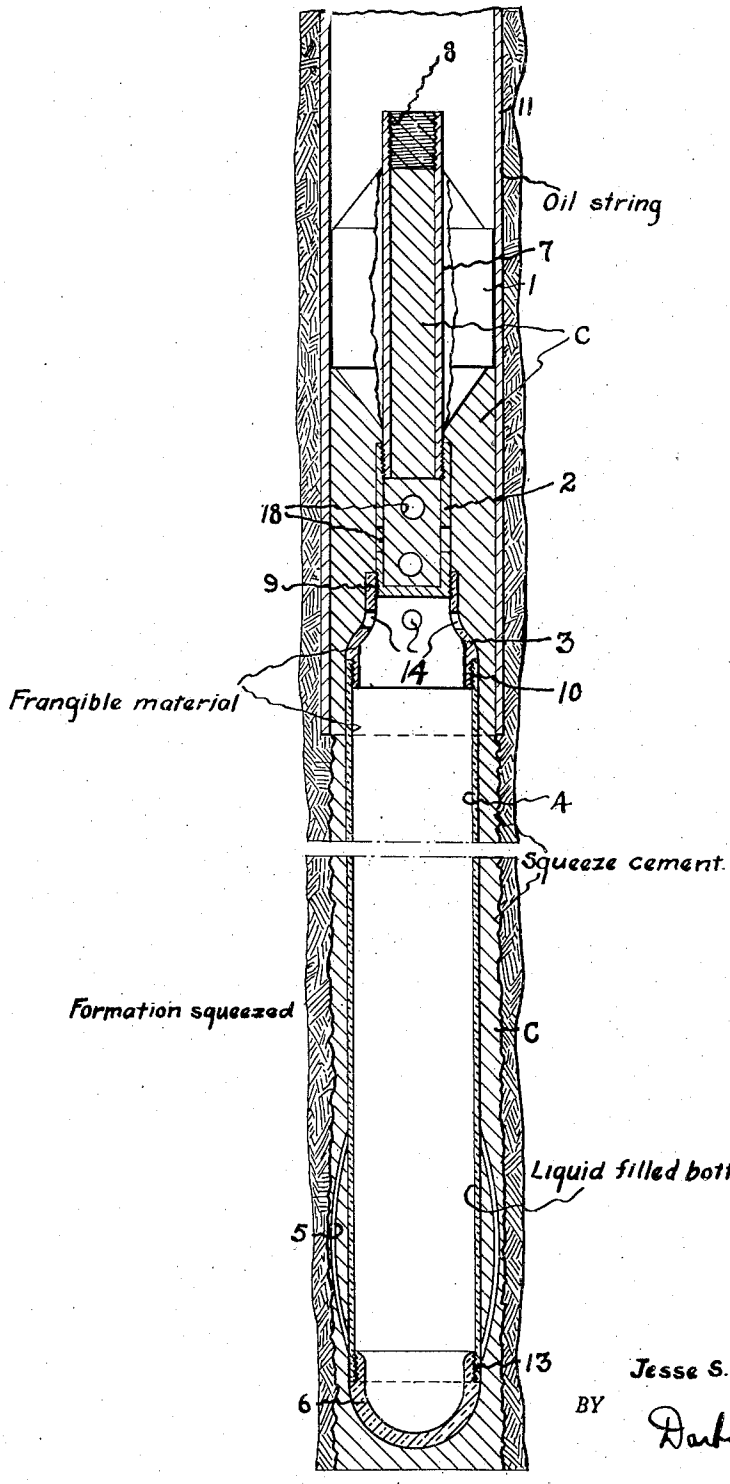
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OIL WELL IMPLEMENT

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OIL WELL IMPLEMENT

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4 Claims. (Cl. 166—1)

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This invention relates to an implement or tool specifically adapted for use in squeeeze cementing a well bore for the purpose of providing a guide hole for tools subsequently used after the well is cemented.

In accordance with this invention a tubular housing or container of suitable length and preferably made of some easily drillable material is filled with a fluid such as water and run in on the bottom of a cement retainer or packer. This housing is provided with means for centering it in the hole prior to squeeze cementing the hole and is constructed so as to permit the forcing of fluid cement into the bore and around the housing.

The implement is provided for the purpose of furnishing a center hole through the cement body in a well bore which has been squeeze cemented for any of the many reasons for which squeeze cementing is used today. The implement is in the form of a tubular body which provides a hole after cementing serving as a guide for all later used tools such as rotary and cable tools used in drilling cement.

In accordance with the present practice, there is no satisfactory method of preventing drill bits from drilling into the side of the well bore and into the formation after squeeze cementing. The implement herein disclosed will prevent the failure of the squeeze cement job due to the bit not remaining in the old well bore but starting a new hole by passing the cement.

A further object of the invention is to provide an implement of this type made of material which may be easily drilled or cut away and which is, therefore, so constructed that pressure therein is equalized during squeeze cementing so as not to fracture the implement during cementing.

Other and more detailed objects of the invention will be apparent from the following detailed disclosure of one embodiment thereof.

This invention resides substantially in the combination, construction, arrangement and relative location of parts all as hereinafter described.

In the accompanying drawings, the single figure is a vertical, central, cross-sectional view through the implement of this invention showing it lodged in a well bore.

As illustrated, the implement is run into the oil string or well casing 11 on the bottom of which is a cement retainer or packer 1 of any suitable and well known construction and is attached thereto by an adaptor or coupling device 2. This coupling device is attached to the packer by a threaded connection as shown and is closed at its lower end although provided with a series of perforations 18 in the body thereof. The lower end of the adaptor is attached by a thread connection 9 to another perforated coupler 3. The coupler 3 is attached by a threaded connection 10 to a tubular housing or casing 4 which is closed at its lower end by means of a cap 6 attached thereto by the threaded connection 13. Mounted on the sides of the tubular housing 4 near the lower end thereof are a series of guides 5 of any suitable construction and preferably of resilient material of sufficient external diameter to center the lower end of the casing 4 in the well bore. The packer is provided with a tubular passage 7 therethrough terminating at its upper end in threads 8 by means of which it may be attached to a tubing or drill pipe (not shown) for lowering into position.

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The adapter 2, coupler 3, the tube 4, the guides 5, and the cap 6 are made of some material which may be easily drilled and preferably are made of some suitable composition material such as a thermosetting plastic, synthetic resin, or the like.

When the implement is to be in use it is first filled full of some fluid such as water through the holes in the coupling device 3 and then lowered into position in the well bore which it will retain by reason of the frictional engagement of the packer 1 with the oil string 11 and the resilient guides 5 with the well bore. Of course, if the area to be cemented is at the bottom of the bore hole, the implement will rest on that bottom. Liquid cement C is then passed through the tubing or drill pipe and through the tube 7 into the coupler 2, and from there through the holes 18 into the bore around the implement. The cement flows down around the implement to the bottom of the hole and when pressure is applied to the top of the body of the cement in accordance with common practice, it will be forced into the wall of the bore opposite the implement. The fluid within the implement is equalized in pressure through ports 14 so that there is no danger of the fracture thereof even when it is made of relatively weak materials. The guides 5 center the housing 4 in the bore and hold it in position during the cementing operation. When cementing is complete the tubing or drill pipe is detached from the packer 1 and removed from the casing 11. It will be apparent that after the cement is set and tools are sent down, such as rotary or cable tools for drilling the cement plug at the bottom of the bore, they will have little or no tendency to break through the squeeze cement in

formation but will be guided to the bottom of the cemented area to begin work properly centered in the bore hole. The tool will easily drill out the composition or other material of the packer 1, adapter 2, coupling 3, housing 4, guides 5 and cap 6.

From the above description it will be apparent to those skilled in the art that the subject matter of this invention is capable of some variation without departure from the novel subject matter thereof. I prefer, therefore, to be limited by the claims rather than by the illustrative disclosure.

What is claimed is:

1. An oil well squeeze cementing tool comprising in combination a tubing, a packer on said tubing disposed to pack off between said tubing and the well bore, and a septum attached to said tubing below said packer, said septum being frangible under the pressures of squeeze cementing and said tubing having perforations therein between said packer and said septum through which cement may be discharged into the well bore below said packer, the lower end of said tubing being closed to form a liquid containing space, said tubing having perforations therein between said septum and the closed lower end of said tubing for equalization of hydrostatic pressure on the septum.

2. An oil well squeeze cementing tool of the type described comprising in combination a tubing closed at the lower end and having a plurality of perforations adjacent the closed end through which liquid cement may be discharged, a tubular container closed at the lower end and attached at its upper end to the closed end of said tubing, said container being collapsible under the pressures of squeeze cementing, the upper end of said container having perforations, a fluid filling for said container for balancing hydrostatic pressures applied to the exterior thereof, and means on said container for centering it in a well bore.

3. In the combination of claim 2 said pipe string being closed at its lower end by a perforated cap to which said container is attached.

4. In the combination of claim 2, said pipe string being closed at its lower end by a perforated cap and said container being closed at its upper end by a perforated coupling member detachably secured to said cap.

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