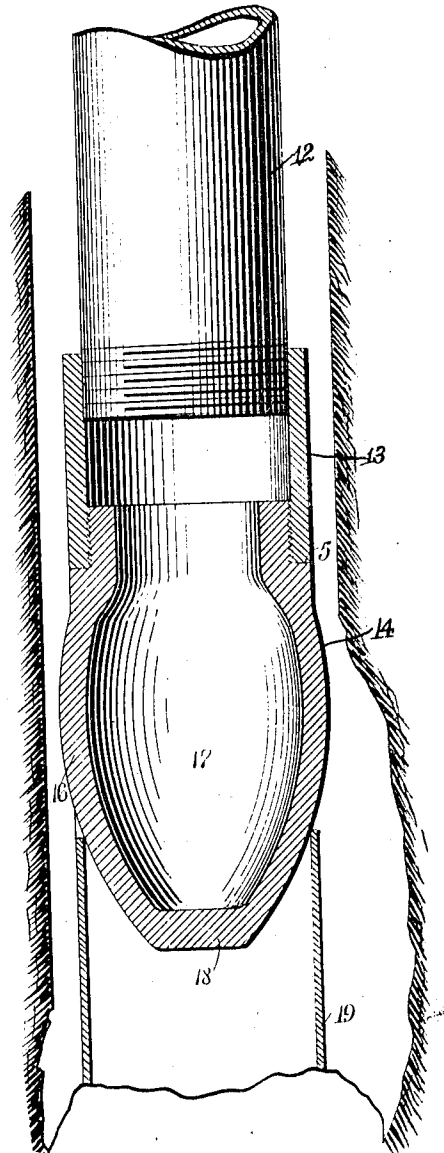


A. C. GRAHAM.
OFFSET SHOE AND CAST IRON OFFSET SHOE GUIDE.
APPLICATION FILED DEC. 12, 1910.

1,019,712.

Patented Mar. 5, 1912.



WITNESSES
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UNITED STATES PATENT OFFICE.

ALBERT CLARENCE GRAHAM, OF OILFIELDS, CALIFORNIA.

OFFSET-SHOE AND CAST-IRON OFFSET-SHOE GUIDE.

1,019,712.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed December 12, 1910. Serial No. 596,778.

To all whom it may concern:

Be it known that I, ALBERT C. GRAHAM, a citizen of the United States, and a resident of Oilfields, in the county of Fresno and State of California, have invented a new and Improved Offset-Shoe and Cast-Iron Offset-Shoe Guide, of which the following is a full, clear, and exact description.

This invention relates to a new and improved means for connecting the casings used in well construction. In the construction of wells, particularly through soil of different strata, it frequently happens especially in the case of long casings, that the latter buckle at certain points in the construction where the surrounding ground is weak, and quite frequently the casing is broken off and it is difficult to raise the broken part or to drain it out, so as to attach another casing thereto. To overcome these difficulties, I have constructed a device, which has for an object to provide a means which may be inserted into the end of the broken-off casing, and afford means to enable the constructor to attach another section thereto. I attain this object by attaching a shoe to the end of a pipe, the shoe having means to grip the broken-off pipe, to afford means to fasten a superposed casing upon the broken-off section.

With the above object in view, as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which the figure is a longitudinal sectional view of the lower end of my improved finding tool and connection.

I have shown an arrangement whereby a section of casing 12 itself may be used as a lowering means, and upon the outer end of this casing 12 may be threaded a shoe 13. Internally threaded into the shoe 13, is an egg-shaped shoe guide 14, which shoe guide has a shoulder 15, abutting the end of the shoe 13. This shoe guide has a curved offset portion 16, the outer surface of which forms practically a continuous surface with the shoe 13, and is of greater diameter than the diameter of the casing to which it is to be affixed. The lower end of the shoe guide

beyond the offset portion, is of a general conical structure.

In the construction shown the bore 17 of the shoe guide has a closed end 18. This end may be made of cast iron, and after the two casings are united, this end 18 may be drilled out, thereby establishing a communication between the bore of the casing 12 and the broken-off casing 19.

In order to connect the casing 12 with the casing 19, the shoe 13 is threaded on the end of the casing 12, and the shoe guide 14 is threaded on to the shoe 13. The casing together with these members, is lowered into the well to engage the broken-off casing by nosing into the bore of the casing 19. As the end of the shoe guide 14 enters the bore of the casing 19, the guide will be forced into this bore, and as the casing 19 rides up the sides of the guide and shoe, the two pipe sections will be brought into alinement. Due to the fact that the offset portion is of greater diameter than the casing 19, there will be a wedging action between the shoe guide and the casing, whereby the two will be rigidly fastened together. Afterward a drill is inserted in the opening of the casing 12 and bore 17, and the end 18 of the shoe guide is drilled out. By making use of the closed end 18 of the device while lowering the same to engage the casing 19, the loose part which might tend to choke the end of the casing 12 is prevented from working itself into the shoe-guide, and the end 18 is not drilled out until the shoe-guide is in position gripping the casing 19. In this way, it will be noted that it is not necessary to withdraw the submerged casing 19 in order to repair the connection between the two ends of the casing.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matters contained herein in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is merely intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might

be said to fall therebetween, and that materials, sizes, and relativities of parts are non-essential, except as called for in the claims.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination, a casing, a shoe guide attached to said casing, said shoe guide having a bore in communication with the bore of said casing, and a closure at the outer end of the shoe, closing said bores said closure adapted to be drilled out to open communication through said casing.

15 2. In a casing connection, a shoe guide having a curved offset, by means of which a

connection may be made with a casing, by inserting the guide in the end of the casing, the end of the guide adapted to be inserted in the casing being closed.

3. A shoe for use in a casing connection in the shape of an egg, having one end open and the other closed, said closed end adapted to be drilled open.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT CLARENCE GRAHAM.

Witnesses:

R. S. FINE,

A. M. DICKIE.