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2,545,504

COMPLETION SHOE

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Fig. 1

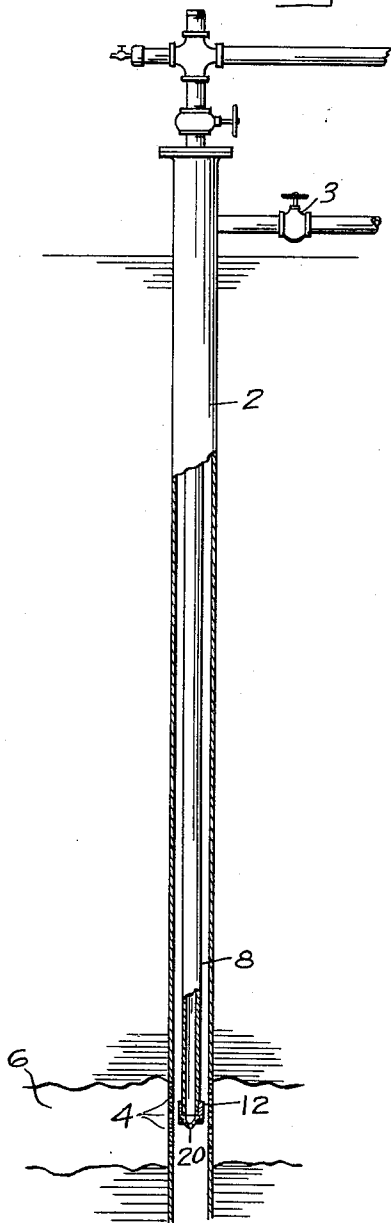
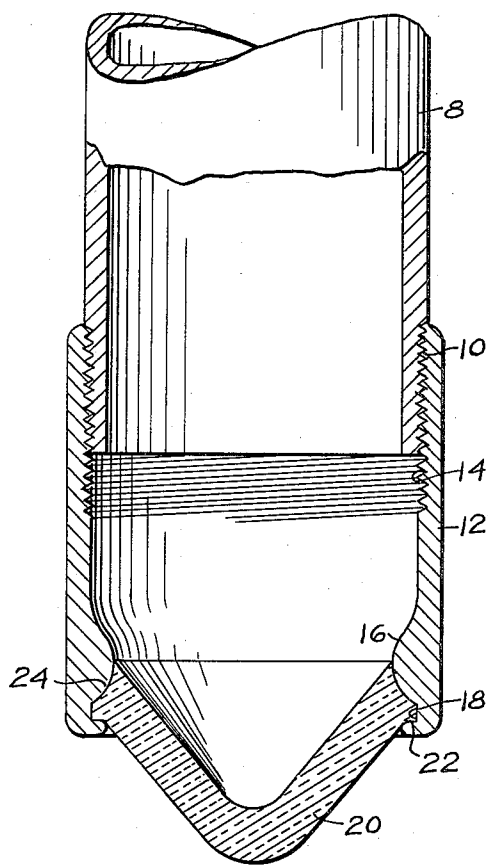


Fig. 2



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UNITED STATES PATENT OFFICE

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COMPLETION SHOE

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1 Claim. (Cl. 166—4)

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My present invention relates to an improved closure for oil well tubing and more particularly to the type of closure which may be inserted into or upon the lower end of well tubing and which may be broken and shattered to open the tubing end when the well is ready to enter production.

The conventional practice up to this time to bring a well into production has been to run an open ended tube inside the well casing which is full of mud and water and then swab the fluid level down to a point where the hydrostatic pressure of the fluid inside the casing is lower than the formation pressure. This swabbing operation is time consuming and costly, and in order to save time and cost I have eliminated this operation by closing the lower end of the tubing with a frangible cover and when the tubing with the closure of my invention is lowered into the casing and properly placed, a missile such as a go devil may be dropped down the inside of the tubing to shatter the frangible closure and permit the well to produce.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claim.

In the drawings:

Figure 1 is a side elevational view of a well casing partially broken away to show the interior tubing and the closure of my invention; and

Figure 2 is a vertical sectional view of the closure.

Referring now to the drawings wherein like characters indicate like parts I have illustrated the closure of my invention in use with a conventional well casing 2 having a casing valve 3, and fashioned with lower ports 4 adjacent the oil bearing strata 6.

The tubing 8 of conventional design is threaded as at 10 to receive the collar 12 threaded at 14 preferably of metal or other suitable material and formed with a rounded interior flange 16 and an annular groove 18.

The closure or cap of my invention generally

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indicated as at 20 is conical in shape to aid in resisting pressure and is preferably made of a brittle frangible material as glass and is formed with an annular rib 22 co-acting with the groove 18, and an annular groove or recess arcuate in cross section 24 for co-action with the rounded flange 16.

When as described above the well is ready for production, and the tubing with the closure is in place, a missile such as a go devil may be dropped inside the tubing, with the casing valve 3 closed, and the missile will break or shatter the closure 20 permitting the oil to pass upward through the tubing.

Where it is anticipated that the well may later require further drilling it is advisable to use a missile of drillable material.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

In a closure device for a tube adapted to convey oil, a collar releasably secured to said tube, there being an annular groove arranged in the inner face of said collar, a flange arranged above said groove and projecting inwardly from the inner face of said collar, a conical cap fabricated of frangible material dependently carried by said collar, there being an annular arcuate recess in said cap for the reception therein of the projecting flange of said collar, and an annular rib spaced below said recess projecting from said cap and seated in the groove in said collar.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
218,052	Neath	July 29, 1879
244,042	Farrar	July 12, 1881
582,828	McGregor	May 18, 1897
1,904,317	Larkin	Apr. 18, 1933
2,183,654	Moore	Dec. 19, 1939