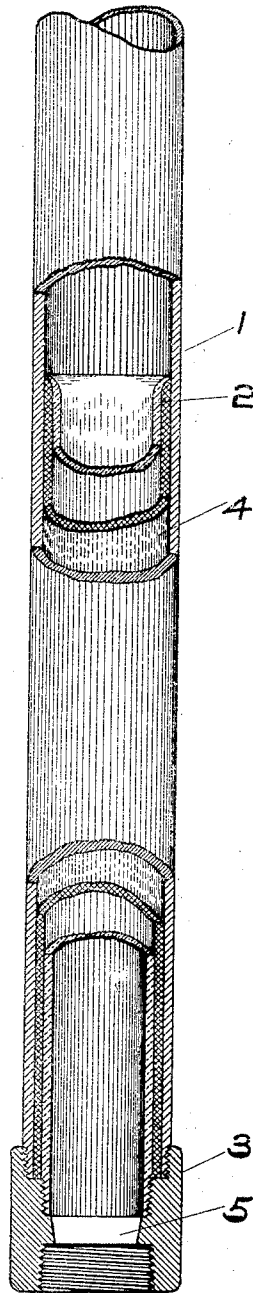


C. A. WAITZ.
WORKING BARREL FOR PUMPS.
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1,010,098.

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Witnesses

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WORKING BARREL FOR PUMPS.

1,010,098.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES A. WAITZ, citizen of the United States, residing at Rouseville, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Working Barrels for Pumps, of which the following is a specification.

My improved working barrel is particularly adapted for use in deep wells especially oil wells, my object being to produce a barrel which will not only be more durable in service than those now commonly employed but will be cheaper to construct, also more easily placed in and withdrawn from the well.

I will now explain the construction of my improved working barrel and will then point out wherein the same is an improvement over the barrels now in common use.

The drawing is an elevation partly in central longitudinal section of my improved working barrel.

In constructing my barrel I employ a joint of tubing 1, which may be of any suitable length, but preferably is the regulation, commercial length, as it comes from the mill, and so far as my invention is concerned, any diameter may be used, but, of course, in making barrels for use in oil wells, diameters will be employed which conform to the usual practice in this line of work. Tubing 1 is externally threaded at both ends, in the usual manner and is preferably, not only identical with, but a portion of the tubing proper used in the well. Within one end (the lower end) of said tubing I insert a liner composed of a comparatively short section of tubing or pipe 2, the upper end of which is preferably swaged out or in any other way suitably formed so that it will afford a smooth and easy entrance for the plunger or piston which operates therein and will also maintain the concentricity of the upper end of the liner and the tubing. The diameter of said liner 2 is such that there is more or less space between the periphery of same and the inner wall of the tubing 1, but so far as my inventive idea is concerned, the exact amount of said space is immaterial, it may vary from a minute fraction of an inch, up to a considerable amount, but practically and as a manufacturing expedient it is, at least, such as will permit an easy and quick assembly of the barrel and liner. Liner 2 projects somewhat

below the bottom of tubing 1 and its lower end is externally threaded substantially as shown. A collar 3, internally stepped at its upper end, and threaded, is arranged to be screwed upon said tubing and liner for the purpose of attaching them together and holding them relatively in a concentric position at the lower end; said collar also serves as a coupling for the attachment of additional tubing or an anchor to the lower end of the barrel. Preferably before collar 3 is attached, I pour into the annular space between the tubing and liner a filler 4, which, so far as my inventive idea is concerned, may be any suitable substance, such as metal having a low melting point and poured in in a molten state, or pitch, also poured in in a molten state; it may be fine sand, powdered graphite, soapstone or any other suitable, finely powdered material, or it may be a liquid. In case the filler is liquid the space may be arranged to fill automatically as the liquid, oil or water, rises in the tubing during the pumping operation after the barrel is in place in the well. All of these filling substances and the method of inserting them being within the scope of my invention. The object of said filler is to strengthen and support the liner 2 and to prevent the same from being expanded by the weight and pressure of the column of fluid within the tubing, and the automatic method above stated is an ideal way of attaining this object, as the pressure upon the inside and the outside of the liner are thus automatically balanced, regardless of the amount of such pressure. Collar 3 is provided with a seat 5 for a check valve of the usual type commonly termed the "standing valve." Tubing 1 is provided at its upper end with a thread for the reception of a collar or coupling, not shown, for the attachment of the balance of the well tubing. Tubing 1 will usually be of the same diameter as the rest of the tubing employed in the well, though it may be any other diameter, as desired.

The advantages of my improved working barrel over those of the usual form are quite numerous. For instance, the common form of barrel is short, and as its position in the well is nearly always in the shot-hole, it is not supported laterally by the walls of the well and the weight of the superimposed tubing is likely and frequently does cause it to break at the joint, whereas, my barrel,

being composed of a full length joint of tubing, is much longer and is, therefore, supported laterally at its upper end by the walls of the well. Furthermore, with my form of barrel, one or more of the couplings at or approximate to the bottom of the well are dispensed with, which renders the barrel less liable to become stuck in the well when the walls of the well cave in, which is a common occurrence.

The comparatively small expense to manufacture my improved form of barrel is an important point of advantage over those in common use, many of which are expensive to manufacture.

I claim:

1. In a working barrel for pumps, the combination with the tubing proper of a well, of a supplementary section of tubing positioned within and attached to the lower end of said well tubing, the upper end of said supplementary tubing being formed so as to contact with the inner wall of said well tubing, for the purpose of maintaining

the concentricity of said well and supplementary tubing, and means at the lower end of said well and supplementary tubing securing the same together.

2. In a working barrel for pumps, the combination with the tubing proper of a well, of a supplementary section of tubing of smaller external diameter than the internal diameter of said well tubing, positioned within the lower end of said well tubing, the upper end of said supplementary tubing being adapted to secure the concentricity thereof with said well tubing, means securing the lower end of said tubes together and a filling material occupying the space between the juxtaposed walls of said well and supplementary tubing.

In testimony whereof I affix the signature in presence of two witnesses.

CHARLES A. WAITZ.

Witnesses:

JOSEPHINE WINANS,
KATHERYN LYNN.