

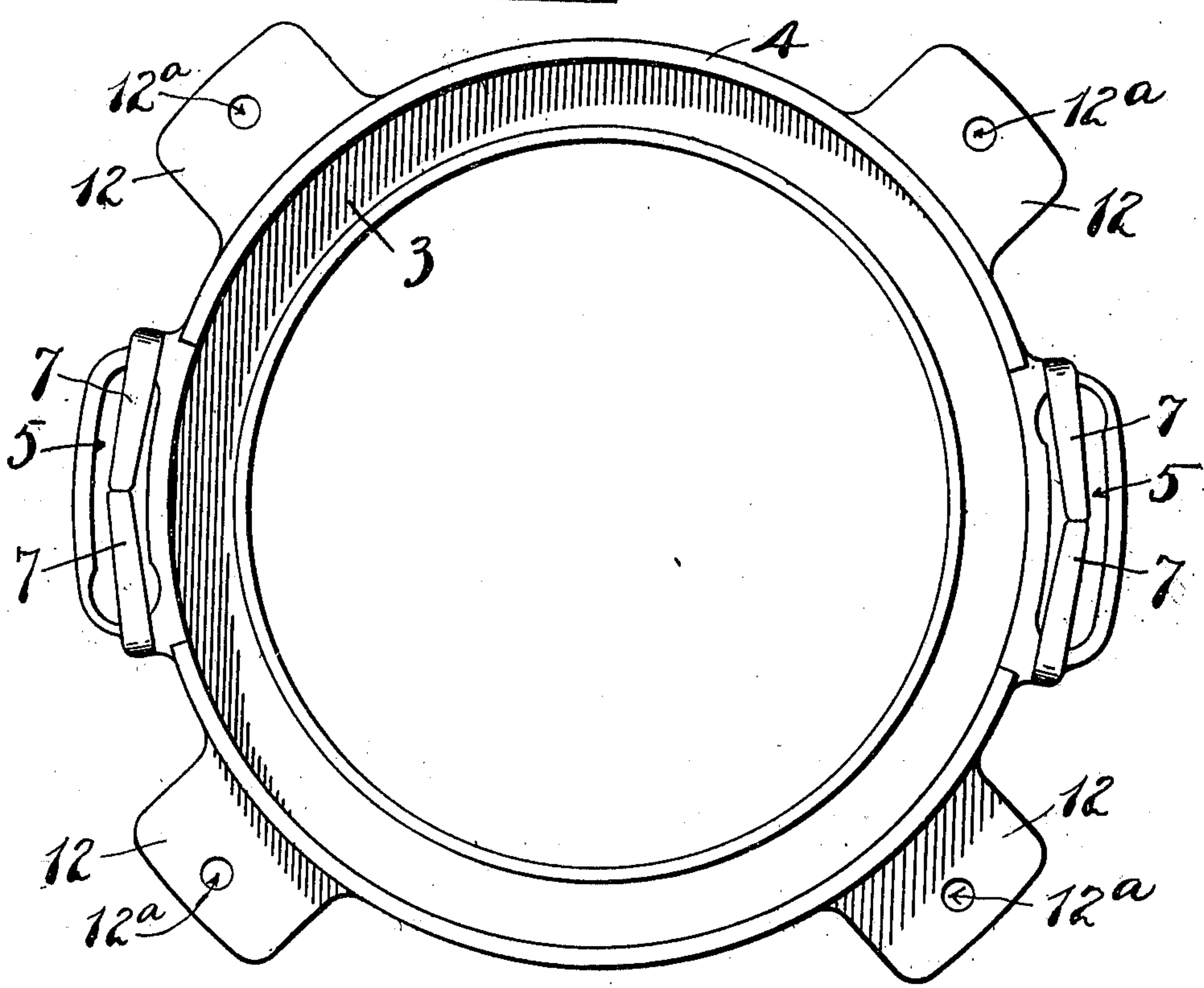
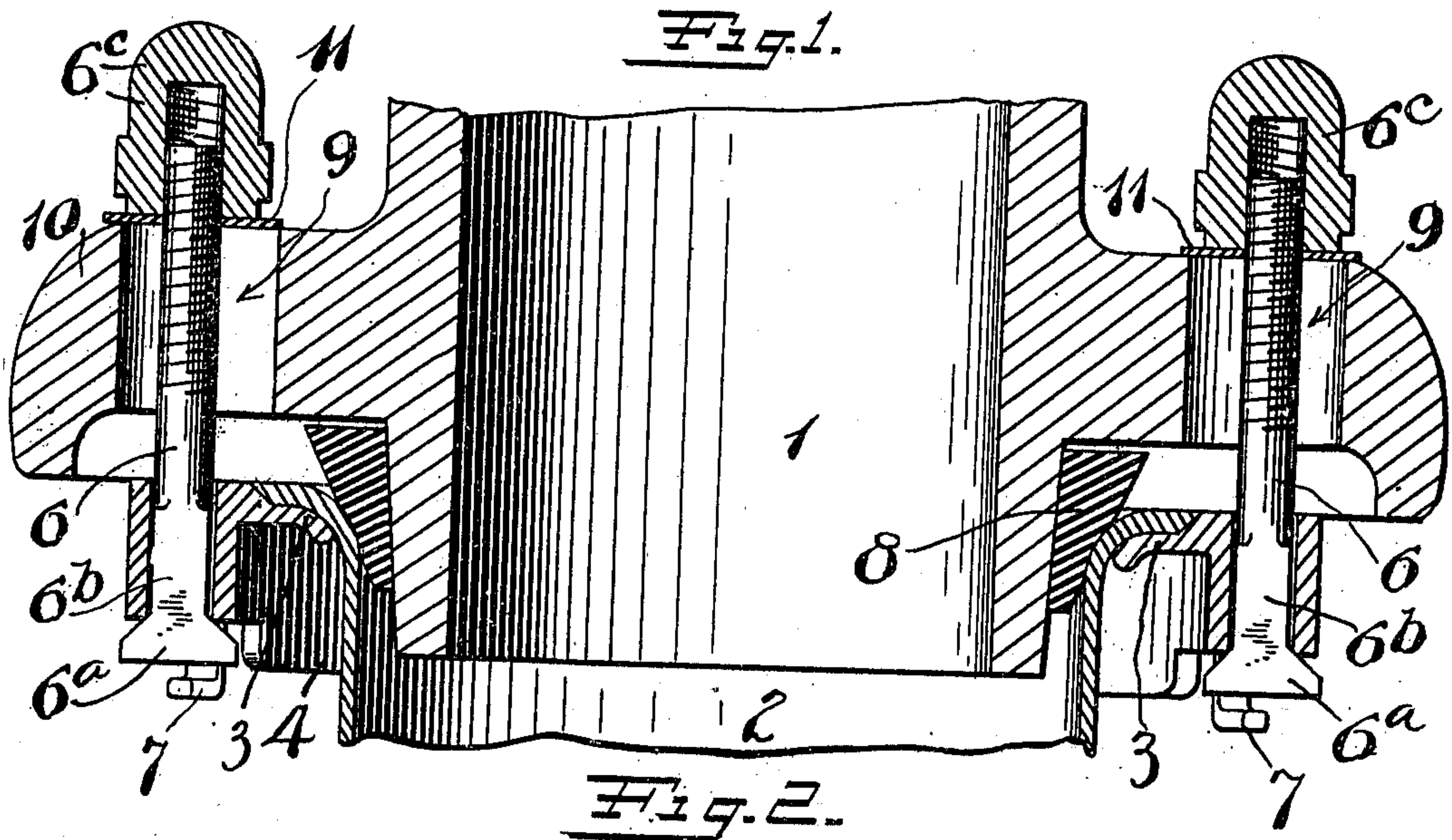
W. H. SCHULTE & R. C. WILSON.
FLOOR FLANGE.

APPLICATION FILED MAY 29, 1909.

978,404.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

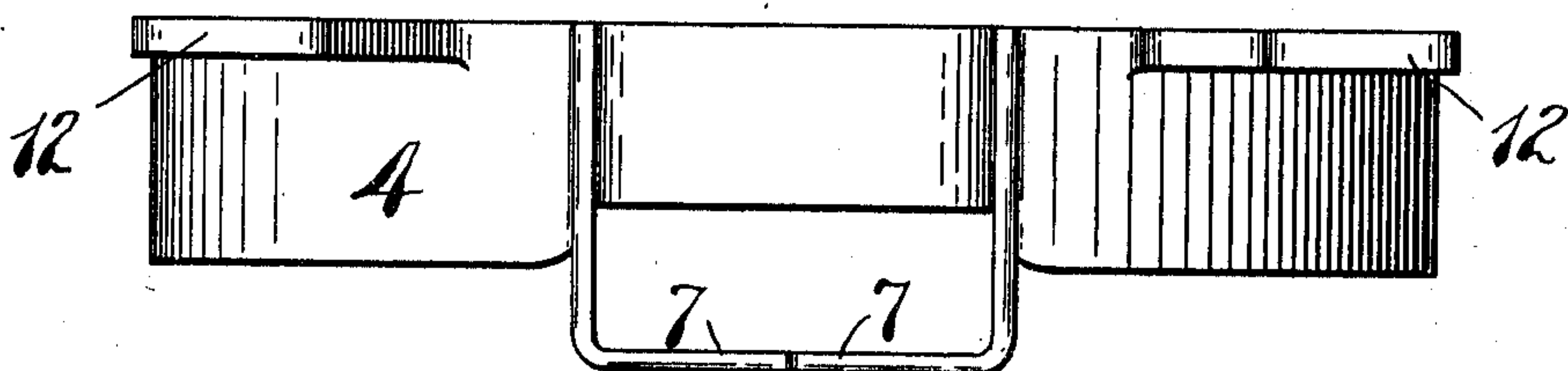
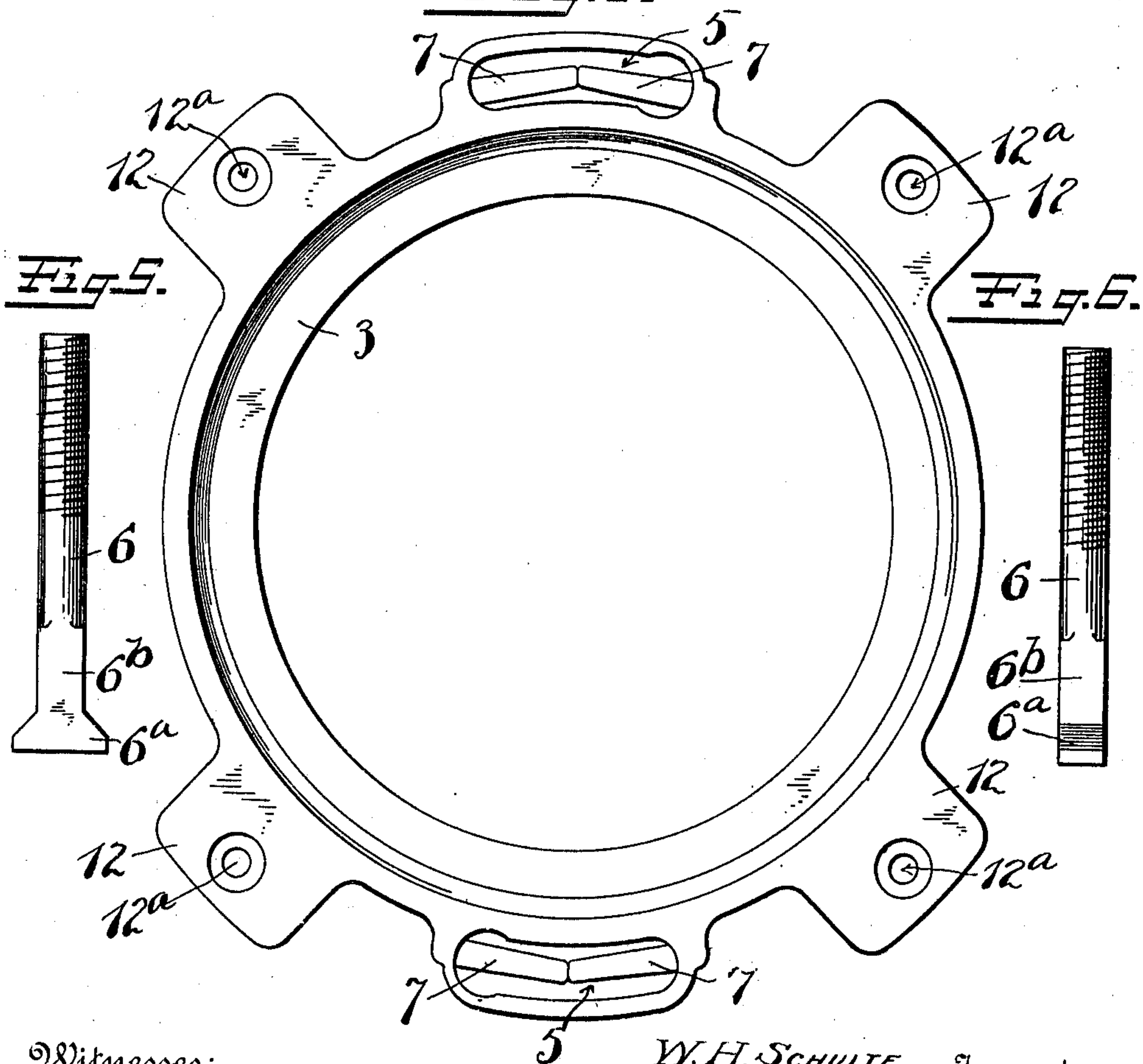


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FLOOR-FLANGE.

978,404.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed May 29, 1909. Serial No. 499,126.

To all whom it may concern:

Be it known that we, WILLIAM H. SCHULTE and ROLLIN C. WILSON, citizens of the United States, residing at Trenton, Mercer county, New Jersey, and Mount Vernon, Westchester county, New York, respectively, have invented certain new and useful Improvements in Floor-Flanges, of which the following is a full, clear, and exact description.

Our invention relates to improvements in floor flanges, so-called, for closet bowls.

This invention is essentially an improvement upon the construction set forth in our former Patent, No. 826,638, dated July 24, 1906.

The object of the present invention is to improve certain features of construction, as will be hereinafter seen.

In the accompanying drawings, Figure 1 is a sectional elevation of our floor flange as it appears in use, showing a portion of the bowl and a portion of the soil pipe, to which the bowl is connected through the medium of the flange. Fig. 2 is a view of the under side of the flange alone. Fig. 3 is an edge elevation of the flange shown in Fig. 2, looking from right to left. Fig. 4 is a plan view of the flange alone. Fig. 5 is a side elevation of one of the clamping bolts. Fig. 6 is a similar view of the same part taken at right angles to the plane of Fig. 5.

1 represents the lower part or neck of the bowl to be secured to the floor.

2 represents the soil pipe to which the bowl is to be attached.

The flange is of annular, flat, ring-like form and is provided with a depressed pipe-receiving flange or seat around its inner edge, said depressed seat being arranged in a substantially horizontal plane, furnishing a substantially flat support for the outwardly flanged upper end of the pipe 2. This flange or seat is indicated at 3. The extreme inner edge of the seat 3 is preferably turned down slightly to form a rounded edge over which the flanged upper end of the pipe 2 is drawn, as shown in Fig. 1. The metal of the seat 3 is comparatively thin for the purpose hereinafter described and yet strong enough to adequately support the pipe 2 and permit of a firm and secure connection between the pipe and flange.

The method of connecting the pipe 2 to the flange may be the well-known method employing the use of solder. The depressed seat 3 serves to permit the upper flanged end of the pipe 2 to lie flush or substantially flush with the upper surface of the main body of the flange when the flange is finished.

4 is a downwardly extending reinforcing and stiffening web extending entirely around the flange and on the under side thereof. The function of said web 4 is to resist a buckling strain by an upward drag on diametrically opposite sides of the device. The depth of the downwardly projecting stiffening web 4 should be so proportioned as to afford the proper rigidity; this, of course, being variable to meet varying conditions.

5—5 are slots at diametrically opposite sides of the flange, said slots being provided to receive clamping bolts 6—6.

7—7 are bolt supports arranged below the slots 5—5 but spaced apart therefrom to furnish clearance for the heads 6^a of the bolt 6. Directly above these bolt heads, the shank of each bolt is preferably squared, as shown at 6^b, the diameter of each bolt at the squared portion corresponds closely to the width of each slot 5, whereby when a nut 6^c is applied to its respective bolt, said bolt will not turn. One end of each slot 5 is preferably enlarged and rounded, as shown in Figs. 2 and 4, the diameter of said enlarged portion being slightly in excess of the greatest diameter of the squared portion 6^b of the bolts. The slots 5 are arranged parallel to and just outside of the web 4, that the strain of the bolts will be taken directly by the web and distributed uniformly around the flange, so that a substantially uniform pressure may be secured between the foot of the bowl 1 and said flange. As will be seen, the depressed reinforcing web 4 forms one wall of each slot 5.

8 is an annular packing washer of suitable material, the same being of an appropriate shape to fit in the space between the rounded over edge of the pipe 2 and so-called horn or neck 1 of the bowl, as shown in Fig. 1. As Fig. 6 shows, the head 6^a of each bolt is flattened on opposite sides whereby said bolt may be slipped through the slotted portion 5 of the flange. When

this is done, by shifting the bolt to the broader end of the slot 5, said bolt may be turned until the head 6^a stands across the slot underneath the same; said bolt is then shifted into the middle part of the slot 5 and into a position in which it will pass through the slot 9 in the foot 10 of the bowl.

11 is a washer arranged between the nut 6^c and the upper surface of the foot of the bowl to cover the slot 9 and to furnish a bearing for the nut 6^c as it is screwed down.

12—12 are laterally extending supporting ears of relatively thin material. These ears extend outside of the web 4 so as to rest upon the floor and support the flange, it being understood that a hole approximating the size of the flanged portion 4 is formed in the floor to receive the same. Ordinary wood screws may be employed to anchor the flange to the floor, screw holes 12^a being provided in the ears 12.

By making the depending pipe-receiving flange or seat 3 of comparatively thin material and by making the ears 12 of correspondingly thin material, so that said parts may yield to severe pressure, any slight variation in the shape of the foot of the bowl 1 or in the floor, respectively, may be compensated for.

The bolt support 7 performs a very useful function in that whereas ordinarily no means is provided to hold the bolts 6 in place after the flange is applied and before the bowl is put in place, these devices prevent said bolt from falling through the slots 5 and becoming lost in the space between the floor and the underlying ceiling.

In the modern bowl, it has become common practice to provide only two bolt holes, these being ordinarily located on diametrically opposite sides of the neck 1 or bowl outlet. With the ordinary flange, any attempt to secure a gas tight joint at the point where the packing 8 is located, to absolutely prevent leakage of gas or liquid, is practically impossible since the ordinary flange is so thin as to readily buckle, making no connection, or an unsafe connection, at points around the horn of the bowl between the bolts. Our former invention made it possible to secure an absolutely gas tight joint entirely around the flange with the use of only two bolts. The present invention accomplishes the same result by the same means and provides certain additional features of improvement, as above pointed out.

As will be observed, although each slot 5 is practically in line with the strengthening web 4, it is nevertheless slightly outside of the same; thus making it unnecessary to disturb the annular contour of the web. In forming the hole in the floor to receive the flange, allowance should be made for the outer wall of each slot 5. By arranging the reinforcing web 4 to the rear of the pipe-

receiving seat 3, the latter may yield sufficiently to absolutely conform to the shape of the outlet end of the bowl without disturbing or putting any undue strain upon the balance of the flange.

What we claim is:

1. In a device of the character described, a ring-like member, a pipe-receiving seat thereon comprising a depressed flange at the inner edge thereof, arranged in a substantially horizontal plane, a downwardly directed reinforcing and stiffening web of unbroken annular form on the under side of said ring-like member and outside of and spaced away from said pipe-receiving seat, fastening devices arranged externally of said seat and web but in such position relatively thereto as to distribute the pulling strain of said fastening devices uniformly around said ring-like member.

2. In a floor flange for the purpose described, a ring-like member having a depressed inner edge said ring-like member furnishing a substantially horizontal pipe-receiving seat, fastening devices outside of said seat, and an annular downwardly extending reinforcing and stiffening web of unbroken annular form on the lower side of said ring-like member outside of and spaced away from said pipe-receiving seat, said fastening devices arranged outside of but engaging with said annular stiffening web whereby the pulling strain, when the fastening devices are set up, will be distributed uniformly around said ring-like member.

3. In a device of the character described, a ring-like member, a pipe-receiving seat thereon comprising a depressed flange at the inner edge thereof, arranged in a substantially horizontal plane, a downwardly directed reinforcing and stiffening web of unbroken annular form on the under side of said ring-like member and outside of and spaced away from said pipe-receiving seat, fastening devices arranged externally of said seat and web but in such position relatively thereto as to distribute the pulling strain of said fastening devices uniformly around said ring-like member, and ears extending outside of said stiffening web and constituting a supporting means for said device.

4. In a device of the character described, a ring-like member, a pipe-receiving seat thereon comprising a depressed flange at the inner edge thereof, arranged in a substantially horizontal plane, a downwardly directed reinforcing and stiffening web of unbroken annular form on the under side of said ring-like member and outside of and spaced away from said pipe-receiving seat, fastening devices arranged externally of said seat and web but in such position relatively thereto as to distribute the pulling strain of said fastening devices uniformly around said ring-like member, and ears extending out-

side of said stiffening web and constituting a supporting means for said device, said ears being yielding for the purpose described.

5 In a device of the character described, a ring-like member, a pipe-receiving seat thereon comprising a depressed flange at the inner edge thereof of relatively thin material, whereby the same may yield, said seat being arranged in a substantially horizontal
10 plane, a downwardly directed reinforcing and stiffening web on the under side of said ring-like member and outside of said pipe-receiving seat, fastening devices arranged externally of said seat but in such position
15 relatively thereto as to distribute the pulling strain of said fastening devices uniformly around said ring-like member.

6. In a device of the character described, a ring-like member, a depressed pipe-receiving flange at the inner edge thereof, a downwardly extended reinforcing and stiffening web on the under side of said ring-like member and outside of said flange, said member having bolt-receiving slots on opposite sides,
20 and a bolt support below each slot and spaced apart therefrom, one end of each of said slots being enlarged.

7. In a device of the character described, a ring-like member, a depressed pipe-receiving flange at the inner edge thereof, a downwardly extended reinforcing and stiffening web on the under side of said ring-like member and outside of said flange, said member having bolt-receiving slots on opposite sides, and a bolt support below each slot and spaced
30 apart therefrom, one end of each of said slots being enlarged, and headed fastening bolts having squared shanks adjacent to the headed portion, the width of the squared portion of said bolts corresponding substan-
35 tially to the width of the slot, the enlargement at the end of each slot being greater than the greatest width of said squared portion of the bolts, the opposite sides of the headed portion of each bolt being cut away
40 to a width slightly less than the width of the slot but permitting said bolts to be inserted therein.

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