Feb. 23, 1926. 1,574,537

A. P. BURCH

INSET CASING FLOAT VALVE

Filed July 27, 1923

Fig. 1.

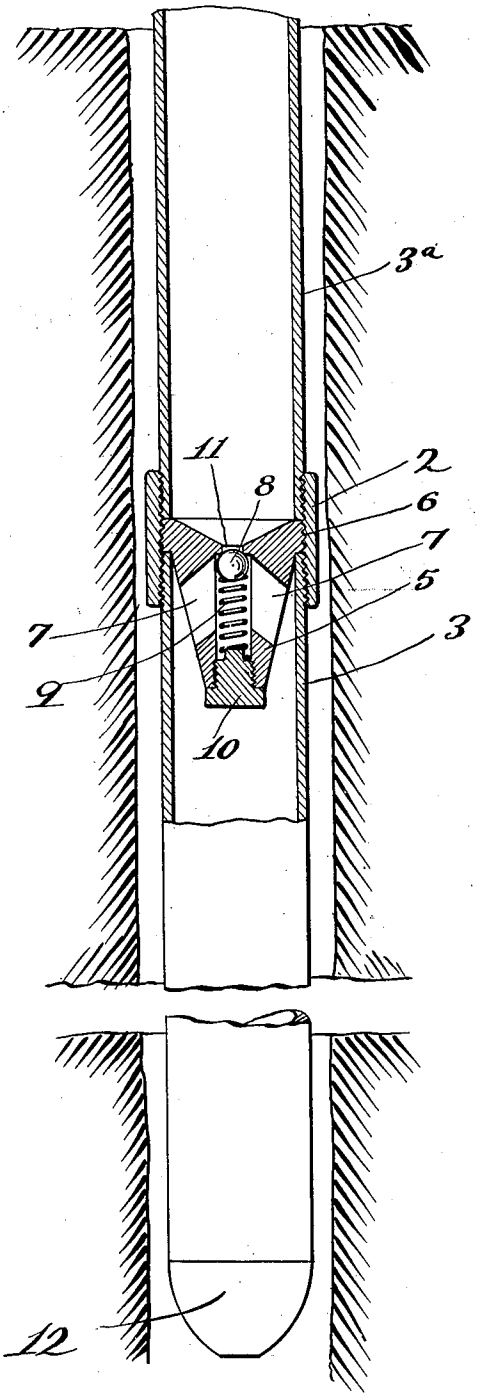


Fig. 3.

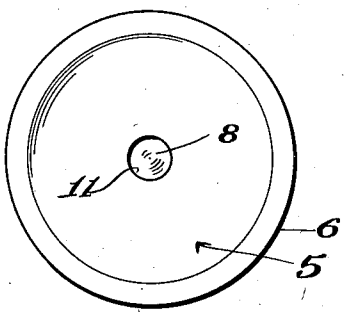


Fig. 2.

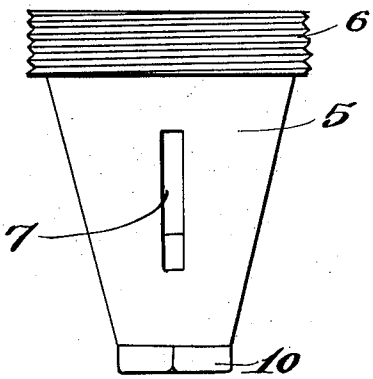
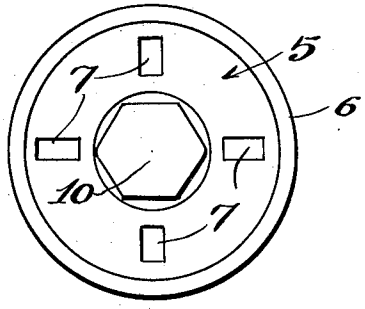


Fig. 4.



Witness
my hand.

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UNITED STATES PATENT OFFICE.

ALLEN P. BURCH, OF WHITTIER, CALIFORNIA.

INSET CASING FLOAT VALVE.

Application filed July 27, 1923. Serial No. 654,168.

To all whom it may concern:

Be it known that I, ALLEN P. BURCH, a citizen of the United States, residing at Whittier, in the county of Los Angeles and State of California, have invented new and useful Improvements in Inset Casing Float Valves, of which the following is a specification.

This invention relates to deep well apparatus and has for an object to provide an inset, casing float valve.

An object is to provide in combination a deep well casing and a float valve arranged up inside of the casing a suitable distance above the lower end of the same to protect the valve from cave-ins and detritus that may be encountered by the entering guide piece of the casing.

Other objects and advantages will be made manifest in the following specification of an embodiment of the invention as illustrated in the accompanying drawings, wherein:

Fig. 1 is a longitudinal section of the apparatus as in use.

Fig. 2 is a side elevation of the detached casing valve.

Fig. 3 is a top plan.

Fig. 4 is a bottom end view.

It has been proposed to utilize valves in drilling apparatus and my present improvement consists of a valve that is adapted to be mounted within a collar or coupling 2 joining a lower casing section 3 and an upper casing section 3^a. The valve consists of a substantial body part 5 having a threaded rim 6 to engage the internal threads of the collar 2. The valve body 5 is provided with a plurality of ports 7 leading to a central valve space in the body in which is arranged a ball valve 8 normally pressed toward the upper end of the valve as by a spring 9.

In the lower end of the valve body is a removable spring supporting plug 10.

The valve body is provided at its upper end with a valve hole 11 below which the valve ball 8 seats to cut off upward flow of fluid into the upper string of casing above the lower section or sections 3.

Ordinarily the lowermost casing section is provided with a standard or suitable guide fitting 12 perforated to allow downward flow of fluid which may be pumped down into the casing string and will, when of sufficient pressure, pass through the valve device.

In operation, the valve 8 is normally seated so as to cut off upward passage of well fluid and thus maintain a dry chamber, in the absence of circulation, above the valve. This obviously has the advantage of floating in the casing string during operations.

My improved valve is adapted to be readily inserted in its collar 2 and firmly locked as by abutment against the contiguous ends of the casing sections.

Further embodiments, modifications and variations may be resorted to within the spirit of my invention.

What is claimed is:

1. In combination a string of casing sections, contiguous ends of certain sections having a collar screw-threaded on the outside of the casing sections, an inserted float valve having a body part, a rim at the upper portion thereof, screw threads on the exterior of the rim, abutting faces on the top and bottom of the rim, said abutting faces engaging the contiguous ends of the casing sections and the threaded portion engaging the collar, a valve hole in the upper part of the body portion, a downwardly extending passage, a plug at the lower end of the passage, a spring bearing against the plug, a ball engaging the upper end of the spring whereby the ball may be pressed against the valve hole, and a series of ports through the body, the inner ends of such ports being of less width than the diameter of the ball, whereby the ball is retained in said passage.

2. A casing float valve comprising in combination a valve body having a threaded rim at its upper end, abutting faces above and below the rim, said faces being adapted to engage an upper and a lower casing pipe section and a rim being adapted to engage the collar screw threaded on the casing pipe sections and the rim, a hole in the upper portion of the valve body, a passage extending downwardly from the valve hole, a ball valve in said passage and of substantially the

same diameter as the passage, a plug extending upwardly in the passage, a spring bearing against the upper end of the plug and at its upper end pressing against the ball valve, and a plurality of ports extending laterally through the valve body, said ports at their inner end being of lesser width than the diameter of the said passage, whereby the ball valve is retained in the said passage.

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

ALLEN P. BURCH.