

July 21, 1925.

1,546,420

B. F. WALDRON

NOZZLE

Filed Sept. 30, 1922

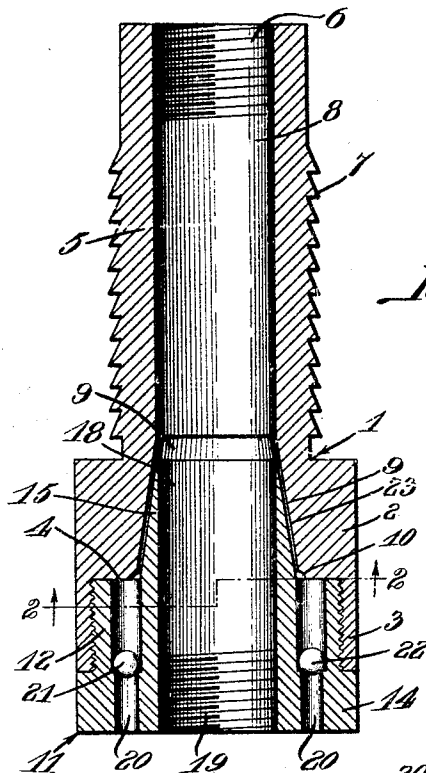


Fig. 1.

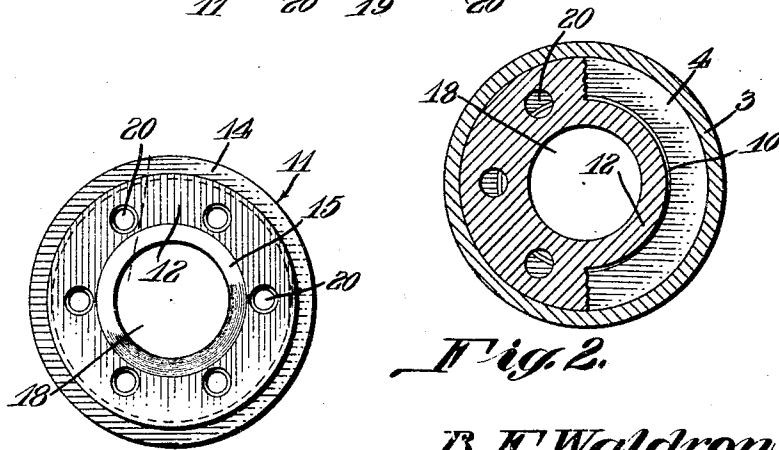


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. WALDRON, OF MEXIA, TEXAS.

NOZZLE.

Application filed September 30, 1922. Serial No. 591,599.

To all whom it may concern:

Be it known that I, BENJAMIN F. WALDRON, a citizen of the United States, residing at Mexia, in the county of Limestone and State of Texas, have invented a new and useful Nozzle, of which the following is a specification.

The device forming the subject matter of this application is adapted to be used for raising oil or other liquids, through the instrumentality of pressure derived from natural gas, or from compressed air, the structure being of peculiar utility when employed on the casing head of a well.

The invention aims to provide novel means for directing the air or gas through the structure, to effect a raising of the oil and, generally, to improve and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in longitudinal section, a device constructed in accordance with the invention; Figure 2 is a cross section on the line 2—2 of Figure 1; and Figure 3 is an end view showing the auxiliary member.

In carrying out the invention, there is provided a main member 1 including a foot 2 having an annular flange 3 defining an internal shoulder 4, the main member comprising a reduced neck 5 projecting from the foot 2 and internally threaded at one end, as shown at 6, to receive a pipe or the like, the neck being externally ribbed as at 7, for connection with a hose, should the operator prefer that form of delivery element. The neck 5 of the main member 1 has a cylindrical bore 8 communicating with the small end of a conical passage 9 formed partly in the neck 5 and partly in the foot 2, the conical passage including a flared extension 10 located at the shoulder 4.

An auxiliary member 11 is supplied, the same comprising a body 12 having at one end an outstanding flange 14 and provided at its opposite end with a conical nozzle 15,

there being a bore 18 extended through the nozzle 15 and through the body 12, the bore being threaded at one end, as indicated at 19 for the reception of a pipe or the like. Longitudinal openings 20 are formed in the body 12 of the auxiliary member 11 and are located about the bore 18, the openings being reduced intermediate their ends to form stops 21, valves 22, which may be balls, being loosely mounted in the enlarged portions of the openings 20, movement of the valves 22 in one direction being limited by the stops 21, and movement of the valves in an opposite direction being limited by the shoulder 4, when the parts are assembled as shown in Figure 1.

In assembling the device, the body 12 of the auxiliary member 11 is threaded within the flange 3 of the main member 1, one end of the body 12 abutting against the shoulder 4, and the flange 14 abutting against the end of the flange 3, the conical nozzle being received in the conical passage 12, there being a space 23 between the nozzle 15 and the wall of the passage 9.

When air, gas or other fluid under pressure is delivered into the openings 20, the valves 22 unseat to permit the forward movement of the gas or air, but seating on the stops 21 to prevent the retrograde flow of the pressure fluid. The pressure fluid, traversing the extension 10 of the passage 9, moves through the passage 9 and through the bore 8, about the nozzle 15, the oil or other fluid being drawn through the nozzle and being delivered through the neck 5.

What is claimed is:—

A device of the class described comprising a main member including a foot having an annular flange defining an internal shoulder, the main member comprising a reduced neck projecting from the foot, the neck being internally threaded, and externally ribbed for connection with a pipe or hose, the neck having a cylindrical bore communicating with the small end of a conical passage formed partly in the neck and partly in the foot, the passage including a flared extension located at the shoulder; an auxiliary member comprising a body having at one end an outstanding flange and provided at its opposite end with a conical nozzle, there being a bore extended through the nozzle and through the body, the bore being threaded at one end, longitudinal openings being formed in the body, about the

bore, the openings being reduced intermediate their ends to form stops, and ball valves loosely mounted in the enlarged portions of the openings for movement between the stops
5 and the shoulders, the body of the auxiliary member being threaded within the flange of the main member, one end of the body abutting against the shoulder, and the flange of the auxiliary member abutting against the
10 end of the flange of the main member, the

conical nozzle being received in the conical passage, there being a space between the nozzle and the wall of the passage.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 15 in the presence of two witnesses.

BENJAMIN F. WALDRON.

Witnesses:

J. PAT COOK,
M. H. DONNELLY.