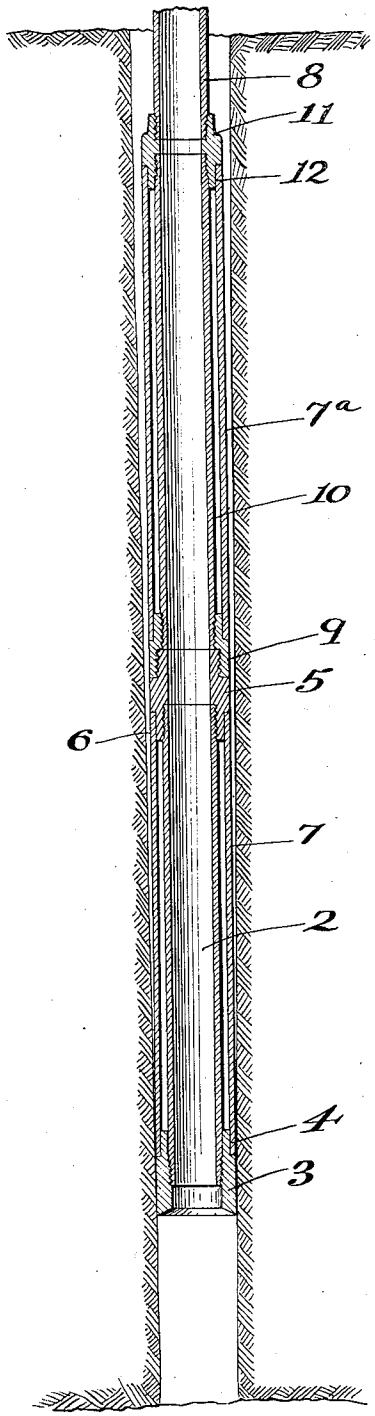
Dec. 9, 1924. 1,518,644

F. A. FETHER

FRICTION SLEEVE WATER SEAL

Filed Sept. 1, 1922



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UNITED STATES PATENT OFFICE.

FRANCIS A. FETHER, OF BAKERSFIELD, CALIFORNIA.

FRICTION-SLEEVE WATER SEAL.

Application filed September 1, 1922. Serial No. 585,632.

To all whom it may concern:

Be it known that I, FRANCIS A. FETHER, a citizen of the United States, residing at Bakersfield, in the county of Kern and State of California, have invented new and useful Improvements in Friction-Sleeve Water Seals, of which the following is a specification.

This invention relates to deep well sinking apparatus and more particularly to deep well seals.

It is an object of the present invention to provide an extremely simple, effective, practicable and substantial form of deep well seal for cutting off water from the strata passed through by the well casing, and it is an object to provide an apparatus which will entirely eliminate the customary "cementing in" process.

Another object is to provide a deep well water seal of few and inexpensive parts and which are of such character that they may be readily attached and installed.

A further object is to provide a friction sleeve forming a water seal in the well and to provide for the introduction of a seal of any desired length.

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

The figure is a longitudinal central section of the device showing an extended adaptation of the sleeve.

In the sinking of deep wells it is customary to cement the casing at a suitable level in the well so as to seal off the water bearing strata so as to prevent the passage of water therefrom into the casing and to obtain the maximum oil flow by eliminating the inflow of water.

In my present invention the customary cementing or cement sealing is entirely eliminated and I provide means adapted to be lowered with the casing shoe to the water level and there mudded or frozen in and firmly and frictionally embedded in the well wall so as to form a thorough seal to cut off the flow of water from the water sand into the lower suction or intake end of the finished string of casing or pipe.

A form of the invention is shown wherein a lower section 2 of casing of suitable size has attached to its lower end a shoe 3, the latter having a turned-down upper portion 4. To the upper end of the casing section 2 there is connected a male coupling member 5 which has its lower end turned down at 6, the exterior diameters of the coupling 5 and of the shoe 3 being of substantially equal dimensions, and between them there is clamped or arranged an intermediate sleeve 7. The sleeve 7 may be of suitable length and diameter according to the size of the hole being drilled and may be lowered to the desired position by the upper sections of the string of casing 8. The sealing sleeve 7 is preferably jammed or landed tight in the hole to form a water tight seal therewith and thus prevent the downward flow of water into the entrance at the lower end of the well casing.

According to the thickness of the water bearing strata encountered the sealing device or sleeve may be of any length and as here shown an upper or extension sleeve 7^a is shown as connected to the coupling 5, as by means of a female coupling member 9 screwing down upon the upper stem of the coupling member 5 and being turned down to receive the contiguous end of the sleeve 7^a. The coupling member 9 is internally threaded to receive the inner casing or section of pipe 10 which is threaded at its upper end in a bushing or joint fitting 11 which is externally reduced at 12 to snugly fit the upper end of the extension section 7^a of the sealing device.

The string of casing 8 with the inner casing 2 is lowered to the desired strata location and is jammed or positioned so as to form a snug seat for the seal sleeve 7 upon the well surface and thus form a natural frictional water tight seal therewith. In some cases the seal might be mudded up, that is the circulating mud may be forced upon the sealing sleeve until it is thoroughly surrounded and cuts off the water.

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

What is claimed is:

In combination with a string of well casing, a plurality of sleeves secured to the lower sections of said string and held in spaced relation thereto, adapted to be landed and form a seal in the well hole, and a

two-part coupling for securing adjacent sections with sleeves thereabout together, said coupling consisting of a first part, threaded on to one section and provided with an annular recess capable of receiving the end of the sleeve disposed about that section, and a second part threaded on to the first part and on to the adjacent section, said second part being provided with a recess for receiving the end of the sleeve disposed about the adjacent section.

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

FRANCIS A. FETHER.