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A. W. UTT

2,139,975

WELL SCREEN

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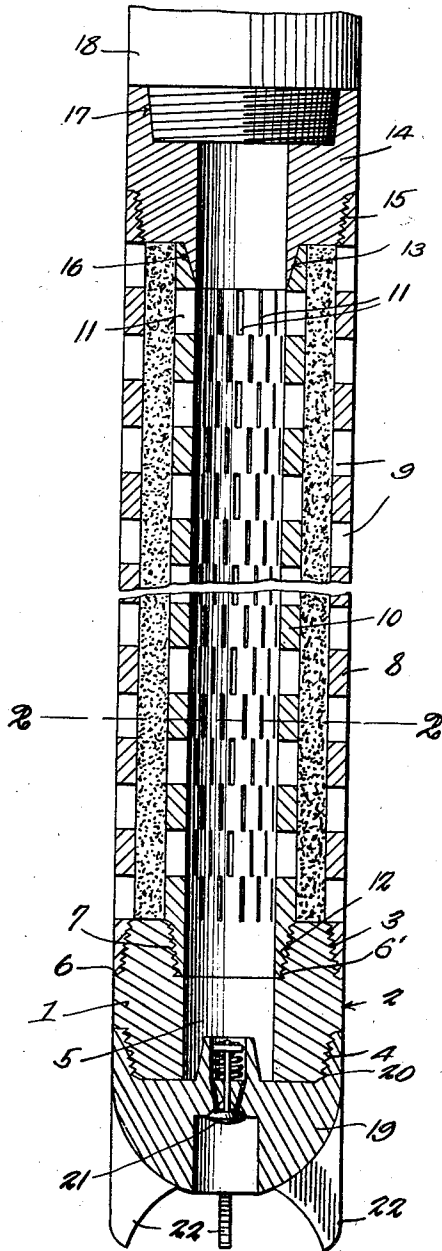


Fig. 1

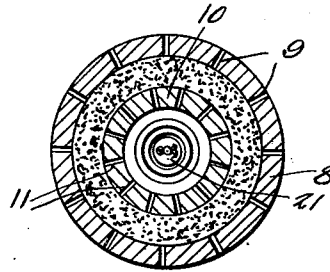


Fig. 2.

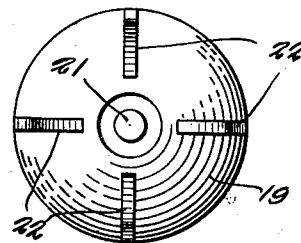


Fig. 3.

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WELL SCREEN

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Application April 16, 1938, Serial No. 202,539

1 Claim. (Cl. 166—5)

This invention relates to a process of and apparatus for extracting oil or water from wells.

An object of the invention is to provide a novel process of extracting oil or water from wells, and an apparatus whereby the efficient extracting of the oil or water may be accomplished.

Another object of the invention is to provide a new and improved form of double walled perforated liner or filter, which will have the space between its double walls filled with a suitable filtering agent, whereby when said liner is placed in the bottom of a well, the pumping of the oil or water from the well may be carried on without "sanding up" the pumps.

A further object of the invention is to provide a new and improved liner or filter having double perforated walls between which is placed a suitable filtering agent comprising one or more ingredients or a mixture of several, as the case may require.

A still further object of the invention is to provide a double walled liner or filter used in extracting oil or water from wells, which will be formed with an anchoring head in which a check valve is incorporated which allows fluid to pass out of, but not into the liner.

Another object of the invention is to provide a new and useful liner or filter for use in extracting oil or water from wells which will be highly efficient in operation, and quite inexpensive to manufacture.

Other objects will appear as the description proceeds.

In the accompanying drawing which forms a part of my application:

Figure 1 is a vertical sectional view through my improved liner or filter;

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1, and

Figure 3 is a bottom plan view of my improved liner or filter.

Like characters of reference are used throughout the following specification and the accompanying drawing to designate corresponding parts.

In carrying out my invention, I provide a lower collar 1 having a central shouldered portion 2 and opposed tapered end portions being externally threaded as at 3 and 4. A central bore 5 is formed in the collar 1 and adjacent its upper end is enlarged to form the seats 6 and 6', and outwardly tapered threaded portion 7.

Cooperating with the collar 1, I provide an outer shell 8 having a plurality of slots or perforations 9 extending transversely through its

wall, said collar being internally threaded and flared adjacent its lower end to thread onto the outer and upper threaded portion 3 of the collar 1, until the shell rests on and engages the shoulder 6 on said collar. The inner and upper end of the shell 8 is threaded and outwardly tapered, as clearly shown in Figure 1 of the drawing.

An inner shell 10 cooperates with the outer shell 8, and is formed with the slots or perforations 11 which extend transversely through its wall at points above and below the slots 9 in the shell 8 and at points intermediate the radial position of the slots 9 in the shell 8, thereby providing for all of the slots or perforations to be completely out of alinement and register. The lower end of the shell 10 is externally threaded and tapered as at 12 to screw into the inner and upper threaded portion of the collar 1 until it engages the shoulder 6'. The upper and inner portion of the shell 10 is tapered to form a seat 13, the purpose of which will be hereinafter described.

When the two shells 8 and 10 are in place on the collar 1, the space therebetween will be filled with a suitable filterizing agent, which as before mentioned, may be one of several ingredients or a mixture of several. The filterizing agent might be gravel, steel shavings, steel wool, cinders, or any other desired ingredient of a filterating nature. After the filterizing agent is placed between the wall of the shells 8 and 10, the upper collar 14 which is externally threaded at 15, and formed with a tapered annular seat 16, is placed on the ends of the shells 8 and 10, and screwed tight, the seat 16 cooperating with the seat 13. The upper end of the upper collar 14 is internally threaded at 17 for attachment to a section of pipe 18.

The bullnose plug 19 for the lower end of the liner or filter is formed with internal threads 20 which cooperate with the threaded end 4 of the collar 1. The plug is provided with a check valve 21 which permits fluid to pass out from, but not into the liner or filter. Positioning wings or fins 22 are formed on the sides of the plug 19 and extend downwardly therefrom, to prevent the liner or filter from turning in the well when being set in place.

It will be seen from the foregoing description that when my improved liner or filter is used in a well, a small amount of sand may enter through it, but never a sufficient amount to clog or "sand up" the pumps.

Many minor changes in detail of construction

may be resorted to without departure from the spirit of the invention.

I claim:

5 A filter liner comprising a pair of annularly spaced perforated shells, said perforations being out of vertical and radial register, upper and lower threaded assembly collars positioned on the opposite ends of said shells, a filterizing agent between said shells, said lower assembly collar be-

ing tapered at its opposite ends, the upper tapered portion being internally and externally threaded, the lower tapered portion being externally threaded, and an anchoring plug formed with a check valve and locking fins secured to the externally threaded tapered portion of the lower assembly collar. 5

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