June 16, 1925. 1,542,599

H. B. BLANTON

COMBINATION GAS ANCHOR AND SAND SETTLER WITH PERFORATIONS

Filed Aug. 18, 1924

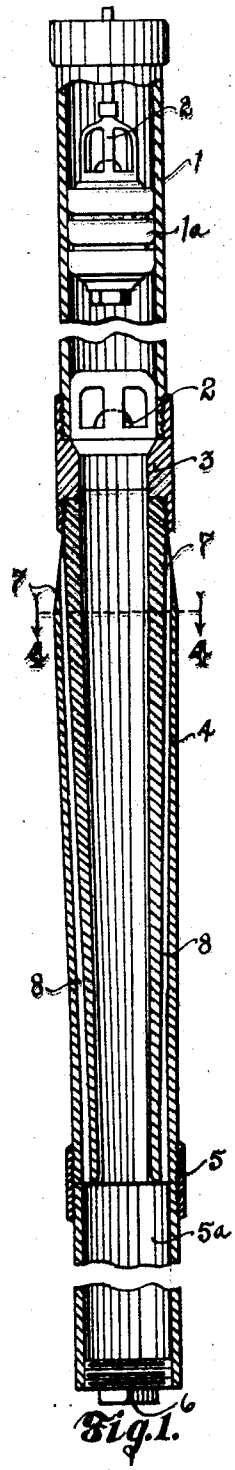


Fig.1.

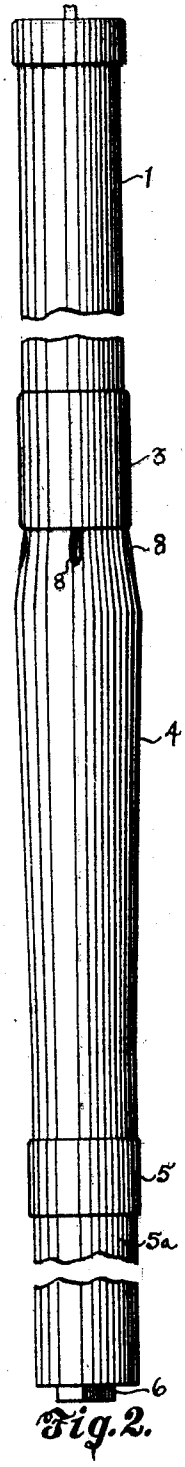


Fig.2.

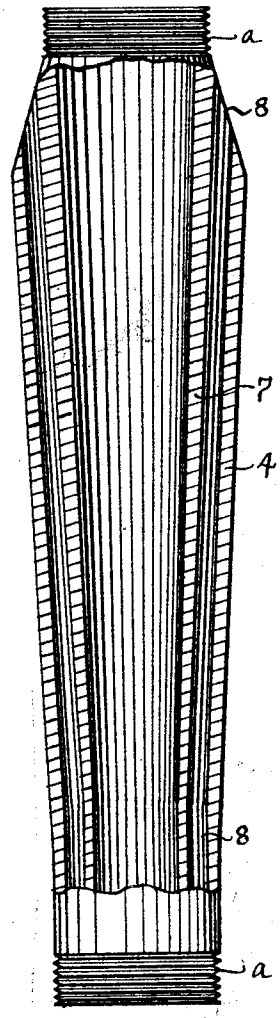


Fig.3.

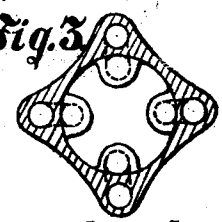


Fig.4.

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UNITED STATES PATENT OFFICE.

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COMBINATION GAS ANCHOR AND SAND SETTLER WITH PERFORATIONS.

Application filed August 18, 1924. Serial No. 732,820.

To all whom it may concern:

Be it known that I, HOWARD B. BLANTON, a citizen of the United States, residing at Iowa Park, in the county of Wichita and State of Texas, have invented certain new and useful Improvements in Combination Gas Anchors and Sand Settlers with Perforations, of which the following is a specification.

This invention relates to pumps and refers more particularly to a pump designed for the purpose of separating sand from oil in the process of pumping oil from wells.

The primary object of the invention resides in the procession of a means whereby sand is excluded from the oil before the latter enters through the valves, thereby eliminating the necessity of suspending operations in order to clean said valves of deposits of sand.

Another object of the invention is the provision of a chamber in combination with a pump which provides a suitable receptacle for sand drawn into the pump with the oil, and also a means provided for the removal of sand from said chamber.

Features of the invention are the latter's simplicity, durability and apparent utility.

Other objects, features and advantages as well as those above set forth will be described more comprehensively in the course of the following detailed description wherein:

Figure 1 represents a cross-sectional view of the invention in elevation, as it appears in attachment to a pump.

Figure 2 is also an elevational view of the invention, attached.

Figure 3 represents an elevation view of the invention in cross-section.

Figure 4 is a cross-sectional view of Figures 1 and 2 on lines 4—4.

Following the reference characters, 1 denotes an oil pump of ordinary construction, with the usual ball valves 2—2. Provided on the lower portion of the pumps is a threaded collar 3. The barrel 4 constituting the upper portion of the invention is adapted to be engaged by this collar in vertical alinement with the pumps; and constitutes a part of the pump assembly.

Suitably connected to the barrel 4 by collar 5 is a chamber 5^a. This chamber is adapted to receive deposits of sand entering the chamber 5^a through the walls of barrel 4 by way of oil conducting means 8, which ingress of oil and sand will be later described in the operation of the pump.

The chamber 5^a is provided with a screw cap opening 6 in its lower portion for the removal of sand therefrom.

It will be observed that the sand separating chamber 5^a is so arranged that the ingress of oil has a downward flow into the sand receiving chamber flush with the walls thereof in order that the sand will have a tendency to settle in said chamber and will not be incorporated with the oil in its upward flow through the valves.

In the operation of the device; upon the upward motion of the piston 1^a, a vacuum is created in the barrel 4 which vacuum draws the oil and possibly a certain amount of sand into the said barrel through the parts 7—7 and downwardly through the angular oil conductors 8—8, thence into the sand receiving chamber 5^a, at which time the sand is adapted to settle therein and allow the oil to continue upwardly through the valves 2—2 into the upper chambers comparatively free from grit.

It should be understood that it is advisable in constructing the member 4 to have the oil conducting members 8 as nearly straight as possible and be devoid of sharp curves and angles to eliminate friction; as the sand passing with the oil would grind at these angles or curves, and would weaken the member 4.

It is not desired that the invention be limited to the specific disclosure as herein described and that minor changes may be resorted to as fall within the meaning and scope of what is herein claimed.

I claim:

1. In a device of the character described, the combination with a pump casing and a sand trapping chamber, of a separating barrel interposed between said casing and trapping chamber, said barrel being substantially square in cross section and having a cylindrical passage way therein communicating with said pump casing and sand trapping chamber, a plurality of longitudinally extending oil conducting channels formed in the ways of said barrel opening exteriorly of the barrel at their upper ends and interiorly of the barrel at their lower ends, and said passage way reducing in diameter towards its lower end.

2. In a device of the character described,

the combination with a pump casing and a sand trapping chamber, of a separating barrel interposed between said casing and trapping chamber, said barrel being substantially square in cross section and having a cylindrical passage way therein communicating with said pump casing and sand trapping chamber thereby forming thickened corners in the walls of said barrel, said thickened corners being each provided with an inclined oil conducting channel, said channels opening at their upper ends exteriorly of the barrel and at their lower ends interiorly thereof.

3. In a device of the character described, the combination with the lower valved intake end of a pump casing, of a barrel of substantially the same diameter as the casing and secured to and projecting longitudinally from the lower end of the casing, the walls of the barrel being provided with inclined oil conducting channels opening at their upper ends exteriorly of the barrel and at their lower ends interiorly thereof, the barrel being of tapering formation from its upper to its lower end while its inner surface is cylindrical, and the outer surface substantially rectangular in cross section with the thickened portions of the walls positioned at the corners thereof, so that the channels may be provided through these thickened portions and not interfere with the passage of oil outwardly through the barrel, a trapping chamber detachably secured to the lower end of the barrel and in alignment therewith, and a detachable plug associated with the chamber for permitting of access thereto.

In testimony whereof I have signed my name to this specification.

HOWARD B. BLANTON.