C. L. HOUSTON.

DEVICE FOR SINKING STRAINERS.

APPLICATION FILED OCT. 29, 1912.

1,067,173. **Patented July 8, 1913.**

Fig. 1,

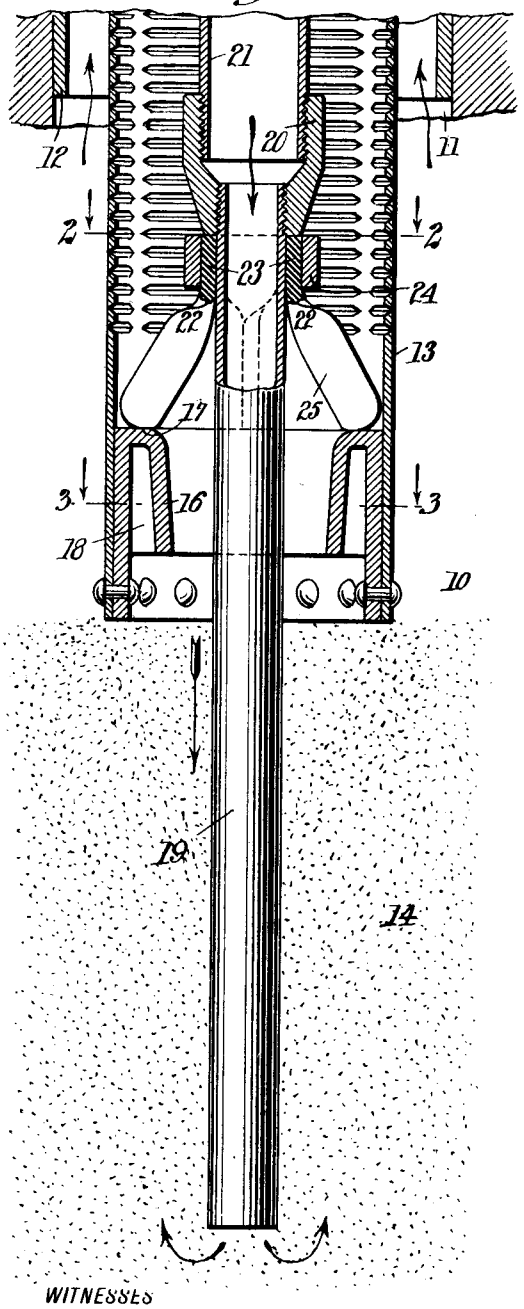


Fig. 2,

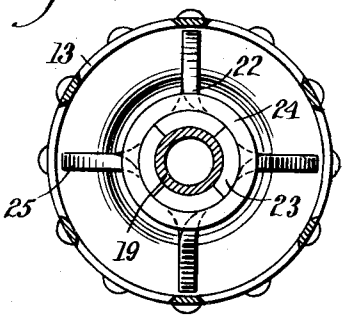


Fig. 3,

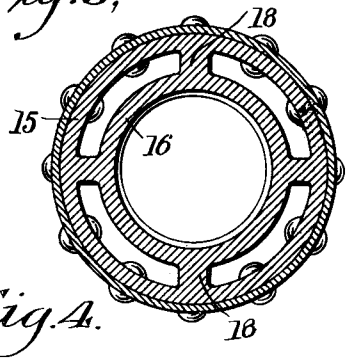
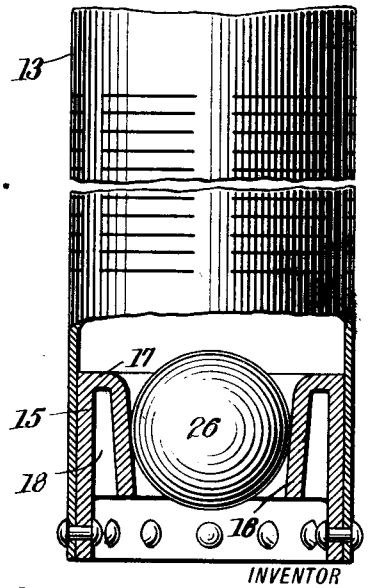


Fig. 4.



WITNESSES

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DEVICE FOR SINKING STRAINERS.

1,067,173. Specification of Letters Patent. Patented July 8, 1913.

Application filed October 29, 1912. Serial No. 728,350.

To all whom it may concern:

Be it known that I, CHARLES L. HOUSTON, a citizen of the United States, and a resident of Astoria, in the county of Clatsop and State of Oregon, have invented a new and Improved Device for Sinking Strainers, of which the following is a full, clear, and exact description.

This invention relates to means used for sinking a strainer in a well and has reference more particularly to a device of the class comprising a tubular member through which water is forced and which projects through the bottom of this strainer, and means on said tubular member and in said strainer whereby the weight of all the tubes extending to the top of the well is added to the strainer to help the sinking of the strainer in the well.

An object of the invention is to provide an inexpensive and simple device by means of which a rapid sinking of a strainer in a well may be obtained.

The invention consists of the construction and combination of parts to be more fully described hereinafter and fully set forth in the claim.

Reference is to be had to the accompanying drawing forming a part of this specification, in which like characters indicate corresponding parts in all the views and in which:

Figure 1 is a vertical section through the lower part of a well, showing the water stratum, part of the well casing, a lower portion of a strainer and an embodiment of my invention co-acting with said strainer; Fig. 2 is a transverse section on line 2—2, Fig. 1; Fig. 3 is a similar section on line 3—3, Fig. 1; and Fig. 4 shows the ball valve forced into position after the strainer was sunk to the desired depth.

Referring to the drawing, 10 is a water stratum in a well 11, which is provided with a well casing 12, and through the casing, into the water stratum, the strainer 13 is being lowered to be sunk into the water stratum. The sand 14, normally present in the lower parts of water strata, supports the strainer and prevents the sinking of same. The lower interior end of strainer 13 is provided with a casting 15, preferably riveted to same, and has an inward, tubular, concentric conical projection 16, forming a shoulder 17 in the upper part of casting 15 at the junction of the cylindrical body of casting. Ribs 18 are provided between the projection and body of casting to strengthen the tubular conical projection. Through the conical tubular projection 16 of casting a pipe 19 extends below the foot of strainer. The length of the downwardly projecting portion of said pipe may vary according to the depth it is desired to sink the strainer and also depends on the depth of the water stratum. The upper projecting end of pipe 19 is provided with a union member 20 connecting pipe 19 with pipes 21 extending out of the well and there connected, by means of a rubber hose, to a force pump.

A plurality of supporting members, preferably four in number, having their upper parts in the form of a segment 23, lie against the pipe 19 and abut against the shoulder of union 20. The four segments lying above the pipe 19 form a complete ring, so as to prevent any displacement of supporting members 22. A ring 24 fitting tightly on segments 23 binds them rigidly to the pipe 19 and maintains same against the shoulder of union 20. The lower portion 25 of supporting member 22 is twisted to an angle of 90 degrees and made to diverge from pipe 19 so as to form a support of greater strength. The extremities of 25 are rounded, and contact with shoulder 17 of casting 15 riveted to the shell of the strainer so that the entire weight of pipes 21 and the rubber hose is supported by this strainer, and the four supporting members 22 keep the pipe 19 concentric with the strainer.

When the strainer is lowered into the well it will descend until it reaches the sand 14, which will prevent its sinking to the desired depth, as the resistance of sand is, in general, such that the strainer will sink very slowly or even not at all. Then the pipe 19, provided with the supporting members 22 and union 20, is lowered into the well casing by the addition of pipes 21 until the pipe 19 projects through the strainer and the supporting members 22 come in contact with the shoulder 17 of casting 15 of the strainer. Due to the added weight of the pipes, this strainer will continue to sink until the frictional resistance of the sand will balance the weight of strainer and pipes. A rubber hose leading from the force pipe is then connected to pipe 21 projecting through the top of the well and water is sent through pipes 21 and 19 into the sand. Due to the action of the force pump a continu-

ous supply of water will wash or dilute the sand, forcing it in and about the strainer, thus reducing the friction and allowing the strainer to sink rapidly into place. When the strainer reaches the desired depth, the pipe 19 and the attachments thereof are withdrawn and whatever sand entered the strainer is cleaned out and a ball valve 26 is dropped into the strainer, the size of the ball being such as to enter easily into the upper part of the conical projecting portion 16. The shoulder 17 has the corner near the conical portion rounded so as to facilitate the entrance of the ball into the conical portion. The ball is preferably made of brass that is softer than the casting 15. After the ball is introduced into the strainer, the pipe 19, with the attachments thereof, is again lowered until the end of pipe 19 reaches the ball valve, and with said end of pipe 19 the ball 26 is hammered into the valve seat 16 of casting 15. It is easily seen that the end of pipe 19 will come directly over the ball valve 26, as said pipe is guided by supporting members 22 in the strainer. As above stated, the ball valve being made of brass it will fit itself tightly into the valve seat and thereby the strainer will be positively closed at the bottom.

With the old style of strainers, which are closed at the bottom, and consequently my device could not be applied to them, it requires from three to five days to sink them in place. It is also necessary, when sinking a strainer closed at the bottom into place, often to first lower the well casing and clean the sand from the well, then lower the strainer, wait until it settles in position, then raise the well casing so as to allow the flow of water into the strainer. In wells where a constant water supply is desired, it is necessary to clean the well nearly every eighteen months, and, consequently, if a strainer with a closed bottom is used, the lowering and raising of casing for every cleaning will rapidly deteriorate the casing and probably injure the well. From the above statement the advantages of my device can be easily seen, as applied to a strainer with an open bottom which is closed after the strainer is sunk in position.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

A device of the class described, comprising a tubular member having water connecting means at one end, a plurality of supporting members associated with said tubular member and connecting means, each of said supporting members having the upper part in the form of a segment lying about said tubular member and abutting against said connecting means and the lower portion centrally with said segment and twisted through an angle of 90° and diverging from said tubular member forming the supports, and a circular ring on said segments binding same to said tubular member.

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

CHARLES LAWS HOUSTON.

Witnesses:
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INA C. INGRAHAM.