

(No Model.)

W. J. WRIGHT.
PUMP.

No. 575,498.

Patented Jan. 19, 1897.

Fig. 1.

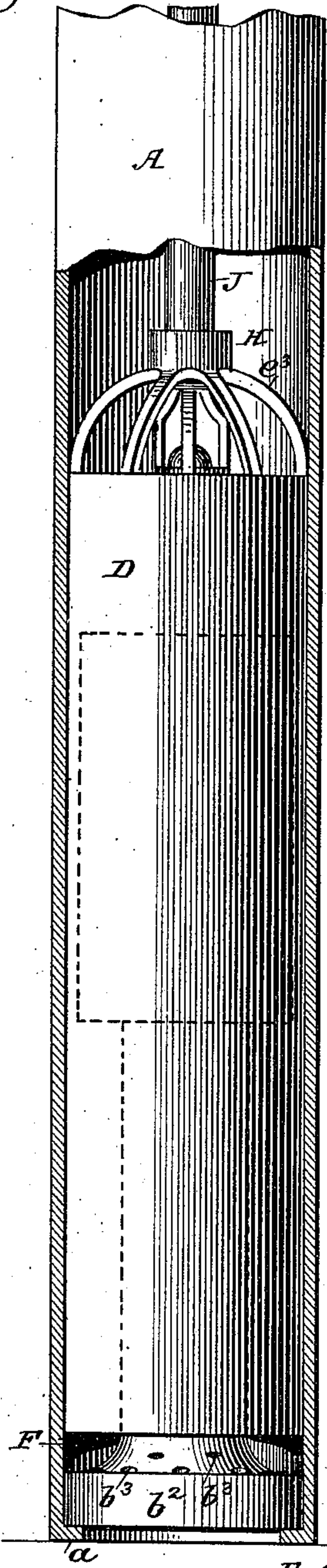


Fig. 2.

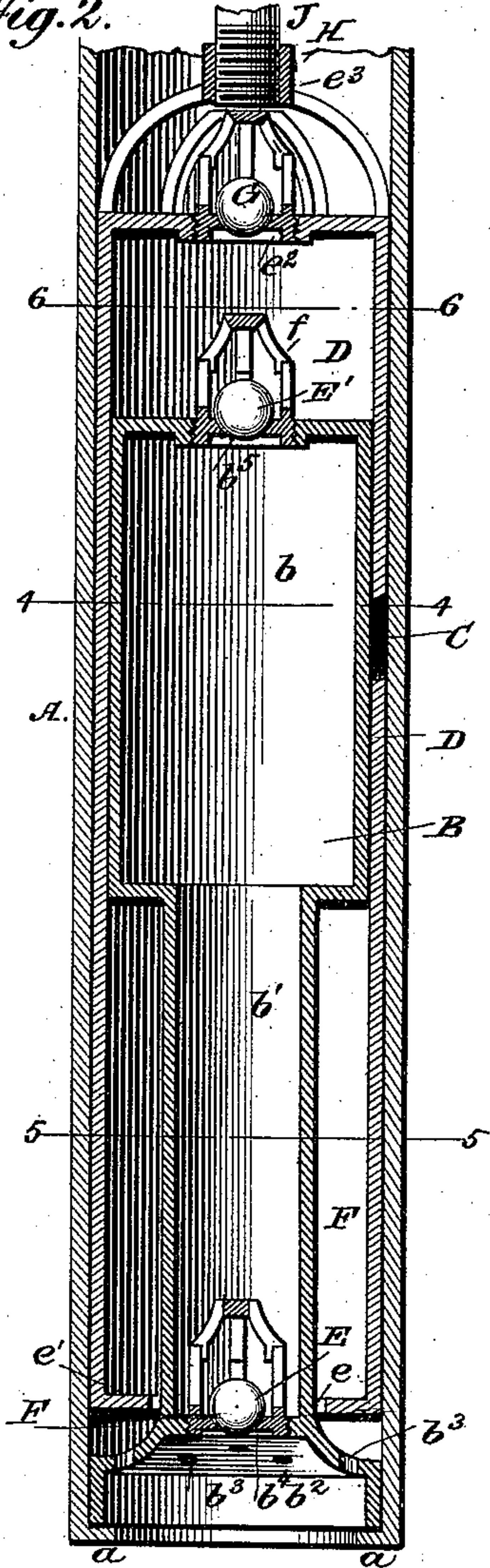


Fig. 3.

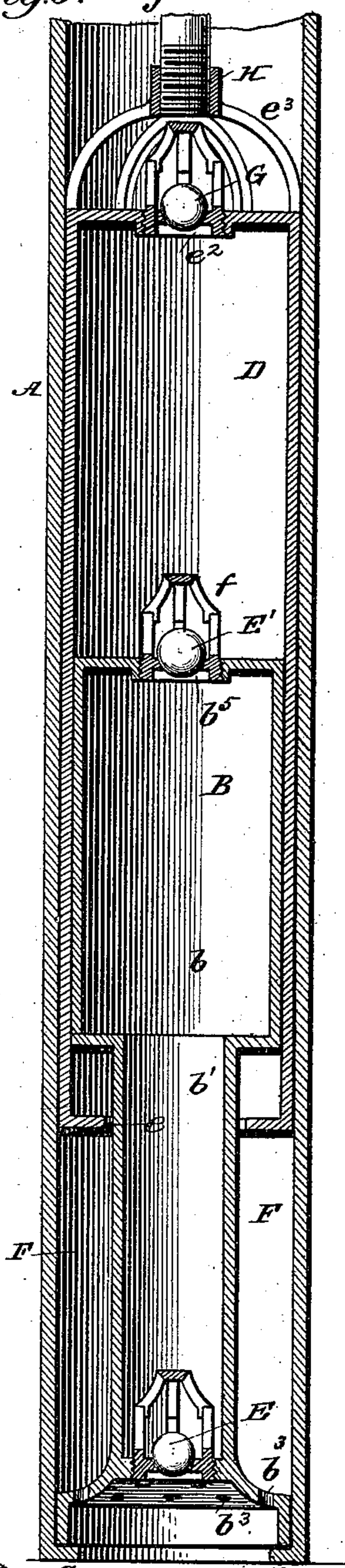


Fig. 4.

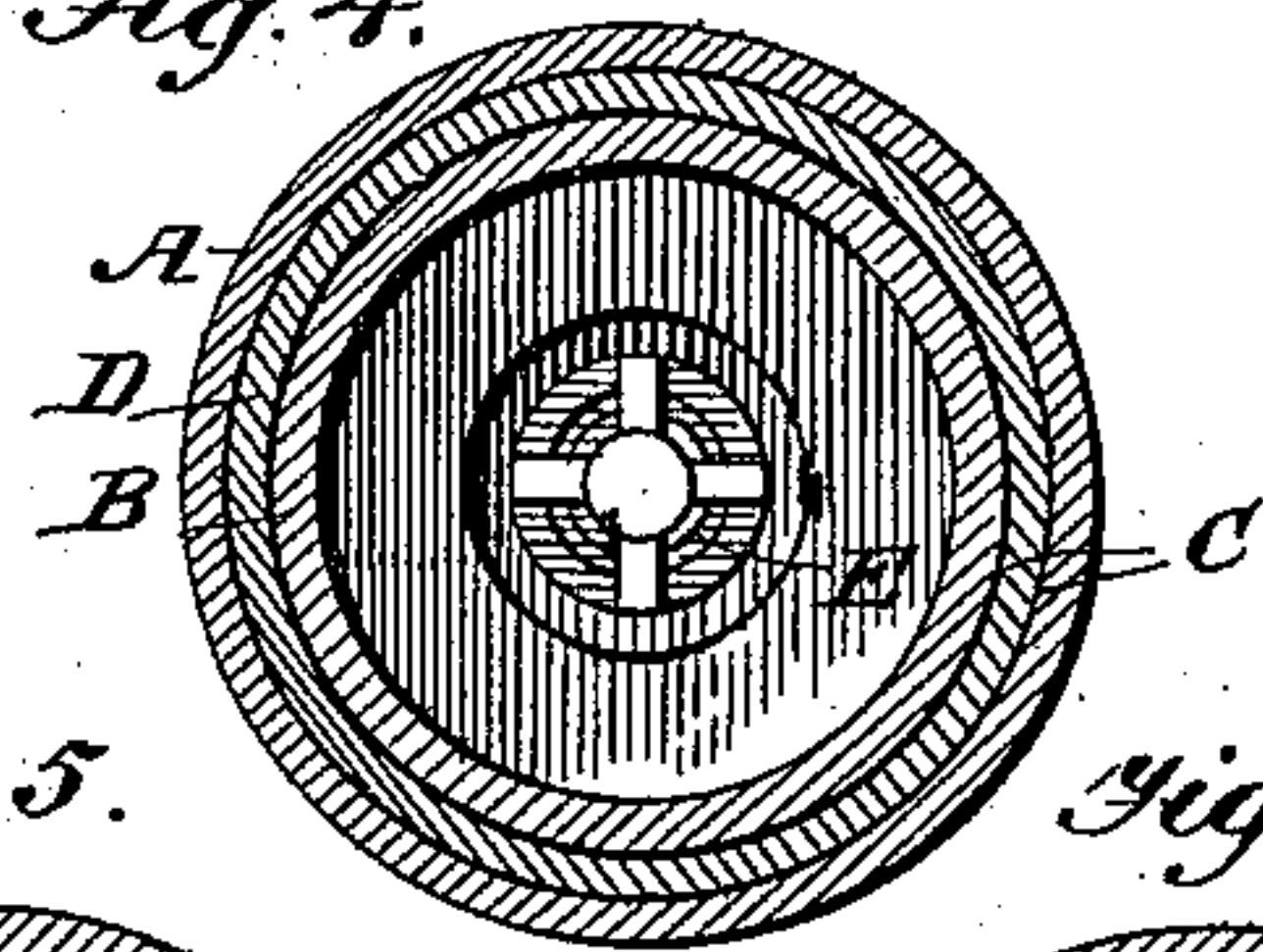


Fig. 5.

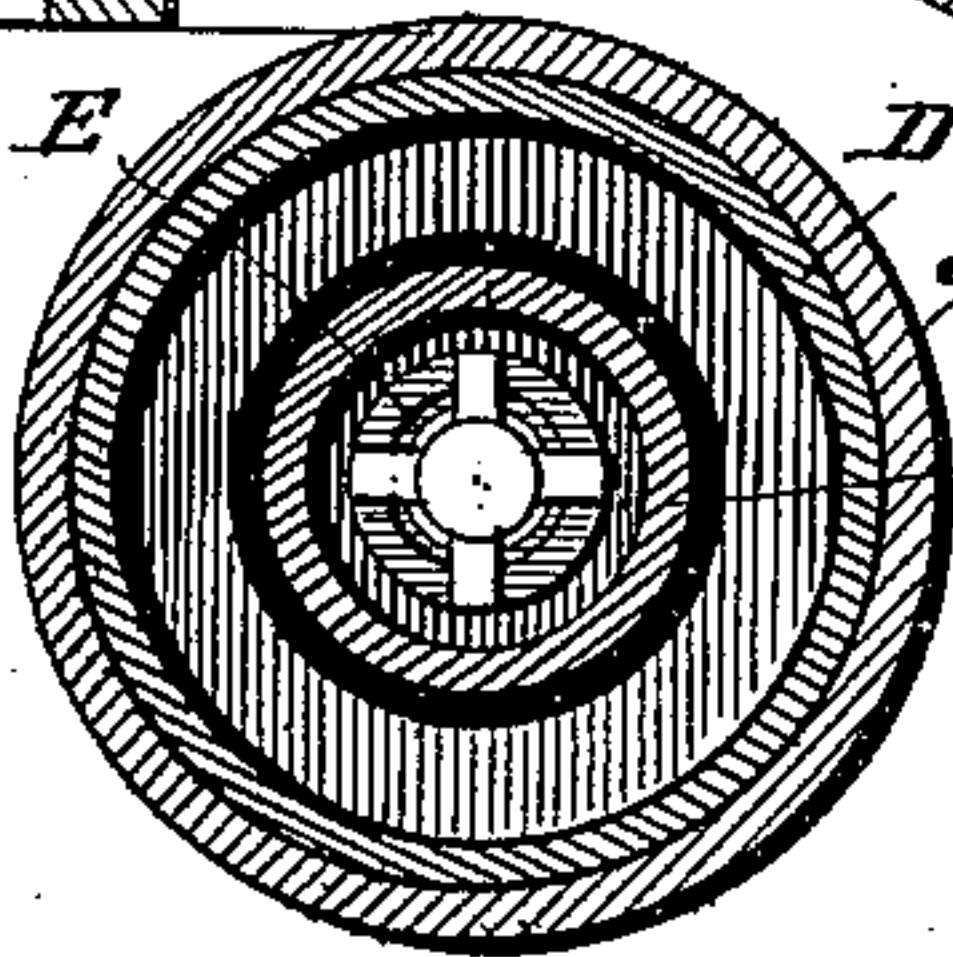
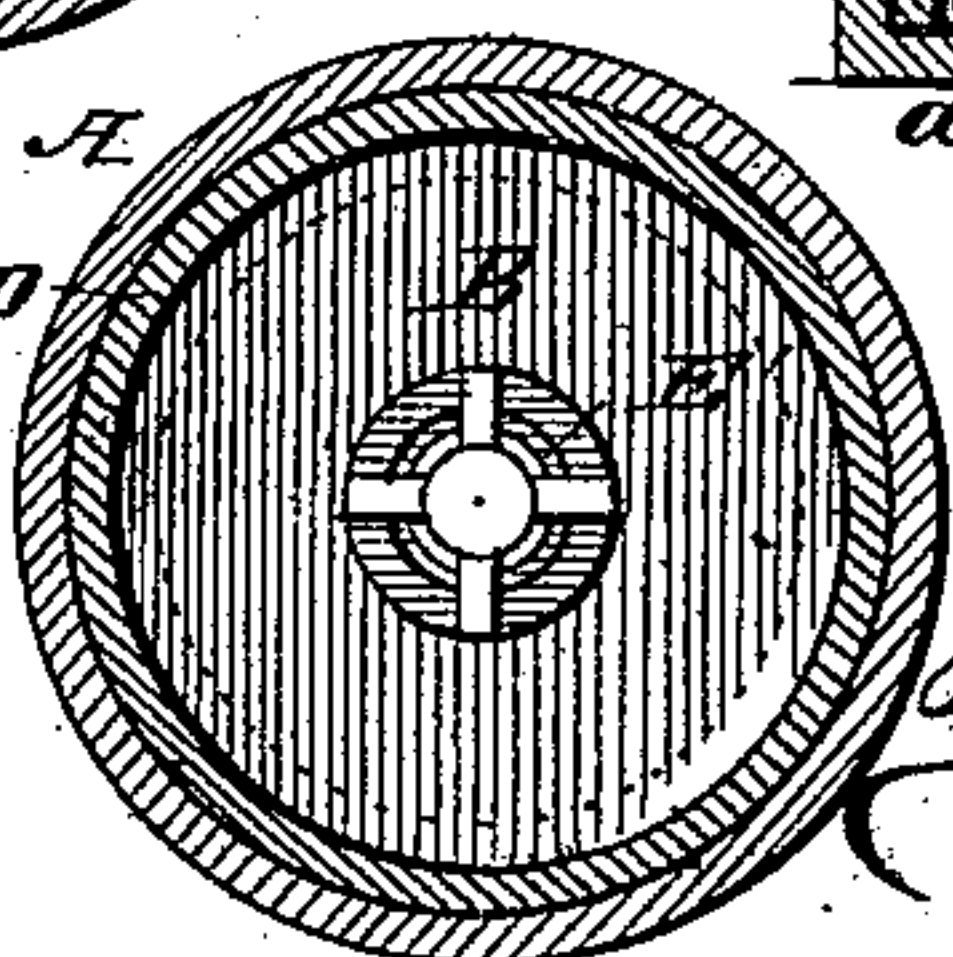


Fig. 6.



WITNESSES: E

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UNITED STATES PATENT OFFICE.

WILLIAM J. WRIGHT, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO DICKSON, KERR & CO., OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 575,498, dated January 19, 1897.

Application filed August 12, 1896. Serial No. 602,573. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. WRIGHT, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Pump, of which the following is a specification.

My invention is in the nature of an improved oil-well pump; and it seeks to provide a pump of this character of a simple and economical construction which can be easily manipulated and which will effectively serve for its intended purposes.

My invention also seeks to provide a pump of this character having the standing and working barrel so arranged that in operation a continuous agitation of the fluid is maintained, so as to wash the rock and thereby render a more uniform and constant flow in the well.

With other objects in view, which will hereinafter appear, my invention consists in the peculiar and novel combination and arrangement of parts, such as will be first described in detail, and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved pump, part of the outer barrel being broken away. Fig. 2 is a vertical longitudinal section of the same, the working barrel being at the lowermost position. Fig. 3 is a similar view, the working barrel being in an upper position. Fig. 4 is a cross-section taken on the line 4 4 of Fig. 2, and Figs. 5 and 6 are similar views taken on the lines 5 5 and 6 6 of Fig. 2.

Referring to the accompanying drawings, A indicates the outer barrel or tubing, the lowermost section of which has an annular internal flange a at the bottom for a purpose presently described.

B indicates the standing barrel or cylinder, which in my construction comprises an upper portion b of a somewhat less diameter than the tube A, whereby to provide an annular space C between the said tube A and the portion B of the standing barrel (see Fig. 2) for the passage of the working or slide barrel D, such portion b terminating in a pendent tubular member b' , the lower end of which terminates in a foot portion b^2 of a diameter suffi-

cient to snugly fit the bore of the tubing, such foot portion b^2 resting upon the annular internal flange a , which forms a support for the standing barrel, as clearly shown in Fig. 2. The lower or foot portion of the standing barrel has a series of fluid-passages b^3 and a central fluid-passage b^4 , in connection with which operates an inwardly-opening ball or lift valve E, held within a suitable valve-pocket of any well-known or novel construction.

So far as described it will be manifestly clear that by forming the standing barrel in the manner described an annular fluid-space F is always maintained between the foot portion b^2 and the upper portion b of the standing barrel, in which the fluid is drawn through the passages b^3 as the working barrel D is lifted and from which the fluid is ejected through the said passages b^3 as the said valve E is forced down. The upper chamber b is provided with an outlet b^5 , provided with a ball or lift valve E', held in a suitable cage f , as shown.

The working barrel D consists of a cylinder held to snugly fit the bore of the tubing A, the lower end of which is apertured, as at e , for the passage of the pendent member b' of the standing barrel B, which aperture e is, however, of a somewhat larger diameter than the said member b' to admit of a free entrance or exit of the fluid held within the space F, the lower end e' of the working barrel operating as a piston for agitating and forcing the liquid in such space F through the passages b^3 out against the rock to wash same at all times during the pumping operation.

The upper end of the working barrel has an outlet e^2 , provided with a ball or lift valve G, also held in a suitable cage, such upper end also having a bridge-piece e^3 , to which is connected a threaded shank H, which receives the lift-rod J, as shown.

From the foregoing description, taken in connection with the accompanying drawings, the advantages and complete operation of my improved oil-well pump, it is thought, will be clearly understood by those skilled in the art to which it appertains.

It will be seen that by my construction of pump a constant movement of the fluid on the rock will at all times be maintained, as

the fluid which is drawn in between the working and the standing barrels would be forced out again on the downward thrust of the working barrel D, while the flow of fluid
 5 drawn in through the lower end of the standing barrel by the up movement of the working barrel would be forced up through the working barrel on the down movement through the valved outlet at the top and
 10 through the valved outlet in the top of the working barrel. It will be seen, as there is a greater weight of fluid on the movable or working barrel D than on the standing barrel, owing to the working barrel having a
 15 greater diameter than the standing barrel, such working barrel will be forced down by such excess weight of water to its lowermost position.

Another and important advantage of my
 20 invention is that, while the lift-rods may be connected thereto in the usual manner, such rods may be dispensed with and the pump-barrels raised by a rope, as the same can be forced down by fluid - pressure, as before
 25 stated.

While an ordinary ball and removable cage or seat is shown, it is obvious that in wells where there is much sand drawn up with the fluid the barrels are made slightly
 30 smaller and are provided with leather or other suitable cups.

In adjusting the several parts of my pump the inner and outer barrels are lowered into the tubing A until the standing barrel valve
 35 rests on the part *a* of the tubing.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in a pump of an outer
 40 tube open at the bottom and a standing barrel held therein having valved openings at the top and bottom, said barrel having a portion reduced whereby an annular fluid-space is provided between it and the outer tube,

the lower end of such barrel having open- 45 ings communicating with such space and a working barrel movable between the standing barrel and the outer tube, said working barrel having a valved outlet in the top, and a horizontal portion projected into the an- 50 nular fluid-space at the bottom, all substantially as shown and described.

2. In an oil-pump mechanism, the combination with the outer tubing, of a stand- 55 ing barrel, having a valved inlet and outlet opening, and an apertured foot portion of a diameter fitting the outer barrel or tubing, and having a portion of a reduced diameter, whereby an annular fluid-holding chamber is formed, said foot portions having openings 60 b^3 , and a movable barrel, surrounding the inner barrel, extended above the said inner barrel provided with a valved outlet at the upper end and a horizontal internal flange at the lower end, said outer valve having a lim- 65 ited free movement on the inner valve and provided with a plunger member operating in the annular fluid-chamber as set forth.

3. The combination with the outer barrel or tubing, and the inner barrel, having valved 70 inlets and outlets, said inner barrel valve having a lower or pendent portion of reduced diameter, terminating in an annular apertured foot portion of a diameter to fit the bore of the outer tubing, and the mov- 75 able barrel held to slide between the inner barrel and the outer tubing, its upper end being extended above the inner barrel and provided with a valved outlet and a lift-rod, its lower end being apertured for the pas- 80 sage of the reduced end of the inner barrel said lower end having a fluid-passage all arranged substantially as and for the purposes described.

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Witnesses:

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