

UNITED STATES PATENT OFFICE.

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APPARATUS FOR RAISING WATER.

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The objects of my invention, generally stated, are, to provide in a tank located adjacent to and having a pipe connection with a source of water, instrumentalities for creating a vacuum in said tank by means of fire, and whereby water will be raised into the tank from said source; and, to afford simple and inexpensive means for raising water for irrigation, or other purposes, and which will require practically no outlay for upkeep.

In the accompanying drawing—

Figure 1 is a side elevation of the apparatus complete, certain parts being broken away, the cover of the tank being shown locked in closed position and the tank connected with a source of water supply;

Fig. 2, a side elevation of a portion of said tank, particularly designed to illustrate the cover of the tank in open position;

Fig. 3, a horizontal cross section of the tank, drawn on the line 3—3, of Fig. 1, showing, in particular, the firing mechanism, comprising a screen, atomizing nozzles disposed thereabove, and a spark plug for igniting a fluid sprayed on the screen;

Fig. 4, a fragmentary view of said screen, indicating strands of asbestos wound thereon for retaining said fluid; and,

Fig. 5, a detail view of sections of the tank and cover, showing a gasket arrangement for providing an airtight connection therebetween.

Referring more particularly to the drawing, 1 designates a frame, shown located adjacent a water supply 2, 3 a tank, preferably of steel or lined with metal, mounted on the frame, and 4 an inlet pipe having at one end a screen 5 and a check valve 6, connected with said water supply, and its other end extending into and having an airtight connection with the tank. 7 denotes a discharge pipe, having a valve 8, and 9 a pipe, having a valve 10, designed as a vent for air, to facilitate the discharge of water from the tank.

The cover of the tank, designated as 20, is hingedly secured as at 21, to a standard 22, said standard being located relative to the tank, as more particularly appears in Fig. 3. The cover, preferably, should be of heavy metallic construction, and is provided with a recessed edge portion adapted to carry an asbestos gasket 23, Fig. 5, which affords, in cooperation with a horizontal flanged edge portion 24 of the tank, an airtight connection between the cover and the tank.

The locking mechanism for the cover consists of a body portion 30 bolted to the cover and carrying a support 31 on which a wheel 32 is rotatably mounted. Said portion also carries another support 33, to which is pivoted a locking lever 34, which extends through and below the portion and is provided at one end with a locking element 35 adapted to engage the flange 24 of the tank, and at the other end with a wheel 36 rotatably mounted thereon. A spring 37, secured to a lug 38 on said lever and a lug 39 on the portion, affords a tensioning element for the lever. A rope 40 mounted on the pulley 41 carries at one end a swiveled support 42 in which a wheel 43 is rotatably mounted. The wheels 32, 36 and 43 are grooved to receive an endless chain 44, and the other end of the rope is designed to extend below the tank, as shown in Fig. 1, so it may be manipulated from the ground in raising or lowering the cover, and is retained in place by the cylindrical support 45 in which it is adapted to slide. When the cover is lowered and the pull of the rope on the chain released, the locking element of the lever, by virtue of the tension imparted to the lever by the spring, will engage the flange of the tank and secure the cover in locked position, as indicated in Fig. 1. As is evident, a pull of the rope on said chain will bring said element forwardly and release it from the flange when the cover may be raised, as shown in Fig. 2.

In the present embodiment of the invention, the firing mechanism of the apparatus consists of an annular pipe 50 disposed exteriorly of the tank and above the bottom thereof at approximately one-third of the height of the tank. A plurality of couplers 51, to which are attached atomizing nozzles 52 extending within the tank, serve to support said pipe in place, and a vertically extending pipe 53, having the valve 54, communicates at one end with the annular pipe and at the other end with a receptacle 55. Said receptacle is designed to hold a supply of gasoline, alcohol, or any other suitable combustible fluid, and the pump 56, connected with the receptacle by the tube 57, is obviously for the purpose of forcing said fluid, by the connections just described, into the tank, through said atomizing nozzles. A screen 60 located within the tank and below said nozzles, and having strands of asbestos 61 secured thereto as indicated in Fig. 4, is adapted to receive the sprays of said fluid,

and a spark plug, denoted as 62, which may be connected up with a battery and actuated in any appropriate manner, provides a medium whereby said sprays may be ignited.

5 In utilizing the apparatus, a relatively small quantity of said fluid is pumped through the nozzles and deposited on the screen. The cover having been raised slightly above the top of the tank, the fluid so ejected
10 is ignited by the spark plug, and as the flames appear at said top the cover is then lowered in locked position. As it may be noted in Fig. 1, it is contemplated that a certain amount of water should be already contained in the tank,
15 prior to this filling operation. As the oxygen of the air in the tank is thus subjected to the flames, the product of combustion, comprising a gas soluble in water, is taken up by said water, and the vacuum created thereby serves
20 to draw water up into the tank through the intake pipe and from the source of water supply. When it is desired to discharge the water thus raised from the tank air may be admitted to the tank and above said water,
25 through the vent pipe heretofore described, when the same will readily run out of the tank through the discharge pipe provided. When the cover is again raised, inert air and gases remaining in the tank will escape there-
30 from, and the cycle of operation just described may be repeated.

As will be obvious to those skilled in the art, changes in and modifications of the construction described may be made without departing
35 from the spirit of my invention or sacrificing its advantages, hence it is desired that I be not confined to the specific structure set forth.

I claim:

40 1. An apparatus for raising water, comprising a frame, a tank mounted on the frame, an inlet pipe, a discharge pipe, an air vent

pipe, a cover for the tank, means for providing an airtight connection between the cover and the tank, means for locking the cover to the tank, means for unlocking and raising the cover, and means for creating flames within the tank whereby a vacuum may be established therein for raising water through the inlet pipe into the tank.

2. An apparatus for raising water, comprising a tank, inlet means for water, an airtight cover for the tank, means for raising and lowering the cover, means for creating a flame within the tank whereby a vacuum may be established therein for raising water into the tank, and outlet means for water.

3. In an apparatus for raising water having a tank, an inlet pipe and a cover for the tank, a pipe encircling the tank, a plurality of atomizing nozzles coupled to the last-named pipe and extending within the tank, a receptacle, a pump operatively connected with the receptacle, a pipe establishing communication for a combustible fluid between the receptacle and the pipe encircling the tank, a screen, disposed within the tank and below the nozzles, adapted to receive said fluid deposited thereon by the nozzles, and means adjacent the screen for firing said fluid.

4. In an apparatus for raising water having a tank, a screen mounted in the tank adapted to receive and retain a combustible fluid deposited thereon, and a spark plug operatively disposed adjacent the screen for firing said fluid.

5. In an apparatus for raising water having a tank, a screen mounted in the tank, its meshed portions being covered with strands of asbestos, and whereby said screen is adapted to absorb a combustible fluid and support the flames thereof when said fluid is ignited.

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