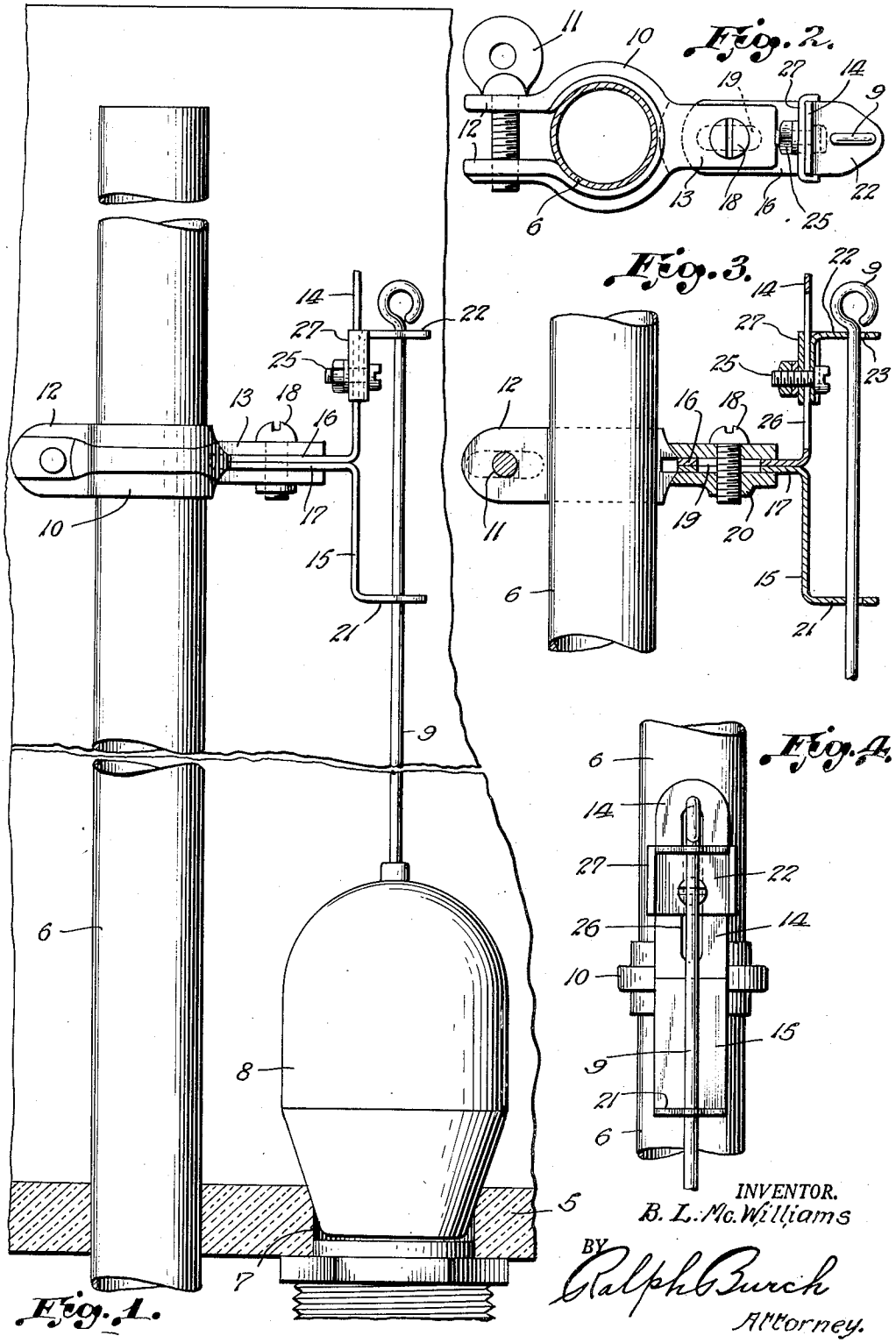
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GUIDE FOR FLUSH BALL LIFT RODS

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GUIDE FOR FLUSH BALL LIFT RODS

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3 Claims. (Cl. 4—57)

1

This invention relates to an adjustable guide for flush ball lift rods.

In the conventional type of water closet flush tank the lift rod guide is attached to the overflow pipe and depends largely upon the overflow pipe being disposed in a true perpendicular plane to properly aline the lift rod to insure proper seating of the flush ball. As the overflow pipe is rarely disposed in a true perpendicular plane the guide is disposed in non-alinement with the axis of the ball seat and causes improper seating of the flush ball.

It is an object of the invention to provide a guide that irrespective of the position of the overflow pipe, the guide may be readily adjusted to truly aline the lift rod with the axis of the ball seat to insure proper seating of the flush ball.

A further object of the invention resides in providing a guide which will insure maximum guidance for the lift rod with a minimum of bearing surface between the rod and guide so the rod is freely movable.

Another object of the invention resides in providing a device of the above-mentioned character which is simple and durable in construction, efficient and reliable in operation and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same.

Fig. 1 is a side elevation view of the guide showing its association with the overflow pipe and flush ball lift rod,

Fig. 2 is a top plan view of the guide,

Fig. 3 is a longitudinal sectional view of the guide, and,

Fig. 4 is a front view of the guide.

In the drawing wherein for the purpose of illustration a preferred embodiment of the invention is shown the numeral 5 denotes a water closet flush tank having the usual overflow pipe 6 and discharge opening 7 normally closed by a flush ball 8 connected to the lower end of a lift rod 9.

Referring more particularly to my invention, a split clamp 10 embraces the overflow pipe 6 and is secured thereon in its adjusted position by a thumb screw 11 passing through the apertured ears 12, one of which is threaded for engagement with the threads of the screw. Formed integral with and projecting from the clamp is a bifurcated arm 13 for supporting guide brackets 14 and 15. The brackets are made from metal strips disposed in vertical alinement with their abutting ends 16 and 17 bent at right angles and adjustably fitted in the bifurcation of the arm 13. A set screw 18 passes through the arms 13 and longitudinal slots 19 in the ends 16 and 17 and is threaded in a boss 20 formed integral with the arm. The brackets 14 and 15 are thus freely adjustable in a horizontal plane and independently of each other. The free end of bracket 15 is bent at right angles to provide an apertured bearing lug 21 for the lift rod 9 attached to the flush ball 8 adapted to seat in the discharge opening 7. An angular bearing lug 22 is adjustably mounted on the free end of bracket 14 to receive and guide the upper end of the lift rod. The angular lug 22 is provided with apertures 23, one to receive the lift rod and the other for passage of a bolt 25 which extends through the longitudinal slot 26 of bracket 14 to adjustably secure the bearing lug 22 in its adjusted position. A flanged shim 27 is mounted on the bolt 25 with its flanges overhanging the marginal edges of the lug and bracket to secure the lug from turning on the bolt.

2

In use, the clamp 10 is attached to the overflow pipe 6 of the flush tank 5 and is secured in its adjusted position by the thumb screw 11. As the brackets 14 and 15 are independently adjustable, the bearing lugs 21 and 22 may be positioned in true vertical alinement with the axis of the discharge opening 7, irrespective of the position of the overflow pipe to which the clamp is attached. Upon loosening the screw 18 the brackets may be moved laterally towards or from the overflow pipe and may also be swung in a horizontal plane to secure a perfect alinement of the bearing lugs which support the lift rod 9 of the ball valve 8 and guide it in its movement. By having the bearing lug 22 adjustably mounted on the bracket 14 the distance between the bearing lugs 21 and 22 may be increased or decreased to provide the proper guidance for lift rods of varying lengths. At the same time the bearing lugs have a minimum of frictional contact with the lift rod thus reducing the danger of the rod sticking in the bearings when the lift rod moves up and down.

It is to be understood that the form of invention herein shown and described is to be taken as a preferred example of the same and that changes in the shape, size and arrangement of the parts may be made without departing from

the spirit of the invention or scope of the subjoined claims.

Having thus described my invention, I claim:

1. The combination with the lift rod of a flush ball and overflow pipe of a water closet tank, of a guide comprising a clamp for attachment to the overflow pipe having a laterally extending arm, a pair of brackets each having a straight body portion with an angular attaching lug at one end and an apertured bearing lug at its other end extending in opposite directions, said brackets having their body portions disposed in vertical alinement with the attaching lugs in confronting relation and the bearing lugs in spaced vertical alinement to receive the lift rod and means pivotally and slidably connecting the attaching lugs of said brackets to the arm of said clamp to permit independent radial and angular adjustment of said brackets.

2. A device of the character described in claim 1 wherein the bearing lug of one of said brackets is provided with a slot and bolt connection with the adjacent end of one of said vertical body portions whereby the said lug is mounted on the body portion for longitudinal adjustment towards and from the bearing lug of the other bracket.

3. The combination with the lift rod of a flush ball and overflow pipe of a water closet tank, of a guide comprising a clamp for attachment to the overflow pipe having a laterally extending arm, a pair of brackets each having a straight body portion with an angular attaching lug at one end and an apertured bearing lug at its other end extending in opposite directions, said brackets having their body portions disposed in vertical alinement with the attaching lugs in confronting relation and the bearing lugs in spaced vertical alinement to receive the lift rod, and a pivot bolt extending through the arm of said clamp and longitudinal slots in the attaching lugs of said brackets for pivotally and slidably connecting the attaching lugs to the arm to permit radial and angular adjustment of said brackets.

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