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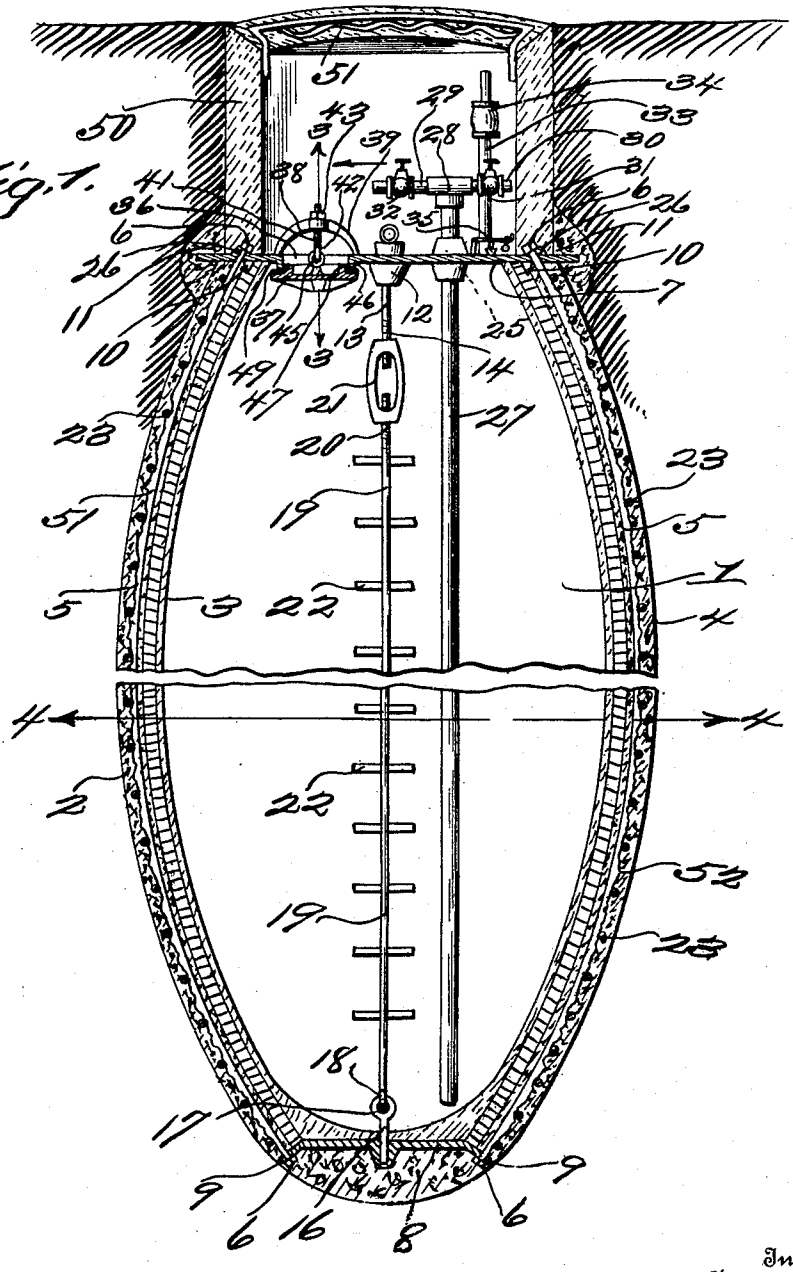
CISTERN.

APPLICATION FILED SEPT. 24, 1910.

992,598. **Patented May 16, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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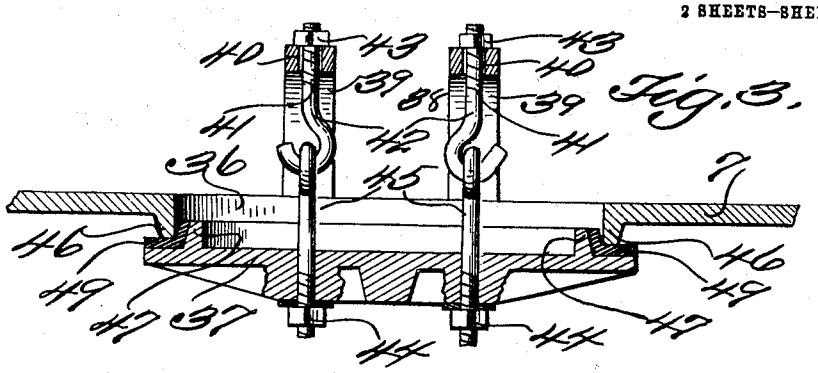


Fig. 3.

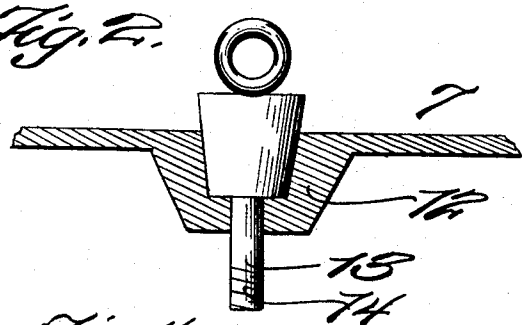
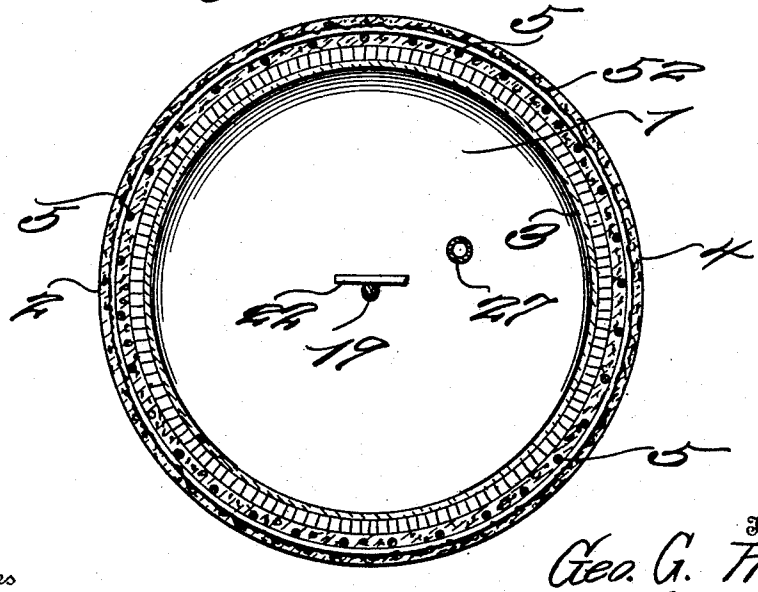


Fig. 2.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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992,598. Specification of Letters Patent. Patented May 16, 1911.

Application filed September 24, 1910. Serial No. 583,569.

To all whom it may concern:

Be it known that I, GEORGE G. ROSS, a citizen of the United States, residing at Bladen, in the county of Webster and State of Nebraska, have invented a new and useful Cistern; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention about to be set forth belongs to the art of air and water pressure cisterns, and it particularly pertains to one adapted for use in connection with water supply systems.

This invention is further, an improvement upon the cistern set forth and disclosed in the patent, issued June 15, 1909, No. 924,834.

The primary object of this invention is to improve the structure of the body of the cistern over the above said patent, and to afford a novel strengthening means for the cistern, which is approximately elliptical in contour. This cistern is provided with a single conduit for the admission and discharge of water or gases, and a valved pipe for the admission and escape of air. The cover of the cistern is provided with a man-hole having a suitable closure therefor, similar to that shown in the above said patent, whereby access may be had to the interior of the cistern. The interior of the cistern is provided with vertically arranged means, whereby a person may readily descend to the bottom thereof.

In this specification and the annexed drawings a particular design of device is adhered to, but the invention is not to be confined to this specific design.

The device in its actual reduction to practice may necessitate changes and variations, the right thereto belongs to the applicant, provided such changes and variations are comprehended by the appended claims.

Referring to the drawings:—Figure 1 is a vertical sectional view of the cistern, showing parts in elevation. Fig. 2 is a sectional view through the cover. Fig. 3 is a detail view of the closure, to the man-hole, showing the means of fastening the same. Fig. 4 is a cross sectional view on line 4—4 of Fig. 1, in order to illustrate the series of vertically arranged rods.

As to the annexed drawings, 1 denotes the cistern as a whole, which is elliptical, or substantially so, in contour, and the main portion 2 of the wall thereof is constructed of brick work, or any other suitable masonry. The inner circumference of the brick work is lined with a coating of cement plaster 3, while the outer circumference of the brick work or masonry, is embedded in a casing of cement 4 of a thickness equal to the thickness of the brick work. Embedded in this cement casing, conforming to the contour of the cistern, and extending vertically thereof, are a series of tie rods 5, the ends of which are threaded, to receive the nuts 6, for instance after the rods penetrate, the metallic top and bottom 7 and 8 of the cistern. The metallic bottom 8 is flat or disk shaped, and is formed with an annular flange 9, through which the rods 5 extend. This flange 9 extends at a slight angle to the body of the bottom 8, so that the rods 5 may pass directly through it at right angles. The top 7 of the cistern is provided with an annular depending flange 10, which is seated or embedded in the masonry. This top 7, where it fits the upper periphery of the cistern, is embedded in a composition of tar and dry cement, or other suitable material 11, in order to allow for contraction and expansion of the top.

The top 7, at its central portion, is provided with an enlargement 12, and seated or chilled therein, is a rod 13, the lower end of which is threaded, as at 14. The bottom 8 is formed with an enlargement 15 (which is similar to the enlargement 12), and fitted, chilled, screwed, or otherwise fastened therein, is the shank 16 of the eye 17, with which the eye 18 of the rod 19 engages. The upper end of the rod 19 is threaded, as at 20, and connected between the threaded ends of the rods 13 and 19, is the turnbuckle 21, whereby the top and bottom may be correlatively adjusted in position. This rod 19 is provided with a series of cross arms 22, which serve as a ladder for descending into the cistern.

Extending annularly about the cistern, on the outside of the rods 5, and embedded in the cement floor are a plurality of annular tie rods 23, which together with the rods 5, lend considerable strength and rigidity to the structure of the cistern. By the pro-

vision of these rods 23 and 5, and their special arrangement, the brick work or masonry is securely held in the position desired.

The top is provided with apertures 25 and 26, and through the aperture 25 the pipe 27 extends. This pipe 27 acts as an admission and discharge pipe, and to the upper end of this pipe a T-union 28 is connected, from which the pipes 29 and 30 extend, the pipe 29 acting as the admission pipe for the pipe 27, for instance, when the valve 31 of the pipe 30 is closed, while the pipe 30 acts as the discharge pipe for the pipe 27, when the valve 32 of the pipe 29 is closed, and the valve 31 opened.

When a supply of air is needed, any suitable construction of pump may be utilized, which is designed to be connected to a short pipe 33, in which a suitable check-valve 34 is provided, which will prevent the outward flow, after the charge of air has been forced into the cistern. When the pressure of air becomes too great, the air escape valve 35 is automatically operated to reduce the air pressure within the cistern.

The top or cover is provided with a man-hole 36, having a closure 37. Suitable locking means 38 is provided in order to hold the closure of the man-hole securely in position. This locking means comprises segmental members 39 having apertures 40, in which the shanks 41 of the eye bolts 42 are positioned, there being suitable means 43 whereby these bolts may be readily adjusted. The closure 37 has projecting upwardly therefrom, and adjustably secured thereto by the means 44, a hook 45, which engages the eye of the bolt 42. The man-hole is sealed or closed by the closure 37 from the under portion of the top or cover 7. About the periphery of the man-hole a flange 46 is formed, while the closure 37 is formed with a similar flange 47, which engages upon the inner circumference of the flange 46, and between the closure and the top or cover 7, on the outside of the flange 46, is a gasket or other packing 49, preferably rubber, whereby the cistern is securely sealed.

Above the top or cover 7 is an annular wall of brick or other masonry and cement 50, which extends up to the surface of the ground. This annular wall is covered by a closure 51, which is composed of a metal frame work and cement.

The tie rods 23 and 5, not only lend strength and rigidity to the structure of the system, but also reinforce the same.

By the connections between the metal top and bottom of the cistern, the top or cover may be held securely and rigidly in place, and should the cover work loose, the same may be tightened, by the manipulation of the turnbuckle 21.

From the foregoing, it will be plainly evident that a novel structure of cistern is afforded, said cistern comprising novel improvements over the said Patent No. 924,834. Furthermore, the operation of the device will be clearly noted, from the above set forth description, when taken in connection with the annexed drawings.

The tie rods 5 and 23 are irregular or deformed, as shown at 52, in order to prevent crumbling or cracking of the outer casing of cement, and to lend further strength and rigidity to the cistern.

The invention having been set forth, what is claimed as new and useful is:—

1. A cistern constructed of a composition of brick and cement, a cover therefor, a disk shaped metal base member embedded in the cement at the bottom of the cistern and having an annular flange arranged adjacent the base of the brick structure, and tie rods embedded in the composition and connecting the cover and the flange of the metal base.

2. An elliptical shaped composition cistern, a cover or top therefor having a centrally disposed depending threaded rod, a flat disk shaped metal base portion embedded in the bottom of the cistern and provided with an upwardly extending threaded rod, a turnbuckle connected between the two rods, said base portion having an annular flange, tie rods adjustably connected to the cover or top and to the flange, arranged vertically and conforming to the contour of the cistern embedded in the composition.

3. An elliptical shaped composition cistern, a cover or top therefor having a centrally disposed depending threaded rod, a flat disk shaped metal base portion embedded in the bottom of the cistern and provided with an upwardly extending threaded rod, a turnbuckle connected between the two rods, said base portion having an annular flange, tie rods adjustably connected to the cover or top and to the flange, arranged vertically and conforming to the contour of the cistern embedded in the composition, and annular tie rods embedded in the composition upon the outside of the first named rods.

4. An elliptical shaped composition cistern, a cover or top therefor, a disk shaped metal base portion embedded in the bottom of the cistern provided with an annular flange, irregular or deformed tie rods connected to the flange and extending vertically of and conforming to the elliptical contour of the cistern, said rods having adjustable connections with the top or cover.

5. An elliptical shaped accessible cistern composed of a composition of brick and cement and including admission and discharging means, a cover therefor, a metal base portion embedded in the bottom of the

cistern adjacent the bottom of the brick structure of the cistern, tie rods connecting the base portion and the cover embedded in the composition and conforming to the elliptical shape of the cistern, and a centrally disposed adjustable connection between the cover and the base portion.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE G. ROSS.

Witnesses:
LOUIS CUTTER,
WM. MORROW.