

(No Model.)

B. D. NORTHRUP.
VALVE.

No. 479,450.

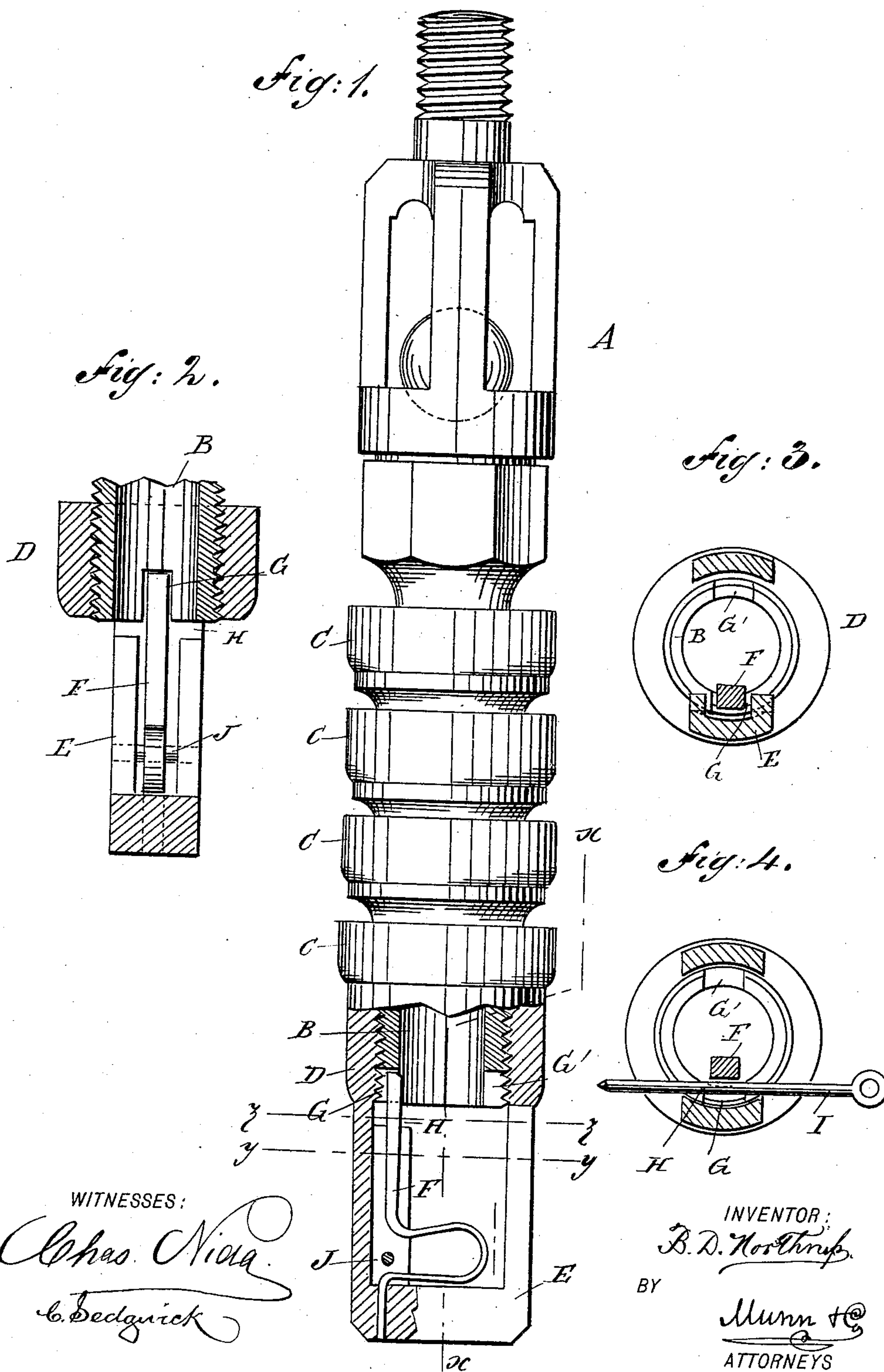
Patented July 26, 1892.

Fig: 1.

Fig: 2.

Fig: 3.

Fig: 4.



WITNESSES:

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BLANCHER D. NORTHRUP, OF WASHINGTON, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 479,450, dated July 26, 1892.

Application filed March 21, 1890. Serial No. 344,711. (No model.)

To all whom it may concern:

Be it known that I, BLANCHER D. NORTHRUP, of Washington, in the county of Washington and State of Pennsylvania, have invented a new and Improved Piston for Deep-Well Pumps, of which the following is a full, clear, and exact description.

The invention relates to pistons located in the bottoms of deep wells, such as oil-wells.

10 The object of the invention is to provide a new and improved piston which is simple and durable in construction and in which the bottom cap is prevented from becoming loose or detached from the body of the piston.

15 The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

20 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

25 Figure 1 is a side elevation of the improvement with parts in section. Fig. 2 is a transverse sectional elevation of the same on the line *xx* of Fig. 1. Fig. 3 is a sectional plan view of the same on the line *yy* of Fig. 1; and Fig. 4 is a similar view of the same on the line *zz* of Fig. 1, showing the latch disengaged.

30 In pumps for deep wells as heretofore constructed the cap of the upper or working piston frequently becomes loose and is lost, so that the several parts of the piston become disconnected. The valve presently to be described completely obviates this difficulty.

35 The piston A is in most of its parts of the same construction as the piston now in use. Its body B supports the usual leather cup C, of which there may be any desired number and of which the lowermost is held in place by the bottom cap D, screwed on the lower end of the body B. From the cap D extends downward a U-shaped offset E, in the middle 45 part or bottom of which is secured one end of a spring F, extending along the inside of one of the arms of the offset E and adapted to engage with its free end a notch G or G', formed on the lower end of the body B.

50 When it is desired to screw the cap D onto the end of the body B after the several parts

are in place, then a pin I or other suitable implement is passed through a notch H in one of the arms of the offset E, so as to move the free end of the spring F inward, so that the said free end passes on the inside of the body B without engaging the notches G or G'. When the cap D has been screwed up on the end of the body B, then the operator removes the pin I, so that the free end of the spring F 60 passes inward and drops into the notch G or G' in the body B, thus locking the cap D to the said body B. A pin J is held on the U-shaped offset E to hold the spring F in place, which is preferably of the construction shown 65 in Fig. 1.

When it is desirable to remove the cap D from the end of the body B, in order to replace the leather cups C in case they have been worn out, then the operator again inserts the 70 pin I or other implement in the notch H, as is plainly shown in Fig. 4, so as to disconnect the free end of the spring F from the respective notch G or G'. The cap D can then be unscrewed from the end of the body B. Thus 75 it will be seen that the cap D cannot become loose and be detached from the other parts of the piston when the latter is operated in the working barrel in the bottom of the oil-well. It will further be seen that the spring F forms 80 a latch to lock the cap D against rotation, so that it cannot become unscrewed from the body.

Having thus fully described my invention, I claim as new and desire to secure by Letters 85 Patent—

1. The combination of a piston for deep-well pumps, having an externally-threaded lower end and a cap screwed thereon and provided with a depending U-shaped offset and 90 a longitudinally-extending latch mounted within said offset and projecting at its free end into the threaded portion of the cap and into engagement with the lower portion of the piston-body, substantially as set forth. 95

2. As a new article of manufacture, an end cap D for pistons of deep-well pumps, provided with internal screw-threads and a depending U-shaped offset E, having a notch H 100 in the inner side of one arm, and a longitudinally-extending spring-latch secured at one end in the offset and extending at its free end

past said notch into the screw-threaded portion of the cap, substantially as set forth.

3. A piston A for deep-well pumps, the body of which has notches G' in its lower edge and
5 an end cap D screwed thereon and formed with the U-shaped offset E, one arm of which has a transverse notch H across its inner face, and a longitudinally-extending spring F, secured at its lower end within the offset and

extending at its upper portion past said notch to H into one of the notches in the body, and a pin I to pass through notch H under the spring F and press it inwardly out of notch G', substantially as set forth.

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Witnesses:

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