

March 12, 1957

W. J. BANCHBACK
SANITARY WELL SEAL

2,784,988

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2 Sheets-Sheet 1

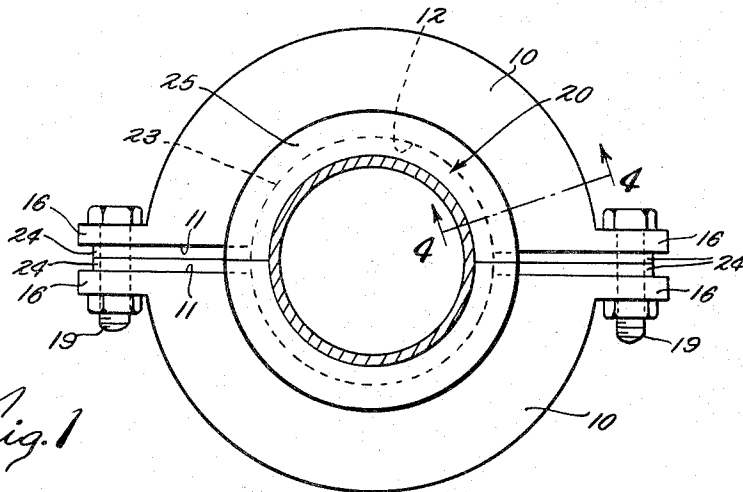


Fig. 1

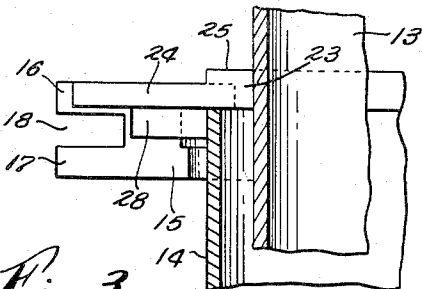


Fig. 3

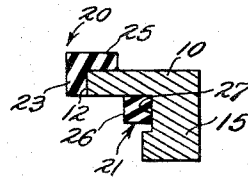


Fig. 4

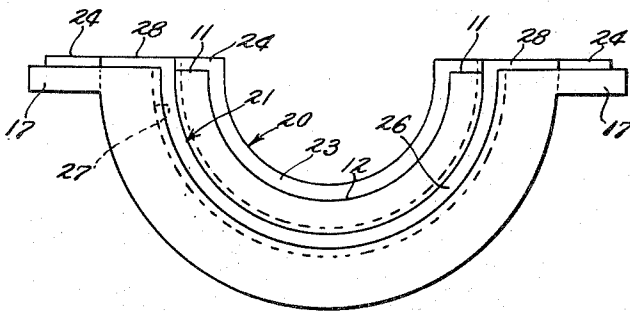


Fig. 2

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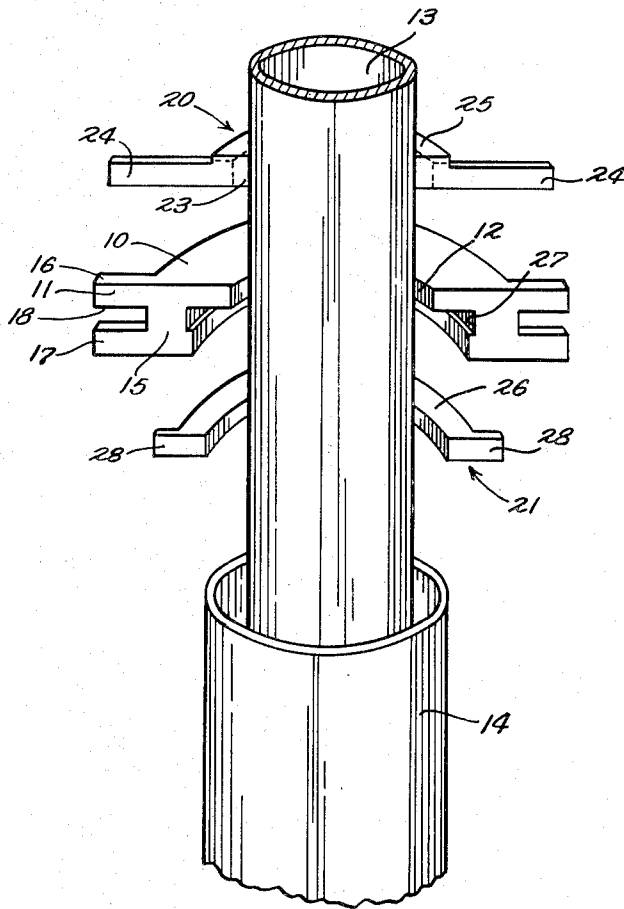


Fig. 5

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SANITARY WELL SEAL

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3 Claims. (Cl. 285—140)

This invention relates to sanitary well seals and has for an object the provision of a seal or cap that is highly efficient, and that is economical of manufacture and can be quickly applied without disturbing the drop pipe in the well casing and without danger of loss of parts in the open top of the well casing.

A further object of the invention is to provide a two piece well cap of the diametrically split type, which parts are removably secured in position by a pair of bolts extending horizontally through the parts at diametrically opposite ends thereof.

Another object of the invention is to provide a device of this character with cooperating gasket members to afford a selective compression seal between the two parts of the cap as well as between each part of the cap and the adjacent parts of the drop pipe and the well casing respectively.

These and other important objects are attained by the means described herein and exemplified in the accompanying drawings, in which:

Fig. 1 is a top plan view of the device of the invention operatively mounted on a well.

Fig. 2 is a bottom plan view of one of an identical pair of parts forming the device of Fig. 1.

Fig. 3 is a fragmental vertical sectional view of a well casing and the drop pipe therein, and showing one of the cap sections in place and partly broken away.

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is an exploded view showing one of the pair of seal parts arranged on a well member.

The cap or sanitary well seal consists of a pair of identical, generally flat, semicircular metal plates 10 each having straight end edges 11 extending radially outwardly from the ends of an inner semicircular edge 12 thereof. Plates 10 are adapted to be arranged about a drop pipe 13 which projects upwardly in known manner out of the open top of a water well casing 14 with the bottom faces of the plates resting on the upper end edge of the casing and with edges 12 of the plates surrounding the circumference of drop pipe 13. Depending from the semicircular bottom outer marginal face of each plate 10 is an integral semi-circular flange 15 which has its ends in the planes of the end edges 11. Each plate 10 has radially outward and vertically spaced upper lugs 16 and lower lugs 17 at each end to provide horizontal slots 18 to receive clamping bolts 19 whereby the plates 10 are drawn together about the well casing and the drop pipe therein (see Figs. 1 and 3). The bottom face of plate 10 takes a metal to metal seat on the top edge of well casing 14 for firm support of the cap in use.

Each plate 10 has an upper gasket indicated generally by the reference numeral 20 and a lower gasket indicated by reference numeral 21, both gaskets being bonded to the metal plate by a strong adhesive (not shown). These gaskets 20 and 21 are of specially cured rubber or special synthetic rubber-like plastic and have the physical characteristic of being tough and resistant to digital

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pressure but elastic and compressible under high mechanical pressure.

Upper gasket 20 has an arcuate portion 23 conforming and adhesively secured to the edge 12. From opposite ends of portion 23 are radially extending tabs 24 which extend along and are adhesively secured to the face of upper lug 16. Tabs 24 are relatively thinner than arcuate portion 23 of the gasket 20. An integral flat semi-annular flange 25 on portion 23 seats on and is adhesively secured on the top face of member 10 adjacent the edge 12.

The lower gasket 21 has a semi-circular mid-portion 26 that seats in and is adhesively secured to the circumferential wall of a groove 27 that is disposed in the inner face of flange 15 substantially in the plane of bolt slots 18. There are relatively thin integral end tabs 28 on gasket 21 adhesively secured on the ends of flange 15 and terminating adjacent the inner end of slots 18 as can be best seen in Figs. 2 and 3.

In applying the seal or cap of the invention to a well it is to be noted that it is not necessary to stop the pump if it be operating and that some degree of eccentricity of drop pipe 13 in casing 14 will not prevent the quick, easy and effective attachment of the seal because of the ample thickness of both gaskets and the relatively independent compressibility thereof. The two plates 10 with the gaskets adhesively secured thereto are placed at opposite sides of the casing and drop pipe with metal to metal support of the plates 10 on the top edge of the casing. A clamping bolt 19 with the nut on the end thereof is now entered in the open ends of the adjacent slots 18 at each end of the plates 10 in order to render the two piece cap self-supporting on the top edge of the well casing 14. The bolts are now drawn up whereupon each pair of semi-circular portions 26 of the lower gasket begins to conform to the outer circumference of casing 14 immediately adjacent the top edge of the latter. If drop pipe 13 be slightly eccentric the compression of gasket 20 will automatically compensate for that condition. The drawing up of bolts 19 is continual until the companion tabs 28 at each end of plates 10 as well as the corresponding tabs 24 are brought into face to face sealing abutment whereupon a complete gasket to gasket seal is effected between adjacent end edges 11 of the respective plates 10, and at the same time an effective gasket to metal seal is effected between the portions 26 and the circumference of casing 14 and also between the portions 23 and the circumference of drop pipe 13. The attachment of plates 10 to each other along a substantially diametrical line is characterized by relatively greater strength and rigidity due to the force of the tightened bolts on the relatively thinner tabs 24—24 and 28—28 between adjacent ends 11 of the attached well cap.

The seals on the casing and drop pipe are adequate to resist entry of contaminants of any kind into the well under any and all probable pressures that might be encountered, for example when the sealed top of the well is submerged under flood waters.

What is claimed is:

1. A sanitary well cap comprising a pair of flat semicircular plates adapted to rest upon the upper end edge of a well casing and to surround a drop pipe therein, each plate having straight end portions disposed in a common plane and further having a depending concentric flange on the bottom outer margin terminating in the aforesaid common plane, a pair of vertically spaced lugs at each outer edge of each plate and its flange, the lugs each having a face in the aforesaid common plane, an upper rubber-like cap-to-drop pipe gasket secured on the inner semi-circular edge of each plate and the adjoining margin of the top face of each plate, said gasket

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having end portions of reduced thickness extending along the straight end portions of each plate and the coplanar faces of the upper lugs to approximately the outer ends of said lugs, a lower rubber-like semicircular cap-to-well casing gasket having its top edge secured to the bottom face of each plate and its adjoining face secured to the inner semi-circular face of the flange, said lower gaskets having end portions of reduced thickness extending across the straight ends of the flange, the extended end portions of the upper and lower gaskets having adjacent edges in substantial contact, and a pair of clamping bolts co-operable with adjacently positioned pairs of lugs on the plates for drawing the coplanar ends of one plate toward the corresponding ends of the other plate.

2. The structure as set forth in claim 1 characterized by the fact that the inner semi-circular seat for the lower gasket is provided by a groove formed in the inner face of the flange that is appreciably longer axially than said gasket and admits of spreading of the gasket when

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compressed in the direction normal to its axial length between the flange and the well casing in response to the action of the clamping bolts.

3. The structure as set forth in claim 1 characterized by the fact that the bottom faces of the plates are arranged to seat flatwise on the end edge of the well casing and the lower gaskets effect circumferential compressional seal only on the well casing, and the extended ends of the upper gaskets form the gasket to gasket seal between adjacent coplanar end portions of the plates and the sides of the upper lugs.

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