June 4, 1929. J. LE FLORE 1,715,767

CASING SHOE NOZZLE

Filed Dec. 17, 1927

Fig. 1.

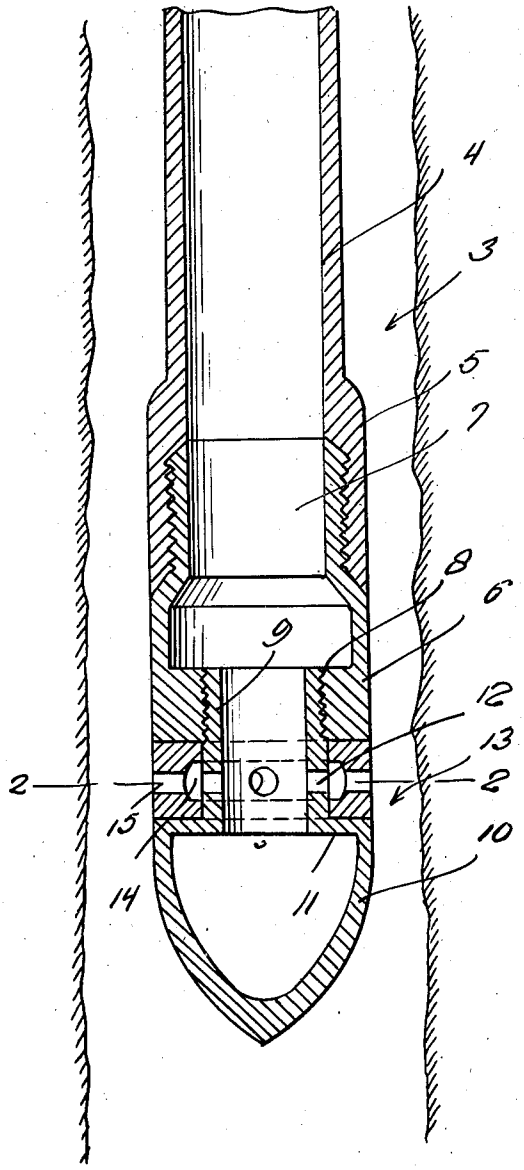
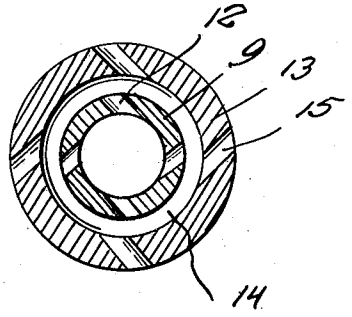


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CASING-SHOE NOZZLE.

Application filed December 17, 1927. Serial No. 240,878.

The present invention relates to an improved cement distributing nozzle for use upon a casing shoe such as is employed in the cementing of oil wells.

The purpose of the invention is to provide a simple and dependable means for uniformly distributing the cement in the well.

The structural details for accomplishing the improved result, will become more readily apparent from the following description and drawings.

In the drawings:—

Figure 1 is a central vertical section through the improved structure showing the manner in which it is inserted down into the well.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

In the drawing, the reference character 3 designates generally the oil well, in which the depending casing shoe 4 is shown, the same being provided at its lower end with a screw threaded socket 5. Cooperable with the socket is a coupling 6 having a reduced screw threaded neck 7 threaded into the socket 5, the lower end of this coupling 6 being thickened to provide a flange 8 which is apertured and internally screw threaded for reception of the upper screw threaded end of a nipple 9, which is formed centrally on a guide 10. This guide is of hollow-bullet-shaped formation, and is provided with a flat circular portion 11 spaced from the flanged end of the coupling 6.

Incidentally, that portion of the nipple 9 between the coupling 6 and the flat surface 11 is formed with circumferentially spaced diagonal discharge ports 12 for the liquid cement. Surrounding this portion of the nipple and located in said space is a revolving ring 13 having a channel 14 in alinement with the ports 12 and oblique outlets 15.

From the foregoing description, it is obvious that the stream of liquid cement is forced under pressure down through the casing 4 and the coupling 6 into the nipple 9 and guide head 10. However, owing to the pressure at which the stream flows, it is ejected in a direction at right angles to the axis of the casing out through the port 12, into the channel 14 and out from the channel through the outlets 15, into the well casing.

Owing to the oblique disposition of the outlet holes 15, the ring 13 rotates freely, thus distributing the jets of cement in a uniform manner about the walls of the well.

The construction, operation and advantages of the invention will be clear after considering the description in connection with the drawings, for which reason a more lengthy description is believed unnecessary.

Changes in shape, proportion, and size, and re-arrangement of parts, may be made within the field of invention claimed, and may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

In a structure of the class described, a hollow casing shoe, a coupling connected thereto, a substantially bullet-shaped hollow guide provided with a flat contact surface having a centrally disposed screw threaded hollow nipple connected with said coupling in a manner to space said contact surface from said coupling and to afford communication between said casing shoe and guide, the portion of the nipple between the surface and coupling being provided with circumferentially spaced discharge ports, and a rotary distributor surrounding the ported portion of the nipple and interposed between the coupling and flat contact surface of the guide, said rotary distributor being in the form of a ring having an internal channel in communication with said ports, and provided with circumferentially spaced oblique discharge openings in its periphery leading from said channel.

In testimony whereof I affix my signature.

JOSEPH LE FLORE.