

A. C. GRAHAM.  
SHOE GUIDE FOR WELL CASINGS.  
APPLICATION FILED DEC. 7, 1909.

970,812.

Patented Sept. 20, 1910.

Fig. 1

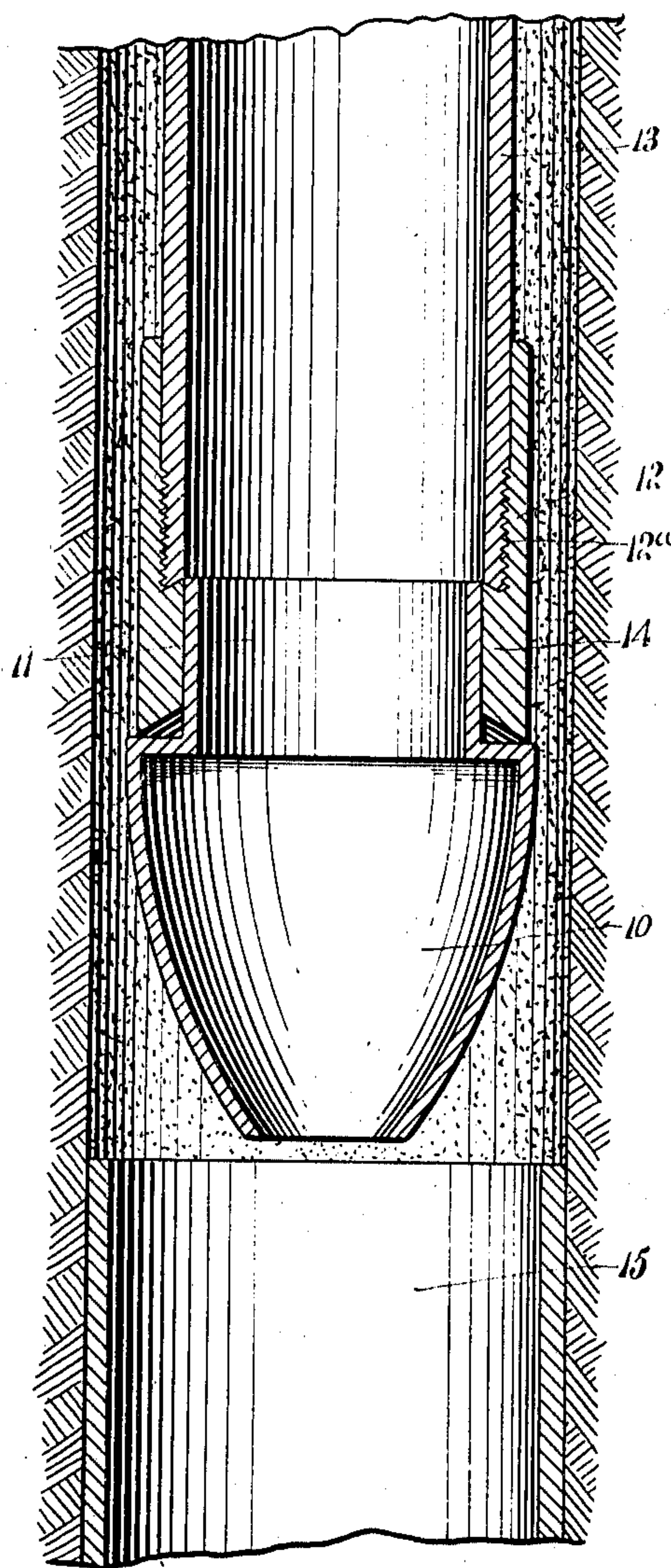
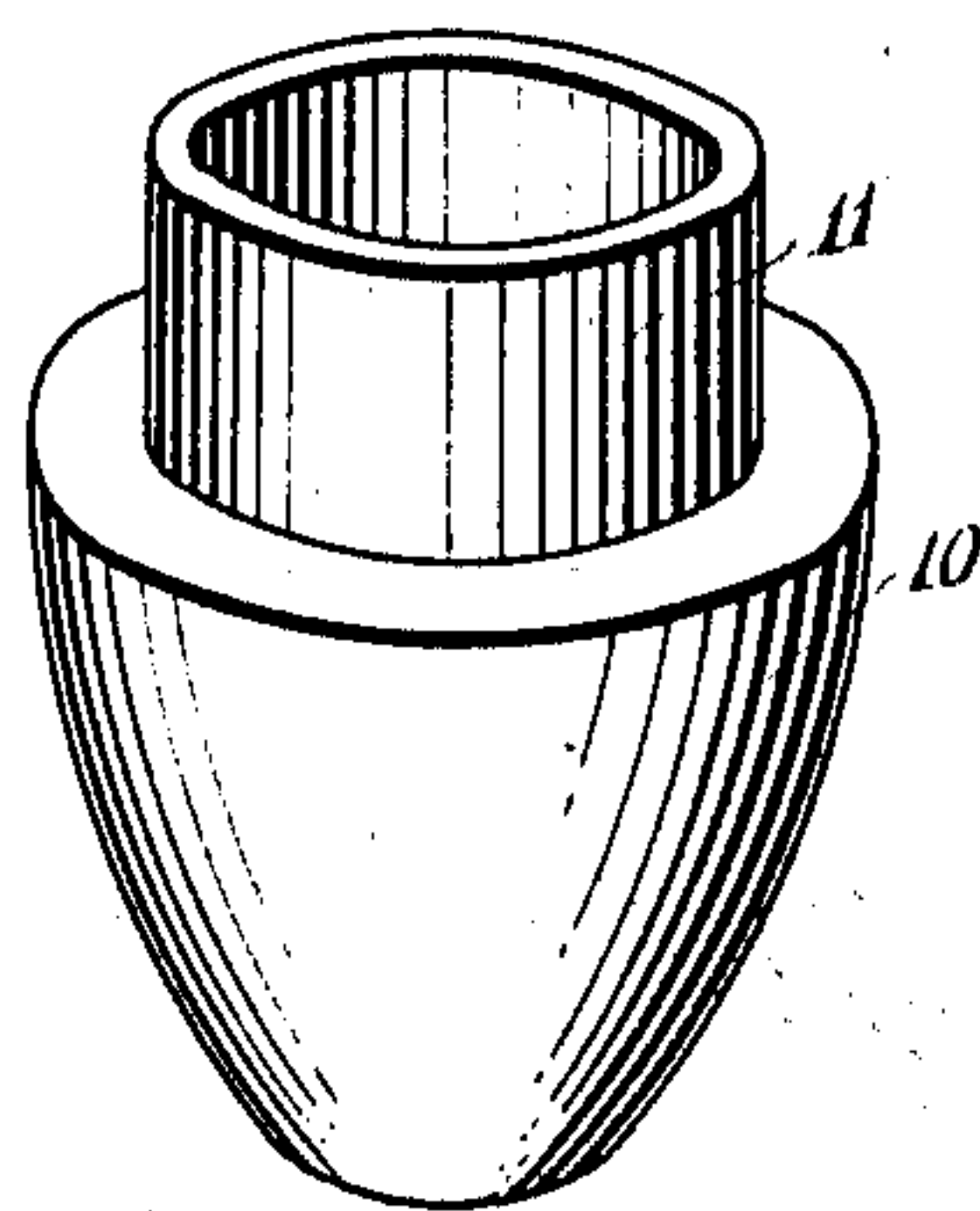


Fig. 2



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ALBERT C. GRAHAM, OF OILFIELDS, CALIFORNIA.

SHOE-GUIDE FOR WELL-CASINGS.

970,812.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed December 7, 1909. Serial No. 531,757.

*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 Shoe-Guide for Well-Casings, of which the following is a full, clear, and exact description.

In the driving of wells it sometimes happens that a section or string of well casing or a liner, parts or the liner collapses. This is generally repaired by leaving the parted casing or liner in the well and lowering another string of casing or liner within the separated parts. Considerable difficulty is generally experienced in passing the smaller casing or liner within the lower section or part of the parted casing or liner. I have successfully overcome this difficulty in practice by my shoe-guide, which is constructed with a tapering guiding head to easily pass within the casing, and has a neck adapted to fit tightly within the shoe, the entire guide being in the nature of a shell of cast iron or other material more readily fragile than the casing or the shoe, so that when the shell is knocked from the well casing it is easily crushed into fragments in the well and afterward removed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a central vertical section through a well, showing the lower part or section of a parted casing and a section or string of smaller casing having my improved shoe-guide, the latter being in a position preparatory to entering the larger casing; and Fig. 2 is a perspective view of the shoe-guide removed from the shoe.

The shoe-guide as preferably constructed comprises a tapering head 10 and a neck 11, the neck extending from the enlarged end of the head and of a size to be easily driven within a casing shoe 12, the latter being a common device in well construction, and, as shown, is constructed with an internally-threaded portion 12<sup>a</sup> adapted to fit over and

screw on the lower end of a line or section of well casing 13, and is provided with a lower portion 14 of an internal diameter approximately equal to that of the well casing to which it is applied. Into this internal reduced portion of the shoe, the neck of my improved shoe-guide is designed to fit tightly. The shoe-guide is in the form of a shell open throughout its length so as not to choke the well passage, and is made of cast iron or other suitable material more readily fragile than the casing or shoe so that it is easily crushed into fragments. The maximum diameter of the shoe-guide, which is preferably at the shoulder between the head 10 and neck 11, is equal to or slightly greater than the diameter of the shoe, so that the shoe as well as the string of well casing or liner will freely enter and pass within the lower part or section of the parted casing or liner after the shoe-guide is entered. After the smaller section of the well casing or liner is entered within the larger casing or liner, the shoe-guide is knocked out by a suitable tool entered from the top of the well, after which the guide is easily crushed into fragments and removed.

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

1. A guiding device for directing one section of well casing within another, constructed of a fragile material, whereby it is adapted to be crushed into fragments within the well and removed therefrom through the casing.

2. The combination of a section of well casing, a shoe carried by the lower end of the said section of well casing, and a shell to direct the section of well casing into a larger section of well casing, removably applied to the shoe and of a material more readily fragile than the shoe or well casing.

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

ALBERT C. GRAHAM.

Witnesses:

D. HEGGIE,  
R. S. FINE.