Oct. 6, 1925. 1,556,241

P. MUELLER

LOCKING WASHER AND SANITARY FLANGE GASKET FOR BASIN COCKS

Filed Nov. 23, 1921

Fig. 1.

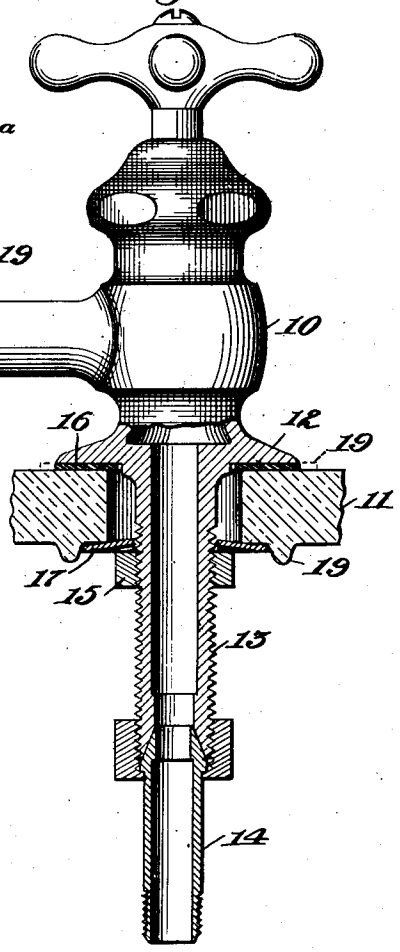


Fig. 7.

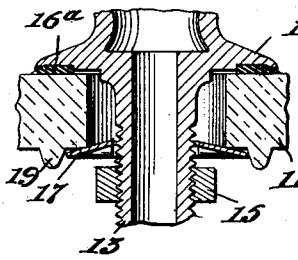


Fig. 8.

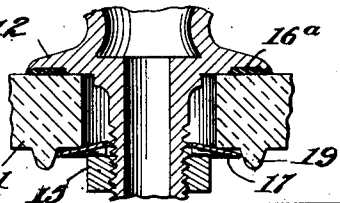


Fig. 2.

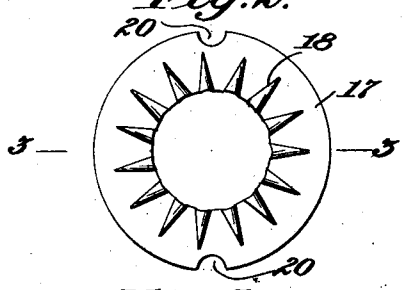


Fig. 4.

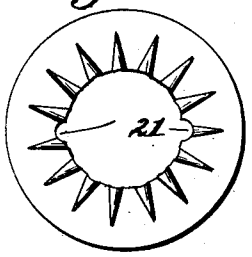


Fig. 3.

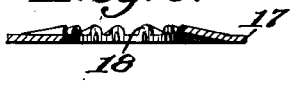


Fig. 5.

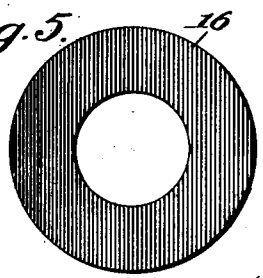
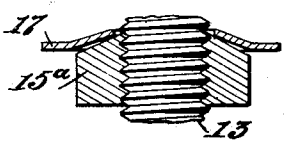


Fig. 6.



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Att'ys.

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UNITED STATES PATENT OFFICE.

PHILIP MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO ADOLPH MUELLER, TRUSTEE, OF DECATUR, ILLINOIS.

LOCKING WASHER AND SANITARY FLANGE GASKET FOR BASIN COCKS.

Application filed November 23, 1921. Serial No. 517,296.

To all whom it may concern:

Be it known that I, PHILIP MUELLER, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Locking Washers and Sanitary Flange Gaskets for Basin Cocks, of which the following is a specification.

The present invention relates to locking devices for fixtures, particularly water fixtures, and has for its object to provide sanitary locking instrumentalities for fixing a water or equivalent fixture to a suitable support or slab, such devices being of a character that will permit their adaptation to the fixture supports or slabs of various types using standard fittings or fixtures and the necessity of providing special securing means for different installations is avoided.

In the present disclosure the invention will be shown in connection with a water fixture, namely, a standard faucet, but it will be understood that it may be adapted to fixtures and installations other than the specific type here shown, the disclosure being merely illustrative.

Referring to the drawings herewith:—

Fig. 1 is a view in elevation, parts being in section to illustrate the invention, of a conventional or standard faucet,

Fig. 2 is a plan view of a locking washer,

Fig. 3 is a sectional view on the line 3—3 of Fig. 2,

Fig. 4 is a plan view of a locking washer,

Fig. 5 is a plan view of a sanitary locking washer which may be used in combination with the washers shown in Figs. 2 to 4, inclusive,

Fig. 6 is a sectional view illustrating a slightly modified form of lock nut, and

Figures 7 and 8 illustrate a slight modification of the yielding gasket that is arranged between the fixture and slab.

Referring to the drawings by numbers, like numbers indicating like parts in the several views, 10 indicates, conventionally, a fixture, the particular fixture here shown being a faucet.

A support 11 for the fixture is conventionally shown, the support in the present instance being a horizontal panel or basin slab having an aperture 12 therethrough to receive the shank of the faucet. These supports or slabs 11 are made in different styles, and vary in thickness, so that it is essential that fastening means for the fixture 10 be provided which can be adapted to the various styles and thicknesses of slabs or supports, and, furthermore, when formed of vitreous or enameled iron ware, such slabs 11 present uneven seating surfaces about the shank aperture formed therein, so that provision must be made to compensate for such uneven surfaces and secure a stable and accurate seating of the fixture or valve on the support.

The fixture 10 is provided with the usual shank 13 which passes through the aperture 12 and is coupled in any suitable manner to the supply pipe 14, conventionally shown in Fig. 1, the shank 13 being threaded to receive the lock nut 15 by which the fixture is secured in place.

To secure stable and accurate seating, with a sanitary joint between the faucet or fixture flange and the slab, and to securely lock the fixture in place, my invention contemplates the use of a gasket 16 of yielding material, such as rubber, seated beneath the faucet flange upon the support or slab 11. The gasket 16 will be of such material and dimensions as that it will yield to accommodate the fixture 10 and bring it to a firm level seat, said gasket, when tightly compressed, in the installation of a fixture, effectually sealing the joint between the support or slab 11 and the flange of the fixture so that leakage under and about the faucet flange and through the aperture 12 cannot occur. Preferably, the gasket 16 will be of a size co-extensive with the area of the flange of the faucet, and as the peripheral edge of the gasket will, under pressure, be somewhat extruded beyond the edge of the flange, as indicated in dotted lines at 19 in Fig. 1, such extruded portion may be readily cut close to the edge of the flange and give a smooth and attractive joint between the support 11 and the flange of the faucet 10.

Not only does this gasket 16 give a tight joint and a level seating for the fixture, but when the parts are drawn snugly together, as will hereinafter appear, the frictional engagement of the parts due to the gasket will materially aid in holding the fixture in its set position and guard against its accidental angular displacement on its support.

It is, of course, essential that the fixture 10, thus mounted, be locked against vertical, horizontal or angular movement, the aper-

tures 12 in these slabs being usually considerably larger than the faucet shank so that these several movements, unless the fixture is locked, would be possible. I accomplish the locking of the fixture by means of the washer 17, shown in Figs. 2 and 3, in conjunction with the usual lock nut 15 heretofore referred to. The washer 17 is formed of thin sheet metal, preferably a resilient metal, such as steel, so that it will yield under stress of the nut 15 as that nut is set up on the threaded shank 13. In order to secure the proper locking engagement between the parts the washer 17 will be formed with a plurality of projections 18, preferably radially disposed as shown, and formed by stamping up the thin metal of which the washer 17 is made so that the projections 18 radiate from the central aperture in the washer. The projections 18 here shown on the upper side of the washer will, when pressure is exerted by the nut 15, engage the lower surface of the support or slab 11 with sufficient friction to lock the washer against movement under ordinary turning strains applied to the fixture, or against stress tending to move the fixture horizontally on its support. Where the aperture 12 is of considerable size, as, for example, of larger area than the nut 15, as shown in Fig. 1, the washer 17, which is resilient, will be centrally sprung or distorted, as conventionally indicated, giving a spring grip on the support 11 and the edge of the aperture 12.

By combining the thin resilient washer below the support or slab 11 and the yielding flange washer above the slab I am enabled to get a very close assemblage of parts and a frictional grip above and below the slab, which will effectually prevent any horizontal or angular shifting of the fixture, and, furthermore, the installation is entirely clean and sanitary, as there can be no objectionable leakage or drip about the faucet and down its shank to corrode the parts below the slab. The construction does away with the necessity of making a plaster of Paris or puttied joint beneath the flange of the faucet, which has heretofore been resorted to overcome the leakage which is apt to occur beneath the flange and over the uneven surface of the slab and to lock the fixture against angular shifting. The gasket in the present construction below the flange of the fixture 10 effectually seals the joint regardless of the surface of the slab and cooperates with the locking washer 17 to lock the fixture in position.

The gasket absolutely seals the opening in the slab and excludes all moisture therefrom. It is greatly superior to plaster of Paris or putty, which shrinks when drying and leaves spaces through which both liquid and solid matter can gain entrance to the opening about the faucet shank.

Some manufacturers put out slabs or basin tops having lugs, as 19, on their lower surfaces which are designed to engage certain of the locking instrumentalities now in use, and in order to accommodate such slabs the locking washer 17 may, as shown in Fig. 2, be provided with the notches 20 in its outer periphery, which notches will straddle the lugs 19 and permit the locking washer to lie flat against the under surface of the slab. This expedient adapts the washer very conveniently to this form of basin top.

In certain types of faucets known in the art there has been provided vertically disposed ribs at the upper part of the shank, which ribs were designed to engage other necessary parts of the fixture, and in some instances the apertures through the slabs were so made as to closely fit the faucet shank, and provided with radial recesses to receive such lugs on the shank. In order that my washer may be adapted to this style of shank it may be provided, as shown in Fig. 4, with radially disposed apertures 21 on its inner periphery which will straddle the shank lugs and permit the washer to be brought closely against the slab or basin top.

It will be understood that either or both of these expedients to take care of known types of slabs and faucets just described and illustrated in Figs. 2 and 4 may be adopted or omitted, if desired.

Instead of employing an ordinary lock nut 15 as shown in Fig. 1, a nut 15^a having an upper tapering portion, as shown in Fig. 6 may be used. This form of nut will act to centre the faucet shank and furnish an even more secure connection thereof with the slab than is obtained by using the ordinary nut illustrated in Fig. 1.

The yielding gasket need not be of such width as to extend continuously from the faucet shank to the periphery of the flange thereon; but, as shown in Figs. 7 and 8, may be simply a relative narrow ring 16^a having a portion seated in an annular groove formed in the lower surface of the flange on the faucet shank.

As shown in Fig. 8 the outer peripheral edge of the gasket 16^a is slightly beveled while the inner edge extends substantially vertically to the faces thereof and the groove in the faucet flange is of corresponding shape in cross section. There is a square abutment, therefore, between the inner edge of the gasket and the contacting wall of the groove which effectually prevents inward movement of the gasket as the flange is drawn into close contact with the slab.

When the flange is drawn down into close contact with the slab about the hole therein, as shown in Fig. 8, the gasket will be compressed and the beveled portion thereof will permit outward expansion along the correspondingly inclined wall of the groove

so that its periphery will be flush with or project slightly from the periphery of the faucet flange. Any portion of the gasket that projects beyond the flange may be removed as hereinbefore described.

In both of the forms referred to the gasket provides a tight, close, joint between the flange and slab so that entrance of liquid or solid matters between them is positively prohibited.

Changes from the disclosure here made which are mere changes in mechanical structure or design may, of course, be made and still be within the range of my invention.

I claim:

1. The combination of an apertured support, a flanged fixture having a threaded shank projecting through said aperture, a gasket of yielding material between the flange of said fixture and said support, a resilient disk-like lock washer on the shank of said fixture on the other side of said support having locking projections on its surface, and a lock nut threaded to said shank and engaging said washer centrally to force it against said support and compress said gasket.

2. The combination of an apertured support, a flanged fixture having a threaded shank projecting through said aperture, a gasket of yielding material between the flange of said fixture and said support, a resilient disk-like lock washer on the shank of said fixture on the other side of said support having radially disposed upset locking projections on its surface, and a lock nut threaded to said shank and engaging said washer centrally to force it against said support and compress said gasket.

3. The combination of an apertured support, a flanged fixture having a threaded shank projecting through said aperture, a gasket of yielding material between the flange of said fixture and said support, a disk-like resilient lock washer on the shank of said fixture on the other side of said support having locking projections on its upper surface, and a lock nut threaded to said shank and having a tapering end engaging said washer centrally to force it against said support and compress said gasket.

4. The combination of an apertured support, a flanged fixture having a threaded shank projecting through said aperture, a gasket of yielding material between the flange of the fixture and the support, a resilient lock washer on the shank of the fixture on the other side of the support from the flange, means for holding the washer against rotary movement, and a lock nut threaded to the shank and engaging the washer to force it longitudinally of the shank against the support and compress the gasket.

5. The combination of an apertured support, a flanged fixture having a threaded shank projecting through said aperture, the face of the flange adjacent the support having an annular recess formed therein, the portion of the flange surrounded by the recess being adapted to contact directly with the support, a gasket of yielding material arranged within said recess in the face of the flange, a resilient lock washer on the shank of the fixture on the opposite side of the support from the flange, and a lock nut threaded to the shank and engaging the washer to force it longitudinally of the shank against the support and compress the gasket, the portion of the flange surrounded by the annular recess preventing the gasket from expanding in a direction toward the fixture shank.

In testimony whereof I have hereunto set my hand.

PHILIP MUELLER.