

(No Model.)

2 Sheets—Sheet 1.

H. S. THOMAS.  
PUMP.

No. 504,140.

Patented Aug. 29, 1893.

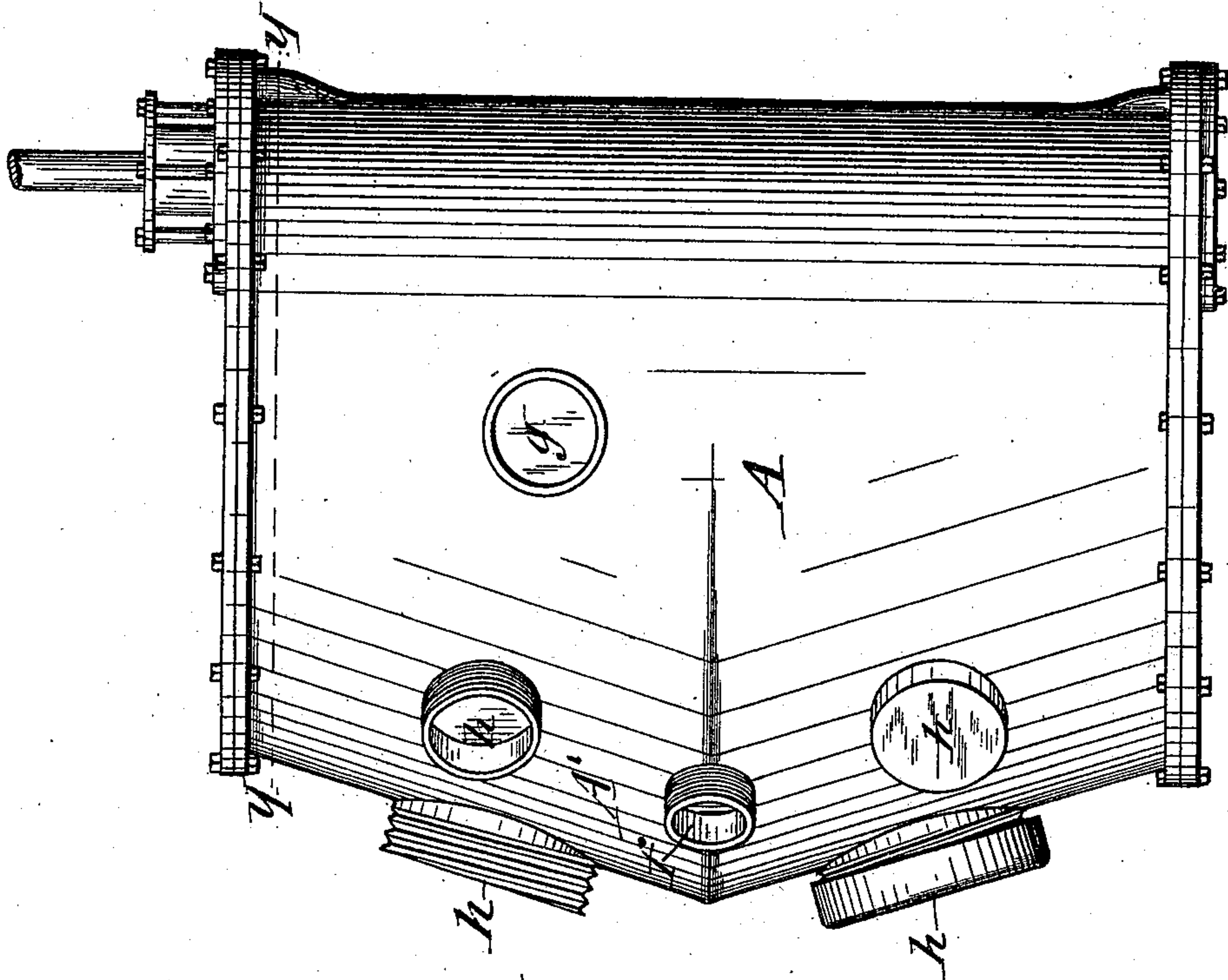


Fig. 2

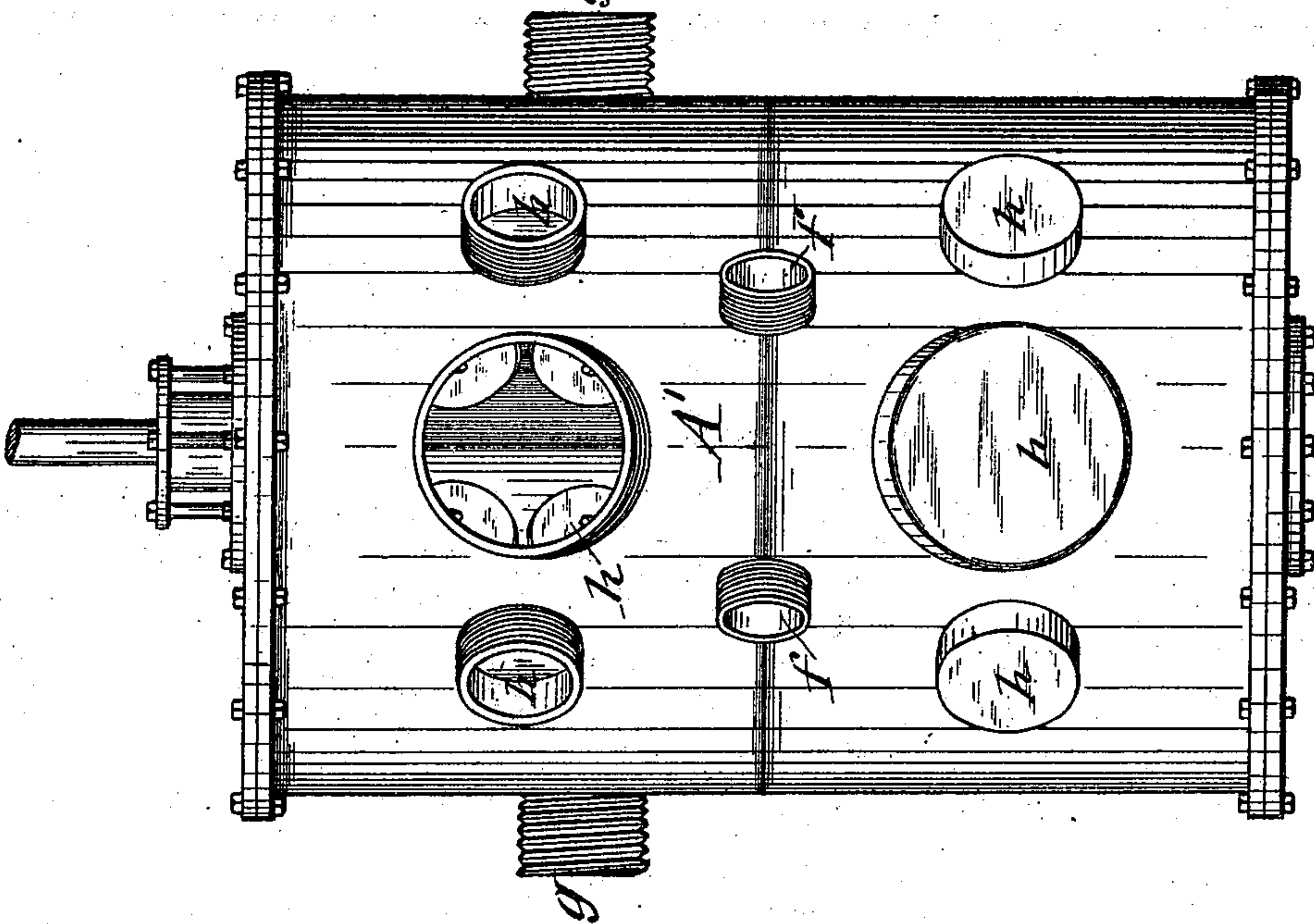


Fig. 1

WITNESSES:

J. J. Laass  
H. M. Seaman

INVENTOR:

Horace S. Thomas  
By Bill. Laass & Bush  
his ATTORNEYS.

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2 Sheets—Sheet 2.

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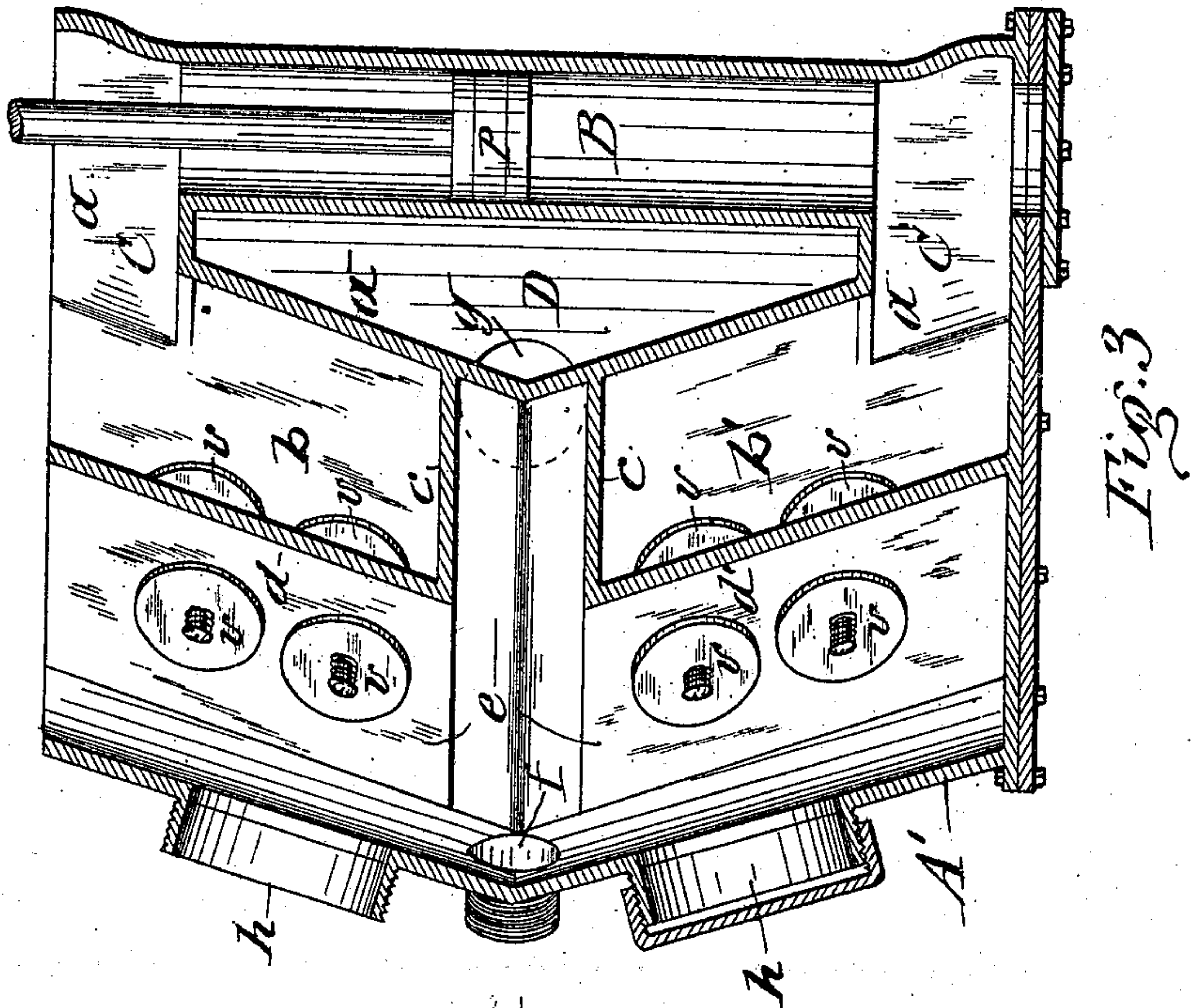


Fig. 3

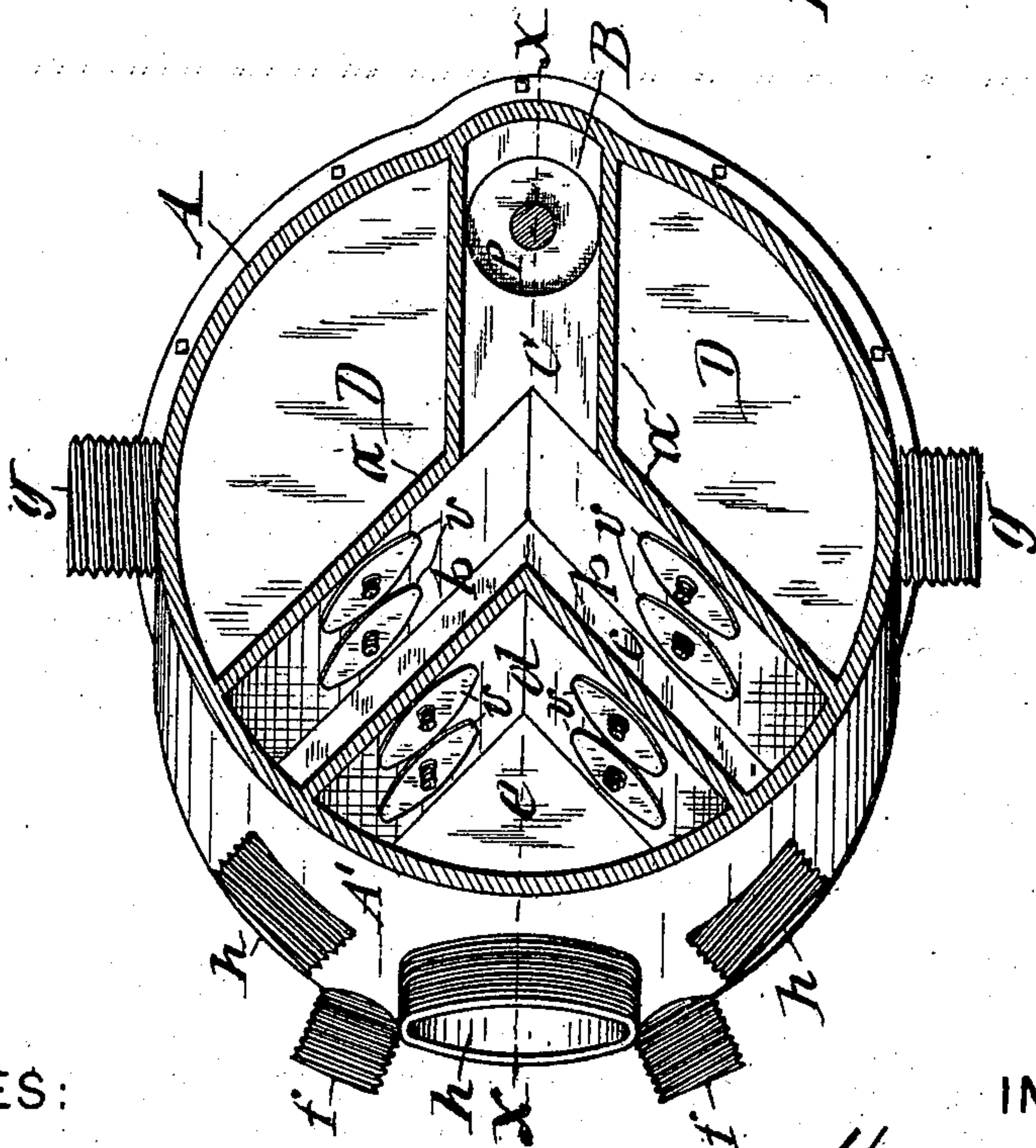


Fig. 4

WITNESSES:

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INVENTOR:

Horace S. Thomas  
By *Shull, Laasy & Shull*  
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# UNITED STATES PATENT OFFICE.

HORACE SEAMAN THOMAS, OF ELMIRA, NEW YORK.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 504,140, dated August 29, 1893.

Application filed January 31, 1893. Serial No. 460,488. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE SEAMAN THOMAS, of Elmira, in the county of Chemung, in the State of New York, have invented new and useful Improvements in Pumps, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of double acting pumps in which the cylinder or pump-barrel and the inlet valves and outlet valves are arranged within a casing so as to form therein a water-receiving chamber with which the pump-barrel communicates by the aforesaid inlet valves.

The object of my present invention is to brace the shell of the pump so as to prevent vibration of the walls of said shell when the pump is in operation; also to increase the area of the valve-partitions and also to facilitate the flow of the water from pump-barrel to valve-chamber and back, and to generally enhance the efficiency and stability of the pump.

To these ends the invention consists in the improved construction and combination of parts hereinafter fully described and set forth in the claims.

The invention is fully illustrated in the annexed drawings, in which—

Figure 1 is a front elevation of a pump embodying my invention, the covers for the upper set of valve-chambers being removed. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical transverse section on line  $x, x$ , in Fig. 4, and Fig. 4 is a horizontal transverse section on line  $y, y$ , in Fig. 2.

Similar letters of reference indicate corresponding parts.

A—represents the casing of the pump, the front wall —A'— of which is bulged from the bottom and top toward the center of its height.

B—denotes the pump-barrel or cylinder in which the piston —P— works. This barrel or cylinder I locate adjacent to the rear wall of the casing —A— and cast it integral therewith as shown in Fig. 3 of the drawings. The rear wall of the casing is thereby thoroughly braced to prevent its vibrating when the pump is in operation. The barrel —B— terminates remote from the top and bottom of the case where it communicates with channels —C—C— extending from the ends of

said barrel part way across the casing and joined at or near the center thereof to a partition —a— extending from the top to the bottom of the casing and divergently from the aforesaid channels to the front walls of the casing, and thus forming the front wall of the water-receiving chamber —D— in the central portion of the case, and, at the same time forming also the rear wall of the valve-chambers —b—b'—. It will be observed that the partition —a— and the walls of the channels —C—C— form cross-ties extending from the rear wall of the casing to the front wall thereof and thus still further brace said casing so as to effectually resist the strain and vibrations incident to the operation of the pump. Besides this the channels —C—C— facilitate the flow of the water to and from the pump barrel, inasmuch as they obviate forming eddies of the flowing waters.

To render the water-chamber —D— still more spacious I incline the partition —a— from top and bottom toward the front midway the height of the casing. The valve-chambers —b—b'— are arranged one above the other and separated from each other by horizontal plates —c—c— extending from the front walls —d—d'— of said chambers back and united to the partition —a—. The front walls —d—d'— are parallel with the rear wall or partition —a— and all are provided with ports and outwardly opening valves —v—v— of any suitable and well known form. By the extension of the valve-chambers to the central portion of the casing and also by the inclination of the walls of said chambers the area of said walls is increased and more room for the valve-seats is obtained.

The casing is provided with the usual hand-holes —h—h— to afford access to the valves for repairs when required. Each hand-hole is surrounded by a screw-threaded annular rim  $h'$ , and is closed by a screw-threaded cap  $h^2$  fitting onto the screw-threaded rim. By the removal of either cap ready access may be had to the particular set of valves inclosed by said cap, without disturbing or interfering with the other valve-chambers. The front walls —d—d'— with the horizontal plates —c—c— form a spacious water outlet chamber —e— in front and between the valve-chambers. Said outlet chamber being pro-



vided with two water-outlets —*f*—*f*— in the bulge —*A'*— of the casing. The top and bottom walls of the recess —*e*— also serve to brace the walls of the valve-chambers.

- 5 The water-receiving chamber —*D*— is provided with the usual inlets —*g*—*g*— at opposite sides of the barrel —*B*— and in a line passing across the rear of the forwardly inclined central portion of the partitions —*a*—  
10 which affords ample room for the circulation of the water in the chamber —*D*.

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

- 15 1. The combination, with the casing, of the pump-barrel disposed at one side of the interior of said casing, valve-chambers extending from the opposite side of the casing to the central portion thereof, and channels extending part way across the top and bottom of the casing and connecting the valve-chambers respectively with opposite ends of the pump-barrel as set forth and shown.

- 25 2. The combination, with the casing, of the pump-barrel located in the rear portion of the casing and united therewith and terminating remote from the top and bottom of the casing, horizontal channels extending from the top and bottom of the barrel toward the center of the casing, inlet-valve chambers separated from each other and extending respectively from the aforesaid upper and lower channels laterally and part way toward the center of the height of the casing, water inlets in the sides  
30 of the casing back of said valve-chambers, and an outlet valve chamber in front of the inlet valve-chambers and extending toward

the center of the casing between the said inlet valve-chambers, as set forth.

3. The combination of the case —*A*— 40 formed with the bulging front —*A'*—, the barrel —*B*— located in the rear portion of the casing, the channels —*C*—*C*— extending from opposite ends of said barrel toward the center of the casing, the partition —*a*— extending 45 from top to bottom of the casing and joined to the walls of said channels and inclined forward from top to bottom, and forming the water-chamber —*D*— provided with inlets —*g*—*g*—, the front walls —*d*—*d'*— having 50 the bottom-plates —*c*—*c*— joined to the aforesaid partition and forming the outlet chamber —*e*— in front of the walls —*d*—*d'*— and between the inlet-valve-chambers substantially as described and shown. 55

4. The combination, with the casing having the pump-barrel disposed at one side of the interior of said casing, valve-chambers extending from the opposite side of the casing to the central portion thereof, and channels 60 extending part way across the top and bottom of the casing and connecting the valve-chambers respectively with opposite ends of the pump-barrel, of a separate hand-hole or port and closing-cap for each separate chamber 65 and its particular set of valves, substantially as specified.

In testimony whereof I have hereunto signed my name this 18th day of January, 1893.

HORACE SEAMAN THOMAS. [L. S.]

Witnesses:

WILLIAM M. WOOD,  
HOWARD CURTIS THOMAS.