

July 26, 1960

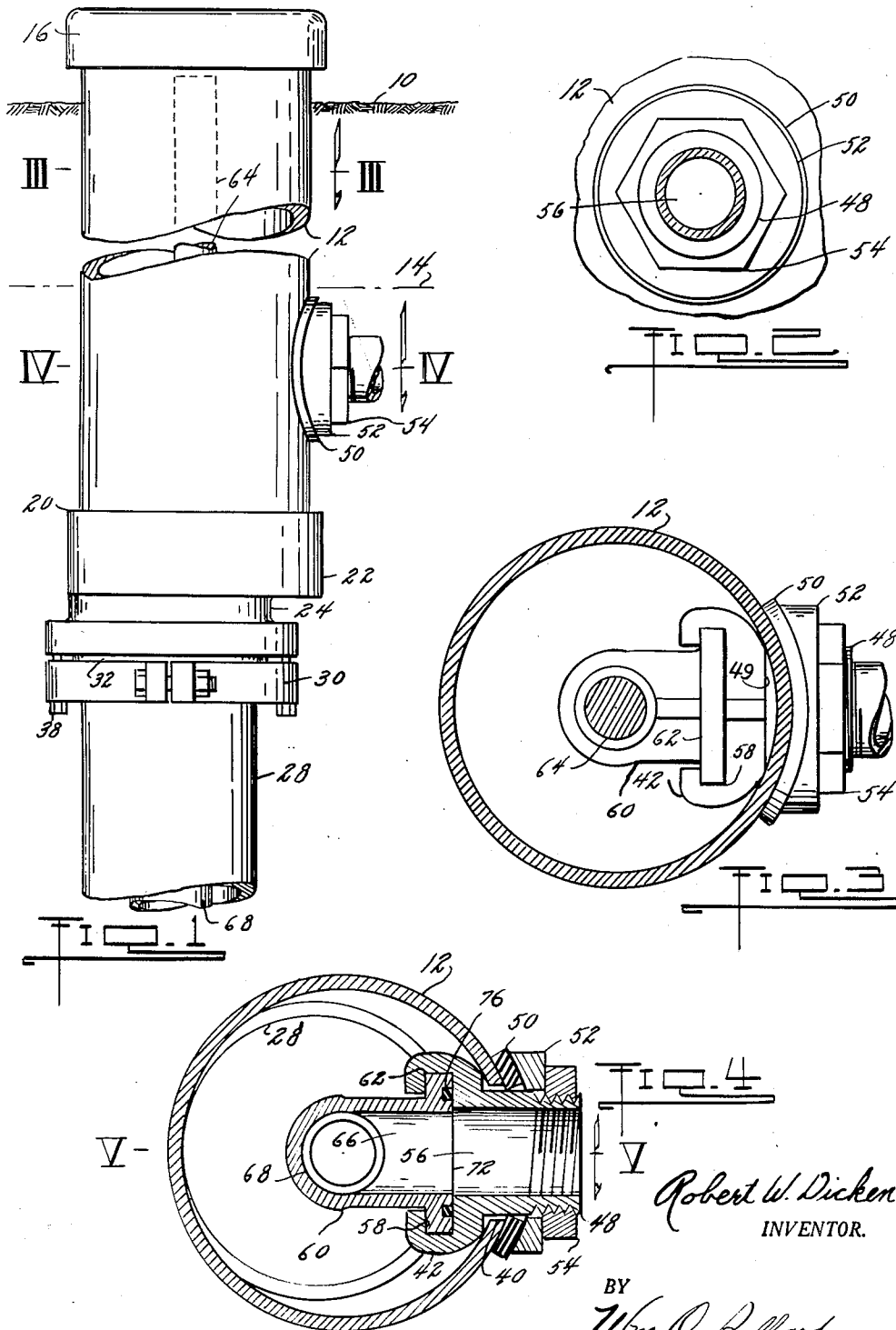
R. W. DICKEN

2,946,385

WELL SYSTEM

Filed Sept. 5, 1956

2 Sheets-Sheet 1



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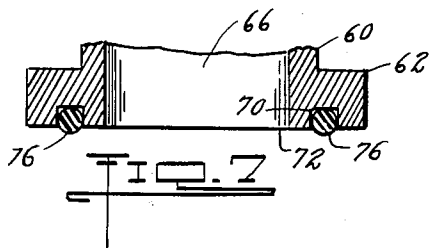
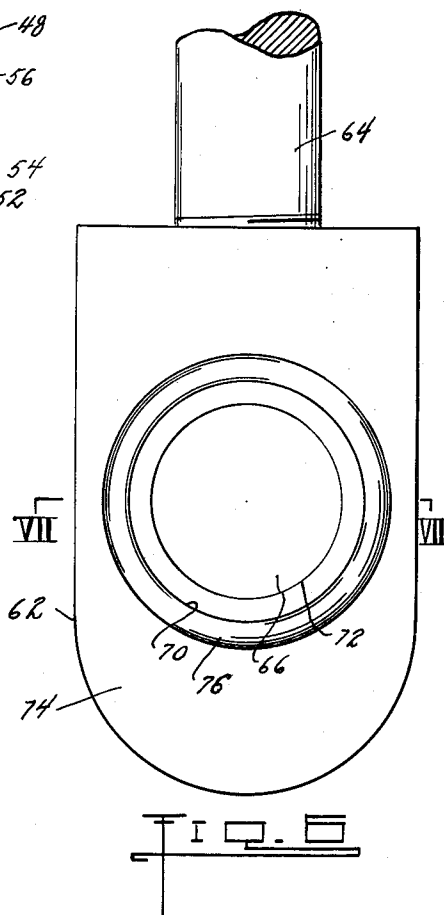
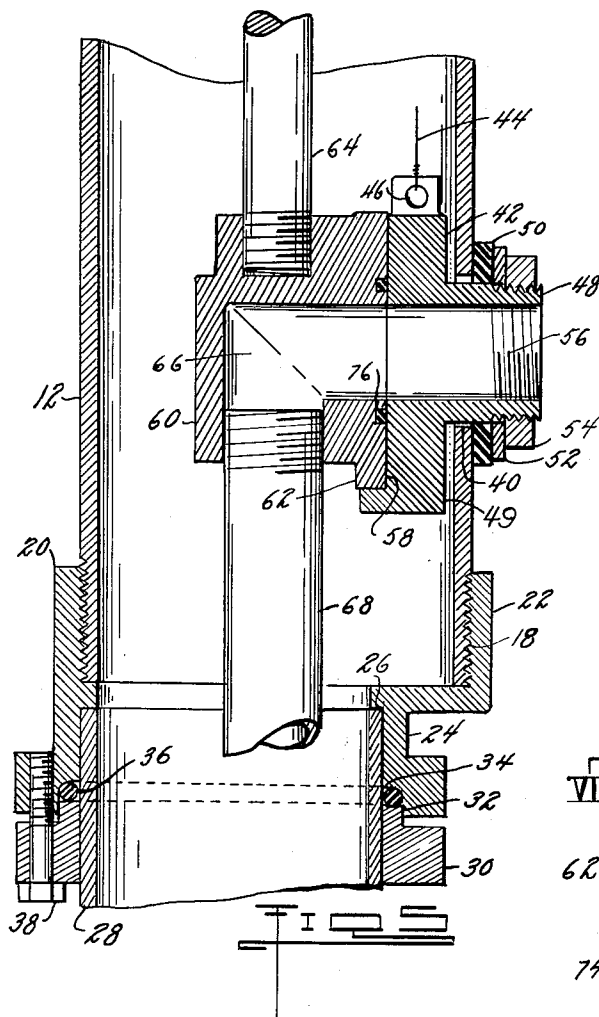
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WELL SYSTEM

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Filed Sept. 5, 1956, Ser. No. 608,082

2 Claims. (Cl. 166—88)

This invention relates to wells.

An object of this invention is to provide a well casing with a side wall outlet below the upper terminus of the casing.

Another object of this invention is the method of affecting the assembly of the parts.

Another object of this invention is to provide an outlet through the well casing below the frost line at the location of installation.

Another object of this invention is to provide an outlet through the well casing below the upper terminus of the casing, parts of such installation being readily removed to provide an uninterrupted clearway through the casing.

And another object of this invention is to provide an assembly of parts for providing an outlet through the casing wall, which parts being readily assembled into a leak proof structure.

Other objects and advantages of this invention relating to the arrangement, operation and functions of the related elements of the structure, to various details of construction, to combination of parts and to economies of manufacture, will be apparent to those skilled in the art upon consideration of the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Referring to the drawings:

Fig. 1 is a side elevation, parts being broken away, of a section of a well casing embodying the invention herein;

Fig. 2 is a side elevation of the outlet from the casing;

Fig. 3 is a view on the line III—III, Fig. 1;

Fig. 4 is a view on the line IV—IV, Fig. 1;

Fig. 5 is a view on the line V—V, Fig. 4;

Fig. 6 is an enlarged front elevation of the elbow and seal carrying plate for the installation; and

Fig. 7 is a view on the line VII—VII, Fig. 6.

In wells, particularly those for supplying water from a sub-surface source, a casing is assembled to provide a continuous duct from a water supply to the surface 10 of the ground. Herein a novel casing assembly is disclosed including a major diameter section 12 extending from the surface 10 downwardly to a distance substantially below the frost line 14. At its upper end, the section 12 may be closed by a suitable removable cap 16, and its lower terminus has threaded engagement 18 (Fig. 5) with collar 20. This collar has a portion 22 coaxial with the casing section 12 and a downward extension 24, the axis of which is radially offset from the axis of portion 22. The extension 24 provides seat 26 for the upper terminus of a minor diameter casing section 28 which casing may extend therefrom to the water supply.

The casing section 28 is attached to the collar element 20 by means of a split-ring 30 fixed about the section 28 a distance inwardly from the upper terminus of the section 28. The split-ring 30 has flange 32 extending into seat 34 of the extension 24 with a gasket 36 therebetween to provide a fluid tight seal and bolts 38 lock the ring

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30 to the extension 24 with a gasket 36 therebetween to provide a fluid tight seal and bolts 38 lock the ring 30 to the extension 24 to complete the assembly.

The casing section 28 is axially offset from the casing element 12 just sufficiently to provide a continuous straight line duct from the ground 10 to the water supply. The utility of this construction will be obvious following the description of the structure within the casing portion 12.

It is desirable to withdraw water from the casing below the frost line 14 so that a supply therefrom is available throughout the entire year. To this end the casing 12 is provided with port 40 radially disposed opposite the radial offset of the casing section 28.

A structural element 42 may be lowered into the casing 12 by means of a line 44 attached to eye 46 until tubular nipple 48 extending from a flat portion 49 is brought in registry with the port 40. The nipple 48 is then drawn through the port 40 and gasket 50 placed thereabout. A plate 52 is placed about the nipple and against the gasket and nut 54 threaded on the nipple exterior is tightened against the plate 52 in turn forced against the gasket 50. The face of the plate 52 against the gasket is arcuate and the face against the nut is planar. This effects a seal between the nipple and casing and securely mounts the parallel edges of the flat portion 49 on the element 42 in alignment with the axis of and against the inner wall of the casing 12, regardless of variations in the inside diameter between different casings, and provides a duct 56 therethrough from the exterior of the casing to perpendicular slideway 58 adjacent the inner face of the element 42. This slideway forms a U-shaped seat with parallel grooves along the sides of the U having a uniform cross-section throughout their lengths.

A second structural element 60 is provided with a slide 62 which may be seated in the slideway 58. This is accomplished by a rod 64 upon the lower end of which the element 60 is threadedly attached. The rod is lowered into the casing 12 and the slide 62 directed into the slideway 58. A downward push on the rod 64 positively seats the slide in the U-shaped seat so that one terminus of elbow duct 66 therethrough registers with the duct 56 and the bottom of the U-shaped seat acts as a stop to hold and support the element 60. The opposite terminus of this duct 66 is connected to pipe 68 which extends therefrom through the casing 28 to the water supply, and which pipe 68 is also supported by said stop between the parallel sides or guide channels of slideway 58. In order to effect a seal between the elements 42 and 60, polygonal cross-sectional channel 70 is provided about the first named elbow duct terminal 72. This channel is in the face 74 of the slide 62 spaced about the terminal 72. Prior to the assembly of the elements 42, 60, a gasket 76, circular in cross section, is placed in the channel 70. This gasket 76 is of a diameter to extend slightly beyond the face 74, but when the slide is inserted into the slideway, this gasket 76 is deformed to fill the channel 70 and provide an effective seal between the elements 42, 60. The channel 70 retains this gasket 76 against lateral collapse during the assembly. There is thus provided a continuing duct from the pipe 68 through the elbow duct 66 and thence through the nipple duct 56 to outlet pipe 72 extending to a pump and place of use. The U-shaped seat insures a nice registry between the ducts 56 and 66.

This unique construction disclosed has a particular value in case of an emergency need for water. In such an instance the cap 16 may be removed and the element 60 quickly lifted from the well, together with the attached pipe 68. This leaves a clear way through the casing elements 12, 28, into which an emergency duct may be inserted, avoiding the side wall outlet ports.

It is to be understood that the above description of the

present invention is intended to disclose an embodiment thereof to those skilled in the art, but that the invention is not to be construed as limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of being practiced and carried out in various ways without departing from the spirit of the invention. The language used in the specification relating to the operation and function of the elements of the invention is employed for purposes of description and not of limitation, and it is not intended to limit the scope of the following claims beyond the requirements of the prior art.

What is claimed and desired to secure by United States Letters Patent:

1. In a well having a hollow cylindrical casing and a pipe in said casing, means for discharging fluid from the well through said pipe and a port in the casing below the upper terminus thereof, a first structural unit within the casing providing a flat portion with parallel side edges and a tubular nipple extending from said flat portion through said port, means engaging said nipple outside said casing to seal the port about said nipple and fixedly mount said parallel edges of said flat portion against the inner wall of said casing to compensate for casings of different inside diameters; the opposite side of said flat portion of said unit providing a first surface remote from said nipple, and a duct from said nipple through said first surface; a second structural unit providing a second surface and having an elbow duct therein connected to said pipe in said casing and extending through said second surface

for registry with the duct in said first structural unit, a channel in one of said surfaces surrounding said duct through that one surface, a deformable gasket in and protruding from said channel, means on one of said structural units for guiding said surfaces in relative parallel movement in and out of alignment of said ducts through said surfaces, said guiding means including a pair of parallel grooves of uniform cross-section throughout their lengths for holding said other of said surfaces into compressing engagement with said gasket, and stop means on said structural units between said parallel grooves for positively and solely supporting said second structural unit and said pipe connected thereto and for limiting said parallel movement of said surfaces to align said ducts through said surfaces.

2. A structure according to claim 1 wherein said channel for said deformable gasket is substantially polygonal in cross-section, and said gasket therein has a circular cross-section normally of a diameter slightly greater than the depth of said channel to permit deformation of said gasket when said first and second structural units are assembled with their surfaces held facing each other.

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