

B. L. MILLS.
AIR PRESSURE RESERVOIR.

APPLICATION FILED MAR. 27, 1911. RENEWED FEB. 5, 1912.

1,044,465.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

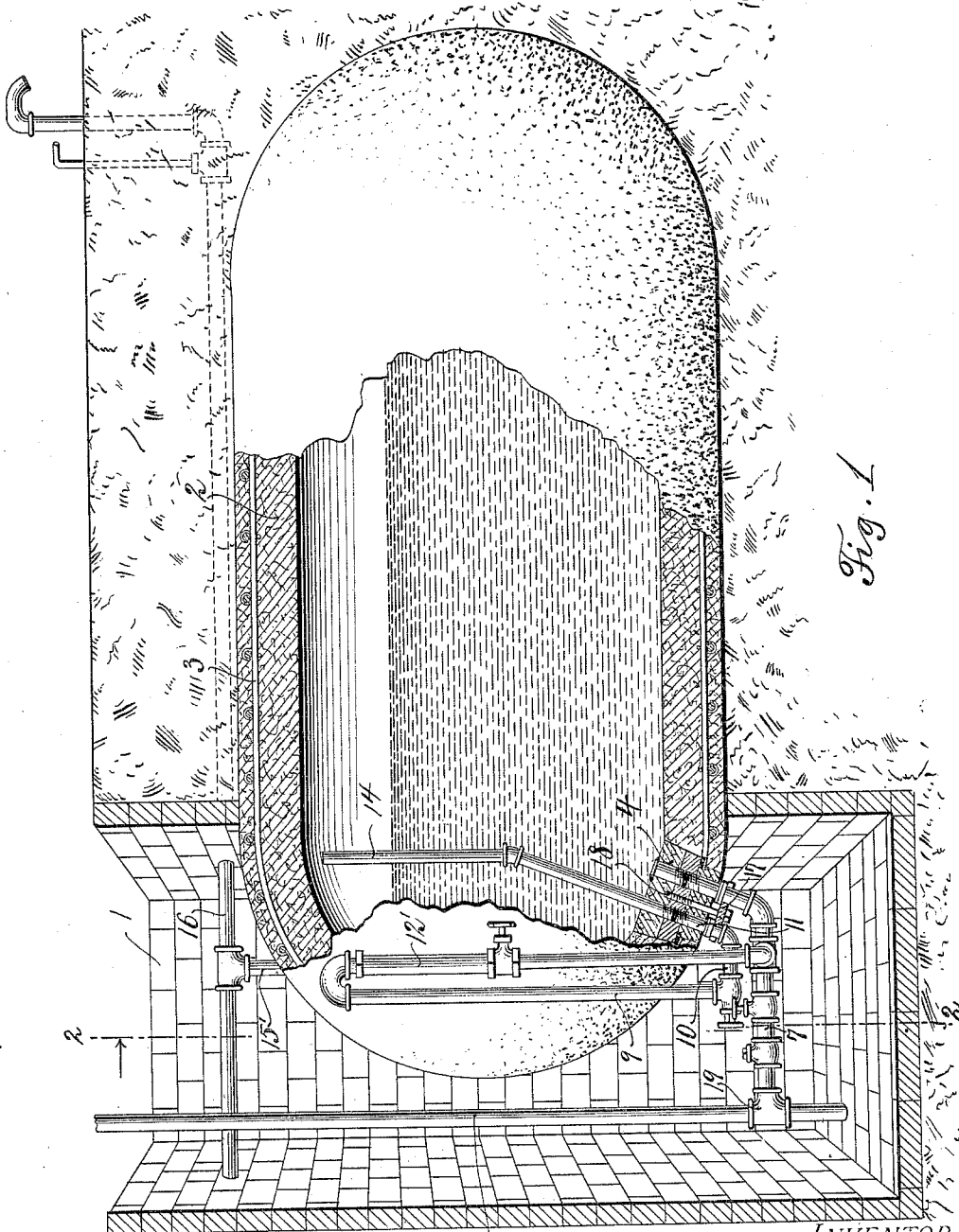


Fig. 1

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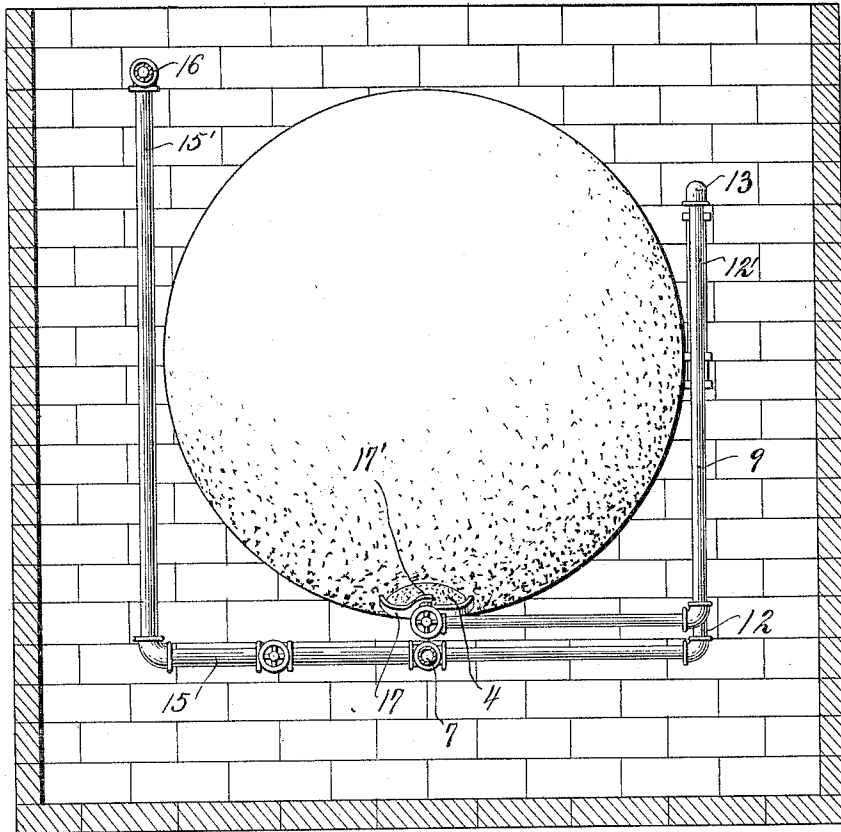


Fig. 2

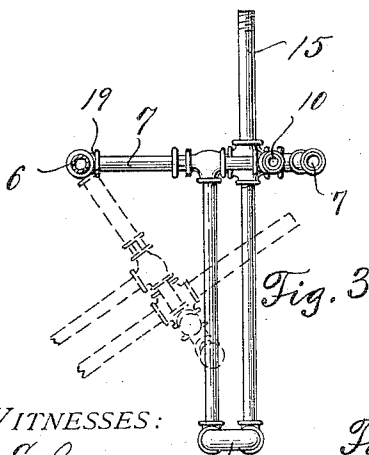


Fig. 3

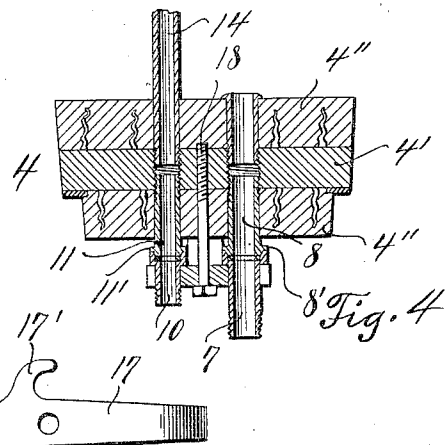


Fig. 4

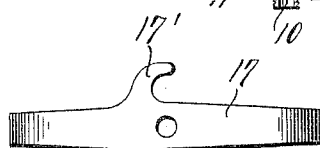


Fig. 5

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UNITED STATES PATENT OFFICE.

BERT L. MILLS, OF HASTINGS, NEBRASKA.

AIR-PRESSURE RESERVOIR.

1,044,465.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed March 27, 1911, Serial No. 617,193. Renewed February 5, 1912. Serial No. 675,648.

To all whom it may concern:

Be it known that I, BERT L. MILLS, a citizen of the United States, residing at Hastings, in the county of Adams and State of Nebraska, have invented certain new and useful Improvements in Air-Pressure Reservoirs, of which the following is a specification.

The present invention involves improvements in that type of air pressure reservoirs shown and described in my application for patent, Serial Number 603,597, filed January 19, 1911.

The object of the invention is to devise a construction of reservoir adapted to be built of concrete or plastic material and associated with a well-pit, suitable connections being provided whereby water may be supplied to the reservoir from a well, and in addition to the foregoing, peculiar means are employed for the purpose of facilitating access to the interior of the reservoir.

For a full understanding of the present invention, reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a sectional view, partly in elevation, showing a reservoir constructed in accordance with the present invention; Fig. 2 is a section taken about on the line 2—2 of Fig. 1, the reservoir shown in end elevation; Fig. 3 is a plan view showing the air and water pipes, dotted lines disclosing the range of movement of said pipes bodily, preliminary to entering the reservoir after removal of the man-hole cover; Fig. 4 is a sectional view of the man-hole cover and adjacent pipe connections, and locking cross bar; Fig. 5 is a detail view of the locking cross bar alone.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

In the drawings 1 denotes a well-pit of any conventional construction, and 2 is a reservoir adapted to contain water under pressure, and to be made in different sizes according to the needs of the user. The

reservoir of the invention is especially designed for use on farms, railway watering stations, dwellings, villages, and the like, and can be installed and operated exclusively for city water works.

The reservoir 2 is made preferably by providing a suitable excavation intersecting one side of the pit 1, a sectional mold being set up in the excavation and the plastic material poured around the mold and shaped about a reinforcing frame 3 which thus becomes embedded in the walls of the reservoir upon hardening of the plastic material.

At one end of the reservoir 2, the latter projects into the pit 1, and near the lower portion of the projection aforesaid is provided a suitable man-hole normally closed by a cover 4, the latter having a suitable gasket 5. The cover is preferably made of composite structure consisting of an intermediate metal plate 4' and outer and inner sections of plastic material shown at 4'', the latter being suitably molded about the part 4'.

A well pipe 6 is connected by a branch pipe 7 to a pipe section 8 which is arranged in an opening leading through the cover 4, the inner end of the pipe section 8 having threaded connection with the metal portion 4' of the cover, and the outer end being formed with a square head 8' and conical portion, the latter fitting into a seat in the adjacent extremity of the branch pipe 7.

An air pipe 9 is arranged vertically exterior to one end of the reservoir 2 and has a lateral branch 10 coacting with a pipe section 11 similar to the pipe section 8. The pipe section 11 has an outer squared head 11' also and a conical end portion fitting into a seat in an adjacent end of the pipe 10. A vertical pipe 12 having a gage glass 12' in its length is joined at its upper end by a U-fitting 13 to the upper end of the pipe 9, the lower end of the pipe 12 being connected by a suitable fitting to the branch pipe 7. An air pipe 14 is located in the reservoir 2, being connected at its lower end with an opening leading through the cover 4 and in which the pipe section 11 is received, the

inner end of the latter having screw connection with the metal portion 4' of the cover. Leading laterally from the branch pipe 7 is a supply pipe 15 which extends upwardly at 15' to its point of connection with a horizontal supply pipe 16 leading off to any suitable point where the water from the reservoir is to be used. The cover 4 is movable into the reservoir only when it is desired to have access to the interior of the latter for purposes of cleaning, repair, or the like. Means for holding the cover closed consists primarily of a transverse locking bar 17 of a length greater than the diameter of the man-hole in which the cover 4 is fitted, and spanning the same. A screw bolt 18 is used to hold the locking bar 17 in place and has screw connection with the central portion of the cover 4, as shown clearly in the drawings.

In order to facilitate entrance to the reservoir, it is contemplated to move the several pipes 7, 9, 10 and 12 out of the way. The above operation is performed in the following manner: By the application of a wrench or similar tool, the pipe sections 8 and 11 are screwed into the cover sufficiently to make their outer ends clear the adjacent ends of the pipes 10 and 7. This being done, the bolt 18 is removed and the lock bar 17 displaced, after which the connection between the supply pipe 15 and its vertical portion 15' is detached permitting the pipes 7, 9, 10 and 12 to be moved laterally with the T-coupling 19 as a pivot. Said coupling 19 connects the pipe 7 to the pipe 6. The above operation performed, it will be obvious that the cover 4 may be pushed inwardly and the reservoir entered without inconvenience or interference by reason of the arrangement of the pipes. To close the reservoir after the cover 4 is pulled into place, the pipes 7 and 10 are moved back to their original positions until their ends are opposite the ends of the pipe sections 8 and 11. The locking bar 17 is then placed in position, said bar having oppositely extending stop arms 17' adapted to engage about the free end portions of the pipes 7 and 10 just below enlargements on said pipes. The locking bar is then secured by the bolt 18, and by using a tool, the sections 8 and 11 are moved outwardly by unscrewing movement until their outer ends are received by the seats in the adjacent ends of the pipes 7 and 10. The locking bar 17 therefore not only coacts to hold the cover in place but its arms 17' form bearing members to hold the pipes 7 and 10 rigidly as the pipe sections 8 and 11 are interlocked or engaged therewith.

An especial feature of the invention is the provision of suitable means for gaging the level of the water, said means comprises the

pipes 9 and 12 and gage glass 12'. The pipe 14 supplies air to the pipes 9 and 12 under pressure in the reservoir and the water in the reservoir is supplied to the pipe 12 through the coupling of said pipe to the pipe 7. Pressure of air in the gage glass 12' is therefore equal to that in the reservoir, the level of the water indicated in the gage glass being therefore always the same as that in said reservoir. Suitable valves are employed to cut off the passage of air and water through certain of the pipes.

Having thus described the invention, what is claimed as new is:

1. In combination with a well-pit and water supply means therein, a horizontally arranged reservoir having one end thereof projecting into said pit and having a man-hole accessible from the pit, a cover for said man-hole, and supply pipe connections leading to said reservoir through the cover and detachably connected with the latter.

2. In combination with a well-pit and water supply means therein, a horizontally arranged reservoir having one end thereof projecting into said pit and having a man-hole accessible from the pit, a cover for said man-hole, a supply pipe, a pipe section carried by the cover and communicating with the interior of the reservoir, and means for holding the cover closed coacting with the supply pipe to form a bearing therefor.

3. In combination with a well-pit and water supply means therein, a horizontally arranged reservoir having one end thereof projecting into said pit and having a man-hole accessible from the pit, a cover for said man-hole, a water supply pipe, a well pipe, a branch pipe leading from said well pipe to the reservoir and in communication with the latter, and means detachably connecting said branch pipe to the reservoir, and means permitting bodily movement of the branch pipe with respect to the reservoir after detachment therefrom.

4. In combination, a reservoir having a man-hole, a cover for said man-hole, a water pipe, a branch pipe movably connected with the water pipe and leading to the cover of the man-hole, a pipe section communicating with the interior of the reservoir and movable upon the cover into and out of engagement with the branch pipe, and means for holding the cover closed coacting to hold the branch pipe rigid while the pipe section is being engaged therewith.

5. In combination, a reservoir having a man-hole, a cover for said man-hole, a water pipe, a branch pipe movably connected with the water pipe and leading to the cover of the man-hole, a pipe section communicating with the interior of the reservoir and movable upon the cover into and out of engagement with the branch pipe, and a locking

cross bar spanning the man-hole and connected with the cover to hold same closed, said bar having an arm coacting with the branch pipe to hold the same rigid at the
5 point where the pipe section is engaged and disengaged therewith.

In testimony whereof I affix my signature in presence of two witnesses.

BERT L. MILLS.

Witnesses.

J. M. DAILEY,

L. S. DAILEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."