April 21, 1925. 1,534,960

E. JONES

WELL STRAINER

Filed Nov. 26, 1924

Fig. 2.

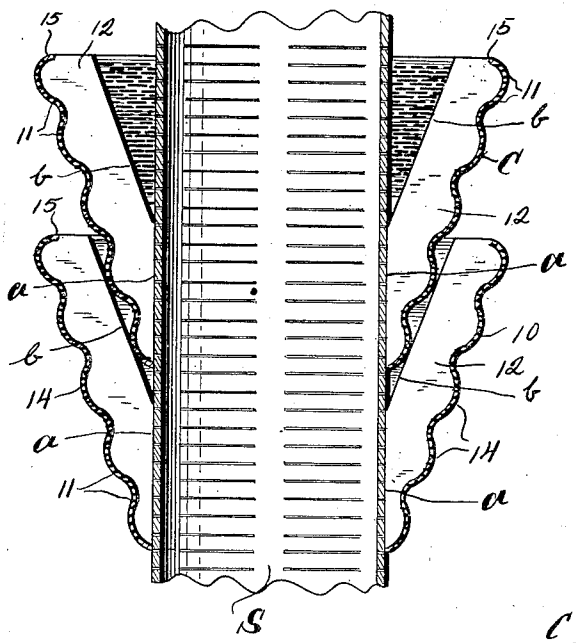


Fig. 1.

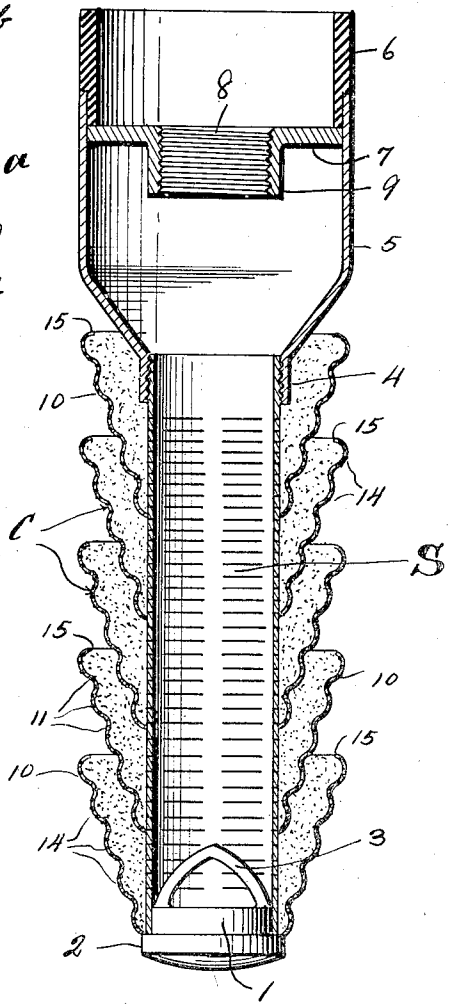
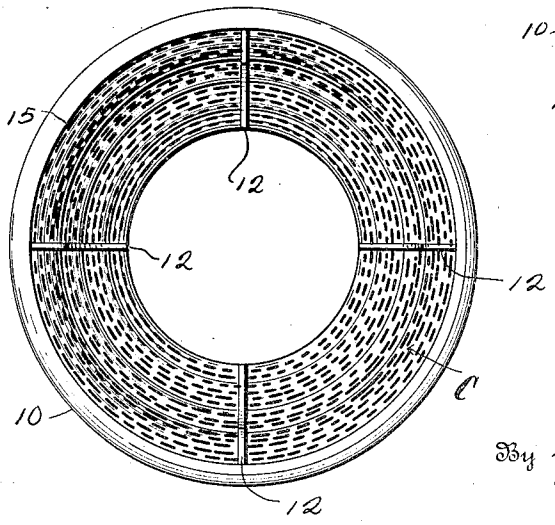


Fig. 3.



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UNITED STATES PATENT OFFICE.

ELI JONES, OF LEXINGTON, TENNESSEE.

WELL STRAINER.

Application filed November 26, 1924. Serial No. 752,425.

To all whom it may concern:

Be it known that I, ELI JONES, a citizen of the United States, residing at Lexington, in the county of Henderson, and State of Tennessee, have invented certain new and useful Improvements in Well Strainers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in well strainers and it is primarily an object of the invention to provide means whereby a slitted strainer of the type now in use may be effectively packed with sand in a manner whereby water secured from water bearing sand is obtained with the exclusion of the finer sand which otherwise enters the strainer with the water.

Another object of the invention is to provide novel and improved sand cups adapted to be arranged upon a slitted strainer in a conventional manner whereby the surface of such strainer or more particularly the slitted surface may be surrounded or packed with coarse or filtering sand.

An additional object of the invention is to provide a sand cup wherein the wall thereof is slotted or otherwise perforated to facilitate the free flow of water into the strainer.

Furthermore, it is an object of the invention to provide a sand cup having novel and improved means whereby the same is readily strengthened or reinforced to offset or compensate for the strains imposed thereupon both when in use or in shipment and storage.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved well strainer whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will not proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a sectional view with a part in elevation taken through a well strainer constructed in accordance with an embodiment of my invention;

Figure 2 is an enlarged fragmentary elevational view illustrating in detail certain features of my improved strainer as herein disclosed;

Figure 3 is a view in top plan of one of the cups unapplied.

As disclosed in the accompanying drawings, S denotes a tubular strainer of the slitted type and which is particularly adapted for use in connection with water bearing sand. The lower end of the strainer S is closed by the plug 1 provided with an outstanding marginal flange 2 extending beyond the periphery of the strainer S. This plug 1 is provided with a bail 3 within the lower portion of the strainer S with which is adapted to be engaged, as is well-known, a hook to lower the strainer in place in the bottom of a well. The plug 1 is held in applied position in any desired manner.

In threaded engagement, as at 4, is the reduced end portion of a relatively short pipe section 5 the outer or larger end portion of which having soldered or otherwise secured thereto the lower marginal portion of a lead ferrule 6, said ferrule serving as a packer for coaction with the well pipe or casing.

Suitably secured within the upper or larger end portion of the pipe section 5 is a disc 7 provided in its central portion with a threaded opening 8 continued by the depending sleeve 9 and in which is adapted to be engaged a pipe line or sucker rod whereby the same may be employed in lieu of the bail 3 to lower the strainer S into position, said line or sucker rod being released after the strainer has been positioned.

Surrounding the slitted portion of the strainer S are the frustro-conical cups C with the smaller ends disposed downwardly and an upper cup extending within the lower cup adjacent thereto.

The cups C are each of the same construction and comprise an outer wall 10 preferably slotted or otherwise reticulated, the slots or openings 11 being of such size as

to effectively maintain within a cup a filler of relatively coarse sand. Through the instrumentality of the cups C the slitted portion of the strainer S is surrounded or packed with an outer layer of this course sand which permits a ready entry of the water within the strainer but excludes from entry within the strainer the finer sand or sand grains of a size which would otherwise pass through the slits of the strainer.

The lower or smaller end of each of the cups C is of a diameter to snugly receive the strainer S and extending inwardly from the wall 10 are the ribs 12 the lower portions *a* of which being on an angle to have direct contact with the periphery of the strainer while the upper edge portions *b* are adapted for contact with the lower portion of the cup C extending therein. The lowermost cup C has contact with the outstanding flange 2 of the plug 1 hereinbefore referred to while the reduced portion of the pipe section 5, when applied, engages the edges *b* of the flanges 12 of the uppermost cup C whereby all of the cups C are effectively maintained in desired applied position.

To further strengthen or reinforce a cup C the wall 10 thereof is provided therearound with the corrugations 14.

The upper or larger end of each of the cups C is also disposed slightly inwardly, as at 15, to obviate hanging on the ends of the well pipe section novel couplings should it be desired to raise the strainer in the casing.

The cups C are installed on the strainer S by slipping them on from the upper end it being understood that the required number of cups C are to be employed until the slitted portion of the strainer is entirely surrounded with said cups.

By having the walls 10 of the cups C perforated the coarse sand is effectively held against the strainer S and at the same time the capacity of said strainer is materially increased. By strengthening or reinforcing each of the cups C through the medium of the flanges 12 and also by the corrugations 14 the same will effectively resist strain or pressure imposed thereupon incident to its use and also to such strain or pressure which may be imposed thereon during shipment or in storage particularly when unapplied to a strainer.

From the foregoing description it is thought to be obvious that a well strainer constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, the wall of each of the cups being perforated.

2. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, said cups being frustro-conical with the smaller ends disposed downwardly.

3. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, each of said cups being provided with inwardly disposed flanges for contact with the strainer.

4. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, and means for holding the cups in applied position.

5. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, and means coacting with the end cups for holding all of the cups in applied position.

6. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, the wall of each of the cups being corrugated.

7. In combination with a tubular slitted well strainer, cups mounted on the strainer and surrounding the slitted portion thereof, an upper cup extending within the adjacent lower cup, said cups being adapted to hold a filtering medium, each of the cups being provided with inwardly disposed flanges for contact with the strainer and for contact with the portion of the cup extending therein.

8. In combination with a well strainer, a pipe section secured to the upper extremity thereof, the upper portion of the pipe section being enlarged, and a packing ferrule

carried by the enlarged portion of the pipe section.

9. In combination with a well strainer, a pipe section secured to the upper extremity thereof, the upper portion of the pipe section being enlarged, a packing ferrule carried by the enlarged portion of the pipe section, and a disc carried by the pipe section inwardly of the packing and provided with a threaded opening.

In testimony whereof I hereunto affix my signature.

ELI JONES.