May 8, 1956 A. W. HARKNESS 2,744,258

FLUSH VALVE AND VALVE OUTLET

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Fig. 1

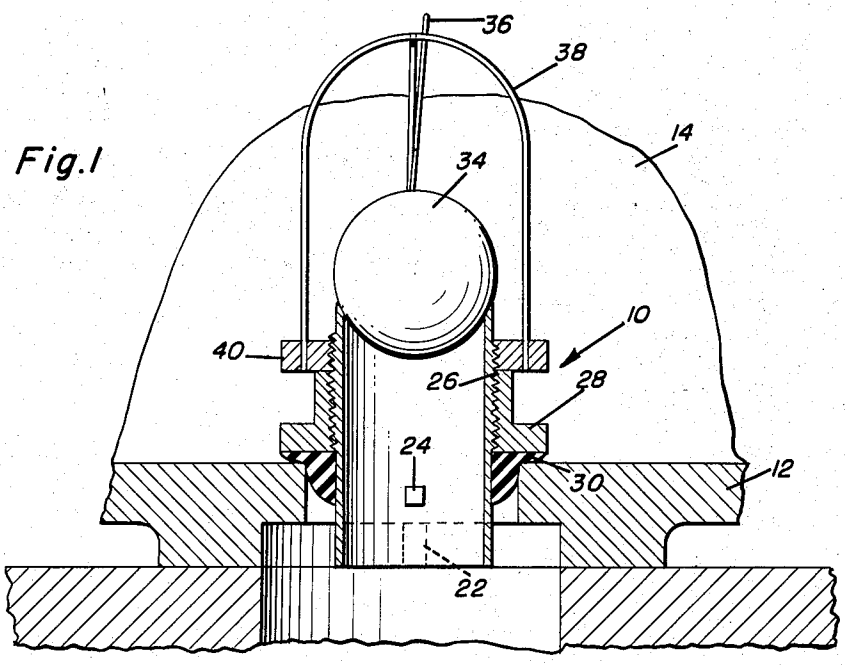


Fig. 2

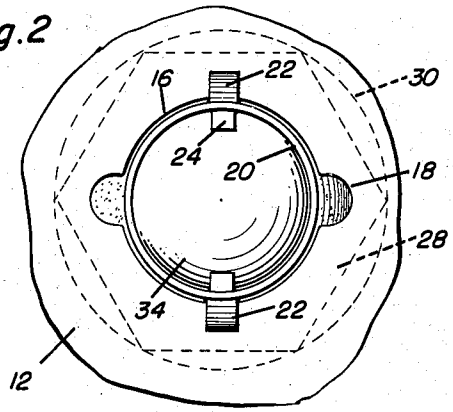


Fig. 3

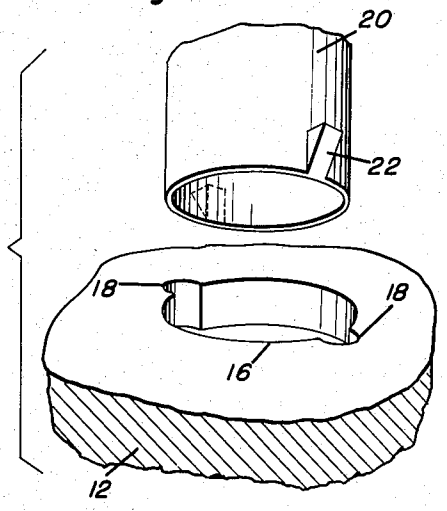
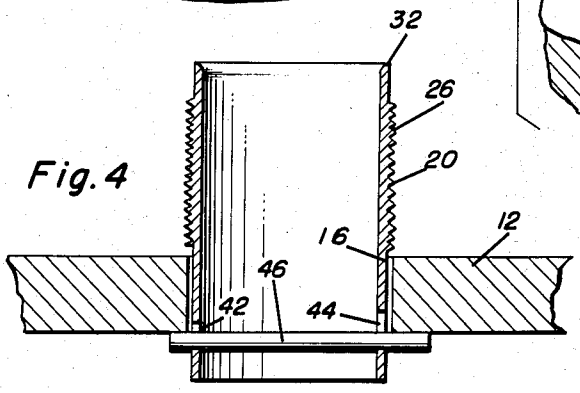


Fig. 4



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FLUSH VALVE AND VALVE OUTLET

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1 Claim. (Cl. 4—52)

This invention relates to a flush valve and valve outlet and more specifically provides an improved means for securing the discharge valve outlet to the bottom of the toilet tank.

An object of this invention is to provide a flush valve and valve outlet comprising a tubular discharge pipe having projections on the outer surface thereof for engaging the under surface of the bottom of a toilet tank and a clamp or lock nut and a sealing gasket engaging the upper surface of the bottom of such a tank.

Another object of this invention is to provide a flush valve and valve outlet which replaces the usual outlet in an easy and efficient manner.

A still further object of this invention is to provide a flush valve and valve outlet which is simple in construction, easy to attach, well adapted for its purposes, and relatively inexpensive to manufacture and maintain.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, and wherein like numerals refer to like parts throughout and in which:

Figure 1 is a vertical section taken substantially along the longitudinal center line of the device of the present invention;

Figure 2 is a bottom plan view of the construction of Figure 1;

Figure 3 is a group perspective showing the bottom end of the tubular discharge pipe and the aperture in the bottom of the tank for receiving the discharge pipe; and

Figure 4 is a vertical section taken substantially through the center line of a modified form of the valve outlet of the present invention.

Referring now specifically to the drawings it will be seen that the numeral **10** generally designates the flush valve and valve outlet of the present invention for attachment to the bottom **12** of a conventional toilet tank **14** wherein the bottom **12** has an aperture **16** with oppositely disposed slots **18** in the side walls of the aperture **16**.

As specifically shown in Figures 1–3, the valve outlet **10** includes a tubular sleeve **20** having projecting lugs **22** disposed oppositely on the outer surface of the sleeve **20** at its lower end. A pair of oppositely disposed and internally projecting lugs **24** are disposed on the inner surface of the tubular sleeve **20** and are arranged to be positioned adjacent the projecting lugs **22**. The upper external surface of the tubular sleeve **20** is provided with external threads **26** for engaging an internally threaded lock nut **28**. A sealing gasket **30** is positioned between the lock nut **28** and the bottom **12** of the tank **14** for sealing the aperture **16** and the slots **18** in water-tight relation. The upper end of the sleeve **20** is cylindrical and is generally tapered as indicated by the numeral **32** for receiving a ball valve **34** which is attached to a flexible line **36** that is connected to the lifting arm of a conventional valve ball operating mechanism.

A cage generally indicated by the numeral **38** is secured to an internally threaded nut **40** which is detachably attached to the upper end of the external threads **26**

for retaining the valve ball in alignment with the valve ball seat **32** on the upper end of the sleeve **20**.

As illustrated in Figure 4, the tubular sleeve **20** is provided with an aperture **42** in the circumference of the tubular sleeve and a larger aperture **44** located diametrically opposite to the aperture **42**. A rod **46** is slidably positioned in the apertures **42** and **44** and project outwardly from the tubular sleeve **20** for positioning against the under surface of tank **14** thereby retaining the sleeve **20** in the aperture **16**.

The aperture **44** is generally larger than the aperture **42** thereby permitting the tubular sleeve to be inserted in the aperture **16** and the rod **46** inserted through the aperture **44** and permitting the rod **46** to be moved to horizontal position and moved reversely through the aperture **42** thereby fastening the tubular sleeve **20** to the bottom **12** of the tank **14**.

The operation of the device as illustrated in Figures 1–3 will be readily understood. The tubular sleeve **20** is inserted through the aperture **16** with the lugs **22** disposed in the slots **18**. The sleeve **20** is then rotated 90 degrees for positioning the lugs **22** in engagement with the under surface of the bottom **12**. The sealing gasket **30** is then placed on the upper end of the sleeve **20** which projects above the upper surface of the bottom **12** and the lock nut **28** is threaded thereon in an obvious manner and tightened. A spud wrench is engaged with the internal lugs **24** to prevent the rotation of the tubular sleeve **20** as the lock nut **28** is being tightened for effecting a water-tight seal. Obviously, the cage **38** is placed on the tubular sleeve **20** in an obvious manner.

The device in Figure 4 performs the same results and utilizes the pair of apertures **42** and **44** in conjunction with the rod **46** for securing the tubular sleeve **20** to the bottom **12** of the tank **14**. The specific construction of Figure 4 is especially useful in one piece toilets where the bottom of the tank is actually a part of the toilet bowl.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A flush valve outlet for attachment to the apertured bottom wall of a flush tank comprising, a tubular sleeve adapted to extend through the opening, means detachably connected to the upper end of said sleeve and adapted to engage the upper surface of the bottom wall of the tank, and means at the lower end of the sleeve for selectively engaging the lower surface of the bottom wall of the tank, said means at the lower end of the sleeve extending laterally, said means including a transverse removable pin extending through diametrically aligned apertures in the sleeve with one of the apertures being elongated to permit insertion of the pin from the interior of the sleeve.

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