

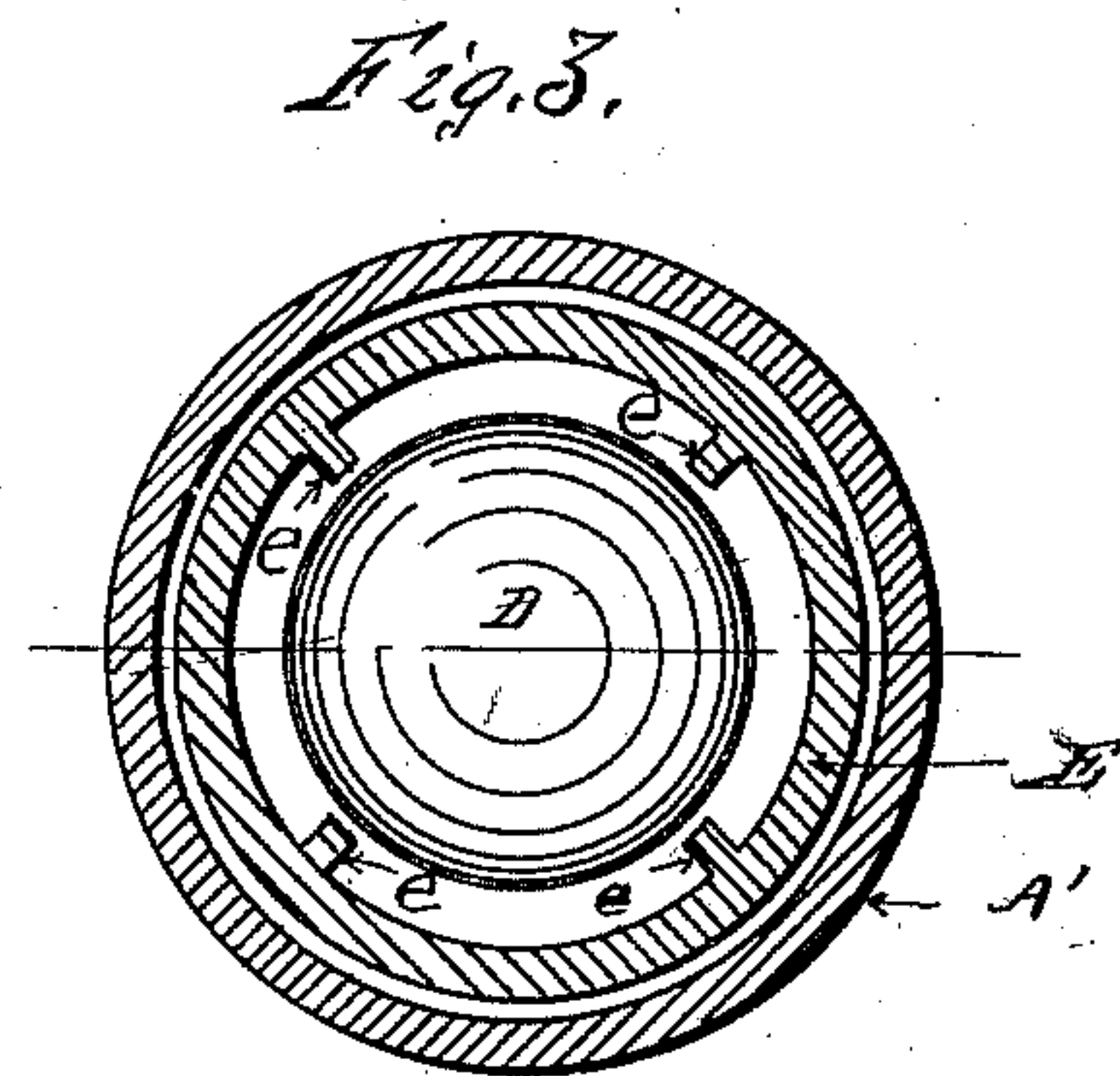
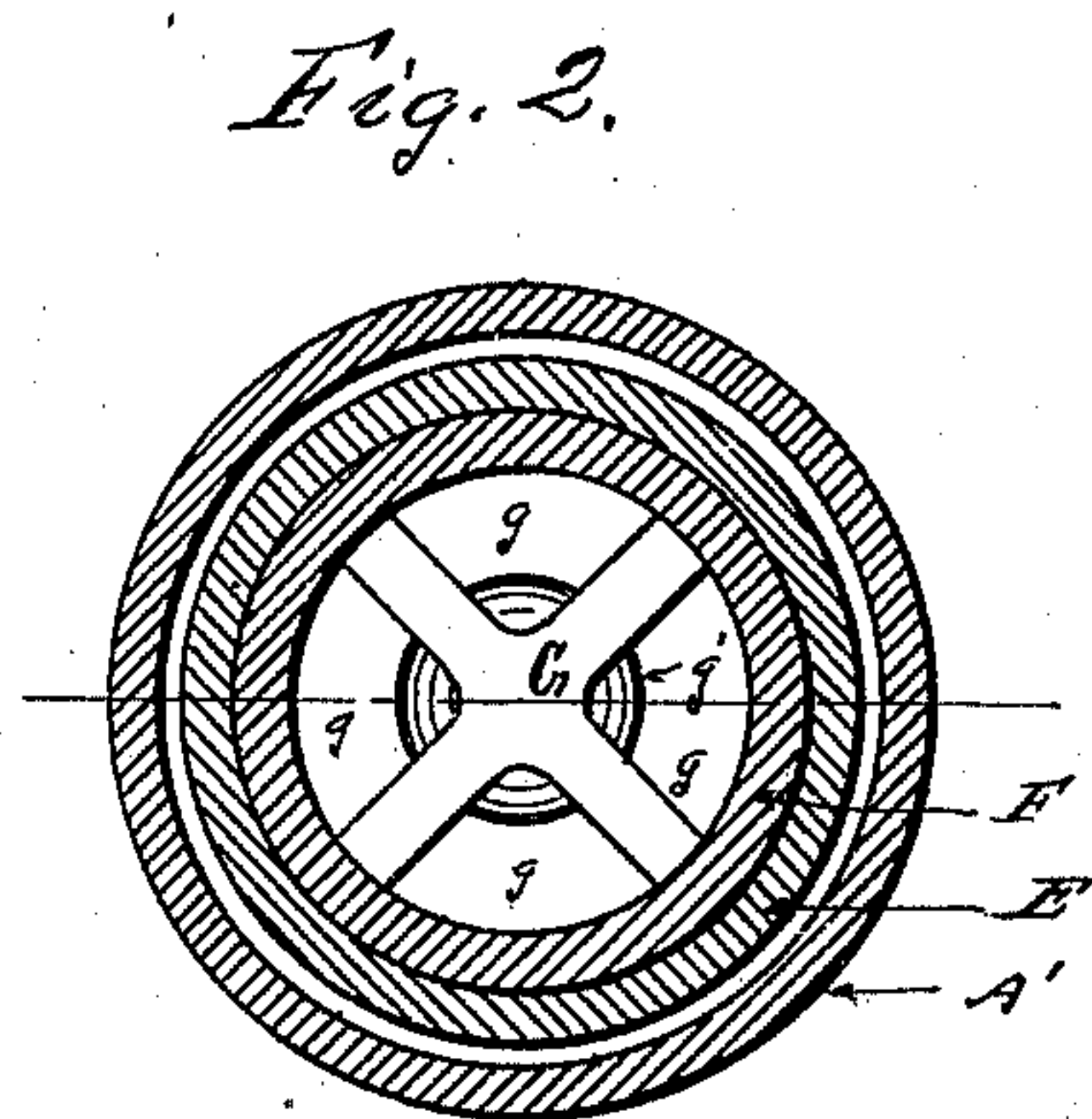
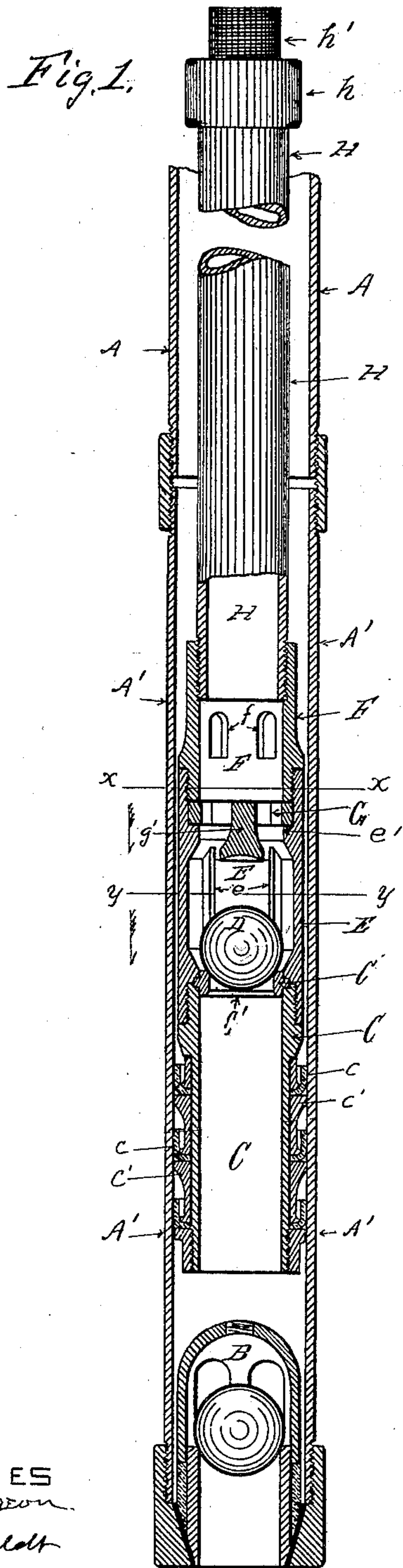
No. 654,316.

Patented July 24, 1900.

D. L. LEWIS.
OIL OR OTHER ARTESIAN WELL PUMP VALVE.

(Application filed Feb. 24, 1900.)

(No Model.)



WITNESSES
Ralph A. Sturgeon
Fred Enfield

INVENTOR
Daniel L. Lewis.
By J. A. Sturgeon
att'y.

UNITED STATES PATENT OFFICE.

DANIEL L. LEWIS, OF CYGNET, OHIO.

OIL OR OTHER ARTESIAN WELL PUMP-VALVE.

SPECIFICATION forming part of Letters Patent No. 654,316, dated July 24, 1900.

Application filed February 24, 1900. Serial No. 6,360. (No model.)

To all whom it may concern:

Be it known that I, DANIEL L. LEWIS, a citizen of the United States, residing at Cygnet, in the county of Wood and State of Ohio, have
5 invented certain new and useful Improvements in Oil or other Artesian Well Pump-Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others
10 skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

15 My invention relates to the construction of pumps for oil and other Artesian wells; and it consists, substantially, in improvements in the construction and arrangement of the parts of the same.

20 Oil-well pumps are ordinarily constructed with a pump-barrel secured to the lower end of the well-tubing, having a standing valve in the lower end thereof, and with a reciprocating valve in the pump-barrel operated by
25 sucker-rods extending down through the tubing to the working valve. My pump is constructed with a pump-barrel having a standing valve in the lower end thereof, which barrel is secured to the lower end of the tubing
30 in the usual manner. In this pump-barrel I place a working valve having a tubular extension secured to the upper end thereof, which tubular extension extends upward some distance in the tubing, where it is finally
35 closed by a cap having a nipple thereon for securing the sucker-rods thereto for operating the valve. The lower end of this tubular extension is open, so that as the rods and valve move downward the air in said tubular ex-
40 tension operates as a cushion to relieve the tubing and valves from the concussion caused by the rapidly-descending sucker-rod and valve contacting with the fluid in the pump-barrel. These features of construction, to-
45 gether with other novel features in the construction of the valve mechanism of my pump, are hereinafter set forth and described, and illustrated in the accompanying drawings, in which—

50 Figure 1 is a vertical section of a portion of a well-tubing, the pump-barrel, and the valve mechanism of my improved pump. Fig. 2 is

a transverse section on the line xx in Fig. 1. Fig. 3 is a transverse section on the line yy in Fig. 1.

In the drawings thus illustrating my invention, A is the lower portion of the well-tubing, and A' the pump-barrel, and B is the standing valve in the lower end of the pump-barrel, all of which parts are of the usual and
60 ordinary construction.

The lower section C of the working valve is constructed hollow and is provided with the usual type of peripheral packing cups and disks $c\ c'$ and with a ball D, operating upon
65 a seat C'. The next section E of the valve is secured to the part C, so as to secure the valve-seat C' between them. This section E, I make in the form of a cylindrical shell and with vertical guide-ribs e on the inner surface
70 thereof. (See Figs. 1 and 3.) Between these guide-ribs the ball D moves up and down, the fluid passing up around the ball between the guide-ribs e . The next section F of the valve is a cylindrical shell and is secured to the
75 upper end of the section E, and upon an annular shoulder e' in the upper part of the section E, I place a disk G, having openings g therein for the upward passage of fluid being pumped (see Fig. 2) and a downward pro-
80 jection g' thereon for limiting the upward movement of the ball D, the disk G being retained in place by the lower end of the section F being screwed down upon it, so as to
85 hold it firmly down upon the shoulder e' . Through the sides of the section F there are openings f , through which the fluid being pumped passes out of the valve and into the tubing A. In the upper end of the valve-
90 section F, I screw a section of small tube H, which is provided with a closed cap h and nipple h' , to which the ordinary sucker-rod (not shown) may be secured, the pipe H, so far as it extends, operating, in addition to its other
95 functions, as the lower portion of the sucker-rod for operating the valve.

In operation the tube H is always normally full of air or gas, and when the sucker-rod and valve move downward the weight of the column of fluid on the valve serves to accelerate
100 such downward movement, so as to cause considerable concussion and strain upon the parts as the valve contacts with the surface of the fluid in the pump-barrel, and the col-

umn of air or gas in the tube H being compressed by such downward movement of the valve mechanism serves as a cushion to modify the force of such concussion.

5 Having thus described my invention, so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

10 In a pump-plunger, the combination, with a lower tubular section having an imperforate side wall, a valve-seat at its lower part, and guides projecting laterally from the said side wall; of a valve slidable in the said

guides, an upper tubular section provided 15 with lateral delivery-passages and secured to the lower section, a disk clamped between the said sections and provided with openings and a stop which projects downward into the said lower section, and an air vessel having its 20 lower end secured to the said upper section, substantially as set forth.

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

DANIEL L. LEWIS.

Witnesses:

FRED EINFELDT,

RALPH A. STURGEON.