

(No Model.)

V. S. REED & D. APGAR.
PUMP.

No. 525,998.

Patented Sept. 11, 1894.

Fig: 1.

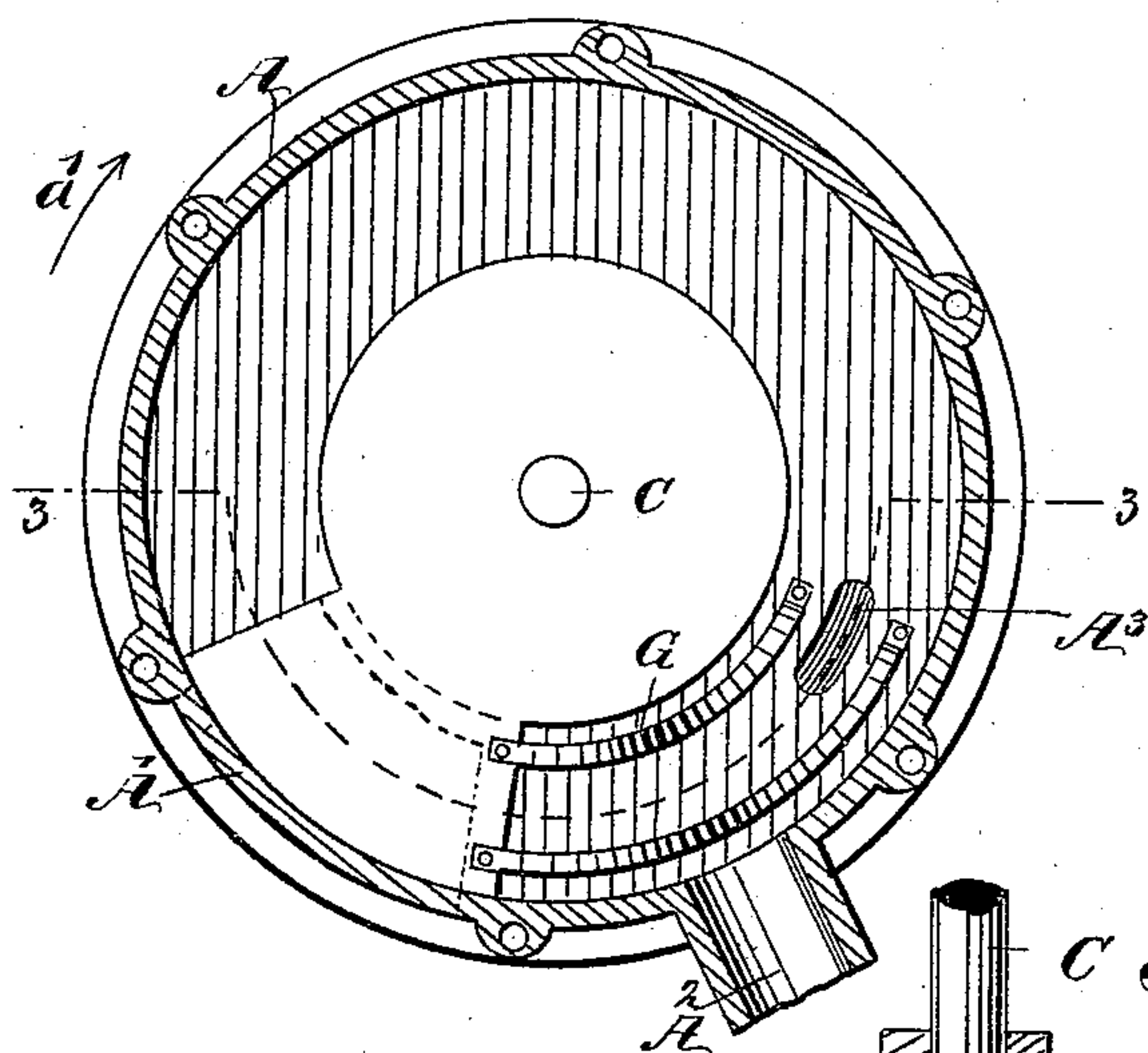


Fig: 2.

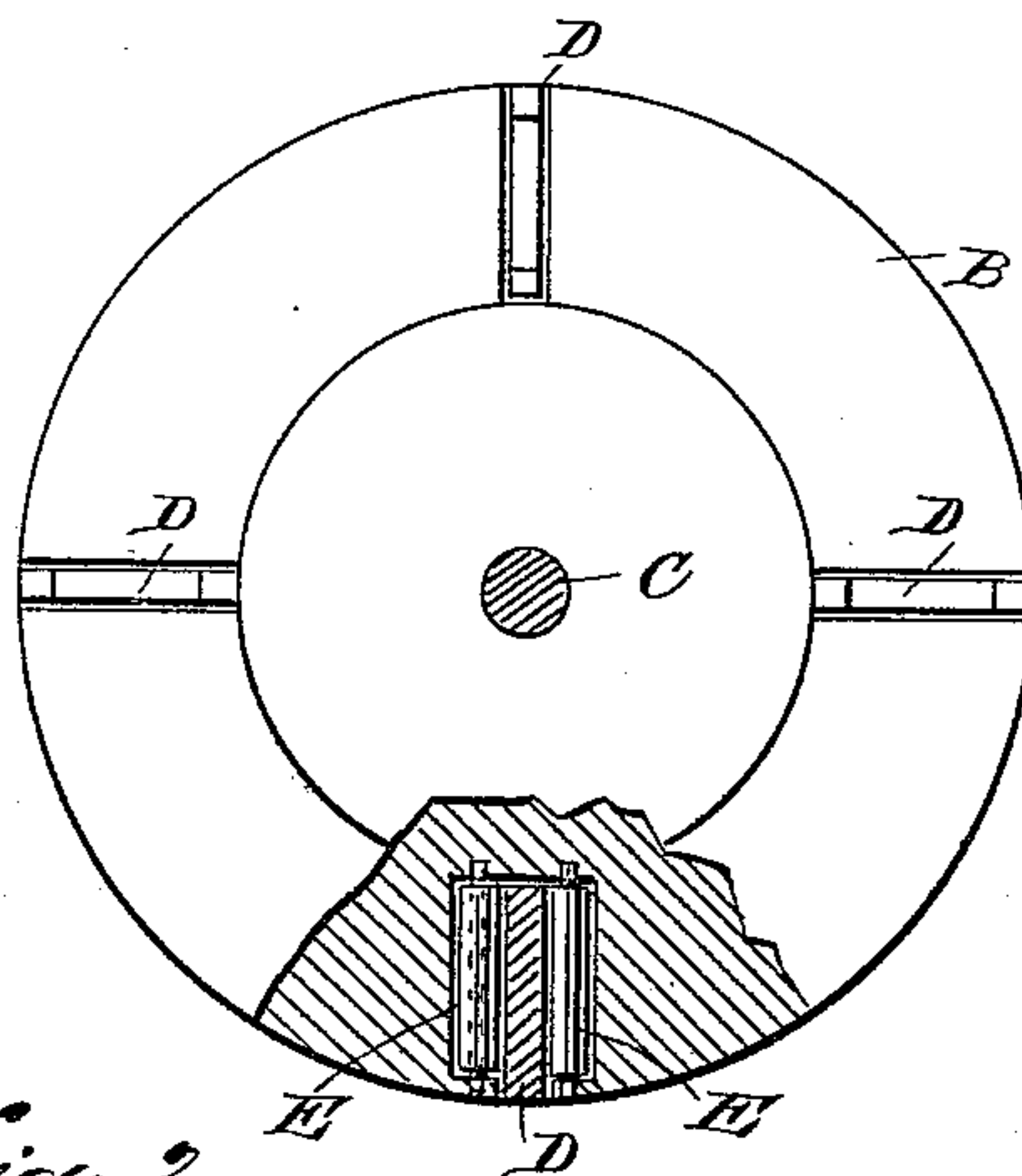


Fig: 3.

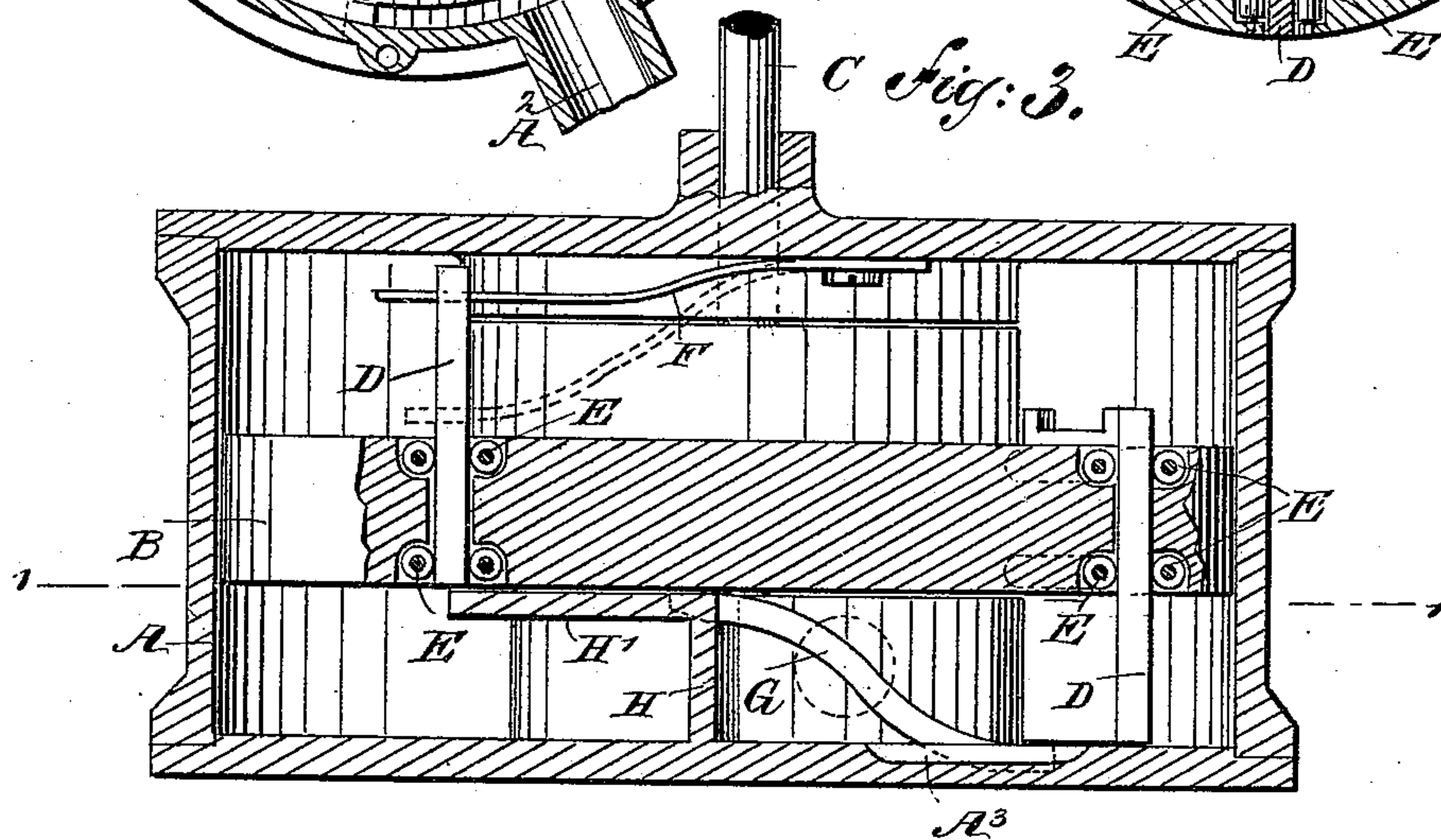
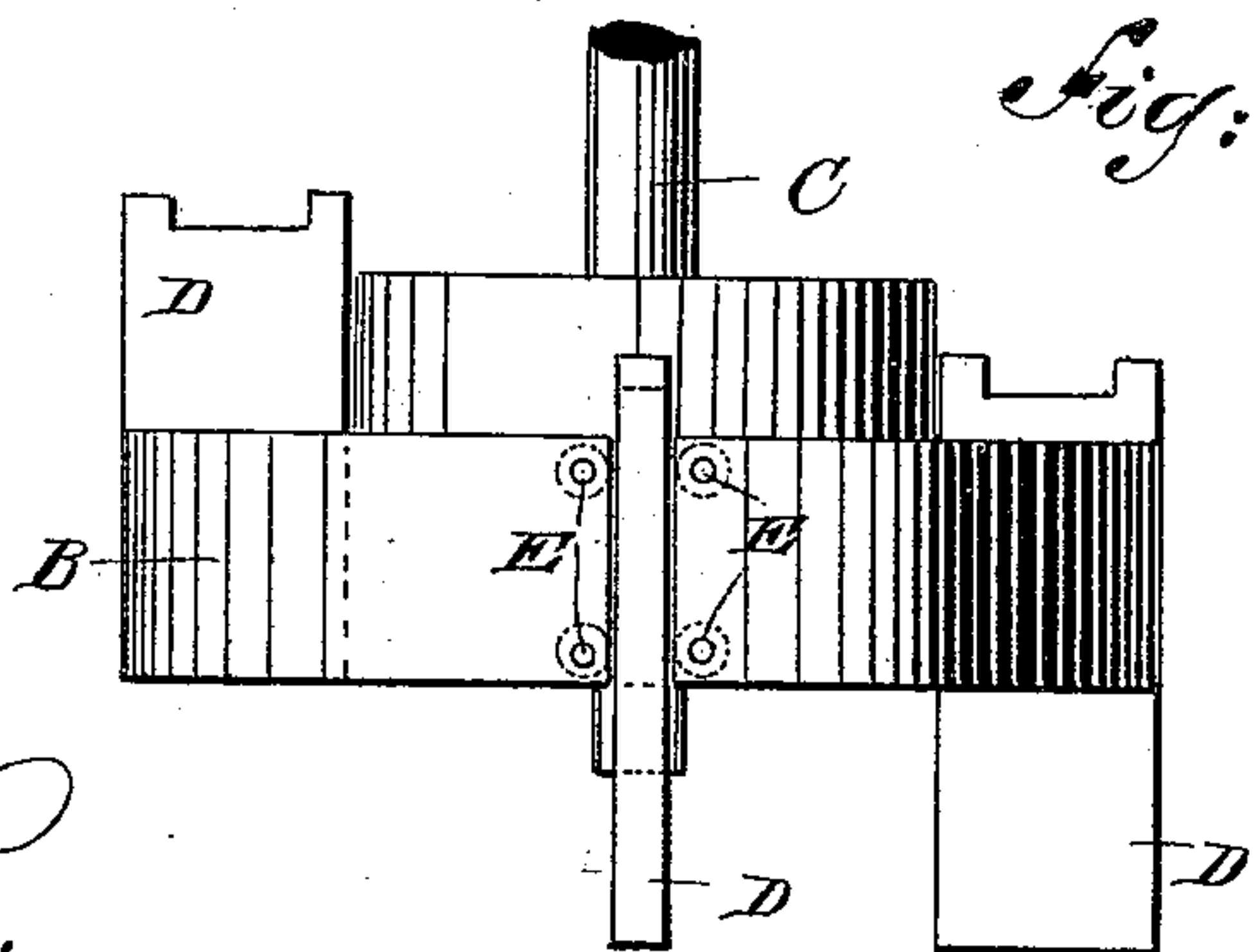


Fig: 4.



WITNESSES:
Chas. Vida.
C. Sedgwick

INVENTORS
V. S. Reed
D. Apgar
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

VETT S. REED AND DANIEL APGAR, OF LOVELAND, COLORADO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 525,998, dated September 11, 1894.

Application filed July 24, 1893. Serial No. 481,305. (No model.)

To all whom it may concern:

Be it known that we, VETT S. REED and DANIEL APGAR, both of Loveland, in the county of Larimer and State of Colorado, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved lift and force pump, which is simple and durable in construction, very effective in operation, and arranged to utilize the power applied to the greatest advantage.

The invention consists of certain parts and details, and combination of the same, as will be hereinafter described and then pointed out in the claim.

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.

Figure 1 is a sectional plan view of the improvement on the line 1—1 of Fig. 3. Fig. 2 is a plan view of the piston head and pistons, with parts in section. Fig. 3 is an enlarged sectional side elevation of the improvement on the line 3—3 Fig. 1; and Fig. 4 is a side elevation of the piston head and pistons.

The improved lift and force pump is provided with a cylindrical casing A, having an inlet A' and a discharge pipe A², as indicated in the drawings. In the casing A is mounted to turn a piston head B, secured on shaft C, extending upwardly through the top cover of the casing A, to connect with suitable machinery for imparting a rotary motion to the said piston head B in the direction of the arrow as indicated in Fig. 1.

On the piston head B is mounted to slide vertically, a series of pistons D, in the shape of plates journaled in roller bearings E, arranged in the said head B so as to reduce the frictional contact of the pistons D in the head B to a minimum. The upper ends of the pistons D are adapted to be engaged by the free end of a spring F, secured to the under side of the top cover of the casing A, as illustrated in Fig. 3.

The several pistons D are adapted to travel up inclines G, arranged in the casing A, and extending from the bottom thereof, upward to a transverse partition H, leading to a platform H', from the end of which the pistons

drop off down into the space below the head B, the said space being connected at one side of the partition H with the inlet A', and at the other side with the outlet A². At the lower ends of the inclines G is arranged a recess A³, in the bottom of the casing A so that when a piston D nears the lower ends of the said inclines, it establishes a communication between the front of the piston and the rear thereof, so as to equalize the pressure on the piston on the front and rear face, to permit the piston to readily travel up the incline G, thus reducing the friction between the piston and its roller bearing E during the time the piston starts on its upward movement. It will be seen that by this arrangement, the water carried forward by the lower ends of the pistons D in the space formed between the bottom of the casing A and the under side of the head B, is finally discharged through the outlet A² arranged opposite the inclines G in the outer wall of the casing A. It will also be seen that by this arrangement the power applied for revolving the head B carrying the pistons D is used to the fullest advantage, and the pistons are free to slide up the inclines, owing to the equalization of the pressure on opposite sides of the corresponding piston at the time the latter nears the bottom of the inclines, as above described.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

In a rotary pump, the combination with a casing having a fixed transverse partition, a platform leading therefrom, and inclines leading downward to the bottom of the casing, and a rotatable piston-head carrying a series of pistons, which are arranged to slide through it, of a plate spring fixed to the top of the stationary casing and arranged over the partition in the circular path of the several pistons, as shown, whereby its free end is adapted to bear upon them as they pass successively beneath it and drop off the platform, as specified.

VETT S. REED.
DANIEL APGAR.

Witnesses:

J. M. CUNNINGHAM,
J. R. ANDERSON.