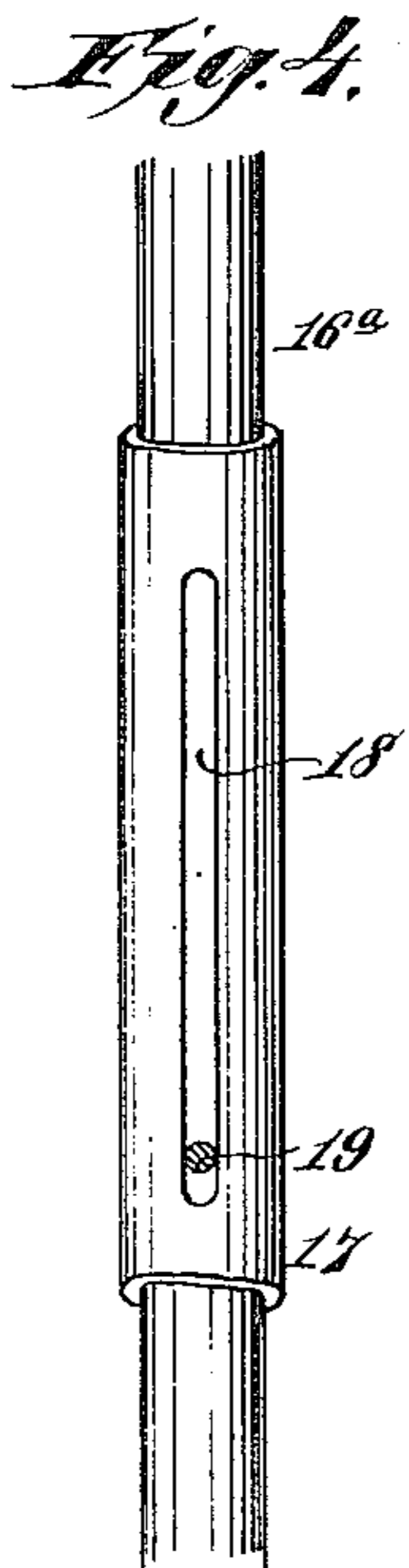


(No Model.)

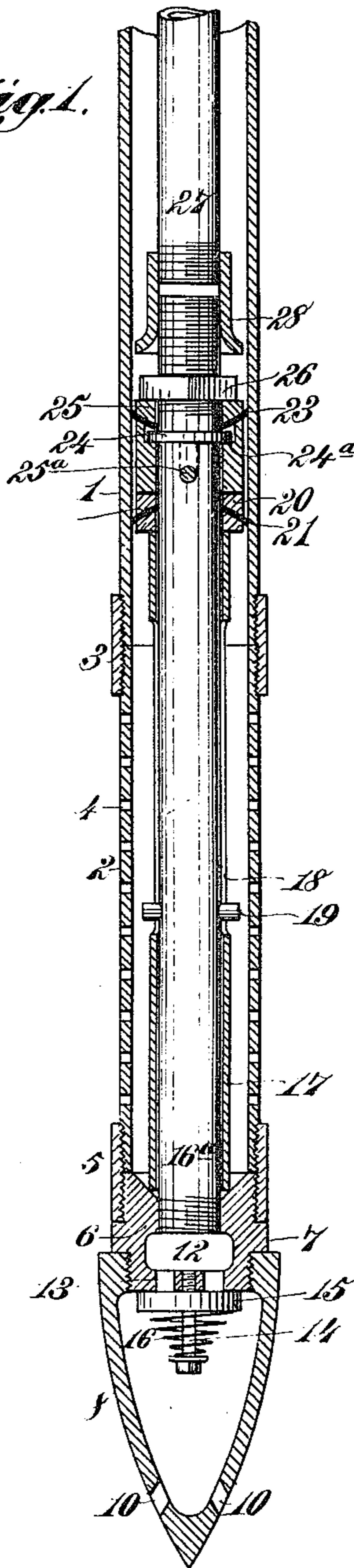
L. B. HART.  
IMPLEMENT FOR BORING WELLS.

No. 403,751.

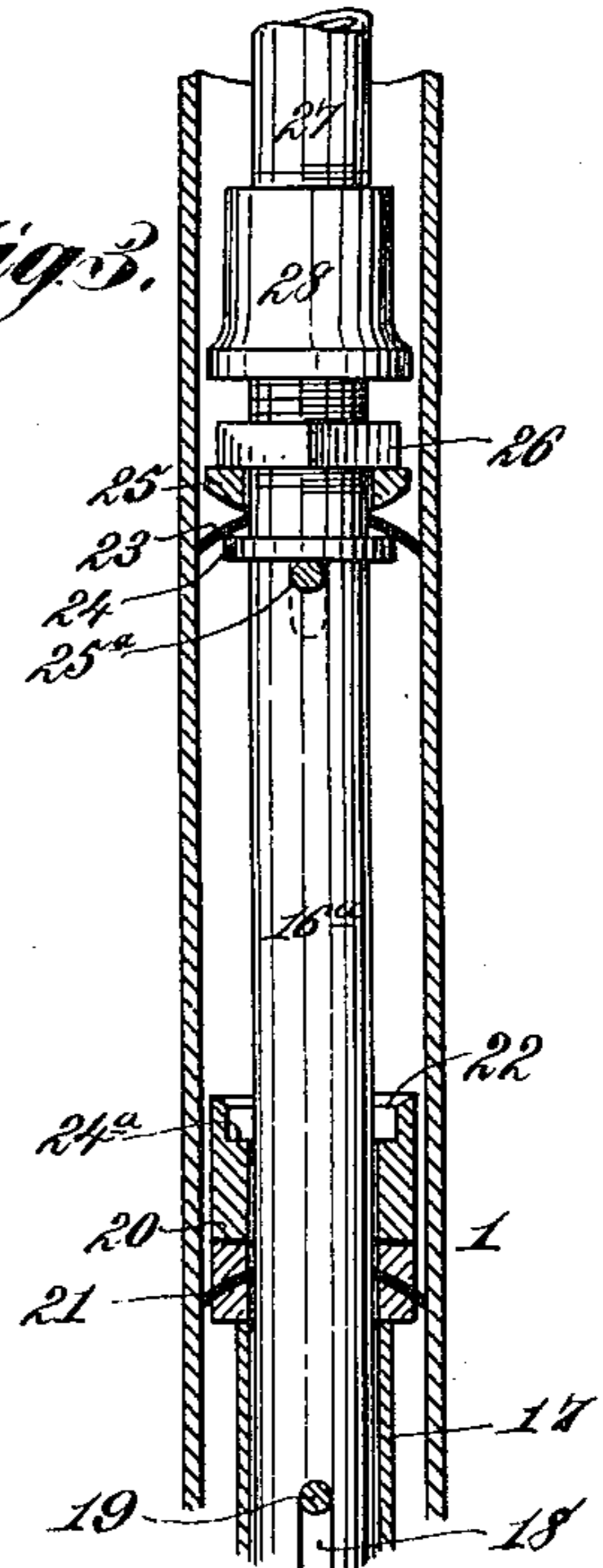
Patented May 21, 1889.



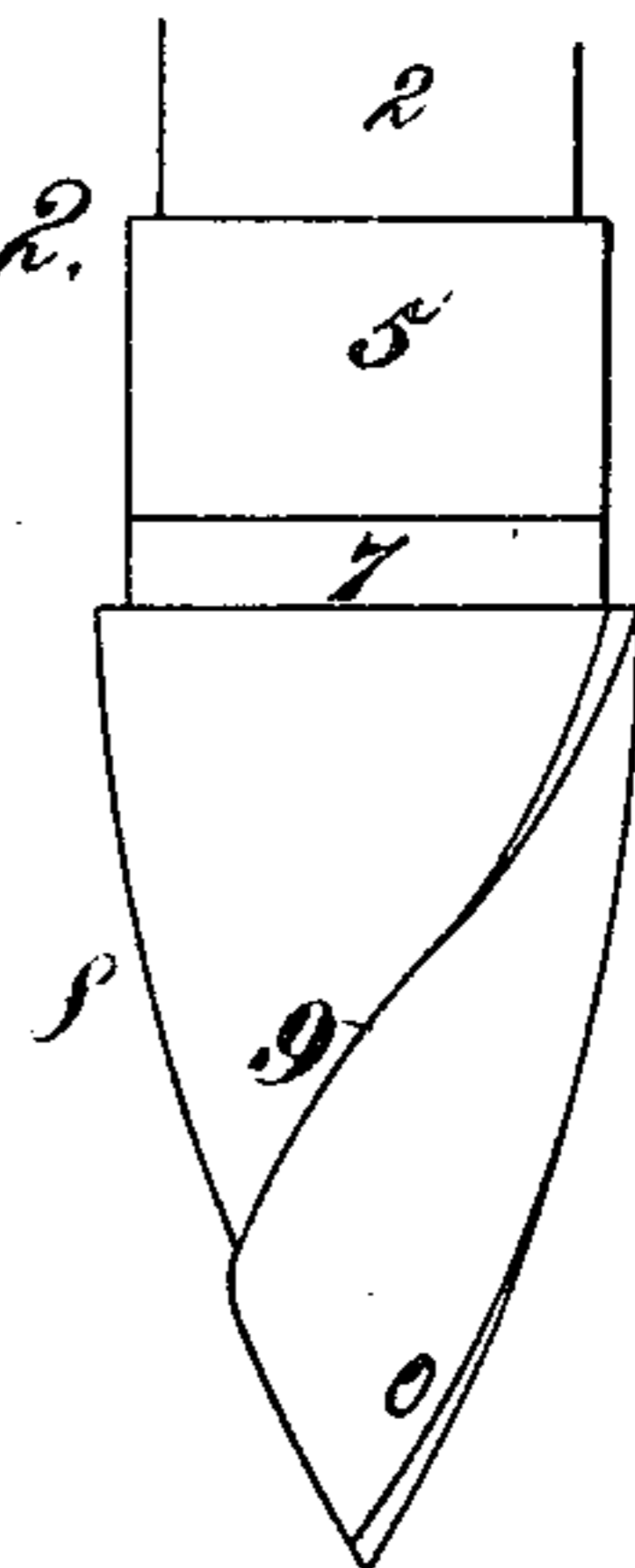
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

LEWIS BENJAMIN HART, OF PLAQUEMINE, LOUISIANA.

## IMPLEMENT FOR BORING WELLS.

SPECIFICATION forming part of Letters Patent No. 403,751, dated May 21, 1889.

Application filed September 25, 1888. Serial No. 286,380. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS BENJAMIN HART, a citizen of the United States, residing at Plaquemine, in the parish of Iberville and State of Louisiana, have invented new and useful Improvements in Implements for Boring Wells, of which the following is a specification.

This invention has for its object to provide novel, simple, and efficient means for boring Artesian and other wells, preventing the entrance of quicksand into the well-pipe, and introducing water from above to wash the sand and dirt from the drill-point to the surface of the ground.

The invention consists in the novel features of construction and new combinations of parts hereinafter fully described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical sectional view of the point or auger, the strainer, and a portion of the pipe, with the parts contained therein. Fig. 2 is a side elevation of the point or auger. Fig. 3 is a sectional view of a portion of the piping, showing the relation of the contained parts when removing the short pipe and valves after finishing the well. Fig. 4 is a view of the sliding sleeve and interior pipe removed from the well-pipe.

In the said drawings the reference-numeral 1 designates the well-pipe, to which a strainer, 2, is united by means of the coupling 3, said strainer being of the diameter of the pipe 1 and provided with openings 4, as shown in Fig. 1. Upon the lower end of the strainer is screwed a coupling, 5, to which a casting, 6, is connected, having a threaded annulus upon each side of a projecting ring, 7, against which the coupling abuts on one side, while upon the lower thread is screwed the point 8. This point consists of a hollow conical body or shell having an auger-twist, 9, and provided with openings 10, upon each side of its point. The diameter of the point at its base or next the casting 6 is somewhat in excess of the diameter of the strainer and pipe.

The casting 6 is provided with a central chamber, 12, and ports 13, leading therefrom into the hollow point 8. Upon the casting is secured a valve-stem, 14, upon which is mounted a puppet-valve, 15, lifted by a

spring, 16, to close the ports against water entering the point below said valve, but permitting the passage of any water flowing through the chamber 12.

Tapped into the upper part of the casting 6 is a short pipe, 16<sup>a</sup>, which passes upward somewhat above the top of the strainer. Upon this pipe is mounted a sliding sleeve, 17, having slots 18, in which lie pins 19, projecting from the short pipe 16<sup>a</sup>. This sleeve supports a valve-coupling, 20, having an annular valve, 21, which prevents the upward passage of water. Above the valve 21 the coupling is provided with a concave seat, 22, upon which lies an annular valve, 23, encircling the pipe 16<sup>a</sup>, between a collar, 24, and a valve-ring, 25. This valve obstructs the passage of water from above. The valve-ring 25 is held down upon the valve by a nut, 26, screwed upon the outer threaded surface of the pipe, and the collar 24 is loose on said pipe, the concave seat 22 being also loose thereon and supported wholly by the sleeve 17. This loose collar 24 lies in a seat, 24<sup>a</sup>, in the coupling 20, which is provided with slots in which lie pins 25<sup>a</sup>, projecting from the pipe 16 below the collar.

The parts being thus constructed and arranged, the operation is as follows: The well is begun by forcing the point 8 into the earth either by revolving it or by driving, the construction being such as to adapt the point to either. As the well increases in depth, length after length of pipe is coupled onto the pipe 1, by which revolution is imparted to the point and water is pumped down, which, by reason of the valve 23, is compelled to flow down the short interior pipe 16<sup>a</sup>, through the valve 15, and out through the openings 10 in the point. This water flows upward outside the well-pipe 1 and washes the dirt and sand to the surface. After the well is completed a pipe, 27, having a bell-shaped coupling, 28, is lowered down inside the pipe 1 and is screwed upon the upper threaded end of the short pipe 16<sup>a</sup>. When this union is effected, the revolution of the pipe 16<sup>a</sup> is continued until the said pipe is disconnected from the casting 6, into which it is tapped by a left-hand thread for this purpose. The pipe 27 is then raised, lifting with it the short pipe 16<sup>a</sup>, the pins 25<sup>a</sup> on which strike the collar 24 and raise it, lift-

ing with it the upper valve, 23, but leaving the valve-seat 22, the lower valve, 21, and valve-coupling 20 still resting upon the sleeve 17. This upward movement reverses the valve 5 23, as shown in Fig. 3, thereby enabling it to be easily raised, and the further upward movement of the pipe brings the pins 19 to the end of the slots 18 in the sleeve, giving a slight shock, which readily starts the lower 10 valve, 21, and the valve-coupling. The parts are then hauled up, leaving the point with its valve in the well.

It will be seen that by my invention the entrance of quicksand and other matters and 15 its rise in the pipe is wholly avoided.

What I claim is—

1. In a well-boring tool, a hollow conical point having openings above the apex or entering-point, in combination with a casting 20 having water-ports and a spring-actuated puppet-valve opening to allow the downward passage of water, substantially as described.

2. In a well-boring tool, the combination, 25 with a hollow conical point having openings, of a spring-actuated valve opening to water flowing downward into said point, a casting on which said valve and point are mounted, a strainer connected to said casting, a well-

pipe coupled to said strainer, an interior pipe 30 having a right and left hand male thread on its upper and lower ends, respectively, and screwed by its lower end into the casting, and valves surrounding said interior pipe above the strainer to prevent passage of water in either direction, substantially as described. 35

3. In a well-boring tool, the combination, with a hollow conical point having openings, of a casting to which said point is screwed, a strainer and attached pipe having a right and left thread and engaged with the casting by 40 the latter, a sleeve loose on said pipe, resting on the casting, and having slots which receive pins projecting from the pipe, a valve-coupling supported by said sleeve and supporting a valve which prevents the upward flow of 45 water, a concave valve-seat resting on the coupling, and an upper valve lying between a ring and a loose collar supported by pins projecting from the pipe, substantially as described. 50

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

LEWIS BENJAMIN HART.

Witnesses:

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C. T. DUPUY.