

No. 658,265.

Patented Sept. 18, 1900.

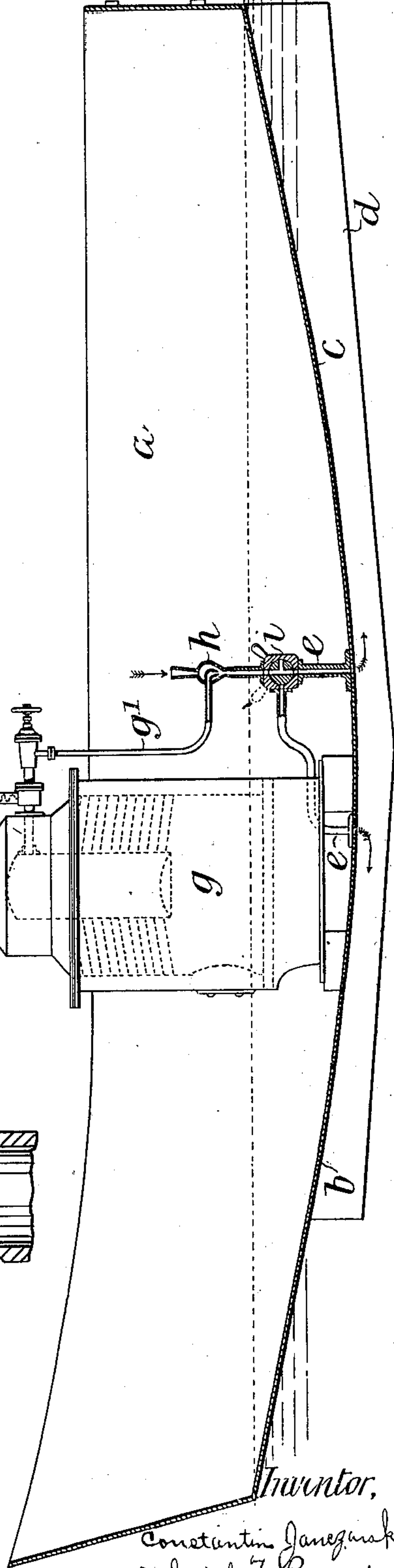
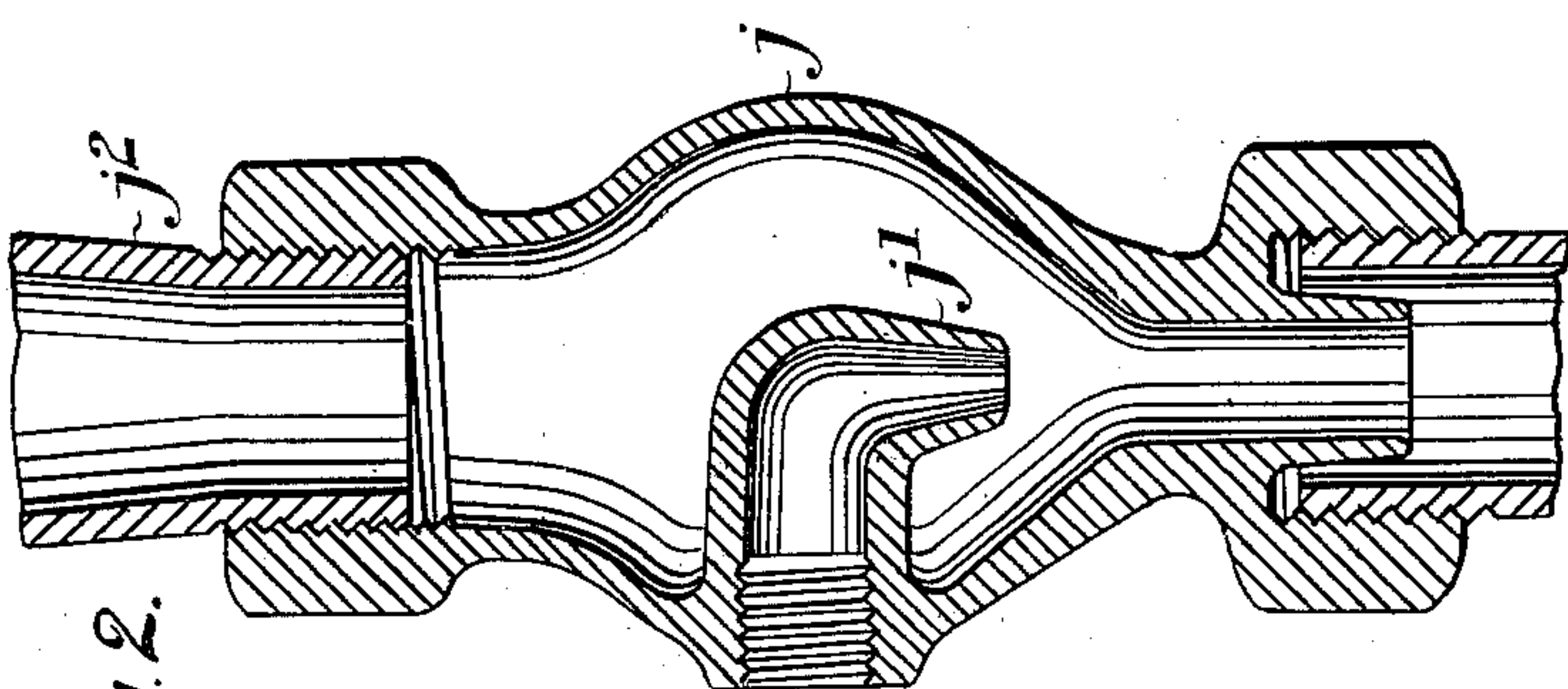
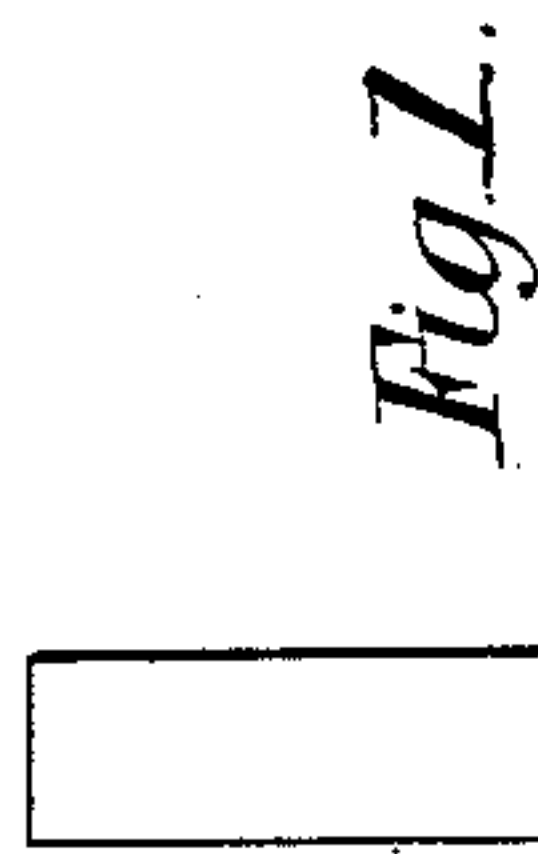
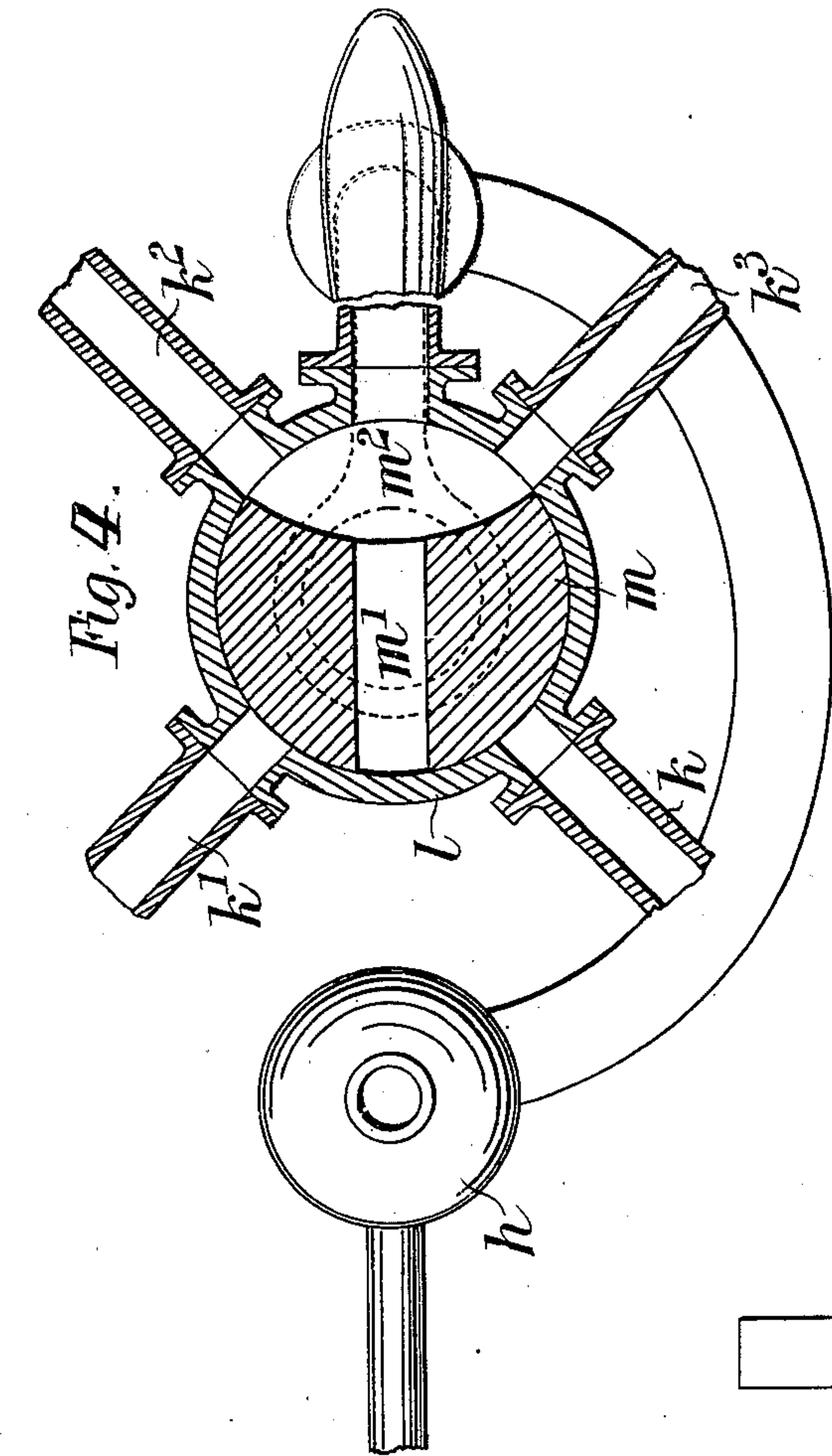
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PNEUMATIC PROPELLING AND STEERING DEVICE FOR SHIPS.

(Application filed Feb. 24, 1900.)

(No Model.)

2 Sheets—Sheet 1



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2 Sheets—Sheet 2.

Fig. 3.

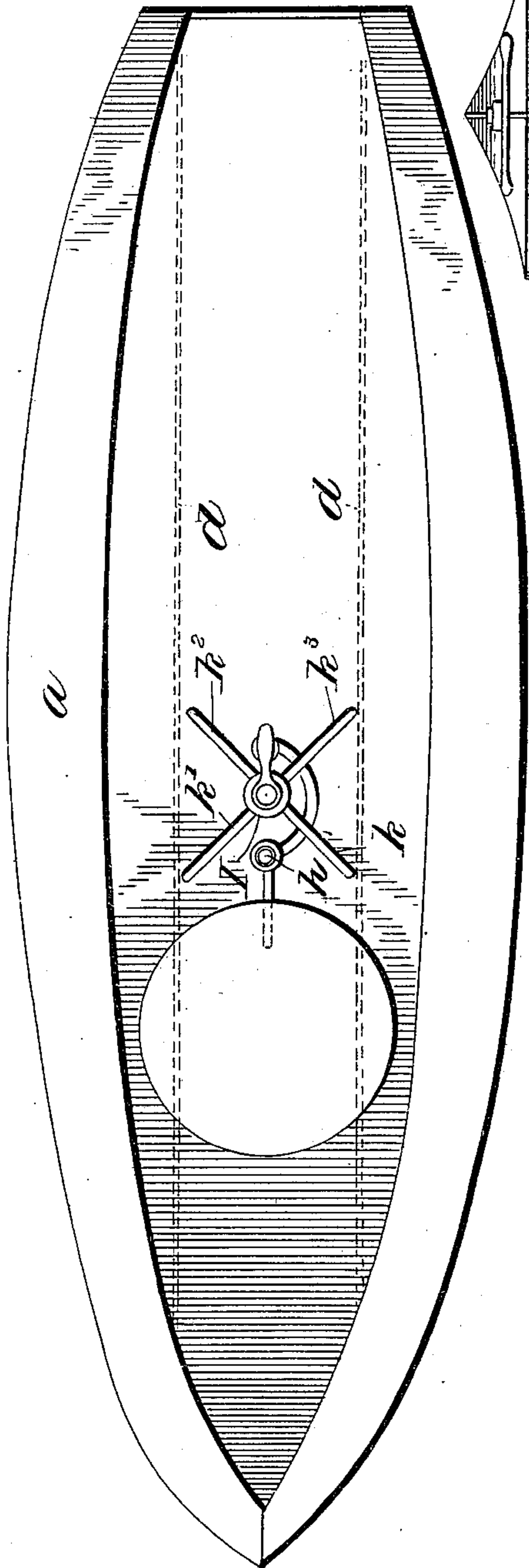
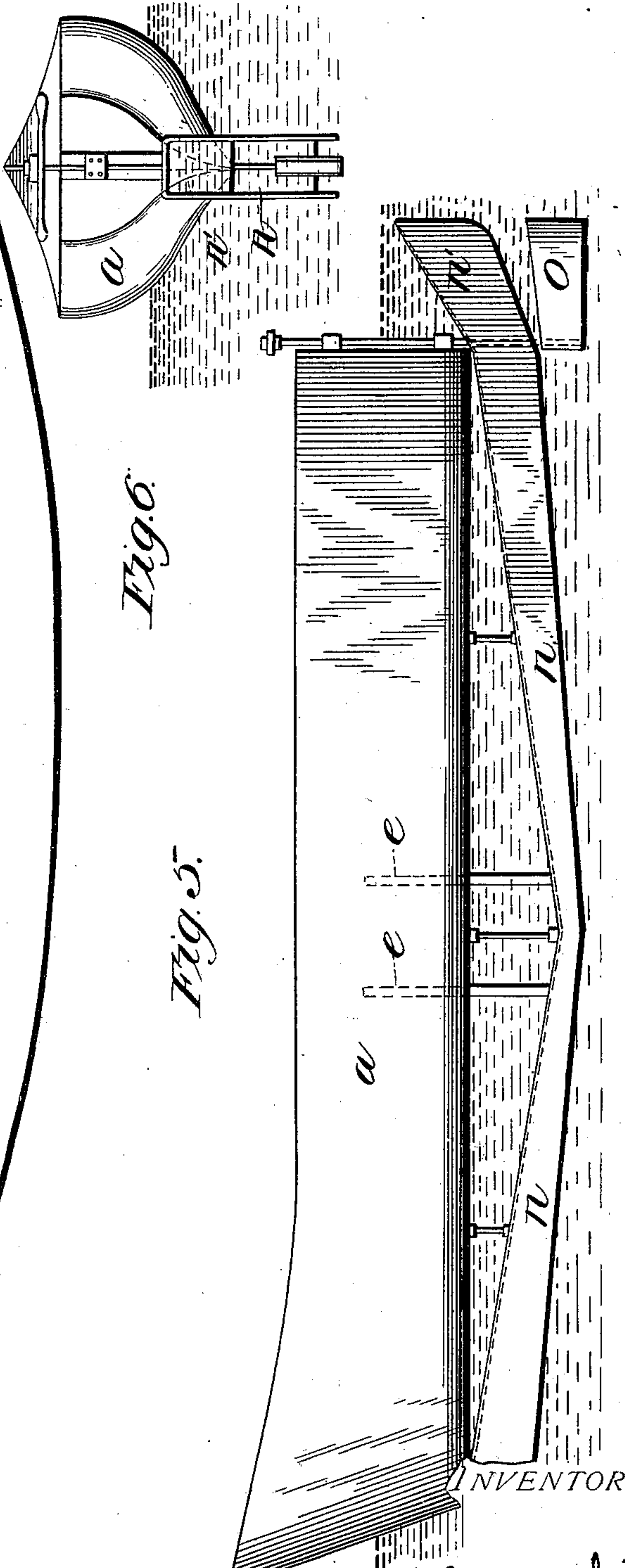


Fig. 6.

Fig. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CONSTANTIN JANCZARSKI, OF HUGHESOVKA, RUSSIA.

## PNEUMATIC PROPELLING AND STEERING DEVICE FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 658,265, dated September 18, 1900.

Application filed February 24, 1900. Serial No. 6,390. (No model.)

*To all whom it may concern:*

Be it known that I, CONSTANTIN JANCZARSKI, a subject of the Emperor of Russia, residing at Hughesovka, Russia, have invented  
5 new and useful Improvements in the Propulsion and Steering of Ships, Boats, and Like Vessels, of which the following is a specification.

This invention relates to improvements in  
10 the propulsion and steering of ships, boats, and like vessels.

According to the invention I make use of the following principle—that is to say, when a board, for example, is immersed in water  
15 at an inclination and air or a suitable gas forced under the same the said inclined board or the like will have motion imparted to it by the pressure due to the tendency of the air to rise vertically to the surface of the water. This principle I apply to the propulsion  
20 of vessels by inclining the bottoms of the hulls thereof and forcing air under the inclined planes near the lowermost points of the said planes, the said air exerting pressure upon  
25 the planes, so as to impart motion to the vessel in the manner above described.

In the accompanying drawings, Figure 1 is a longitudinal section of a boat provided with generating apparatus for propelling it according to the invention. Fig. 2 is a vertical  
30 section of a suitable air-injector. Fig. 3 is a plan view of a modified construction of boat constructed according to the invention. Fig. 4 is a view of a detail; and Figs. 5 and 6 are  
35 a side elevation and an end view, respectively, of a further modification.

Fig. 1 is a longitudinal section of a boat, showing apparatus for injecting air under pressure into the supply-pipes *ee*. The said  
40 arrangement comprises a steam-boiler *g*, from which steam is conveyed through the pipe *g'* to an injector *h*, which sucks in air and supplies it to the pipes *ee*. *i* is a three-way valve for controlling the supply of compressed air  
45 and steam to either of the pipes *ee*, as may be desired.

Fig. 2 is a longitudinal section of an air-injector which can be suitably employed with this arrangement. It comprises the body *j*,  
50 provided with the internal steam-nozzle *j'*, the

said body being screwed upon the valve *i* at one end and having screwed upon its other end the air-inlet pipe *j<sup>2</sup>*.

Fig. 4 is a plan view of a boat wherein four supply-pipes *k k' k<sup>2</sup> k<sup>3</sup>* are employed arranged  
55 in pairs upon either side of the meeting-point of the two inclined propelling planes, the two pipes of each pair being located upon the two sides of a medium longitudinal vertical plane through the boat. This arrangement of four  
60 supply-pipes permits of the vessel being steered by means of the compressed air or other gas, and to enable the said compressed air or gas to be fed to any one or more of the  
65 pipes, as may be required, I advantageously provide the distributing device shown to a larger scale than Fig. 4. The said device comprises a casing *l*, into which the four pipes  
70 *k k' k<sup>2</sup> k<sup>3</sup>* open, and which receives a valve-plug *m*, provided with a transverse passage *m'* in communication with a peripheral passage *m<sup>2</sup>*, the said latter passage being of such  
75 a width that it can place any two consecutive pipes *k k' k<sup>2</sup> k<sup>3</sup>* into communication with one another. By rotating the plug the two former  
80 pipes or the two latter pipes may be placed in communication with the supply of air or other gas under pressure, or the said gas may be supplied to any one of these pipes only or to  
85 any two pipes for purposes of steering. For example, when the plug is in the position shown in the figure the boat is propelled forward, by turning the plug through an angle  
90 of one hundred and eighty degrees the motion of the boat is reversed, by turning it slightly to the right or left the direction of  
95 motion of the vessel is correspondingly altered, by rotating the plug through an angle of forty-five degrees the gas is supplied to the  
100 pipes *k' k<sup>3</sup>* or *k k<sup>2</sup>*, and, finally, by turning the plug through an angle of ninety degrees the supply of gas is cut off and the vessel is stopped.

Figs. 5 and 6 illustrate a modification. In this arrangement instead of inclining the bottom of the vessel's hull, as in the constructions above described, a pair of inclined  
95 troughs or the like *nn* are suitably attached to the bottom of the vessel, the said troughs inclining upward from the middle of the boat  
100



to the bow and stern, respectively, as in the case of the inclined bottom. A supplemental trough *n'* is provided at the end of the rearwardly-extending trough and is at a greater incline to the horizontal plane. This gives force to the ascending air, and thus drives the vessel with the same power which the air had at the time when it was at a greater depth in the water. The air is injected through the pipes *e e* in a similar manner to that above mentioned. In this boat I have shown a rudder *o* for steering, although it is obvious that I can utilize the air-supply in the manner above described, either in lieu of the rudder or in conjunction therewith.

By employing air at a pressure corresponding to the weight of a column of water extending from the water-level to the bottom of the inclined planes I insure the air after passing under the hull reaching the surface with practically no velocity, so that no eddies or prejudicial currents are set up.

Although I have described a steam-jet device for supplying the compressed air for driving the vessel, I wish it to be understood that I can employ any other means suitable for this purpose. Furthermore, instead of air other gases could be used—for example, the products of combustion or explosion from a thermodynamic engine, carbonic-acid gas, &c.

Having now particularly described and ascertained the nature of my said invention and

in what manner the same is to be performed, I declare that what I claim is—

1. In a boat, the combination with the hull, of troughs provided on the under side thereof and adapted to slant upward from the center to the bow and stern respectively, ports in the bottom of said hull adjacent to the sides of and communicating with said troughs and on either side of the center of said hull, pipes leading to said ports, a three-way cock governing the air-supply to said pipes, and an air-injector adapted to supply air under pressure thereto, substantially as described.

2. In a boat, the combination with the hull, of troughs provided on the under side thereof and adapted to slant upward from the center to the bow and stern respectively, a supplemental trough provided at the end of the rearwardly-extending trough and inclined upward and outward from the stern of said hull, ports in the bottom of said hull communicating with said troughs, supply-pipes leading to said ports, a valve governing the air-supply to said pipes, an air-injector adapted to supply air thereto under pressure and means for steering said boat, substantially as described.

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