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SINK AND DECK ASSEMBLY

2,584,860

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2 SHEETS—SHEET 1

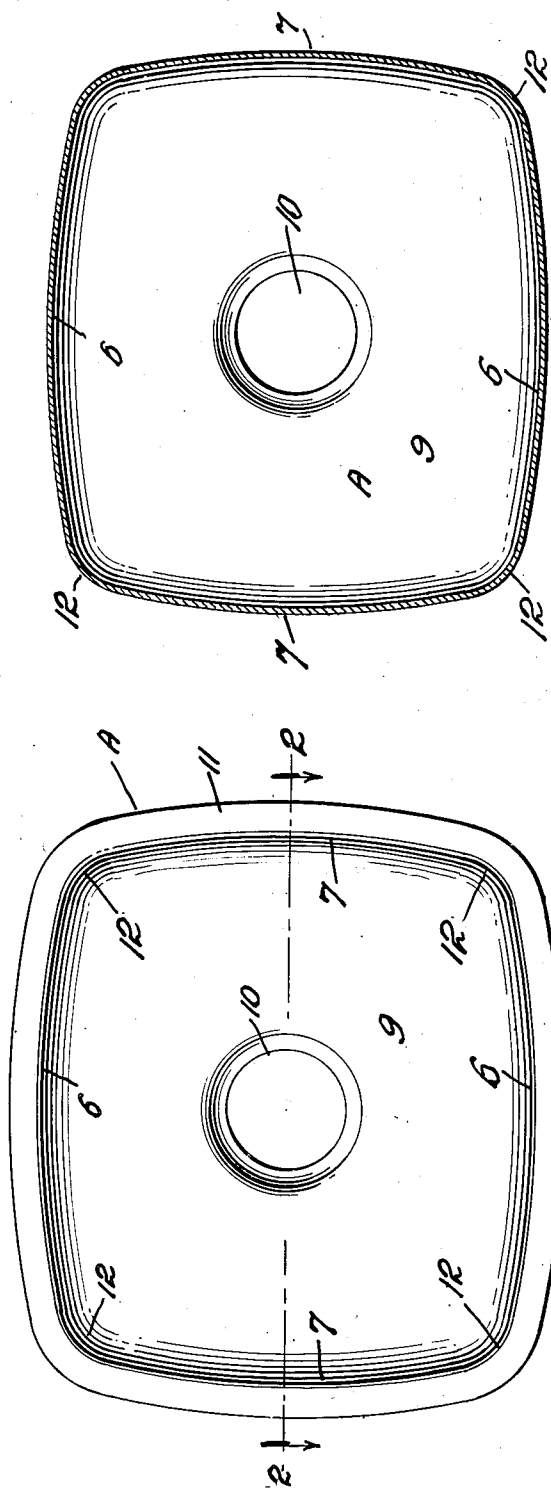


Fig. 1.

Fig. 3.

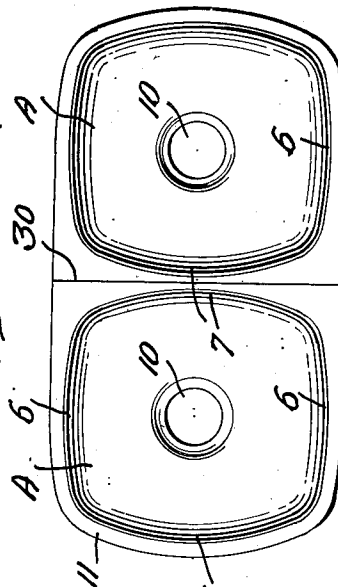


Fig. 4.

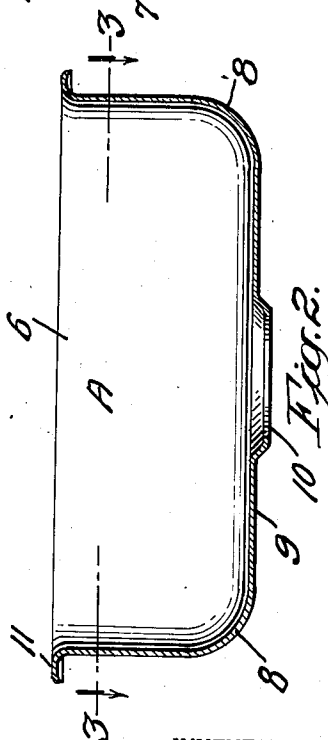


Fig. 2.

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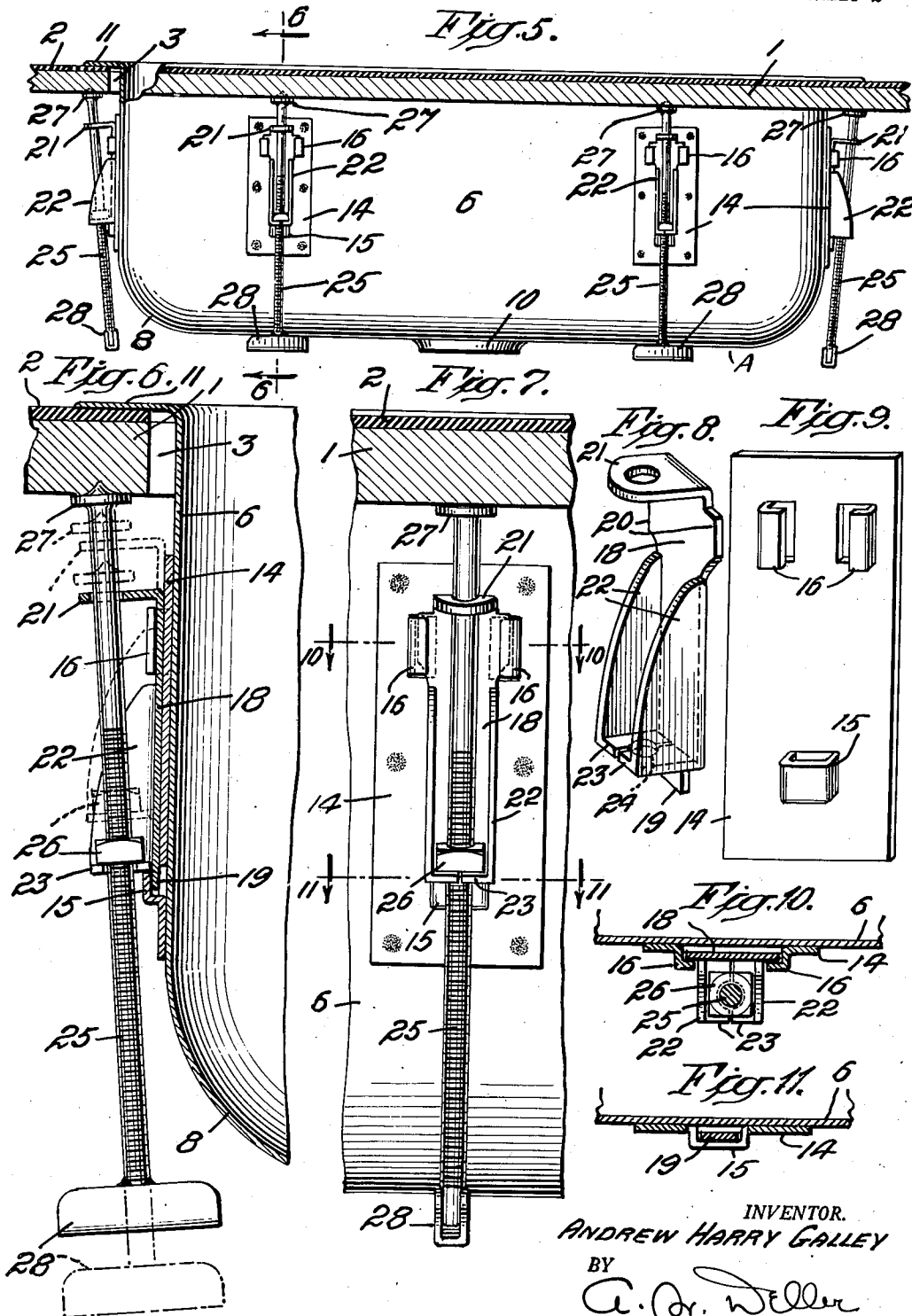
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SINK AND DECK ASSEMBLY

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2 SHEETS—SHEET 2



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SINK AND DECK ASSEMBLY

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The present invention relates to a sink structure and to a sink bowl and drainboard assembly designed for economical sink production and to facilitate the installation of the sink and to obtain important advantages and economies incident to the special design and structural features including a special fastening therefor.

Important of the advantages incident to the present improvements are the permissible making of the sink or bowl as a single piece of "Monel" metal or stainless steel in a single deep drawing operation while retaining its formed contour, greater facility in the installation of the bowl in the sink and drainboard assembly incident to the mode of assembly thus permitting a home owner to make his own installation without the requirement of a highly skilled artisan, added facility in the securing of the sink bowl in its assembled relation by the employment of improved fastening means of special design to permit of convenient positioning and tightening to obtain a rigid and durable assembly of pleasing and unbroken unitary appearance.

In the manufacture of one-piece sink bowls of stainless steels or alloys such as "Monel" metal as heretofore practiced in the production of deep drawn bowls of generally rectangular type it has been found necessary to employ a multiple step drawing operation with intermediate annealing so as to avoid unbalanced stress deformation or buckling of the side walls in the finished product. The method as commonly employed, which consists of a first draw, then annealing followed by a final draw not only involves multiple operations in the forming of the bowl but further, incident to the annealing, requires cleaning to remove the oxide prior to the final draw and additional polishing work to remove the oxide film to obtain a satisfactory finished product.

In accordance with an important feature of the present invention the bowl is made of a special formation or design which permits of its being produced as a finished product in a single or one draw operation. To this end, the bowl of substantially rectangular form, has each of its side walls slightly arcuate in contour thereby to be of a form to resist deformation as a result of unbalanced stresses set up in the drawing operation. In consequence of this arching and associated enlarged radius corners, the bowl may successfully be produced with substantial economies in a single drawing operation. As will be apparent very substantial economies are effected, particularly as related to the elimination of the heretofore required step of annealing with the

resultant necessity of cleaning and polishing. Moreover, the arching or curving of the side walls in arresting deformation from the pressed contour, in addition to permitting single draw production, offers a further and permanent advantage in added resistance to deformation of the bowl in handling and shipping.

Further features of the present invention include the forming of the sink or bowl with a marginal, horizontal flange on its upper edge adapted to bear upon the upper surface of a drainboard or sink deck thereby to provide an integral marginal molding and further operating as a clamping means in cooperation with a simplified and adjustable fastener or securing device. The latter comprises bearing plates welded to the outer side wall surfaces of the bowl and formed with relatively shallow sockets for the reception of detachable bracket members providing bearing support for clamping bolts positioned to engage the under surface of the sink deck and extended downwardly and formed for easy manipulation in the securing of the bowl. The bearing plates and brackets are of special formation to permit of their being economically stamped from sheet metal.

An object of the invention is to produce a unitary sink bowl structure adapted to facilitate its installation without the requirement of a separable molding to effect a satisfactory joining with a supporting deck surface.

Another object of the invention is to provide a single piece sink bowl of substantially rectangular form which is adapted for economical production by a single deep drawing operation and which will retain its form when so produced from commercial stainless alloys such as "Monel" metal or stainless steel.

A further object of the invention is to provide a unitary sink bowl of substantially rectangular type wherein the side and end walls are of outwardly arched formation in a horizontal plane and are joined by a rounded corner formation of relatively enlarged radius thereby to permit of production by a single deep drawing operation and further better to resist deformation from its die shaped contour.

The invention further contemplates a sink bowl and drainboard or supporting deck assembly comprising a unitary sink bowl formed with an integral marginal and horizontal flange at its upper edge adapted to overlie the marginal deck surface when positioned in the usual deck cut-out and provided with bearing plates secured to the outer wall surfaces of the bowl and

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adapted to pass through the deck opening. It further contemplates the employment therewith of special brackets for detachably engaging the bearing plates and the provision of clamping bolts carried by the brackets in position to engage the under surface of the supporting deck for clamping or securing of the assembly.

Other objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a plan view of a sink bowl made in accordance with the present invention;

Fig. 2 is a central, vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a horizontal, sectional view of my improved sink bowl taken on line 3—3 of Fig. 2;

Fig. 4 is a plan view of a modification adapted for twin-bowl assembly;

Fig. 5 is a view of a sink bowl and supporting deck assembly showing the sink bowl of Figs. 1 to 3 in side elevation with the deck shown in section and with a portion of the bowl broken away to illustrate the overlying relation of the flange;

Fig. 6 is a vertical, sectional view taken on line 6—6 of Fig. 5 illustrating the improved clamping device;

Fig. 7 is a partial enlargement of a portion of Fig. 5 showing the fastening device in elevation and at right angular relation to Fig. 6;

Figs. 8 and 9 are perspective views of the bracket and bearing plate members of the fastening device respectively;

Fig. 10 is a cross-sectional view taken on line 10—10 of Fig. 7, and

Fig. 11 is a cross-sectional view taken on line 11—11 of Fig. 7.

Generally speaking the present invention contemplates the provision of a sink or bowl of single piece construction formed by drawing or pressing sheet metal of relatively light gauge and which may desirably be a corrosion-resistant alloy such as the alloy known under the trade-mark of "Monel" or other suitable corrosion-resistant metal alloy such as a nickel-chromium-iron alloy. It further contemplates an improved structural design and arrangement wherein the unitary sink bowl is formed with a horizontally extending upper marginal flange adapted in the assembly to provide an integral molding finish and to further function, in cooperation with a special clamping bolt arrangement, for rigid clamping of the sink to a supporting deck and within an opening cut therethrough. Moreover, in accordance with an important feature of the invention the unitary sink bowl is of substantially rectangular form having a specially modified side and end wall and corner structure designed to permit of substantial economies in the production of the bowl by a single deep drawing operation.

A preferred embodiment of the features of the invention is shown in the drawings wherein like reference numerals are applied to the corresponding parts in the several views. As shown therein the sink bowl, generally indicated by A, is assembled with a drain board or deck member 1 which may be of wood as customarily made having a linoleum covering 2 and is provided with a cut-out opening 3 for the reception and positioning of the sink bowl to be assembled therewith.

In carrying the invention into practice it is preferred to make the sink bowl as a single piece of metal such as by drawing or pressing a sheet of corrosion-resistant alloy metal of a relatively

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light gauge to form the sink or bowl of generally rectangular configuration. As best shown in Figs. 1 to 3 the sink bowl has substantially vertical side and end walls 6 and 7 united by curved lower corner portions 8 to the bottom wall 9 provided with the usual downwardly flanged drain opening 10. The bowl is further formed at its upper edge with an outwardly projecting, marginal horizontal flange 11 integral with the side and end walls and which may desirably be of a thickness of about $\frac{37}{1000}$ of an inch. The flange 11 as shown, is of a width or outward extension from the side and end walls to provide for a substantial projection outwardly from the walls so as to provide a continuous molding of pleasing appearance. This flange 11 is designed for overlying engagement with the upper surface of the deck 2 at the frame of the opening to provide support for the bowl and to cooperate in the clamping of the bowl in a rigid installation. The provision of a flange of substantial width or projection from the body of the bowl permits of a wide tolerance in the formation of the deck opening without impairing the security and appearance of the final assembly.

As best shown in Figs. 1 to 3 the unitary sink bowl of my invention is, as viewed from above, of substantially rectangular formation but modified in the formation of the end and side walls 6 and 7 to have a convex curvature or slight arching in the horizontal plane and wherein the connecting corner portions 12 have a curvature of generous radius. As a result of this special design and contour an important production advantage is attained in that it permits of the production of a substantially rectangular type of bowl in a single deep drawing operation. The special contour of the end and side walls associated with the enlarged radius junction portion 12 permits of the economical single draw production of the unitary bowl. The side walls so formed are self-sustaining with relation to the formed contour and are of a character to resist deformation as a result of unbalanced internal stressing or surface stressing of the metal. The contour of the bowl having side walls of arcuate formation enables the single draw production as will be understood by eliminating the necessity of relieving of unbalanced stresses incident to the deep drawing operation such as by annealing.

As an example embodiment of the improved bowl, as illustrated in Figs. 1 to 3, the bowl of approximately sixteen inches by eighteen inches was pressed to form from sheet "Monel" alloy of .037" thickness and having a bowl depth of seven inches. The rounded bowl corners 8 were formed of 2" radius while the vertical corner junctions of the side and end walls were formed of 3" radius. The outward curvature or arching of the side and end walls was to a degree of about one-half inch maximum deflection from normal or straight wall contour.

As best shown in Figs. 5 to 10 inclusive and in further accordance with the invention, there is provided a simple and effective means for securing or clamping of the bowl element to the drain or deck board so as to afford a firmly secured assembly of pleasing appearance and to facilitate the assembly operation that it may readily be performed by relatively unskilled labor. For this purpose I have provided a clamping means for the securing of the bowl the supporting parts of which may be economically stamped and formed of sheet metal and which will in the assembly permit of the bowl being passed through the deck

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opening so that its upper flange will overlies and bear upon the deck surface as illustrated in Figs. 5 and 6.

The securing means is composed of sheet metal bearing plates 14 secured as by welding to the side and end walls of the bowl member as shown in Fig. 5. The bearing plates are formed as shown in Fig. 7 with integral outwardly depressed lower flanges 15 providing a socket and upper opposed integral flanges 16 having inturned portions mutually providing a guideway socket bearing. These flanges are as shown of slight outward projection from the plates 14 so as to permit of the bowl with the plates secured thereto passing through the cut-out opening of the deck for assembling as shown in Fig. 1. In cooperation with each of the bearing plates 14, there is employed a separable or demountable bracket member, as best shown in Fig. 6, formed from sheet metal to have slidable interlocking engagement with the bearing plate 14 and to provide bearing support for a manually adjustable clamping bolt. To this end the bracket is formed of a flat metal body or rear wall portion 18 formed at its lower end with a depending lug or shoulder 19 of a size to be received within the socket formed by the lower plate flange 15 and is formed adjacent its upper end with similar, opposite extensions or bearing lugs 20—20 adapted to be slidably fitted within the socket formed by the plate flanges 16. For the purpose of retaining and providing bearings for the securing bolt, the bracket at its upper portion is formed with an outwardly bent and apertured ear 21 and to provide a lower bearing is formed with opposite and parallel side wall portions 22 turned outwardly perpendicular to the body portion and having upwardly turned horizontal lower bearing flanges 23 formed mutually to provide an aperture 24 for the reception of the clamping bolt 25. The clamping bolt 25, as best shown in Figs. 6 and 7, is received freely within the upper and lower apertures of the bracket, is threaded for a substantial distance of its length and has threaded thereon a nut 26 positioned between the bracket walls 22 and to bear upon the inturned flanges 23. The upper end of the bolt passes through the aperture of ear 21 and its upper extremity is formed with a conical bearing enlargement 27 for engagement with the under surface of the supporting deck. As a result, when the bolt is tightened, a downward clamping pressure will be applied to the bracket, by the nut 26, for the rigid clamping of the bowl into position in cooperation with the overlying bowl flange 11. For added convenience the bolt 25 is extended below the bowl and has welded to its lower end portion a channel section hand grip lever member 28 for manipulation of the bolt in the tightening operation.

As will be understood from the structure of the tightening device as described, and as will be understood by reference to the dotted lines in Fig. 2, upon loosening of the securing bolt the supporting bracket 18 may be lifted sufficiently to effect withdrawal of the lugs 20 and 19 from securing position within the sockets of the bearing plate thus permitting detachment of the bracket 18 and bolt 25 assembly.

The simplicity and facility of installing the sink bowl and drainboard assembly will be best understood by reference to Figs. 5 to 7. As a preliminary operation the drainboard or deck is provided with the cut-out opening of proper size

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and form for positioning of the bowl. This may readily be accomplished by the employment of a combined instruction sheet and pattern for outlining the required opening of a comparable size and contour to that of the bowl. After cutting out the opening, the bowl having the attached bearing plates 14, is lowered through the opening until its marginal flange 11 bears upon the upper surface of the deck portion framing the opening. The separable or demountable brackets having the bolts 25 assembled therewith are adjusted to the permissible retraction of the bolts and then inserted from below to the upper dotted line position as shown in Fig. 2 and then lowered within the sockets 15 and 16 of the bearing plates. Upon subsequent tightening up of the bolts by means of the hand levers 28 engagement is effected with the underside of the deck, incident to the inclined positioning of the bolts. Final tightening will effect rigid securing of the bowl with downward pressure of the nuts 26 on the bracket flanges 23, simultaneously securing the brackets in retained or interlocked relation to the bearing plates. As will be noted the side walls 22 of the bracket operate to retain the nuts 26 from rotation. As a further advantageous feature of the securing device assembly, the arrangement provides that the flanges 23 shall have a rest bearing upon the upper surface of the socket offset flange 15 thereby to resist the stresses by metal on edge for added strength.

In the disclosed structure the relative thinness of the light gauge metal from which the bowl is formed provides a flange 11 adapted to produce a molding joint between the bowl and drainboard which is substantially flush with the surface of the latter and as will be understood if a fully flush construction is desired it may be obtained by suitably countersinking the composition deck material at the marginal edge of the opening for a depth corresponding to the thickness of the flange.

It is to be observed that the present invention provides a unitary type of sink bowl designed to simplify its installation without the requirement of highly skilled labor. It, moreover, provides a structural design of unitary sink bowl of substantially rectangular type wherein the side walls are of special formation to permit of the economical production of the bowl by a single deep drawing operation. It is thus of a character to retain its pressed form without danger of buckling or deformation of the wall incident to the stressing of the metal and to thereby eliminate the necessity of annealing and the costly operations incident thereto. The invention structure further provides simplified and effective means operative in conjunction with the bowl flange for rigid clamping of the sink bowl in its assembled position.

Although the present invention has been described in conjunction with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and appended claims. As illustrative of a suitable modification of the bowl structure there is shown in Fig. 4 a suitable modification of the bowl employing the curvilinear or horizontally arched side wall contours as first described but wherein the marginal flange is modified to have

one straight edge 30 to adapt it for a twin-bowl assembly as illustrated.

I claim:

1. A sink bowl and deck structure comprising a unitary bowl formed of a corrosion-resistant alloy and provided with a continuous, marginal, outwardly projecting flange at its upper edge adapted to overlie the marginal wall of a sink deck opening and means for securing the bowl without permanent attachment to the deck comprising bearing plate members secured to the outer surface of the bowl below the plane of the deck, said plate members being provided with socket forming projections and of such dimensions as to pass through the deck opening, detachable brackets formed for slidable registration with the sockets and to have bearing engagement with the bearing member and clamping bolts carried by the brackets in position directly to engage the under surface of the sink deck and operative in cooperation with the bowl flange rigidly to secure the bowl in position.

2. A sink bowl and deck structure comprising a unitary bowl formed of a corrosion-resistant alloy and provided with a continuous, marginal, outwardly projecting flange at its upper edge adapted to overlie the marginal wall of a sink deck opening and means for clamping the bowl to the deck without permanent attachment thereto comprising sheet metal bearing plate members welded to the outer surface of the bowl below the plane of the deck, said plate members being formed with integral, offset socket forming projections and of such dimensions as to pass through the deck opening, detachable sheet metal brackets formed for slidable registration with the sockets and to have bearing engagement with the bearing member and clamping bolts carried by the brackets in position directly to engage the under surface of the sink deck and operative in cooperation with the bowl flange rigidly to secure the bowl in position.

3. A sink bowl and deck structure comprising a unitary bowl formed of corrosion-resistant alloy and provided with a continuous, marginal, outwardly projecting flange at its upper edge adapted to overlie the marginal wall of a sink deck opening and securing means for the bowl comprising sheet metal bearing plate members welded to the outer surface of the bowl, said plate members being formed with integral, offset socket forming projections positioned to pass through the deck opening, detachable sheet metal brackets formed for slidable registration with the sockets and to have bearing engagement with the bearing member and clamping bolts carried by the brackets in outwardly inclined position to engage the under surface of the sink deck, nuts threaded to the bolts to bear on the brackets, and hand levers on the bolts for adjustment of the bolts to be operative in cooperation with the bowl flanges rigidly to secure the bowl in position.

4. A sink bowl and deck structure comprising a unitary bowl formed of a corrosion-resistant alloy and provided with a continuous, marginal, outwardly projecting flange at its upper edge adapted to overlie the marginal wall of a sink deck opening and securing means for the bowl comprising sheet metal bearing plate members secured to the outer surface of the bowl, said plate members being formed with integral, offset socket forming projections of a size to pass through the deck opening, detachable sheet metal brackets formed for slidable registration with

the sockets and to have bearing engagement with the bearing member, said brackets having parallel outwardly turned side flanges and upper and lower horizontal flanges, clamping bolts fitted to apertures of the horizontal flanges in inclined position to engage the under surface of the sink deck, nuts threaded to the bolts and positioned between the side flanges and between the horizontal bracket flanges, said bolts having downwardly extended end portions provided with a hand lever for adjustment of the bolts to be operative in cooperation with the bowl flanges rigidly to secure the bowl in position.

5. A sink bowl and deck structure comprising a unitary bowl formed of a corrosion-resistant alloy and having a continuous, marginal, outwardly projecting flange at its upper edge adapted to overlie the marginal wall of a sink deck opening and securing means for the bowl comprising bearing plate members secured to the outer wall surface of the bowl and formed with struck-up flanges providing bearing sockets and positioned to pass through the deck opening, detachable brackets formed from sheet metal to have a body portion having projecting lug portions positioned to be received within the bearing sockets and having outwardly turned bearing flanges formed with apertures for a bolt, a threaded bolt received within the apertures in inclined position to engage the under surface of the deck, a nut threaded to the bolt to bear upon one of the bearing flanges, and said bolt having a lower projecting portion provided with a hand lever for manipulation to effect rigid securing of the bowl in cooperation with the bowl flange.

6. A fastening device adapted for securing of sink bowls within a drainboard opening comprising a bearing plate member provided with socket forming projections, detachable brackets formed for slidable registration with the sockets and to have bearing engagement with the bearing member and clamping bolts carried by the brackets and having downward extension portions provided with lever hand grip portions for adjusting thereof.

7. A fastening device adapted for securing of sink bowls within a deck opening comprising bearing plate members adapted to be secured to the outer wall surface of the bowl and formed of sheet metal with struck-up flanges providing bearing sockets, detachable brackets formed from sheet metal to have a body portion having projecting lug portions positioned to be received within the bearing plate sockets and having outwardly turned bearing flanges formed with apertures for a bolt, a threaded bolt received within the apertures, a nut threaded to the bolt to bear upon one of the bearing flanges, and said bolt having a lower projecting portion provided with a hand lever extension for adjustment thereof.

8. A fastening device adapted for securing of sink bowls within a drainboard opening comprising bearing plate members adapted to be secured to the outer wall surface of the bowl and formed of sheet metal with struck-up flanges providing bearing sockets, detachable brackets formed from sheet metal to have a body portion having projecting lug portions positioned to be received within the bearing plate sockets and having horizontally turned bearing flanges formed with apertures for a bolt, and with opposite outwardly turned vertical side flanges, a threaded bolt received within the apertures, a nut threaded to

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the bolt and fitted between the vertical side flanges and to bear upon one of the bearing flanges, and said bolt having a lower projecting portion provided with a hand lever extension for adjustment thereof.

9. A fastening device adapted for securing sink bowls in a sink and deck assembly comprising sheet metal bearing plate members formed with integral, offset socket forming projections, detachable sheet metal brackets formed with lugs for slidable registration with the bearing plate sockets and to have bearing engagement with the bearing member, said brackets having parallel outwardly turned side flanges and upper and lower horizontal flanges, clamping bolts fitted to apertures in the horizontal flanges in inclined position, nuts threaded to the bolts and positioned between the side flanges and between the horizontal bracket flanges, said bolts having downwardly extended end portions provided with a hand lever for adjustment of the bolt.

10. A fastening device adapted for securing sink bowls in a sink and deck assembly comprising sheet metal bearing plate members formed with integral, offset socket forming projections, detachable sheet metal brackets formed for slidable registration with the sockets and to have

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bearing engagement with the bearing member, said brackets having parallel outwardly turned side flanges and upper and lower horizontal flanges, clamping bolts freely fitted to apertures in the horizontal flanges in inclined position, nuts threaded to the bolts and positioned between the side flanges and between the horizontal bracket flanges, said bolts having enlarged conical upper ends and extended lower end portions provided with a hand lever channel welded thereto for adjustment of the bolt.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
240,146	Kilbourne	Apr. 12, 1881
1,010,729	Dettelbach	Dec. 5, 1911
2,055,378	Graf	Sept. 22, 1936
2,228,186	Thumm	Jan. 7, 1941

FOREIGN PATENTS

Number	Country	Date
768,845	France	May 28, 1934