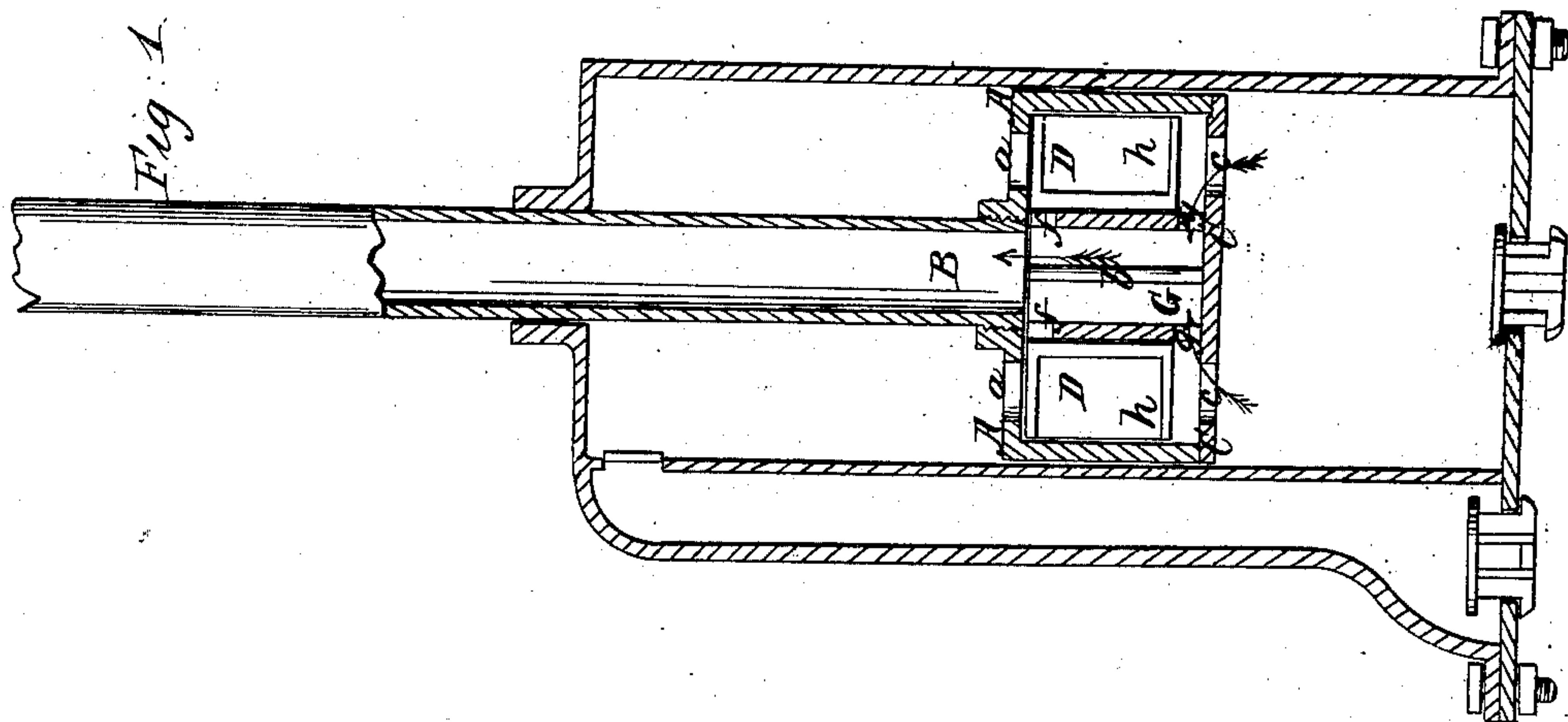
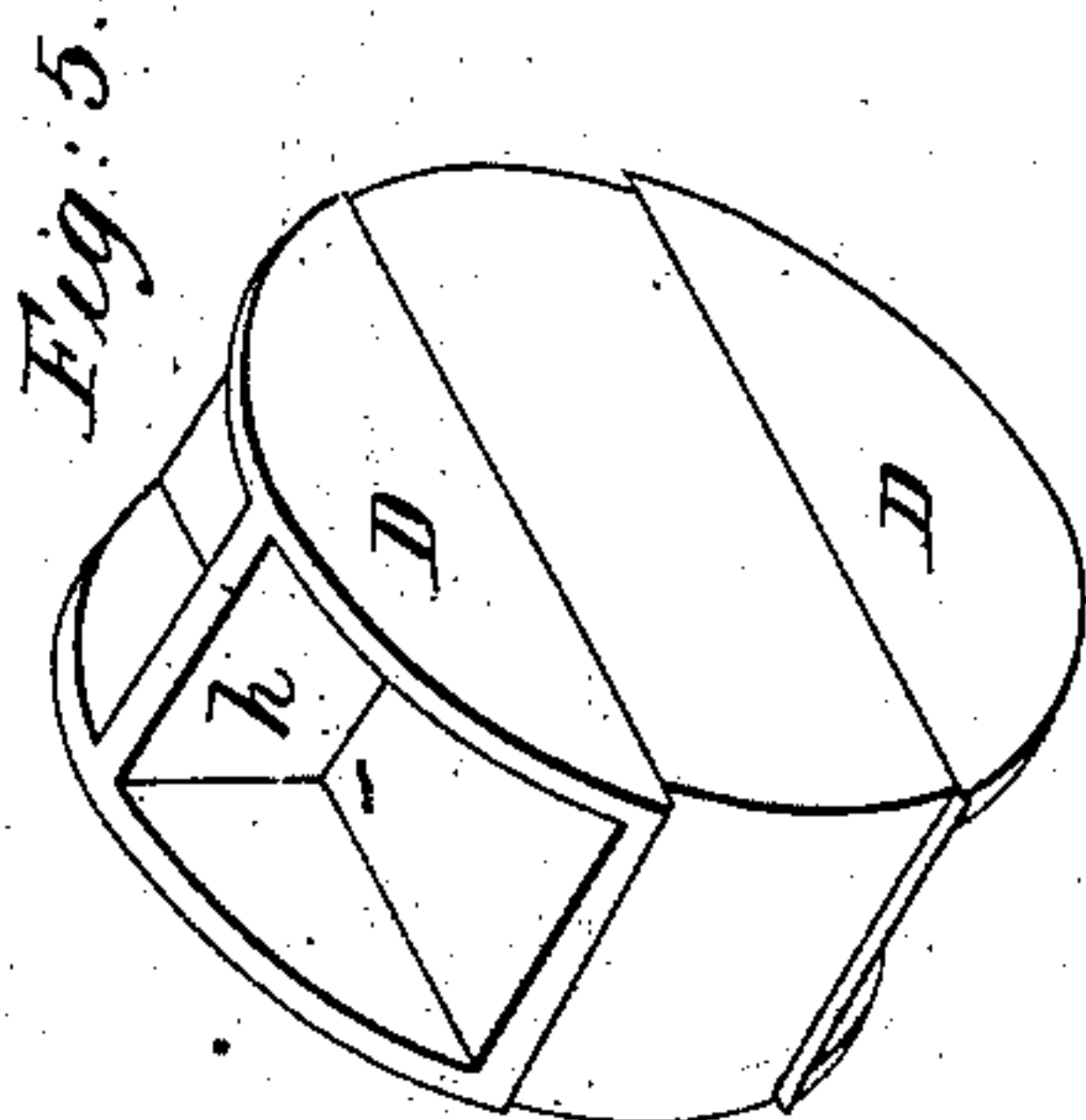
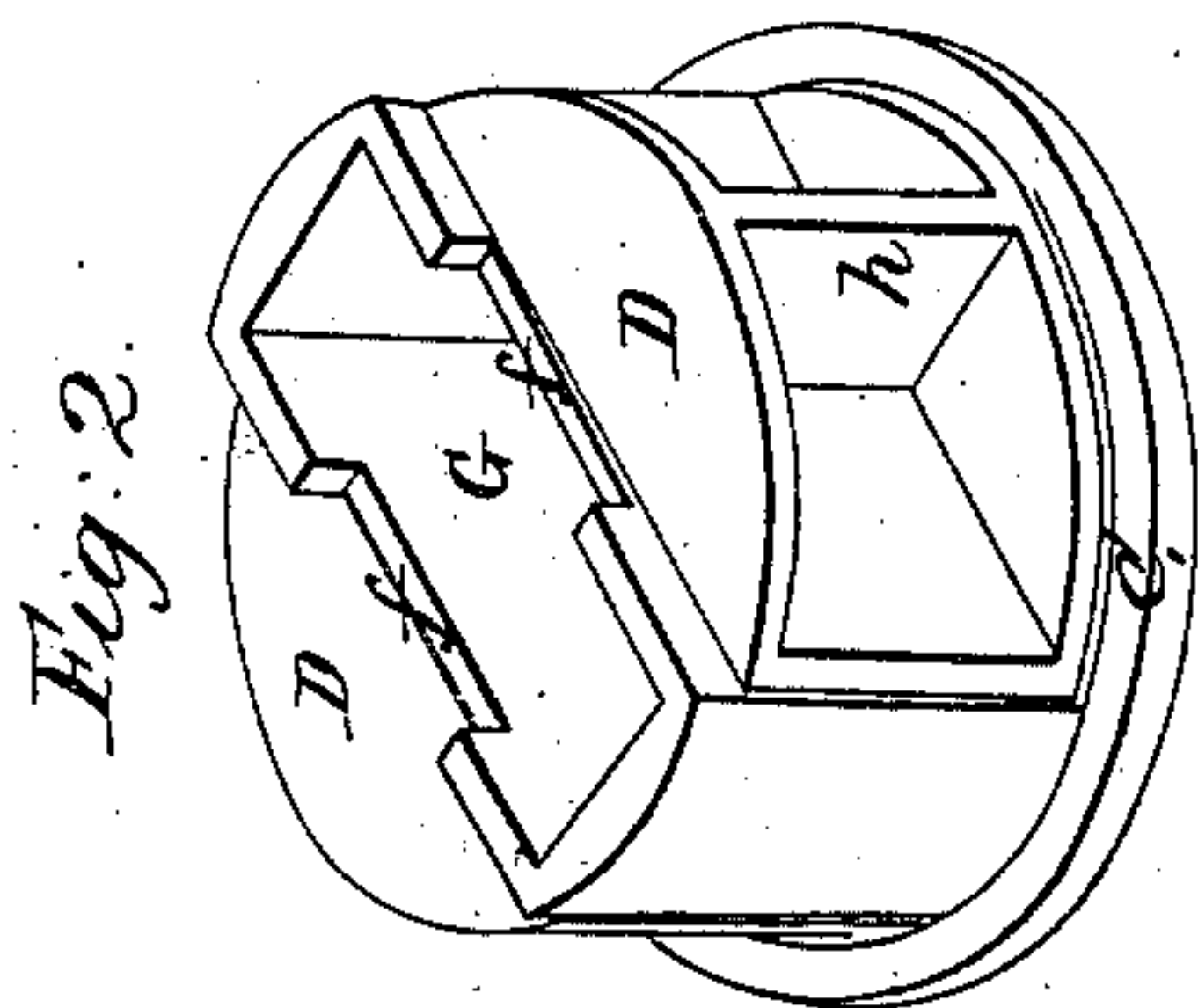
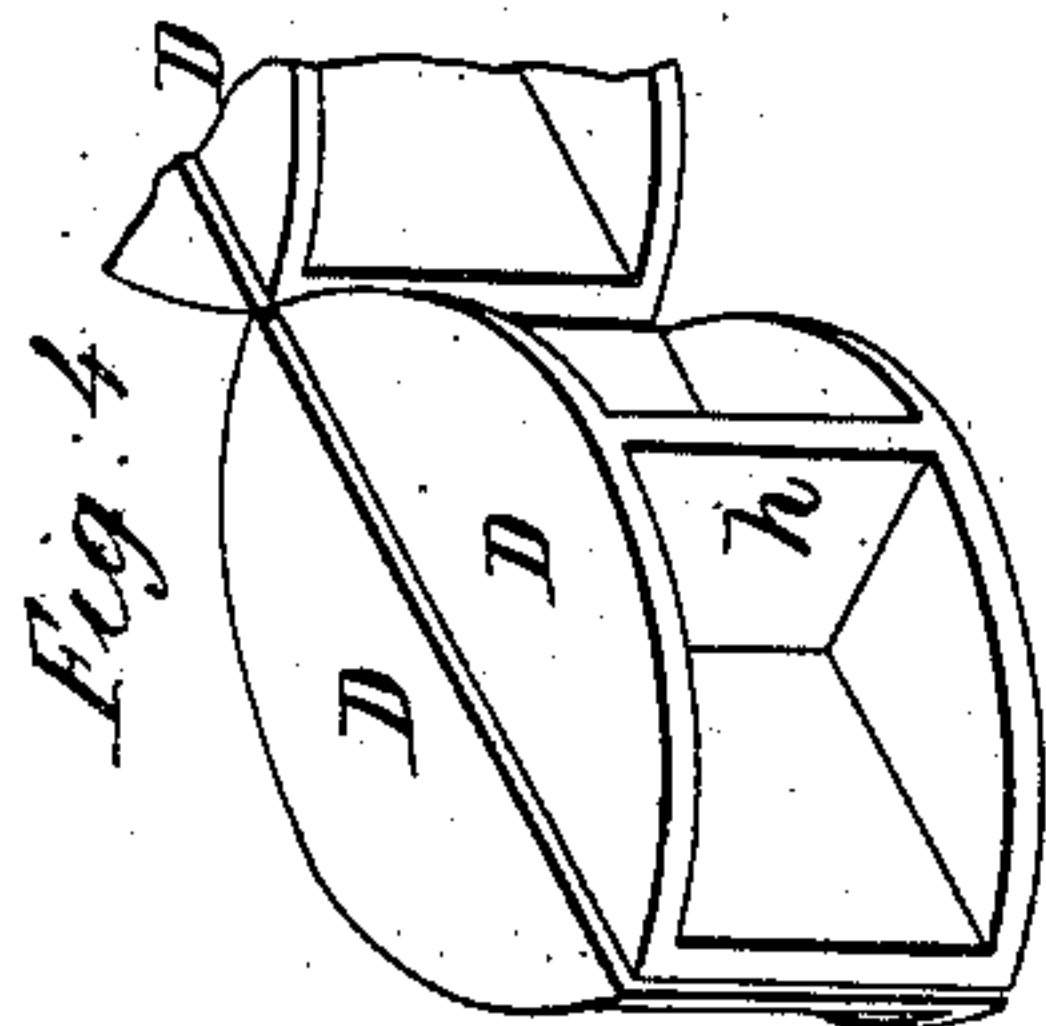
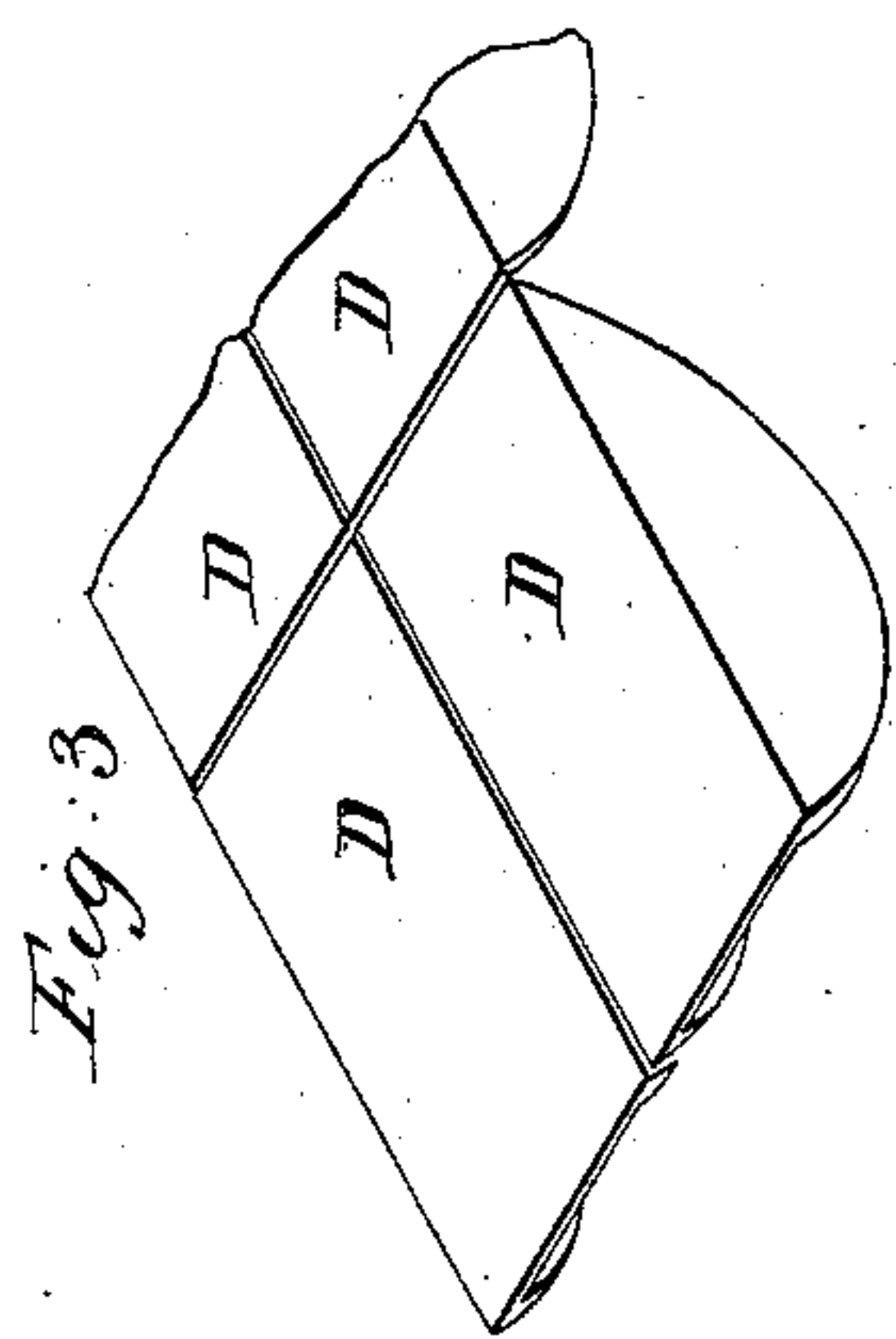


*S. G. Mason,  
Pump Piston.*

*N<sup>o</sup> 57531.*

*Patented Aug. 28, 1866.*



*Witnesses;  
R. F. Leggett  
J. A. Davis*

*Inventor,  
S. G. Mason.  
By J. Fraser & Co.,  
Attys*

# UNITED STATES PATENT OFFICE

SYLVESTER G. MASON, OF ELBRIDGE, NEW YORK.

## IMPROVEMENT IN PUMP-PISTONS.

Specification forming part of Letters Patent No. 57,531, dated August 28, 1866.

*To all whom it may concern:*

Be it known that I, SYLVESTER G. MASON, of Elbridge, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a central vertical section of a pump-cylinder with my improvement applied thereto; Fig. 2, a perspective view of the inner portion of the piston and the valves; Figs. 3, 4, and 5, views of the valves in the various positions they are placed for planing and fitting.

Like letters of reference indicate corresponding parts in all the figures.

My improvement belongs to that class of double-acting force-pumps in which the water passes through the interior of the piston to a hollow piston-rod, where it is elevated.

The invention consists in the combined construction and arrangement of the piston, consisting of two side segmental valves, with an interior chamber, the whole fitting within the piston-rim in such a manner as to insure a direct flow of the water, the construction of the valves being such that they are easily planed and fitted.

As represented in the drawings, A is an inverted piston-rim, open at the bottom, but closed at the top, provided with two induction-ports, *a a*, situated, respectively, on opposite sides, and provided also with a hollow piston-rod, B, screwing therein, and extending to the top of the well. Under the bottom of this rim shuts a cover, C, bolted to said rim by means of bolts *b b*. This cover is provided with induction-ports *c c* corresponding with those above, and is cast with a central chamber, G, extending vertically to the top of the rim, and having the piston-rod opening over it. The sides of this chamber are made plane, and are provided at the top with ports *f f*, and at the bottom with ports *g g*.

Against the sides of the chamber rest segmental valves D D, made in the skeleton form shown, and having central vertical ribs or braces, *h h*, to insure sufficient strength. These valves fill the whole diameter of the interior of the piston-rim; but their height is somewhat less than that of the interior, so as to al-

low sufficient play to alternately uncover the ports *f g*.

At the downstroke the valves will be forced upward, as in black lines, Fig. 1, and the water will enter the ports *c c g g*, and at the upstroke the valves will be forced downward and the water enter the ports *a a f f*.

The piston is thus made up of the rim, the cover with the central chamber, and the segmental valves. This arrangement allows a direct passage of the water in both directions, and thus the piston cannot easily become choked. The parts are few and easily connected and held.

Peculiar advantages lie in the facility and ease with which the valves may be manufactured by the quantity at once.

It will be noticed that the sides are all plane or circular. In order to plane or smooth the sides, a large number of the valves are placed end to end and side by side on the bed of a planing-machine, and clamped or secured in place, where they may be all planed at once.

In Fig. 3 is shown the position for planing the sides, and in Fig. 4 the tops and bottoms. In order to turn the edges or rims, two valves are placed together, with a block between, so as to form a circle, as shown in Fig. 5, and these are secured to the face-plate of a lathe. In this manner the valves are turned, two at a time, very rapidly.

I am aware of no other pump in which the valves may be planed and fitted so expeditiously and cheaply. In most pumps the shape of the valves is so irregular that they cannot be thus turned out by the quantity.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the segmental side valves, D D, with the central plane-sided chamber, G, said parts being arranged in connection with the inclosing-rim A and cover C, as described, and the whole operating as set forth.

2. The construction of the segmental valves with plane sides and a circular rim or edge, as described, for the facilities of manufacture, as set forth.

SYLVESTER G. MASON.

Witnesses:

C. G. MCGOWAN,  
D. BONTA.