L. NUSSBAUM, JR.

SCREEN.

APPLICATION FILED SEPT. 1, 1914.

1,195,073. Patented Aug. 15, 1916.

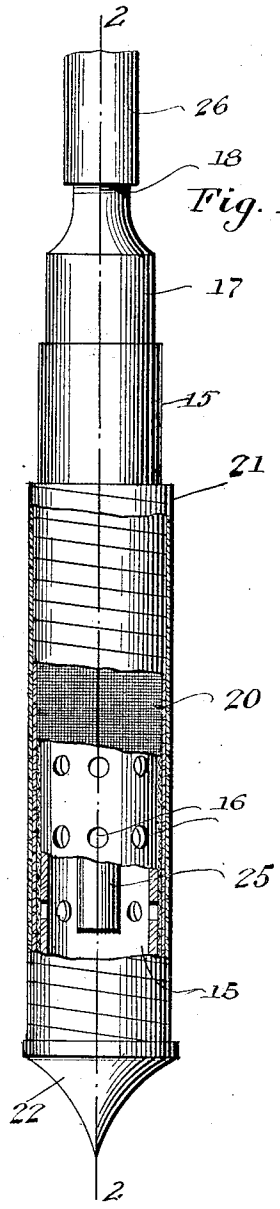


Fig. 1.

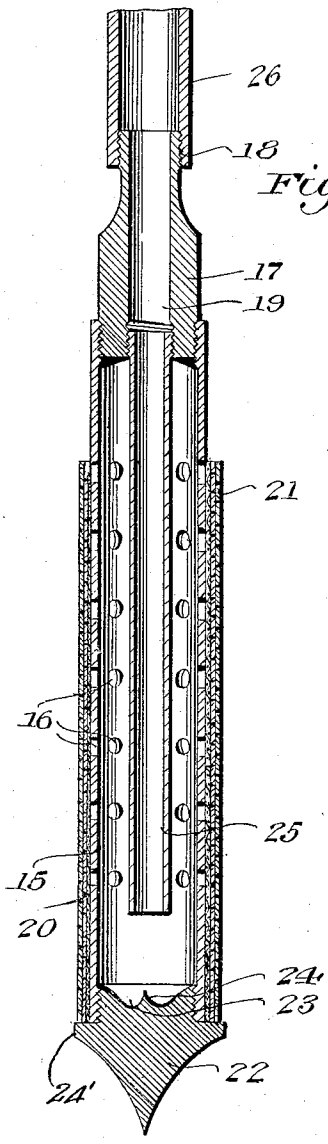


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS NUSSBAUM, JR., OF CROWLEY, LOUISIANA.

SCREEN.

1,195,073. Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed September 1, 1914. Serial No. 859,660.

To all whom it may concern:

Be it known that I, LOUIS NUSSBAUM, Jr., a citizen of the United States, residing at Crowley, in the parish of Acadia and State of Louisiana, have invented new and useful Improvements in Screens, of which the following is a specification.

This invention relates to screens for oil and water wells, and it has for its object to produce a screen of simple construction which will be self-cleaning to this extent that sand and sediment liable to lodge in the meshes of the screen will be automatically siphoned therefrom, leaving the screen clean and unobstructed.

A further object of the invention is to produce a screen having a pressure chamber or gas chamber in which natural gas may accumulate, the pressure of such gas being utilized for automatically cleaning the screen.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claim.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claim may be resorted to when desired.

In the drawing,—Figure 1 is a side elevation of the improved screen parts having been broken away for the purpose of exposing the subjacent construction. Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Corresponding parts in both figures of the drawing are denoted by like characters of reference.

In the construction of the improved screen, there is employed a straight piece of pipe 15, the walls of which are provided with numerous perforations 16. 17 is a head having an upper reduced externally threaded portion 18 and provided with an axial bore 19, the lower end of which is internally threaded. The lower end of the head 17 is also externally threaded for engagement with the upper end of the screen pipe 15. The latter is covered with a foraminous fabric 20, preferably copper wire, said fabric being held in place by a wire or a metal tape 21 which is wound spirally thereon and secured in any well known manner. The lower end of the screen pipe is threaded for the reception of a conical bottom member 22, the apex of which points downward and the base of which is of a diameter somewhat exceeding that of the screen pipe. The base of the cone constituting the bottom member 22 is dished or cupped, as shown at 23, and it is, furthermore, provided with a conical projection 24 which is axially disposed and rising from the bottom of the dished or cupped portion. The bottom member, the upper portion of which is exteriorly threaded for engagement with the lower extremity of the pipe 15, is also formed with an annular flange 24′ on which the lower extremity of the pipe 15 abuts.

A pipe 25 of smaller diameter than the screen pipe 15 is threaded into the bore 19 of the head 17 extending from thence downwardly and terminating within a suitable distance of the bottom piece 22.

In the operation of this invention, especially in oil fields, it is found that natural gas will accumulate in the upper portion of the space between the screen pipe 15 and the exit pipe 25, the gas rising by its buoyancy above the liquid. The pressure exerted by the gas on the liquid will serve to increase the velocity of the upward flow of liquid through the pipe 25 to such an extent as to produce a degree of suction through the screen 20 sufficient to carry through said screen particles of sand, dirt and the like which in the absence of such suction would be apt to settle externally on the screen, thereby clogging or choking the latter and eventually necessitating the withdrawal of the well point for the purpose of cleaning the same. Any surplus accumulation of gas will obviously escape along with the liquid through the pipe 15. It will, moreover, be seen that the peculiarly shaped bottom member 22 tends by reason of the conical projection 24 to deflect the liquid entering through the screen in an inward and upward direction toward the lower extremity of the exit pipe 25, thereby tending to carry the sand and dirt passing through the screen in the direction of the exit pipe and through the latter. It is found that after the device has been in use for some time, the suction through the screen caused by the gas pres-

sure will form a cavity in the ground surrounding the screen whereby the capacity of the well will be materially increased and the operation rendered more profitable.

Having thus described the invention, what is claimed as new, is:—

A well screen comprising a head having an axial bore, an apertured screen externally connected with the head, a pointed bottom piece connected with the screen pipe, the top face of said bottom piece being dished or cupped and provided with an axially disposed conical projection rising from the bottom of the cupped portion, screen material surrounding the screen pipe, and an internal pipe threaded into the axial bore of the head, extending downwardly within the screen pipe and terminating a short distance above the upwardly extending conical projection of the bottom member.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS NUSSBAUM, JR.

Witnesses:

E. C. HARKINS,

R. J. JOHNSTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."