

T. B. HYLAND.  
 DEVICE FOR USE IN CLEANING OUT WELLS.  
 APPLICATION FILED FEB. 4, 1908. RENEWED FEB. 24, 1909.

936,901.

Patented Oct. 12, 1909.

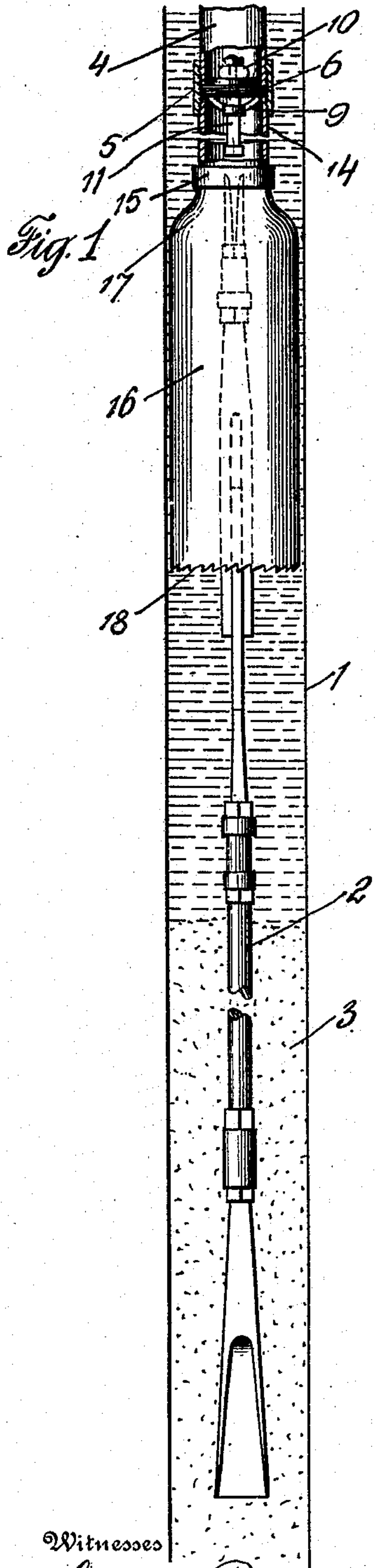


Fig. 2.

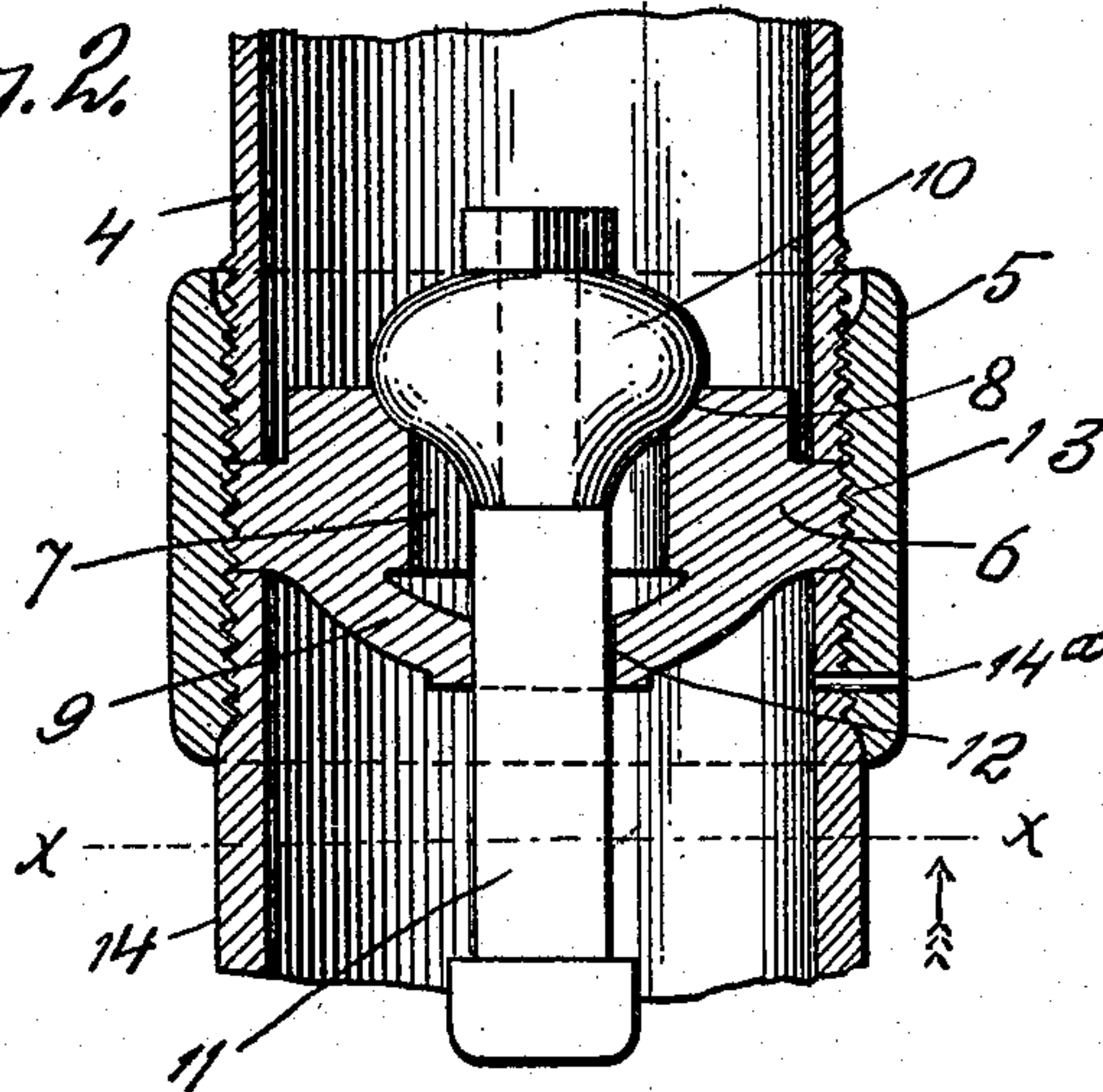


Fig. 3.

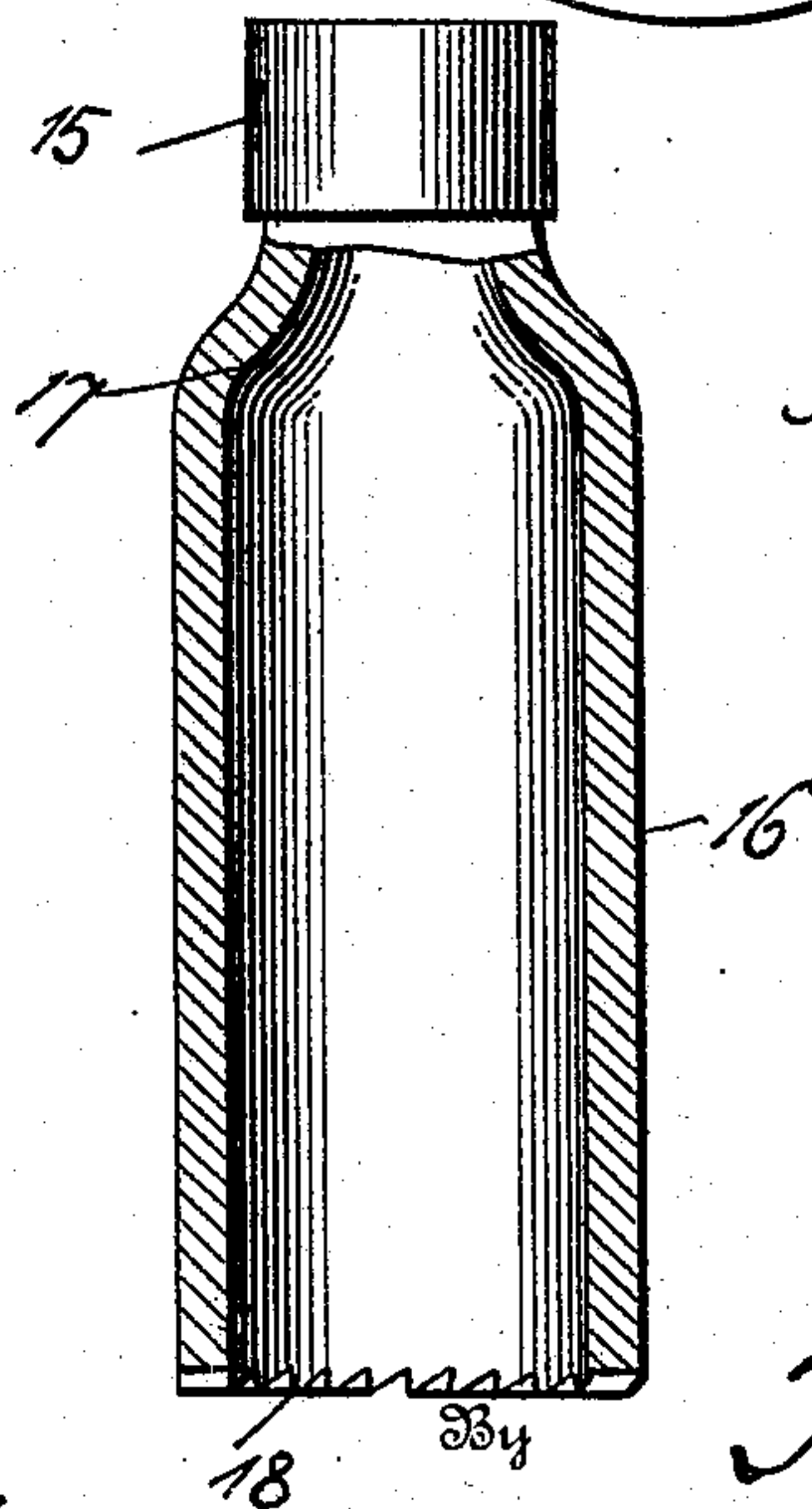
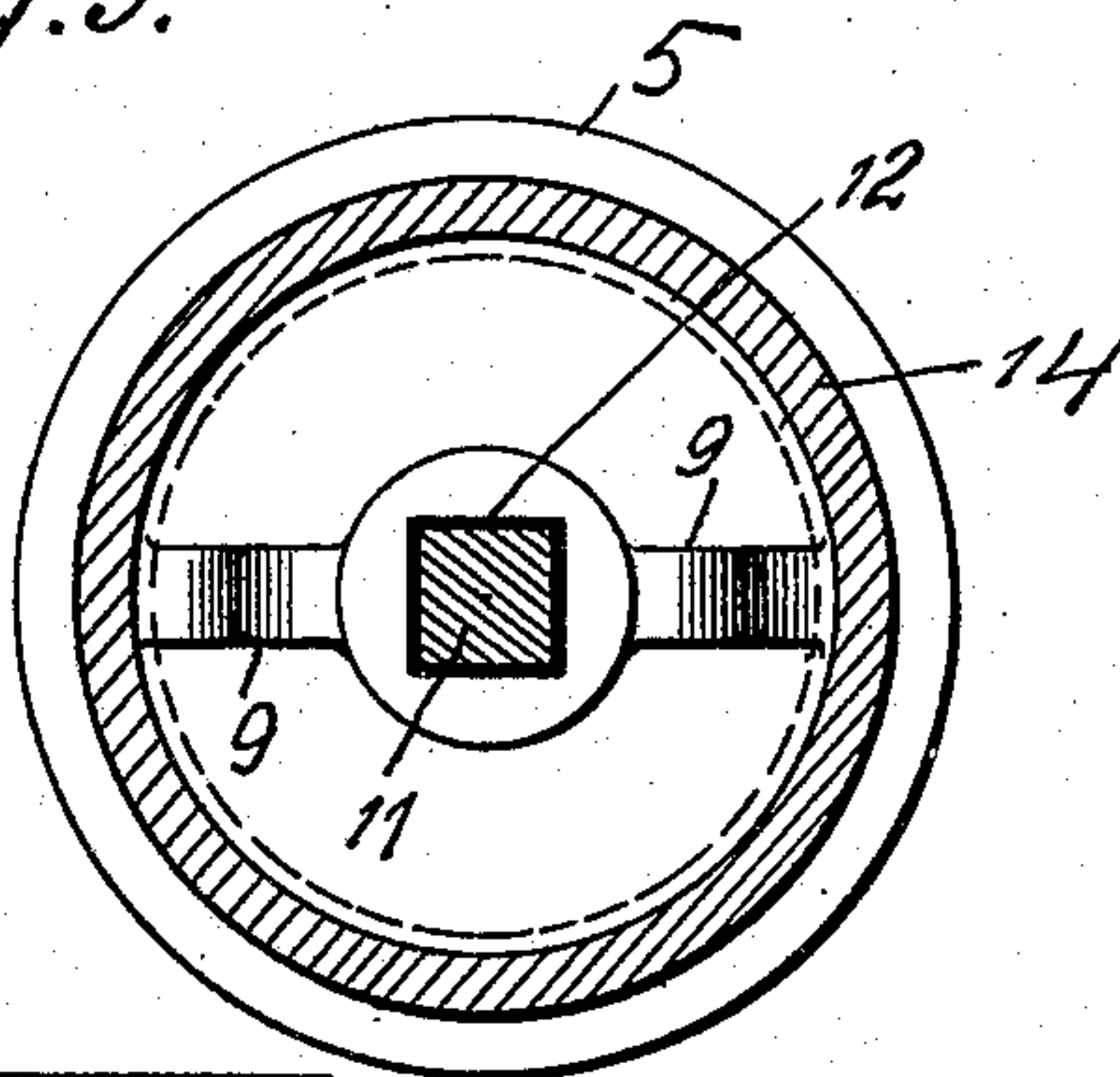


Fig. 4.

Witnesses

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# UNITED STATES PATENT OFFICE.

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DEVICE FOR USE IN CLEANING OUT WELLS.

936,901.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed February 4, 1908, Serial No. 414,243. Renewed February 24, 1909. Serial No. 479,845.

*To all whom it may concern:*

Be it known that I, THOMAS B. HYLAND, a citizen of the United States of America, residing at Columbiana, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Devices for Use in Cleaning Out Wells, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in devices for cleaning out drilled wells, and the primary object of the invention is to provide a device for removing the sediment or refuse which may have accumulated around the drilling tool or other tools, whereby access may be had to such tools for removing them from the well.

It is a well known fact that in the drilling of Artesian wells, oil wells, and gas wells, or in fact any drilled well, the drilling tools often become confined or buried within the well hole by sand, gravel or other sediment, so that it is necessary to insert into the well hole what is known as a fishing tool in order to remove the drill tools.

My device aims to provide means whereby packed sediment can be removed from around the tool or tools in order to loosen the latter, and to have ready means for the fishing tool engaging with the drilling tool so as to readily extract the latter from the well hole.

In the accompanying drawings I have shown a practical embodiment of my invention, and in these drawings,—Figure 1 is an elevation of the device showing the same in a well hole in position to be operated into engagement with the sediment packed around the drilling tool or tools. Fig. 2 is an enlarged fragmentary sectional view of a part of the device showing the check valve. Fig. 3 is a horizontal sectional view taken on the line  $x-x$  of Fig. 2 looking in the direction of the arrow, and Fig. 4 is a view partly in elevation and partly in vertical section of the pipe or tubular member.

In the accompanying drawings, 2 represents the drilling tools comprising a plurality of connected sections, the form of which is well known, and needs no detailed description. These drilling tools are shown as wedged in the well hole 1 by sand, gravel,

or other refuse 3 which it is necessary to loosen before the drill tools can be removed from the well hole.

4 indicates a section of casing, to which my cleaning device is suitably connected. Secured to the lower end of this casing 4, as by a threaded connection, is a sleeve 5, into the lower end of which is threaded a tube or casing 14. The sleeve 5 also carries the check valve which serves to hold the sediment in such position that it can be pumped from the well hole. This check valve comprises a partition which is threaded into the sleeve 5 as at 13 having a central opening 7 through which the water and sediment pass into the casing 4; the said partition also having a valve seat 8 for the valve 10, and a spider frame or guide 9 having a central opening 12 to receive the shank of a dart or headed stem which is detachably secured to the valve 10. This dart or headed stem is preferably made of such form in cross section that when all parts have been connected, the partition 6 can be manipulated by applying a wrench to the dart to insert or remove the check valve from the sleeve 5.

To prevent a vacuum in the casing 14, I provide the sleeve 5 and the casing 14 with a vent 14<sup>a</sup> as shown in Fig. 2 of the drawings. It will of course be evident that this vent may be made only in the casing 14 if desired, in such case to be located adjacent to the lower end of the sleeve 5.

The casing 14, in practice, is of a length approximately the same as the length of the drilling tools 2. Connected to the lower end of the casing 14 by a collar 15 is the pipe or tubular member 16, the breast 17 of which is located contiguous to the collar 15. The lower end of this pipe or tubular member is provided with teeth 18, which, in practice, have generally been made substantially in the form of saw teeth and the pitch of which corresponds in direction to the threads of the casing in order that the teeth will present cutting edges or points to the sediment when the pipe or member 16 is rotated to the right.

Operation: Assuming that the drilling tools are wedged in the lower end of the well hole as illustrated in Fig. 1, the operator or driller severs the cable connected to the tools at or near the point of connection of the



cable with the tools, by means of any of the well known devices employed for this purpose. The device embodying the check valve, the casing 14 and the pipe 16 are now  
 5 connected to the casing 4 by means of the sleeve 5 as heretofore stated, care being taken that the casing 14 employed is of a length slightly greater than the length of the drilling tool or tools, in order that the  
 10 said tools may not interfere with the operation of the check valve. The device is then lowered into the well hole over the drilling tools until the pipe or member 16 engages with the sediment 3, and as soon as the de-  
 15 vice comes to a rest on top of the sediment, it is rotated to the right so that the cleaning member 16 will cut into the sediment which will close the lower end of the member 16 so that the water that is within the casing  
 20 can be bailed out down to the check valve 10. The device is then raised so as to permit water to enter the lower end of the pipe, and the hydraulic pressure of the water contained or poured in the well hole will loosen  
 25 and force the sediment through the partition 6 and above the check valve 10 from which point it can be readily bailed out by any of the well known bailing devices. This operation is repeated until the pipe or cleaning  
 30 member reaches the lower end of the drill tool, after which the device is removed from the well, and the fishing tools may be inserted to engage with the drilling tools for removing the latter.  
 35 After the device has been inserted in the well hole and the water above the check valve 10 bailed out, should there not be sufficient water in the well hole to lift the sediment and carry it above the check valve 10,  
 40 it will be obvious that water can be poured into the well hole, outside the casing to obtain the desired hydraulic pressure of the water for forcing the sediment above the

check valve, where it will be held until bailed out.

While I have herein shown and described a practical embodiment of my invention, I do not wish to be confined to the specific structure shown as various changes may be made in the detailed construction without  
 50 departing from the general spirit of my invention.

Having now described my invention what I claim as new, is:—

1. In a device of the type described, the  
 55 combination with a section of tubing or casing, of a sleeve carried thereby, a check valve located in said sleeve, a section of tubing or casing connected to said sleeve, a collar carried by said section of tubing or  
 60 casing, and a pipe carried by said collar and having a toothed lower end.

2. A device of the type described comprising a sleeve, a check valve located in said sleeve, a section of tubing or casing  
 65 carried by said sleeve, and a pipe carried by said section of tubing or casing, said pipe having a toothed lower end.

3. A device of the type described comprising a section of tubing, a check valve  
 70 arranged at one end thereof, a pipe arranged at the opposite end, cutting teeth carried by the lower end of said pipe.

4. In combination with a section of casing, a pipe or tubular cleaning member con-  
 75 nected thereto and provided on its lower end with cutting teeth, and a check valve interposed between said section of casing and the tubular cleaning member.

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

THOMAS B. HYLAND.

Witnesses:

MAX H. SROLOVITZ,  
 C. V. BROOKS.