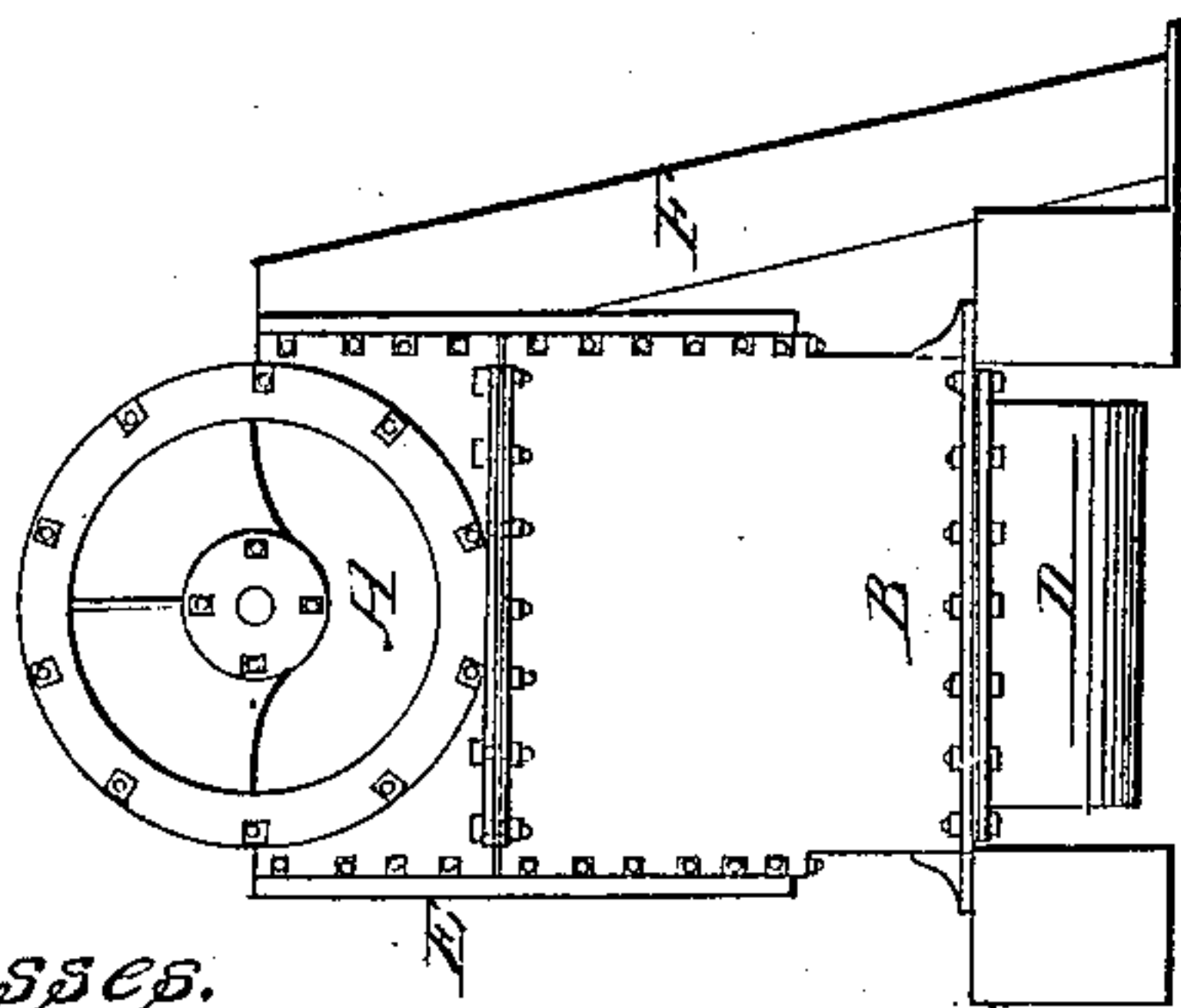
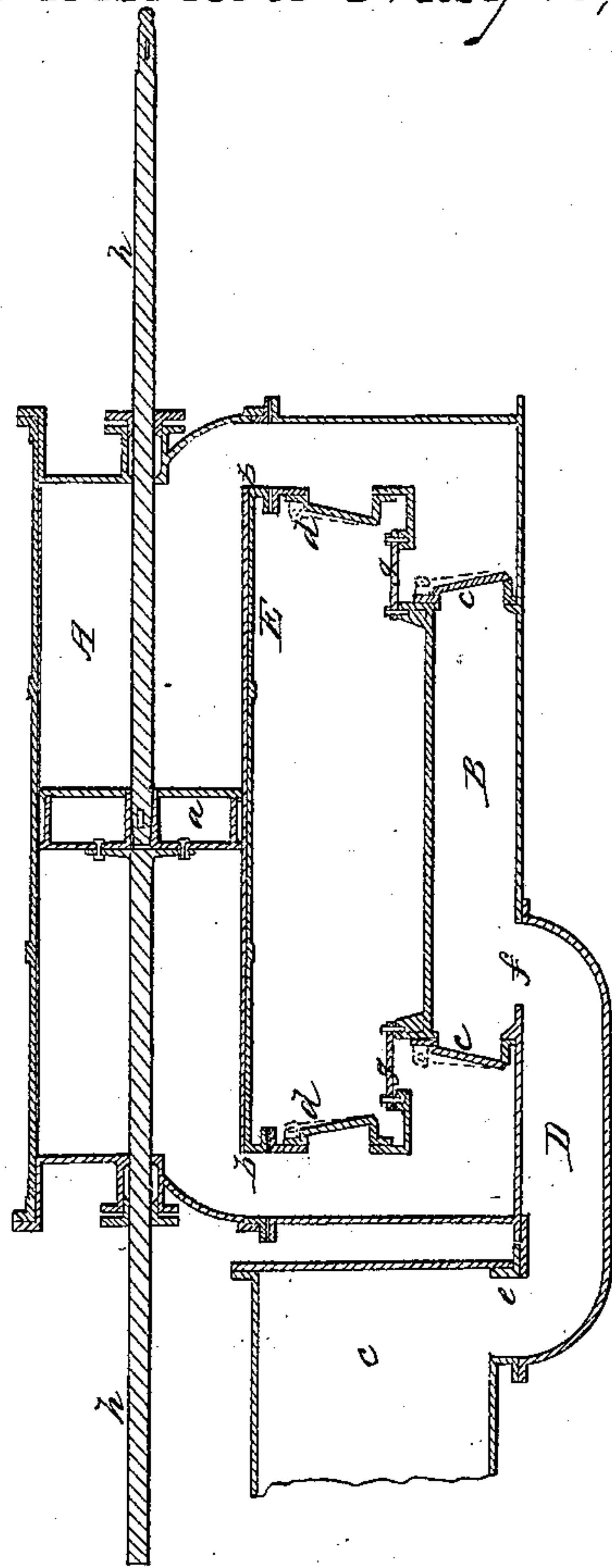
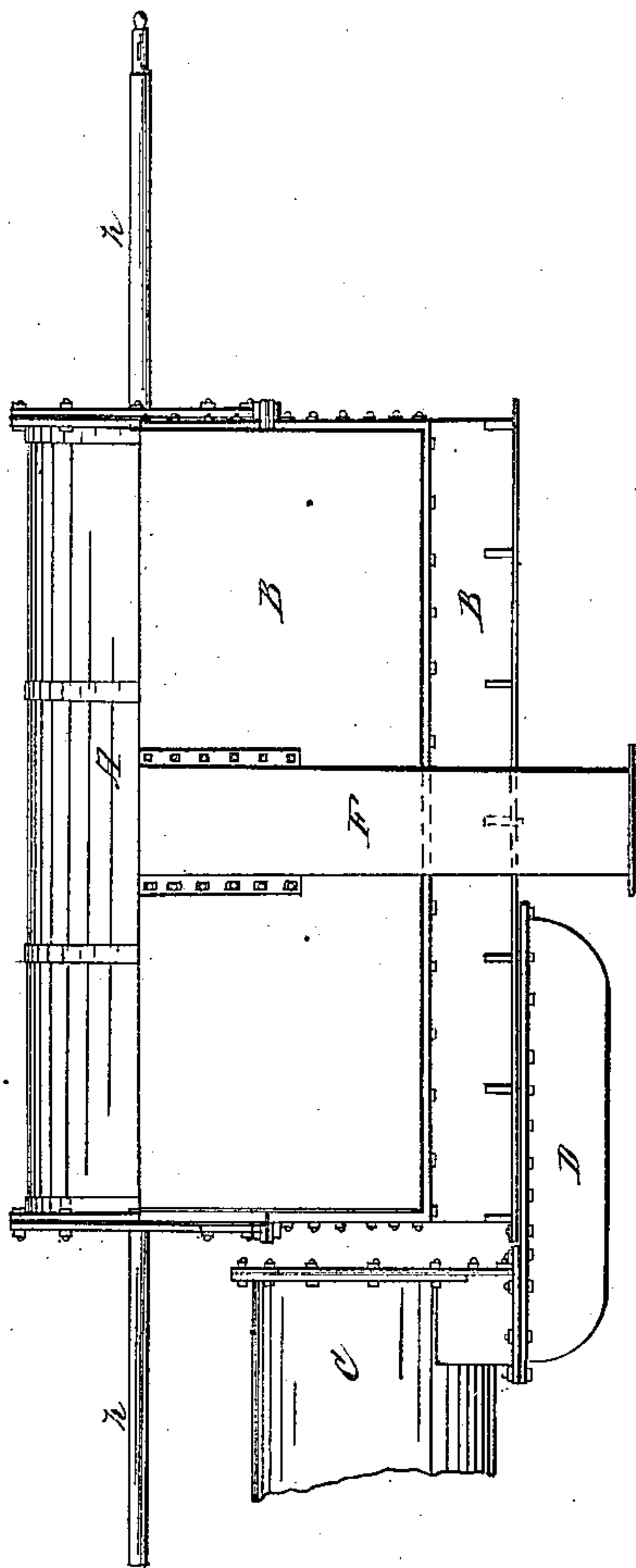


*T. B. Stillman,*

*Air Pump,*

*N<sup>o</sup> 193.*

*Patented May 15, 1837.*



*Witnesses.*

*Abraham Robinson  
Thomas Butler Ayward*

*Inventor.*

*T. B. Stillman.*

# UNITED STATES PATENT OFFICE.

T. B. STILLMAN, OF NEW YORK, N. Y.

## AIR-PUMP FOR STEAM-ENGINES.

Specification of Letters Patent No. 193, dated May 15, 1837.

*To all whom it may concern:*

Be it known that I, THOMAS B. STILLMAN, of the city and State of New York, have invented new and useful Improvements in  
5 Air-Pumps of Low-Pressure Steam-Engines, and that the following is an exact and full description of the same.

The nature of my improvement consists in arranging a double acting horizontal air  
10 pump with its channels, passages, reservoir and waste pipe in such a manner as to be applicable to steam boat engines, particularly those constructed upon the horizontal plan, the objects of which are to produce a  
15 more uniform effect, to lessen the concussion usually experienced in steam boats from their operation and to obtain such compactness and convenience as may arise from such arrangement.

20 To enable others skilled in the art to make and use my improvement I proceed to describe its construction and operation, reference being had to the drawings herewith deposited in the Patent Office.

25 Figure 1 represents a side view of the air pump as constructed by me. Fig. 2 is a longitudinal section of the same. Fig. 3 is an end view.

30 The letters of reference apply to the same parts in the several figures.

A, is the air pump cylinder, B, bedplate, C, a part of condenser, D, channel plate connecting the bed plate and condenser, E, reservoir, F, waste pipe, *a*, piston of air-  
35 pump, *b b*, nozzles or openings of same, *c c* foot valves, *d d*, delivering valves, *e*, opening or nozzle of condenser, *f*, opening between channel plate D and bed plate B, *g g*, bonnets of foot valves, *h, h*, piston rods.

40 The air pump is operated by means of an upright lever or beam and proper connecting rods attached to the crosshead of the engine.

When in operation the water and air con-

tained in the condenser passes through the  
45 channel plate D from *e* to *f* into the bed plate B, between the two foot valves *c c* from thence through either foot valve alternately into cylinder A through the noz-  
50 zles *b b*, thence the water by occupying the lowest place in the cylinder returns first and passes into the reservoir E, through the  
opening of the delivery valves *d d*, followed by the air and vapor which by occupying  
55 the upper part of the cylinder, presses upon the surface of the water with an elastic force which in addition to the gravity of the  
water produces an easy delivery of the water  
60 into the reservoir and avoiding the blow which the piston usually produces upon the water in the common arrangement.

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

1. The arrangement of the channel way contained in the channel plate for the pur-  
65 pose of admitting the water and air into the bedplate between the two foot valves.

2. The arrangement of the reservoir so as to receive the water from the two delivery  
70 valves attached to the opposite ends of the pump, and conduct it to the waste pipe through which it passes from the boat.

3. The arrangement of the delivery valves and nozzles below the cylinder of the air-  
75 pump in such manner that the elasticity of the air and gravity of water may both con-  
duce to an easy operation of the pump, &c.

4. The arrangement of the air pump of  
80 steam boat engines horizontally and in manner to allow its working a double stroke  
with its combinations as above substantially described.

N. Y., Sept. 30, 1836.

T. B. STILLMAN.

Witnesses:

G. CHANDLER ROBINSON,  
THOMAS BUTLER AYLWARD.