

J. J. COSGROVE.
 SANITARY WARE.
 APPLICATION FILED JUNE 11, 1907.

942,547.

Patented Dec. 7, 1909.
 2 SHEETS—SHEET 1.

Fig 1

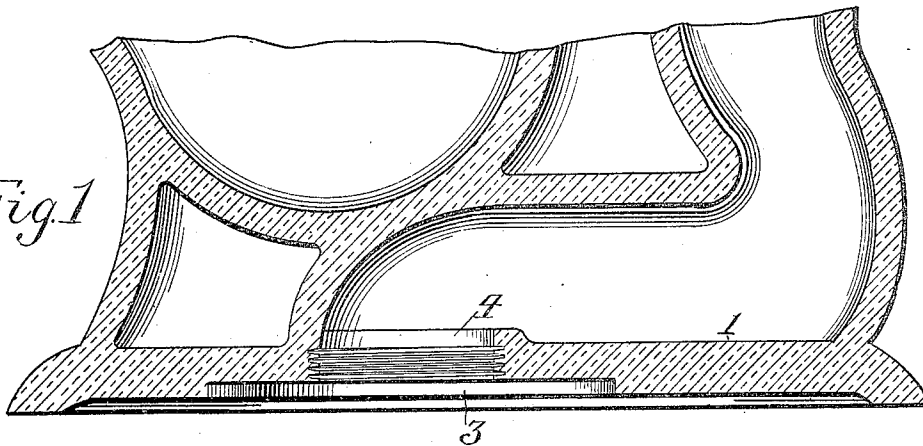


Fig 2

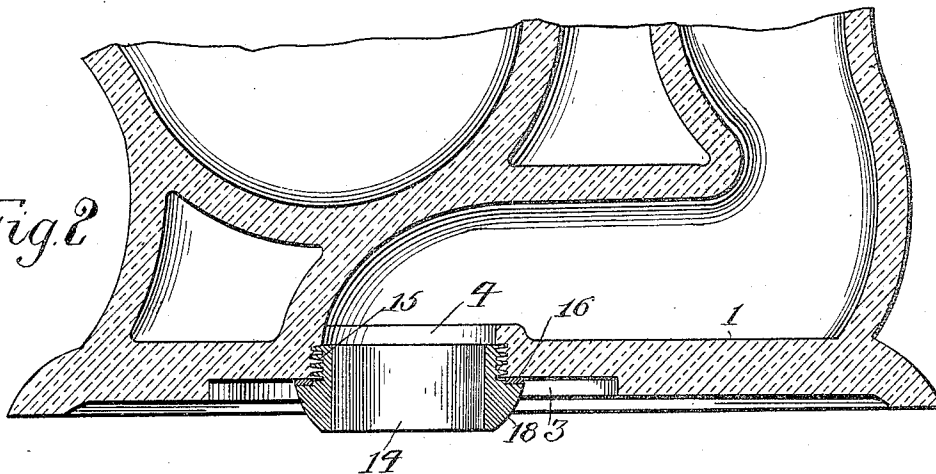
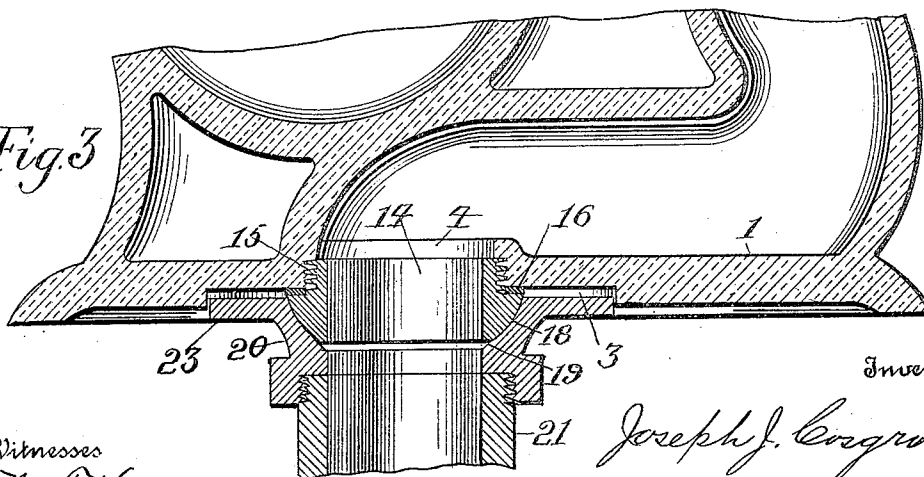


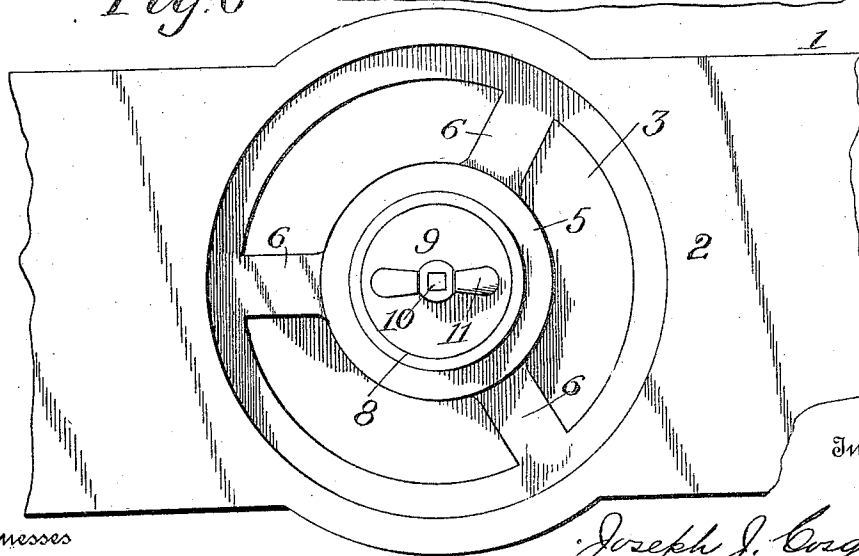
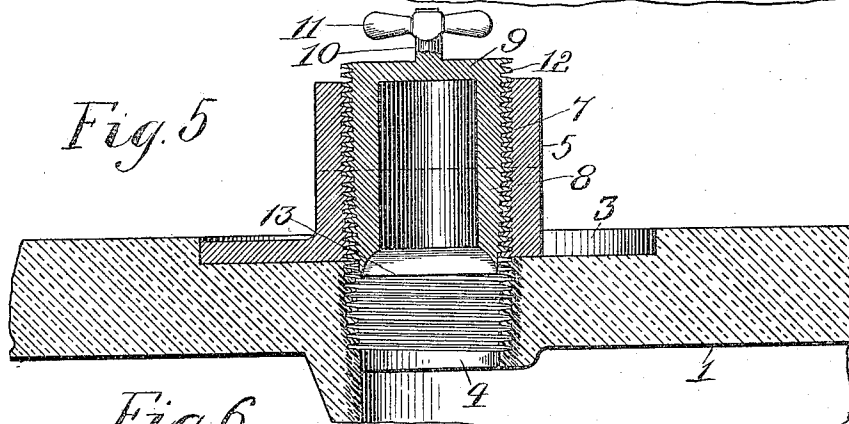
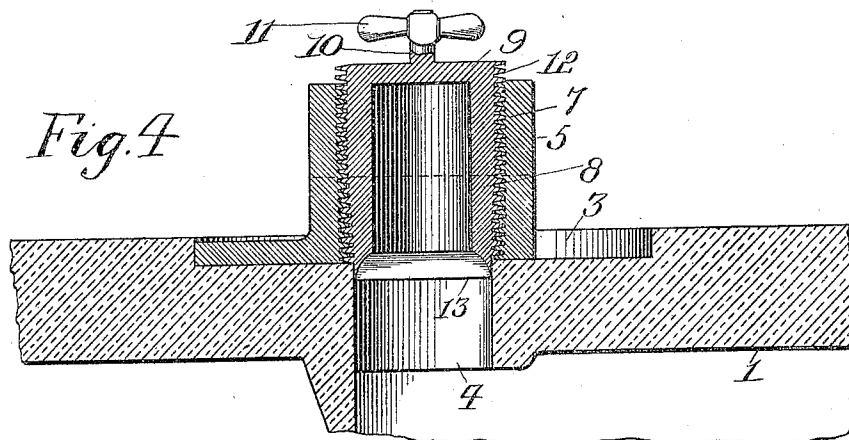
Fig 3



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UNITED STATES PATENT OFFICE.

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SANITARY WARE.

942,547.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed June 11, 1907. Serial No. 378,355.

To all whom it may concern:

Be it known that I, JOSEPH J. COSGROVE, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Sanitary Ware, of which the following is a specification.

This invention has relation to sanitary ware such as water closets, slop sinks, urinals and the like and has for its object the provision of novel means for connecting the outlet passage of a water closet or similar article to a soil pipe.

In carrying my invention into effect, I provide a water closet or similar article made of vitreous material, such as porcelain, earthenware or glass, with a screw thread disposed in proximity to the extremity of the outlet passage and I attach to the closet, by means of the screw thread so provided, a metallic thimble which serves as a member of a coupling or connection between the closet and the soil pipe which is connected thereto when the closet is placed in position on the floor. In forming the screw thread in the outlet passage, I arrange a screw threaded guide in fixed position adjacent to the water-closet and, while the latter is in a plastic condition, I screw a threaded tap, plug or former through the guide and into the outlet passage of the closet, thereby forming a screw thread in such outlet passage conforming accurately to the thread on the tap, plug or former. After the tap, plug or former has been screwed into the outlet passage as described it is unscrewed by a reverse movement, the guide serving to prevent any lateral movement or wobbling of the tap, plug or former during its movement in either direction. After the outlet passage of the water closet has been screw-threaded in the manner above described, the water closet is dried, fired and otherwise treated in the well known manner, the screw-thread in the outlet passage maintaining its original form and proportions.

Referring to the accompanying drawing: Figure 1 is a vertical sectional view of the closet with the metallic thimble detached. Fig. 2 is a similar view with the thimble in attached position. Fig. 3 is a vertical sectional view showing the closet connected to a soil pipe. Fig. 4 is a vertical sectional view of a portion of an earthenware closet and of

the guide and tap, plug, or former mounted in the guide, the parts being in the position they occupy before the screw-thread has been formed in the outlet passage of the closet. Fig. 5 is a view similar to Fig. 1, showing the same parts after the screw-thread has been formed in the outlet passage of the water-closet. Fig. 6 is a plan view of the same.

The body of the closet is not fully shown, as it is unnecessary to show the same and 1 designates a portion of the base of the closet, the base being shown in an inverted position in Figs. 4 and 5, in which position it is preferably maintained during the operation of forming the screw-thread. The base 1 is formed with a circular recess 3, and centrally of this recess is located the outlet passage 4. The closet, while being operated on to form the screw-thread in the outlet passage, is in a plastic or workable condition. Upon the base 1, within the recess 3, is mounted a guide 5, which is in the form of a tubular section having at its lower end a ring or flange having radial spokes 6, this ring rests upon the bottom of recess 3, and serves to center the guide with its central axis coincident with the central axis of the outlet passage 4. The inner vertical surface of the guide 5, is formed with a screw-thread 7, which may be of any desired pitch and form, preferably either the United States standard or the English standard thread of somewhat coarse pitch. Within the guide 5 is located a tap, plug or former 8 which is of tubular form and has a closed upper end 9, carrying a stem 10, to which is secured a handle 11, by means of which the tap, plug or former is turned in the guide 5. The tap, plug or former 8, which will be hereinafter called the tap, is provided with an external screw-thread 12 which conforms in pitch, and shape to the screw-thread 7, on the inner surface of the guide. The inner wall of the guide is vertical throughout and consequently the central cavity of the guide is of even diameter throughout, the tap, however, varies in diameter, the upper portion being of even diameter from the top to, say, the point indicated by a dotted line, while the lower portion tapers inwardly from the dotted line to the bottom of the tap for the purpose of giving a tapered screw-threaded form to the outlet passage. The lower end of the tap is formed with a

cutting edge 13, for the purpose of cutting away any surplus clay that may remain before the screw-thread is formed in the outlet passage of the closet.

5 The outlet passage 4 of the closet is, previously to the formation of the screw-thread therein, of even diameter and of a diameter not more than the smallest diameter of the tap at the bottom of the thread at its lower end. While the part 8 has, for brevity, been called a tap, it will be observed that it is devoid of the usual longitudinal grooves, the thread being therefore continuous from end to end which I have found in practice, produces a better thread for the purpose than where a grooved tap is used.

In operation the above described apparatus is used in the following manner: The water-closet, while in a plastic or workable condition, is placed on the floor or workable bottom up, the closet being provided, as shown in Fig. 4, with an outlet passage having a smooth wall and the said passage being of even diameter throughout but of not greater diameter than the diameter of the tap at the bottom of the thread at the lower end of the tap. The guide 5 is then placed in position in the recess 3, the legs 6 serving to center the guide relatively to the outlet passage 4 of the closet, the tap 8 being in such position that its lower end is just about to enter the outlet passage. The tap is now screwed down in the guide by means of the handle 11 and if there is any surplus material around the walls of the outlet passage the same will be cut away by the cutting edge at the lower end of the tap. As the tap is screwed downwardly in the guide, the tapered and threaded lower end of the tap gradually enters the outlet passage and, acting on the plastic material of which the closet is composed, molds or shapes the wall of the outlet passage and forms thereon a screw-thread corresponding exactly to the screw-thread on the lower tapered portion of the tap. In this, the preferred manner of carrying my invention into effect, the plastic material is not cut away during the formation of the screw-thread in the outlet passage except such preliminary cutting away of surplus material as may be incidentally effected by the sharp lower end of the tap, but the plastic material is pressed or forced outwardly by the tap and somewhat compacted adjacent the wall of the outlet passage as indicated by the thickened hatching in Fig. 5. When the tap has been screwed down in the guide a sufficient distance to form the desired length of thread in the outlet passage, it is unscrewed by a reverse movement of the handle until it is entirely removed from the outlet passage, leaving the latter slightly

tapered and with a regular and even thread, having a clean smooth surface perfectly adapted to receive a coincidentally tapered and threaded spigot or connecting member, by means of which the closet may be connected to the drain or soil pipe. In both the downward and the upward movement of the tap, the upper portion of the tap, which, as before described, is of even diameter and not tapered like the lower portion, serves to accurately guide the tap in a perfectly straight line and prevent it from moving laterally or wobbling and thus serves to effect the formation of a perfectly smooth even and regular screw-thread in the outlet passage of the closet. After the screw-thread has been produced in the outlet passage as described, the guide with its contained tap is removed and the closet is then dried, fired and otherwise treated in the ordinary and well known manner. After the article has been baked and if necessary, glazed, a metallic thimble 14, which is formed with a screw-thread 15, is screwed into the outlet passage, the screw-thread on the thimble engaging the screw-thread in the outlet passage and thus forming a tight, rigid connection between the thimble and the closet.

If necessary, the threads may be leaded and, as an additional precaution against leakage, a gasket 16 may be interposed between the bottom of the closet and a shoulder 17 formed on the thimble.

The thimble 14 is preferably formed with a spherical end 18, the spherical end fitting into a spherical seat 19 formed in a socket or bell 20 carried by a soil pipe 21. The socket or bell is formed with a flange 23 and this flange is connected to the base of the closet by means of bolts 24.

I claim:

1. A water-closet of vitreous sanitary ware having an integral screw-thread formed on the inner wall of its outlet passage.

2. A water-closet of vitreous sanitary ware having an integral screw-thread formed on the inner wall of its outlet passage and a metallic thimble screwed into said outlet passage.

3. A water-closet of vitreous material having an outlet passage with an integral molded screw-thread formed thereon, in combination with a screw-threaded metallic thimble engaging the screw-thread on the outlet passage.

In testimony whereof I affix my signature, in presence of two witnesses.

JOSEPH J. COSGROVE.

Witnesses:

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CLYDE B. WEIKERT.