

J. F. CUNNINGHAM.

FORCE PUMP.

APPLICATION FILED MAY 3, 1909.

978,852.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

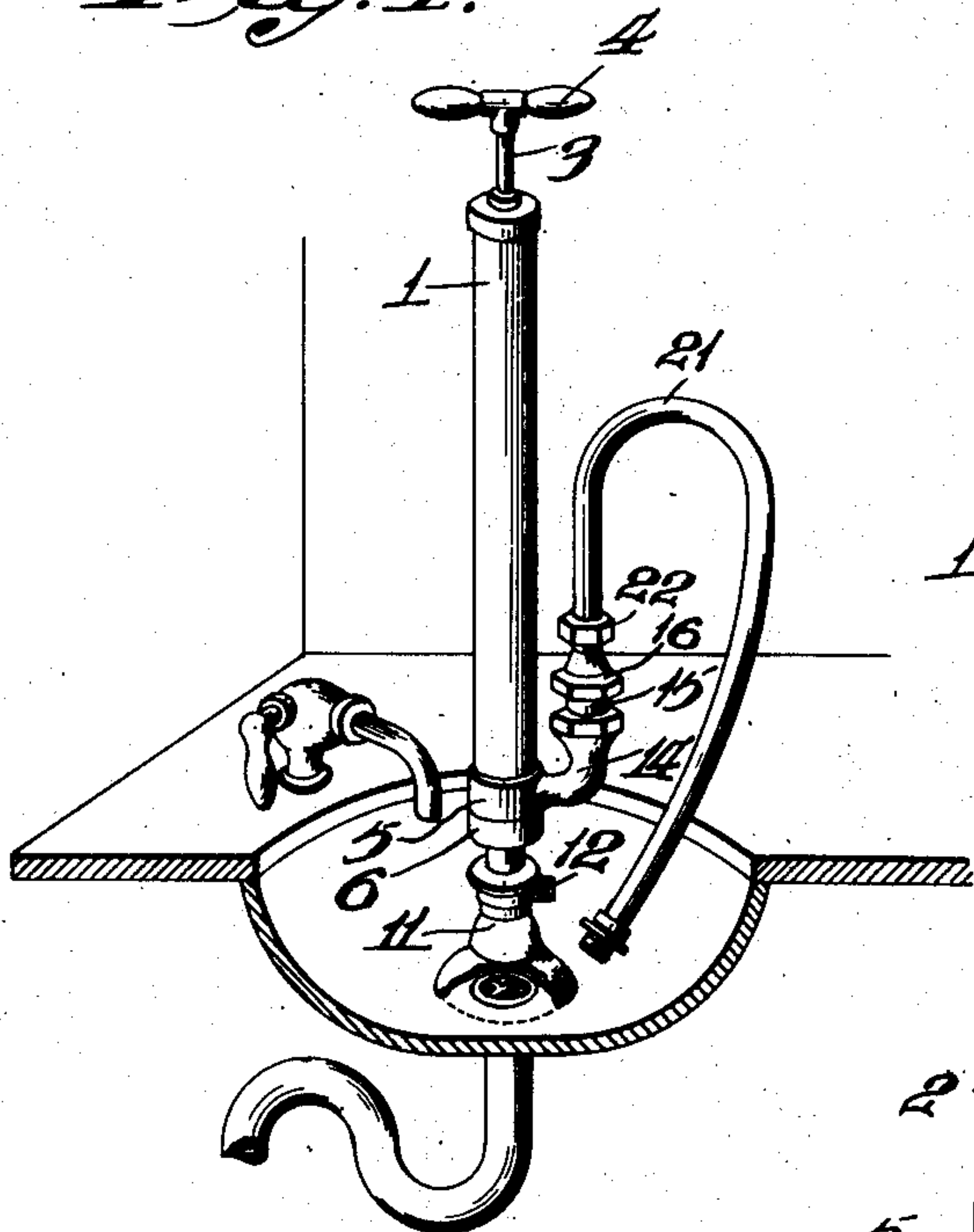


Fig. 2.

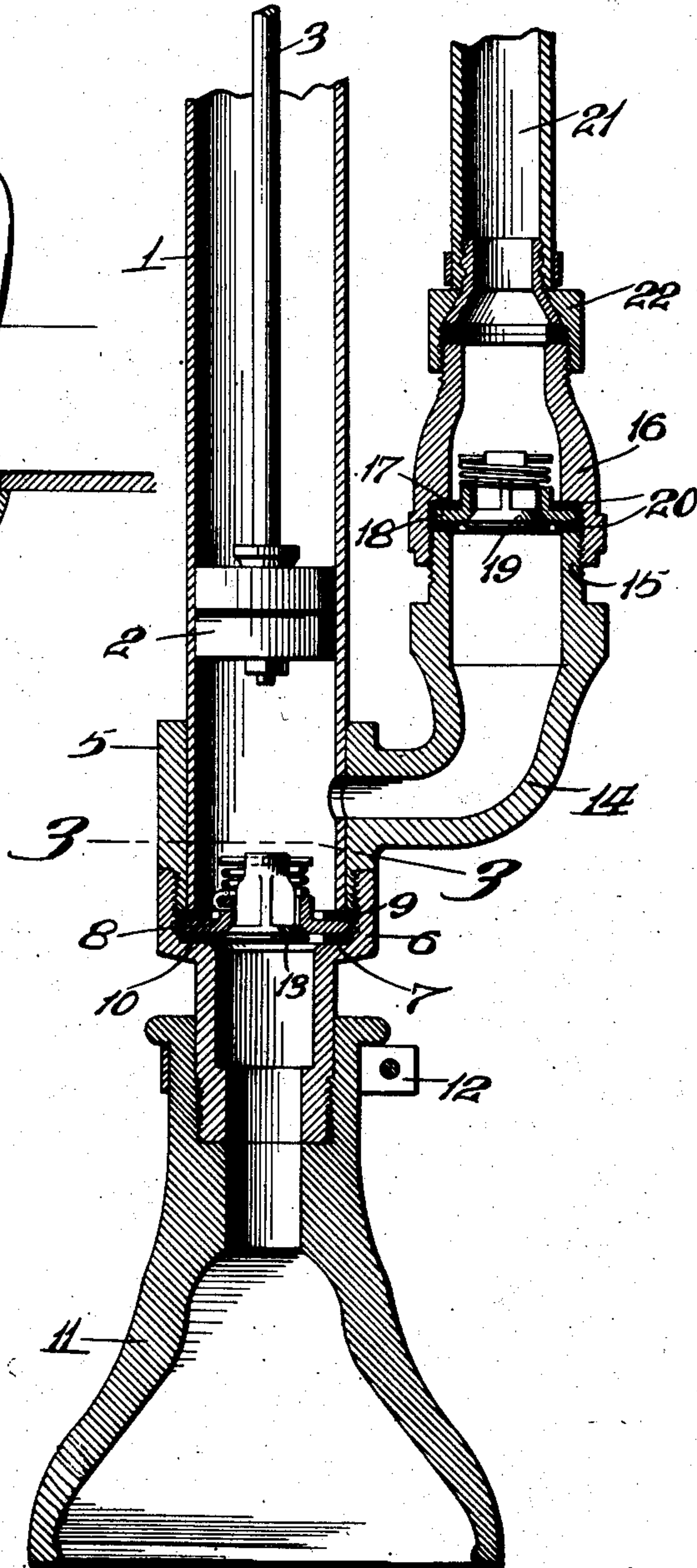
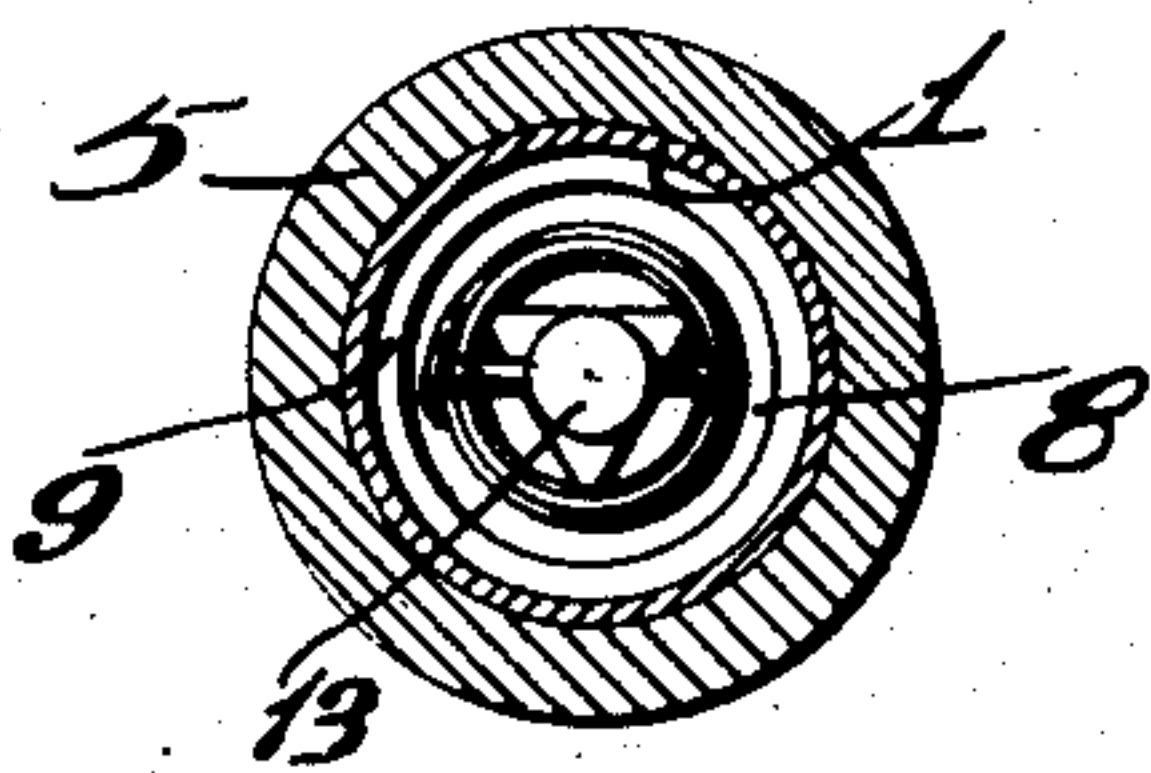


Fig. 3.



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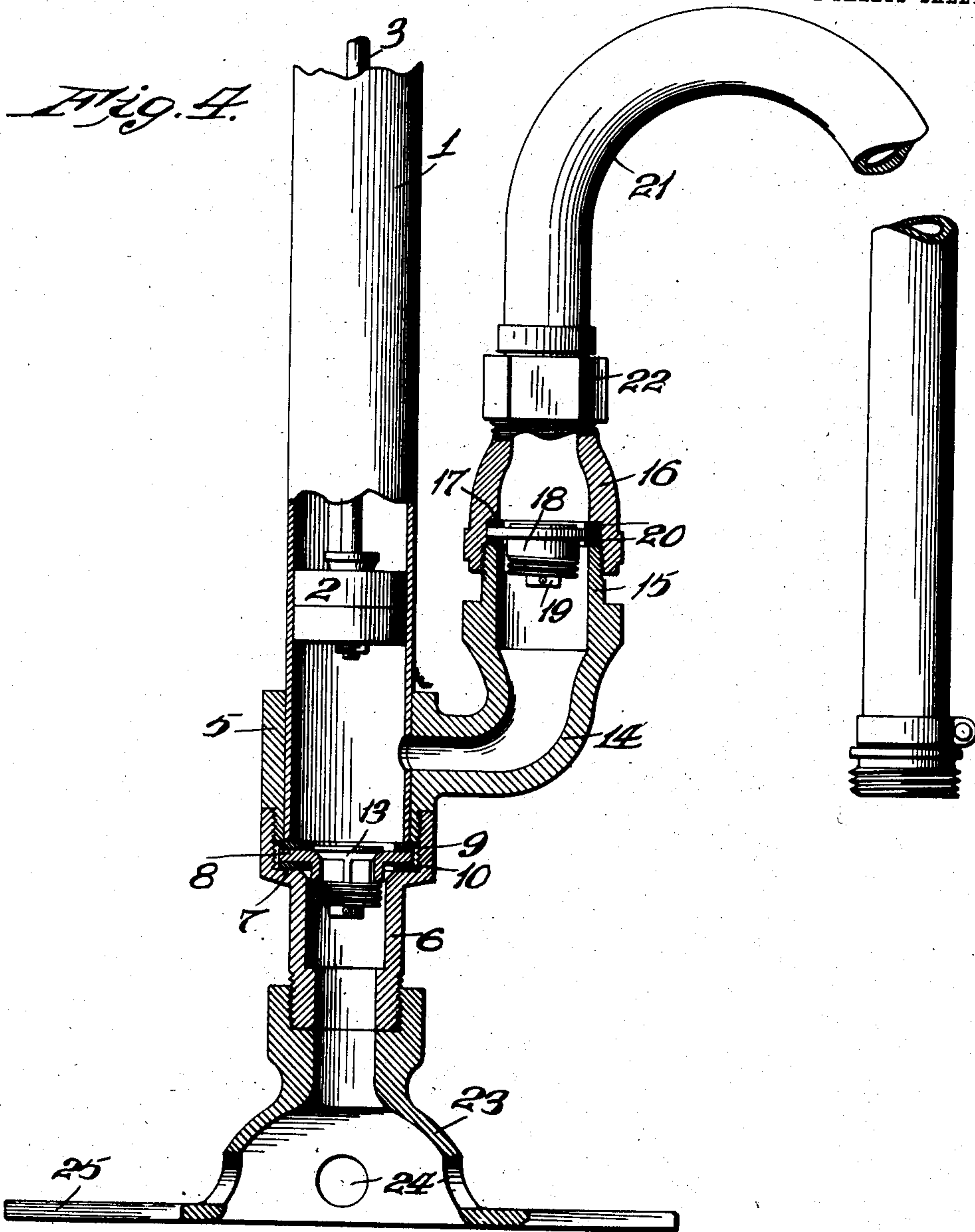
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JOHN F. CUNNINGHAM, OF SPRINGFIELD, MISSOURI

## FORCE-PUMP.

978,852.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed May 2, 1909. Serial No. 493,641.

*To all whom it may concern:*

Be it known that I, JOHN F. CUNNINGHAM, a citizen of the United States, and resident of Springfield, Missouri, have invented certain new and useful Improvements in Force-Pumps, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved force pump to be used principally for the removal of matter in drain or sewer pipes which has interrupted the flow of water or waste there-through, and the object of my invention is to provide a novel construction and arrangement of parts in a pump for use in removing matter from waste or drain pipes.

The pump as contemplated by my invention is arranged to combine in one instrument the meritorious features of a vacuum tip, which in itself might be operated to remove matter from a waste pipe, a cylinder provided with a piston and a valve which when operated forces air through a waste pipe to remove foreign matter therein, and a connection containing a valve whereby water may be drawn into the cylinder and forced into the drain pipe to remove sediment or foreign matter therefrom.

My improved construction consists in a cylinder having a valve therein, a vacuum tipped base section arranged to be positioned over a drain pipe, a piston arranged to operate within the cylinder, a valve containing member arranged near the base section, and a flexible tube carried by said valve containing member arranged to supply water from a source of supply to the cylinder.

To the above purposes, my invention consists in certain novel features and arrangement of parts, hereinafter more fully described, claimed and shown in the accompanying drawings, in which:

Figure 1 is a perspective showing the pump as in use, having a portion of the base section removed to illustrate its working position over a drain pipe; Fig. 2 is an enlarged vertical sectional elevation of the lower end portion of the pump with the valves arranged to receive air or water from the flexible member; Fig. 3 is a sectional plan on the line 3—3 of Fig. 2; Fig. 4 is an enlarged elevation partly in section, showing a modified form of base section and the

valves arranged to take air or water from the base section and discharge it through the flexible member.

Referring by numerals to the accompanying drawings, 1 designates the cylinder and 2 a piston arranged therein, fixed to the piston is a rod 3 having a handle 4 at its upper end. An annular collar 5, having a reduced and threaded end portion, is secured to the lower end of the cylinder 1. A reducer 6, having an inner annular shoulder 7 is threaded to the lower end of the collar 5 and arranged to hold a detachable valve seat 8.

Packing rings 9 and 10 are arranged on the upper and lower faces of the valve seat, the ring 9 being arranged between the ends of the cylinder and the end of the reduced portion of the collar 6 and on the upper face of the valve seat 8, and the ring 10 being arranged over the shoulder 7 of the reducer 6 and engaging the lower face of the valve seat 8.

A vacuum tipped base section 11 is detachably secured to the reducer 6 by means of a clamp 12. Co-acting with the valve seat 8 is a valve 13, spring actuated in one direction.

An elbow 14 having a reduced and externally threaded upper end portion 15, is formed integral with the collar 5, and a reducer 16 having an inner annular shoulder 17 is threaded to the elbow 14.

A valve seat 18, a valve 19 and packing rings 20, identical in construction and position in the same manner as the valve seat 8, rings 9 and 10 and valve 13, are embraced by the upper end of the elbow 14 and shoulder 17 of the reducer 16. A flexible tube 21 is connected with the reducer 16 by a swivel connection 22.

The construction shown in Fig. 4 is identical with the structure shown in Figs. 1 and 2, with the exception of the base section. In this instance, a metallic, non-flexible member 23, is threaded to the lower end of the reducer 6 and is provided with perforations 24 and an integral flange 25. When this base section is used the valves 13 and 19 are inverted to act on a fluid supplied from the base section 23 to be forced outwardly through the flexible tube 21. This construction is designed for use in places where it is impractical to place a structure as shown in Figs. 1 and 2, and in places where no fixed body of water is ac-



cessible. In this instance, a bucket or suitable container is filled with water and the pump introduced therein with its base section resting on the bottom of the bucket.

5 The flexible tube is then inserted into the pipe to be operated on, or the vacuum tip may be connected thereon and placed over the end of the pipe to be operated on.

10 In the practical operation of the structure shown in Figs. 1 and 2, the pump provided with a vacuum tip at its lower end is placed over a drain pipe to be operated on.

The drawing shows a stationary basin, but it is understood that the device may be employed on drain pipes generally in plumbing. 15 The tube 21 is then placed in a body of water (the basin itself in this instance) and the piston moved upwardly through the cylinder, drawing water through the tubing 21, valve 19 and elbow 14 into the cylinder 1. A downward moving of the piston forces the water to close the valve 19 and through the valve 13 into the pipe to be cleaned.

A pump of my improved construction can 25 be very cheaply manufactured, is very light, strong and durable, and provides a neat and efficient means whereby drain and waste pipes may be easily and quickly operated on to remove matter therein, which may have 30 clogged or prevented the free passage of water or waste therethrough.

I claim:

35 The improved plumber's pump, comprising the cylinder 1, the piston, the piston-rod, the collar 5 surrounding the lower part of said cylinder and having a reduced threaded-portion at its lower end, the reducer 6 having the inner annular-shoulder 7 and detachably threaded to the threaded 40 lower end of said collar, and also having a

space in its reduced-portion for receiving the valve when same is reversed; the detachable valve-seat 8; the spring-actuated valve 13 carried by said detachable valve-seat and adapted to be reversed by reversing said 45 valve-seat, so that the spring-portion of said valve will be located in the said space within said reduced portion of said reducer; packing-rings 9 and 10 arranged on the upper and lower faces of said valve-seat, 50 said ring 9 being in contact with the lower end of said cylinder and the upper face of said valve-seat, and said ring 10 being arranged between the lower face of said valve-seat and the said shoulder 7 of said reducer; 55 a suitable base secured to the reduced-portion of said reducer; an elbow 14 formed integral with said collar 5, projecting at one side thereof and having its outer end reduced and threaded; the reducer 16 threaded 60 upon said threaded-end of said elbow, said elbow and said reducer 16 forming chambers for receiving the portions of a reversible spring check-valve; the valve-seat 19 and packing-rings 20 clamped between said 65 threaded-end of said elbow and the body of said reducer 16; and the valve 19 carried by said valve-seat and adapted to be reversed by disconnecting said reducer from said elbow and reversing said valve-seat 18; all 70 in combination with a suitable flexible-hose, as 21, applied to the reduced-end of said reducer 16.

In testimony whereof, I have signed my name to this specification, in presence of 75 two subscribing witnesses.

JOHN F. CUNNINGHAM.

Witnesses:

BESSIE A. KNOX,  
GEO. A. McCALLUM.