

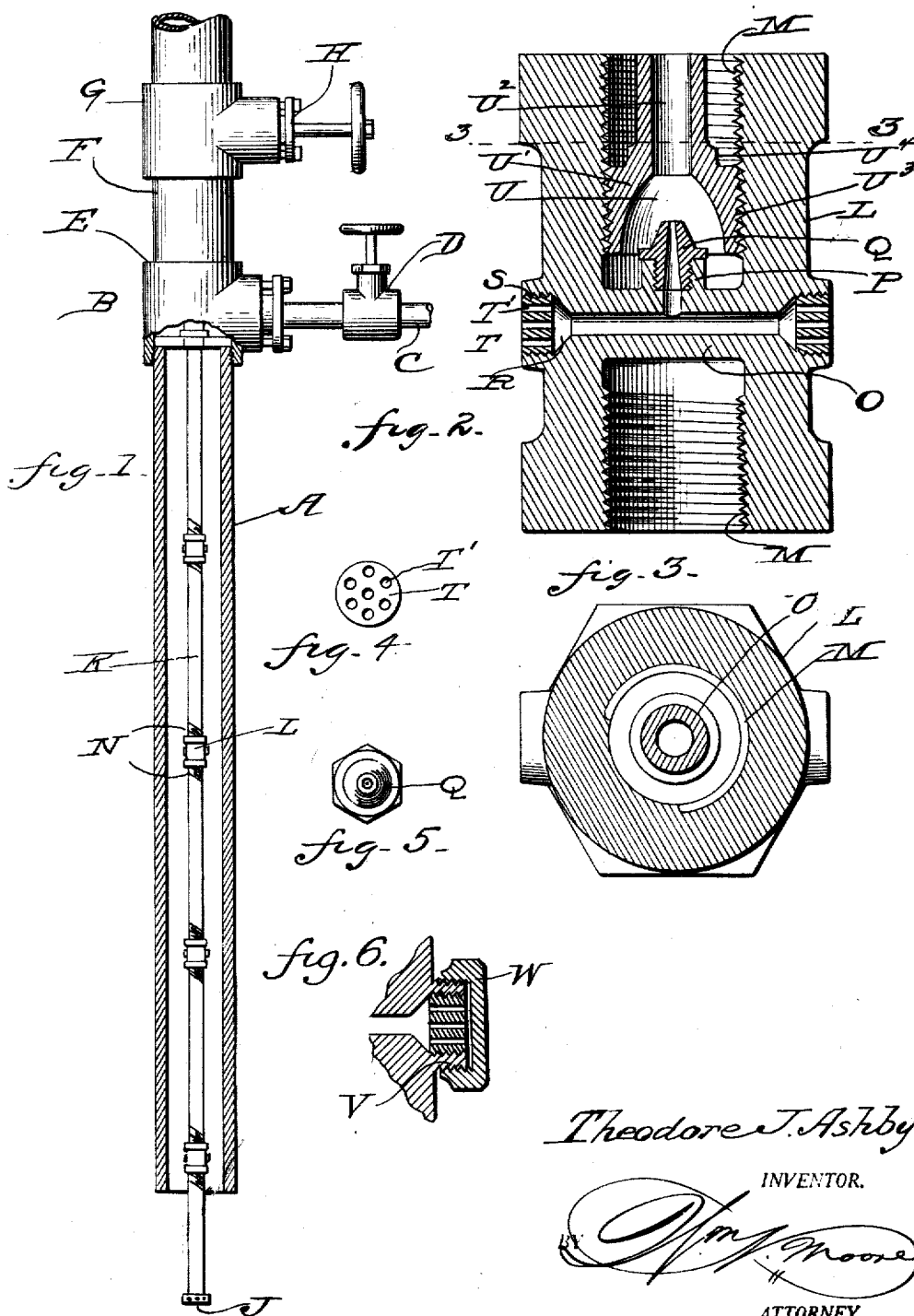
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T. J. ASHEY

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OIL WELL APPARATUS

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UNITED STATES PATENT OFFICE.

THEODORE J. ASHBY, OF PERRYVILLE, ARKANSAS.

OIL-WELL APPARATUS.

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To all whom it may concern:

Be it known that I, THEODORE J. ASHBY, a resident of Perryville, in the county of Perry and State of Arkansas; a citizen of the United States, have invented certain new and useful Improvements in Oil-Well Apparatus, of which the following is a specification.

My invention relates to improvements in oil well apparatus and the main object is the production of an apparatus which will utilize the pressure and suction of air or gas for the purpose of raising the body of oil or liquid from the well to insure an efficient and practical apparatus for the purposes intended.

Another object of my invention is the provision of an apparatus of the character and for the purpose stated which will employ a series of combined pressure and suction members which will act successively to boost or lift the body of oil and discharge it in a steady and rapid manner.

A further object of my invention is the production of an apparatus which will be of extremely simple, durable and inexpensive construction to insure a long life and to avoid breaking down, and which generally will prove desirable and useful for the purposes intended.

To attain the desired objects, the invention consists of a casing adapted to be submerged in the well, means for supplying gas or air under pressure to said casing to act upon the body of liquid, a pipe disposed in said casing, a liquid-discharge leading from said pipe, and a series of elements disposed in vertical relation upon the pipe to act successively to boost or force the liquid through the discharge pipe.

The invention further consists of an apparatus of the character described embodying novel features of construction and combination of parts for service, substantially as shown, described and specifically claimed herein.

In order that the construction in detail and the operation of my apparatus may be more fully understood and the advantages of the improvement may be appreciated, I have shown in the accompanying drawing an oil well apparatus constructed according to my invention, and in which:—

Figure 1 is a side elevation, partly in section, of the complete apparatus embodying my invention, and

Fig. 2 is a sectional view on an enlarged scale of one of the coupling and injector nozzle members which form the most important feature of my invention.

Fig. 3 is a top plan view of the said coupling members, and

Figs. 4, 5 and 6 are detail views.

My improvement is of extremely simple construction, and may be stated to consist of the casing A, which is placed in the ground with its lower open portion submerged in the body of liquid of the well, the coupling member B, with which communicates the discharge pipe C having a valve D, said coupling member being screwed at E upon the upper end of the casing A, the pipe F having thereon the coupling G provided with the gas or air control valve H, by which gas is forced into the casing A, downwardly upon the body of oil or liquid, forcing the same through the perforated inlet pipe J, thence through the pipe K and out through discharge pipe C.

The important feature of my invention consists of the coupling and injector member, shown in Figures 2 and 3, which consists of the sleeve L, of cylindrical form throughout, having an opening of the same size throughout, whose inner wall is provided with screw threads M, for engagement with the threads N on the ends of the sections of pipe K.

This construction is important, enabling my coupling connection with pipe K of well known form, and the sleeve L is provided at a determined place with a cross pipe on tube O, formed with an upward extending threaded nipple P, which receives the threaded nozzle Q, while the pipe is further formed with enlarged or flaring outlets R, formed with threads S, to receive the threaded caps T provided with openings T'.

From this construction it will be noted that the gas enters the openings T' of the cap T, passes into the tube O and up through nozzle Q into the chamber U, formed by the cupped lower portion U', of the upward extending discharge nozzle U', which is adjustable with reference to the stationary force nozzle Q, by means of its exteriorly threaded rim U^s, and angular wrench receiving shoulders U^t. The outlets are formed with threaded nipples V, to receive the caps W.

- From the foregoing description taken in connection with the drawings the operation of my invention will be readily understood and it will be noted that my device forms
- 5 a coupling which can be adapted to couple the various sizes of pipes used in oil wells; that the nozzles are free from gathering foreign matter or accumulations; that the parts are all assembled to form a single
- 10 unitary structure; that the parts of the unit may be assembled and adjusted with ease to suit conditions; and that in every respect the invention will prove useful, efficient and practical.
- 15 It will be noted that my device forms a coupling for the sections of casing and that it may be made in the various sizes for use with different sizes of casing.

I claim:

- 20 An oil apparatus consisting of a casing adapted to be submerged in the well, means for supplying gas or air under pressure to said casing to act upon the body of liquid,

a pipe disposed in said casing having a discharge element, a series of main injector and 25 ejector nozzles connecting the end of said pipe to act successively to lift and force the liquid through the main pipe to the discharge thereof, said nozzle members consisting each of an interiorly threaded coupling sleeve, of cylindrical form, a horizontal tube arranged intermediate of said 30 tube having each end leading to a threaded flaring outlet, having an upward extending threaded nipple, a threaded nozzle fitting said nipple, threaded caps fitting the threaded outlets of said horizontal tube and having 35 openings, a discharge nozzle arranged above the nozzle carried by the nipple of the horizontal tube and having a cupped portion 40 to receive said nozzle and provided with threads on its rim to engage the threads of the main injector and ejector nozzles.

In testimony whereof I hereunto affix my signature.

THEODORE J. ASHBY.