

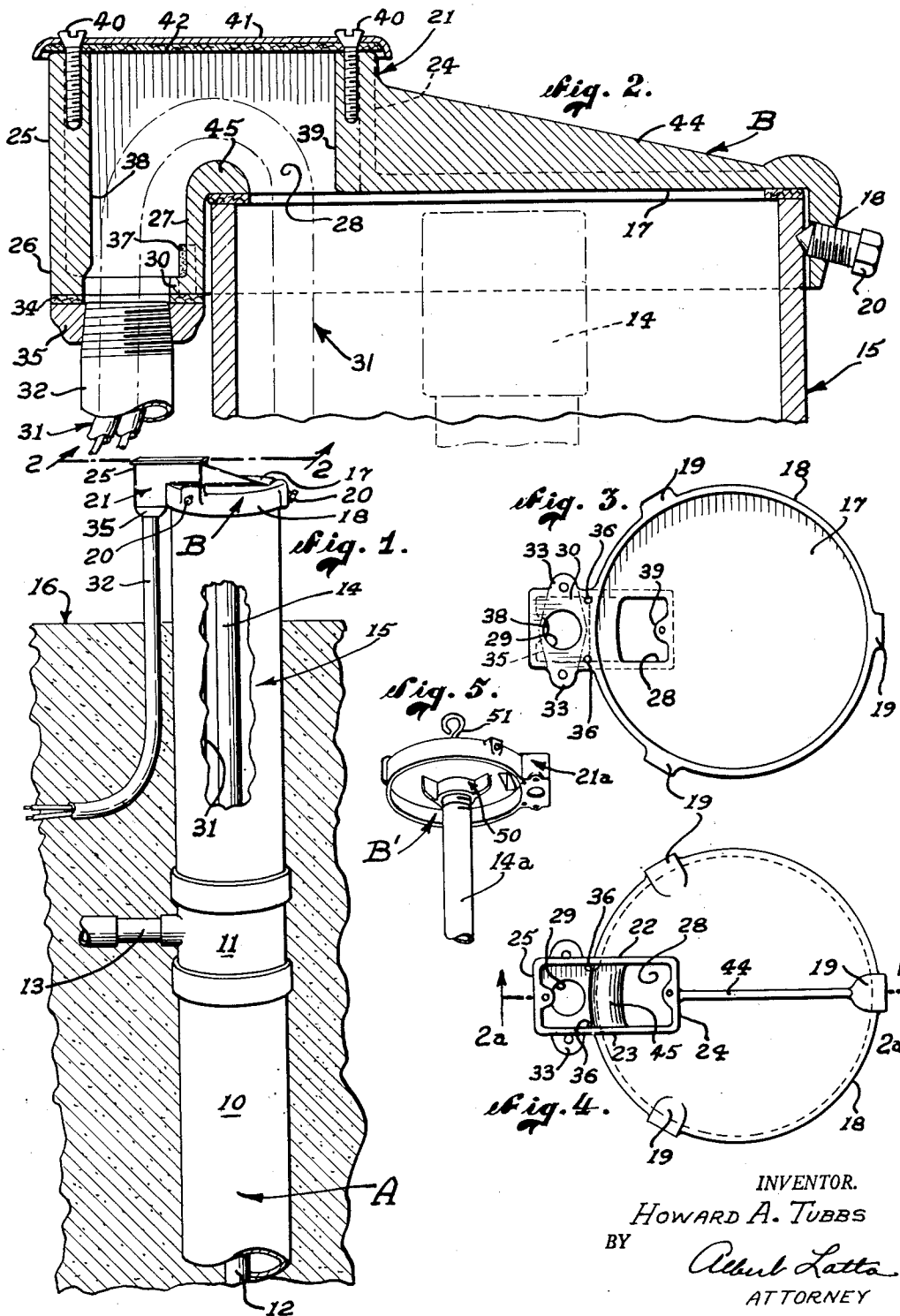
May 28, 1957

H. A. TUBBS

2,793,699

ADAPTER FOR WELL CASING

Filed April 11, 1956



1

2,793,699

ADAPTER FOR WELL CASING

Howard A. Tubbs, Whitewater, Wis.

Application April 11, 1956, Serial No. 577,538

3 Claims. (Cl. 166—75)

The invention relates to wells of the type normally used for supplying water for domestic or commercial use wherein a closed casing extends down into the earth, the lower end of which is in open communication with the subterranean supply of water.

In the submersible pump type of system, the pump and associated motor are normally suspended from the end of the water supply pipe in a position beneath the water level in the well casing near the lower end of such casing and to service the pump and motor, it is necessary to withdraw same from the well casing by withdrawing the water supply pipe to which it is attached.

In addition to providing a water supply pipe internally of the well casing, it is necessary to run appropriate electrical wiring from the upper end of the well casing down through the well casing to the pump unit.

The general object of the invention is to provide an improved upper section of well casing and sealing cover therefor which facilitates assembly and servicing of parts within the well casing.

A more specific object is to provide a unitary sealing cover formed as a casting and including an electrical service box arranged for making quick inspection of the interior of the well casing and for effecting rapid servicing of the electrical wiring as well as facilitating initial installation of said wiring.

Another object is to provide an upper well casing assembly which is inexpensive and easily installed onto the lower sections of the well casing.

Another object is to provide an upper well casing section with appropriate unitary covering means for effectively sealing off the otherwise open upper end of the well casing, breathing apparatus being provided for admitting atmospheric air into the interior of said well casing section.

Other objects and advantages will be apparent from the following specification and appended drawing in which:

Figure 1 is a perspective view of the invention, shown partly in section;

Figure 2 is a fragmentary sectional view taken on the line 2—2 of Fig. 1—the division line being more accurately indicated by means of the line 2a—2a of Fig. 4; Fig. 4 however being a detail view of the cover casting alone;

Figure 3 is an underneath detail view of the cover casting alone;

Figure 4 is a detail view of the casing of Fig. 3 seen from above; and

Figure 5 is a fragmentary perspective view of a modified form of the invention with certain parts removed and with support boss added.

Referring to Fig. 1 I have shown a conventional submersible pump type of water supply system wherein a generally cylindrical casing of preselected inside diameter extends down into the earth to the necessary depth dictated by geographical formations and the subterranean supply of water. The casing is identified by the letter A

2

and may consist of several successive sections of pipe forming a continuous casing terminating with the uppermost section 10 to which a collar 11 is attached. Within the collar there is provided a coupling device to which the upper end of the water supply pipe 12 is connected. The water from pipe 12 is diverted by the coupling device into the discharge pipe 13 which leads to the house or other recipient of the water. An additional section of pipe 14 is connected to the coupling device for effecting withdrawal of the coupling device, supply pipe 12 and the pump unit from the casing. An adapter section 15 is connected to the upper end of collar 11 and normally projects a few inches above ground level 16.

It is necessary to close off the otherwise open upper end of the adapter section of the well casing to prevent foreign matter from gaining entry and at the same time it is necessary to run electrical wiring from a source of electricity into the interior of the well casing, consequently, I have provided a sealing cover identified by the letter B which accomplishes the desired objectives.

The cover is in the form of a single unitary casting having a generally circular cap portion including an end closure wall 17 having a generally circular flange 18 projecting axially therefrom. The flange encircles the upper open end of the casing adapter and a circular gasket 19 is usually interposed between the end of the adapter and the generally flat underside of the cover to form an effective seal. The cover flange may have three equally spaced bosses 19 formed thereon to accommodate the set screws 20 which are preferably inclined slightly upwardly so that when tightened against the external wall of the casing adapter, a downward pressure is exerted by the cover against the gasket to form an effective seal.

Formed integrally with and adjacent one side of the cover is a service box identified generally by the numeral 21, the box including side walls 22 and 23, end walls 24 and 25 and a downwardly projecting service entrance portion 26. The cover flange in the area at 27 serves as one wall of the service entrance portion. The end closure wall of the cover has an opening 28 therethrough adjacent flange area 27 and the service entrance portion has an opening 29 in the end wall 30 thereby providing open communication from the interior of the well casing to the exterior of the service box. Thus the electrical wiring 31 can be fed through a conduit 32 and on in through the service box and thence through cover opening 28 into the interior of the well casing.

The underside of the end wall 30 is generally flat and a sealing gasket 34 is interposed between the cover 35 and the end wall for effecting a seal. The cover has an internally threaded opening into which the end of conduit 32 is threaded. The end wall 30 may have outwardly projecting ears with openings therein so that the cover 35 can be fastened thereto. The end wall likewise has breather holes 36 which are located outside of the area enclosed by the cover 35 (this area being indicated in phantom in Fig. 3) and thus establishing communication between the exterior of the service box and the atmosphere for permitting atmospheric air to enter the interior of the well casing. Porous plugs 37 are pressed into the openings 36 to prevent foreign matter from gaining entry into the service box.

The end walls of the service box have internal bosses 38 and 39 with internally threaded bores to receive the fastening screws 40 which removably anchor the cover 41 to the otherwise open upper end of the service box. A gasket 42 is interposed between the underside of the cover and end of the service box and effectively seals the service box against entry of foreign matter. Access to the interior of the service box is of course readily made by removing the cover 41 or by simply removing

3

one of the fastening screws and then using the remaining screw as a pivot while swinging the cover aside. It will be noted that inspection of the interior of the well casing can be made when the cover is swung aside by simply peering down through the opening 28. When a major servicing operation is involved, the entire cover assembly B can be removed from the upper end of the adapter section 15 by loosening screws 20, and the screws which anchor the end wall cover 35 to the service box thereby providing access to the pipe 14 and the parts connected therewith.

Viewing Figs. 3 and 4 I have shown the cover casting per se from the underneath side and the upper side respectively. A strengthening rib 44 is preferably provided and extends from the end wall 24 of the service box to the boss 19. The web portion 45 at the floor of the service box is provided with a rounded upper surface to prevent any possibility of injury to the wiring within the service box. It will be understood that the flange portion of the cover may be of any predetermined inside diameter to accommodate a particular size well casing.

In the modified form of the invention as shown in Fig. 5 the cover B¹ may have a centrally located hub 50 integral with the underside thereof and threaded to receive the upper end of the servicing pipe 14a. Likewise, the top side of the cover may have a boss (not shown) to which the eye 51 is anchored. Thus the pipe 14a and parts connected thereto are withdrawn from the well casing by loosening the set screws and removing the cover by attaching an appropriate rope or otherwise to the eye 51 and hoisting directly upwardly. The service box 21a may be of the same structural detail as the service box of Figs. 1-4.

I claim:

1. In a water system having a hollow subterranean well water supply casing having its upper end projecting above ground level together with a hollow service accommodating conduit adjacent to the well water supply casing and having its upper end also projecting above ground level, apparatus for closing off the otherwise open upper ends of the casing and conduit, said apparatus comprising: a cover assembly including a single unitary casting including an end closure wall for the upper end of the casing, a lip circumscribing said wall and projecting downwardly therefrom whereby to overhang the end margin of the well water supply casing, a service enclosure in the casting providing a chamber overlying the said casing and communicating therewith and a por-

4

tion protruding outwardly beyond said casing, whereby to overlie the upper end of the service accommodating conduit, said service enclosure being open at its upper end; a removable secondary cover closing off in a substantially watertight manner the otherwise open upper end of the service enclosure, an opening in the lower end of the service enclosure outside the casing and the service accommodating conduit being connected in a substantially watertight manner to the service enclosure in the opening at the lower end thereof.

2. In a water system having a hollow subterranean well water supply casing having its upper end projecting above ground level together with a hollow service accommodating conduit adjacent to the well water supply casing and having its upper end also projecting above ground level, apparatus for closing off the otherwise open upper ends of the casing and conduit, said apparatus comprising: a cover assembly including a single unitary casting including an end closure wall for the upper end of the casing; fastening means carried on the casting for removably anchoring the casting to the casing so as to close off the otherwise open end of said casing in a substantially watertight manner; a service enclosure in the casting providing a chamber having a portion overlying the said casing and communicating therewith and a portion protruding outwardly beyond said casing, whereby to overlie the upper end of the service accommodating conduit; said service enclosure being open at its upper end; a removable secondary cover closing off in a substantially watertight manner the otherwise open upper end of the service enclosure, an opening in the lower end of the service enclosure outside the casing and the service accommodating conduit being connected in a substantially watertight manner to the service enclosure in the opening at the lower end thereof.

3. Apparatus as set forth in claim 2 wherein an additional removable cover closes off in a substantially watertight manner the lower opening of the service enclosure and said latter cover has an opening therein into which the service accommodating conduit is connected in a substantially watertight manner.

References Cited in the file of this patent

UNITED STATES PATENTS

768,993	Hopkins	Aug. 30, 1904
840,792	Morse	Jan. 8, 1907
2,000,374	Buchanan	May 7, 1935
2,707,030	Ortman	Apr. 26, 1955