

R. PINTSCH.  
FLOATING SIGNAL-LIGHT.

No. 190,979.

Patented May 22, 1877.

Fig. 1.

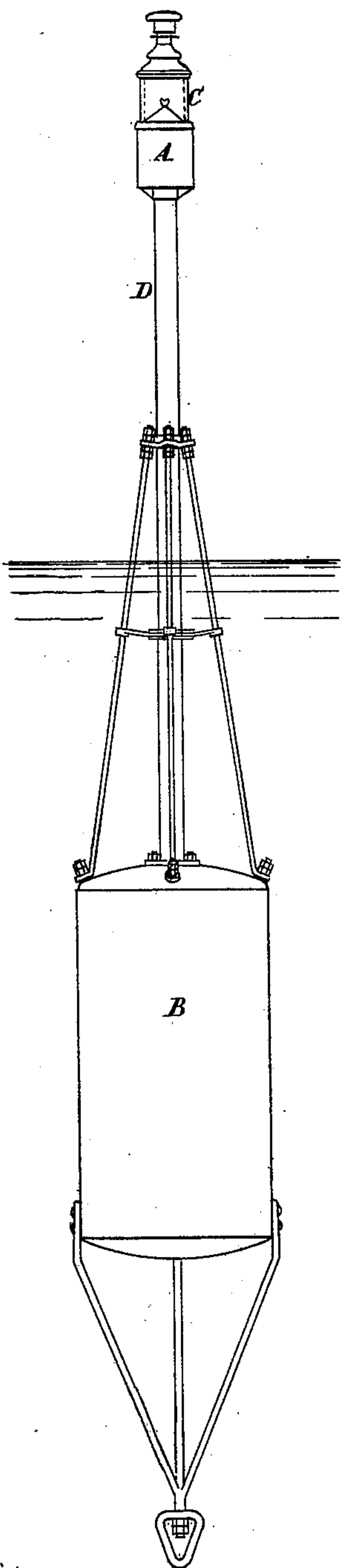


Fig. 4.

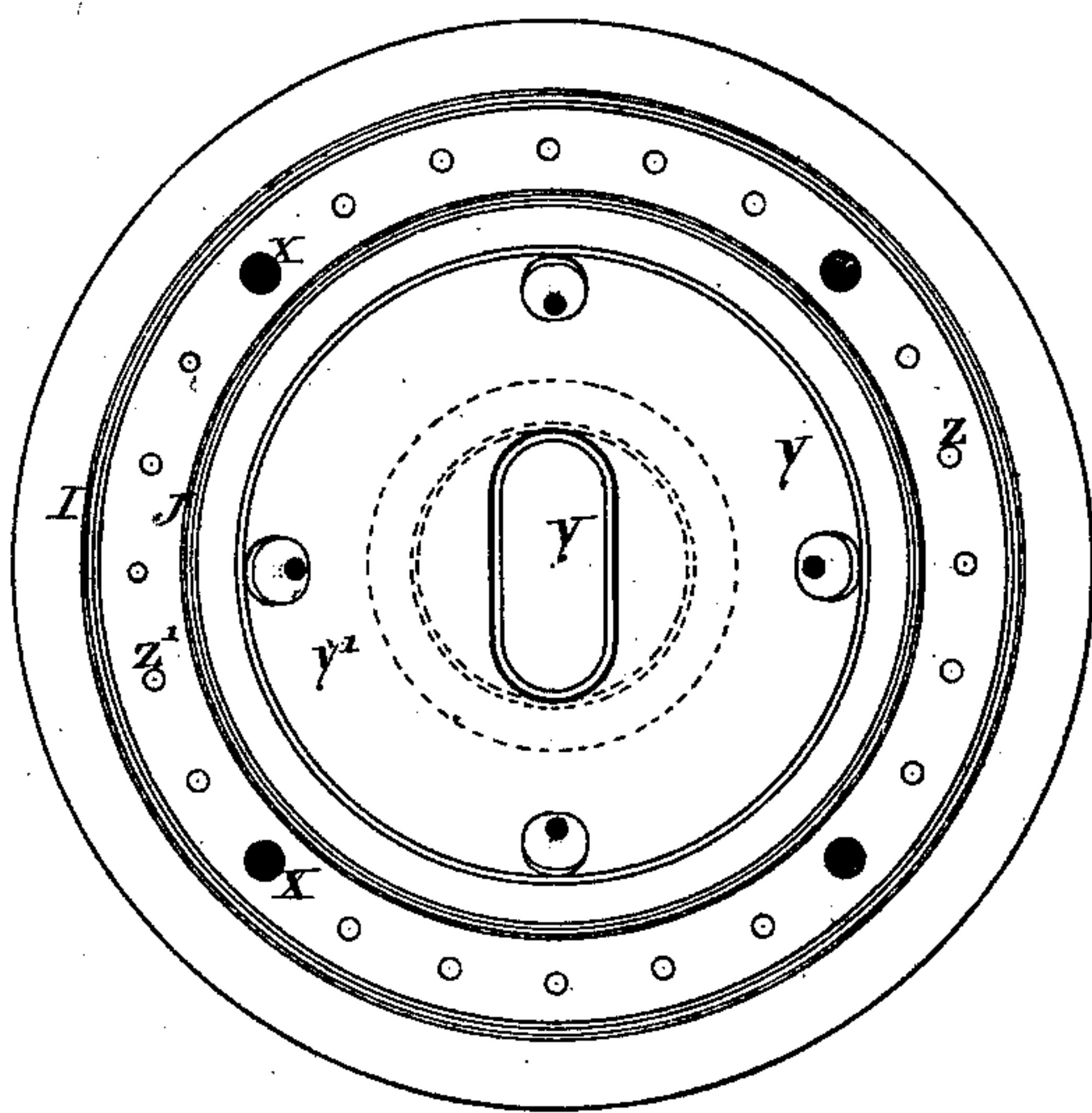


Fig. 5.

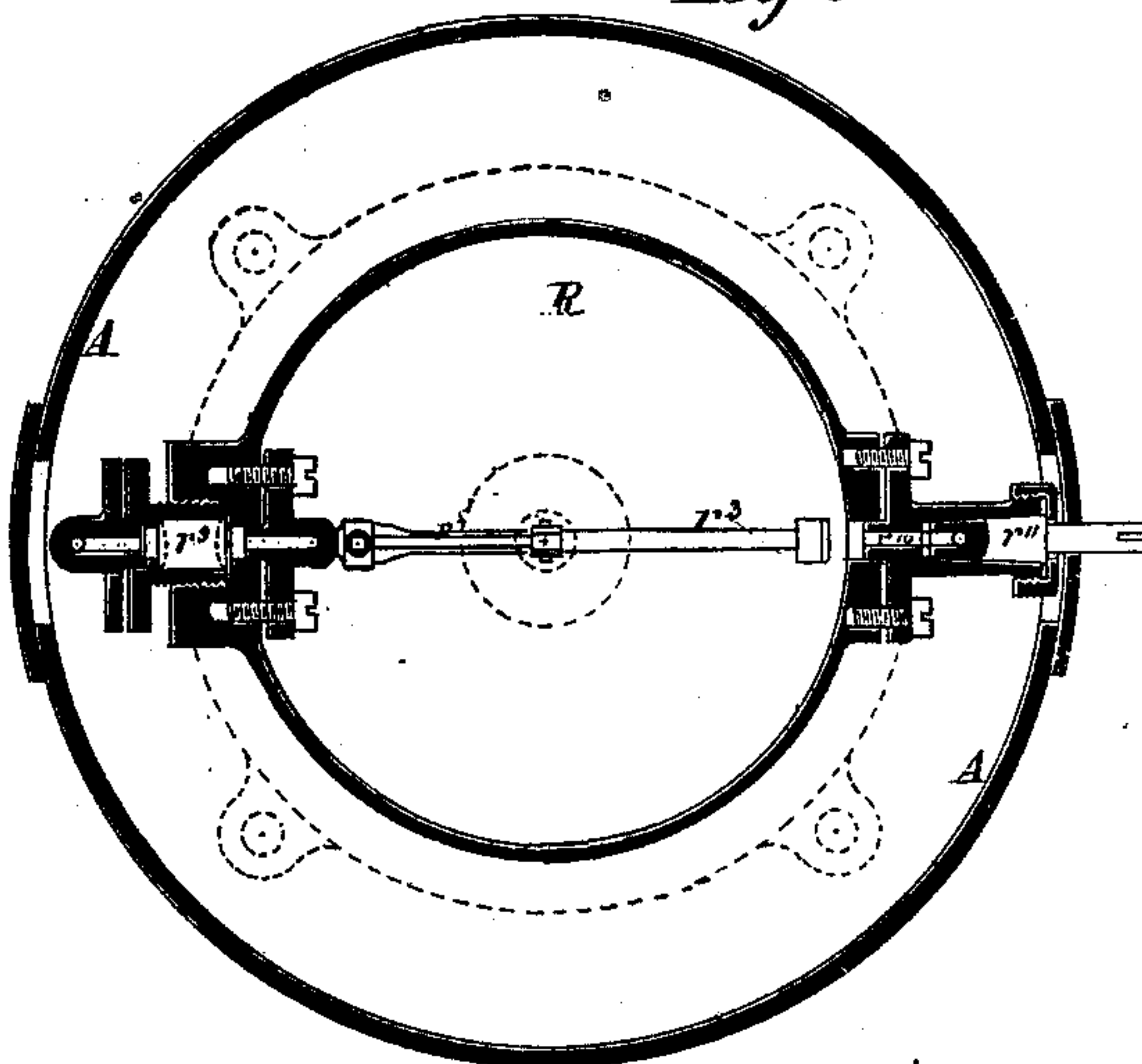
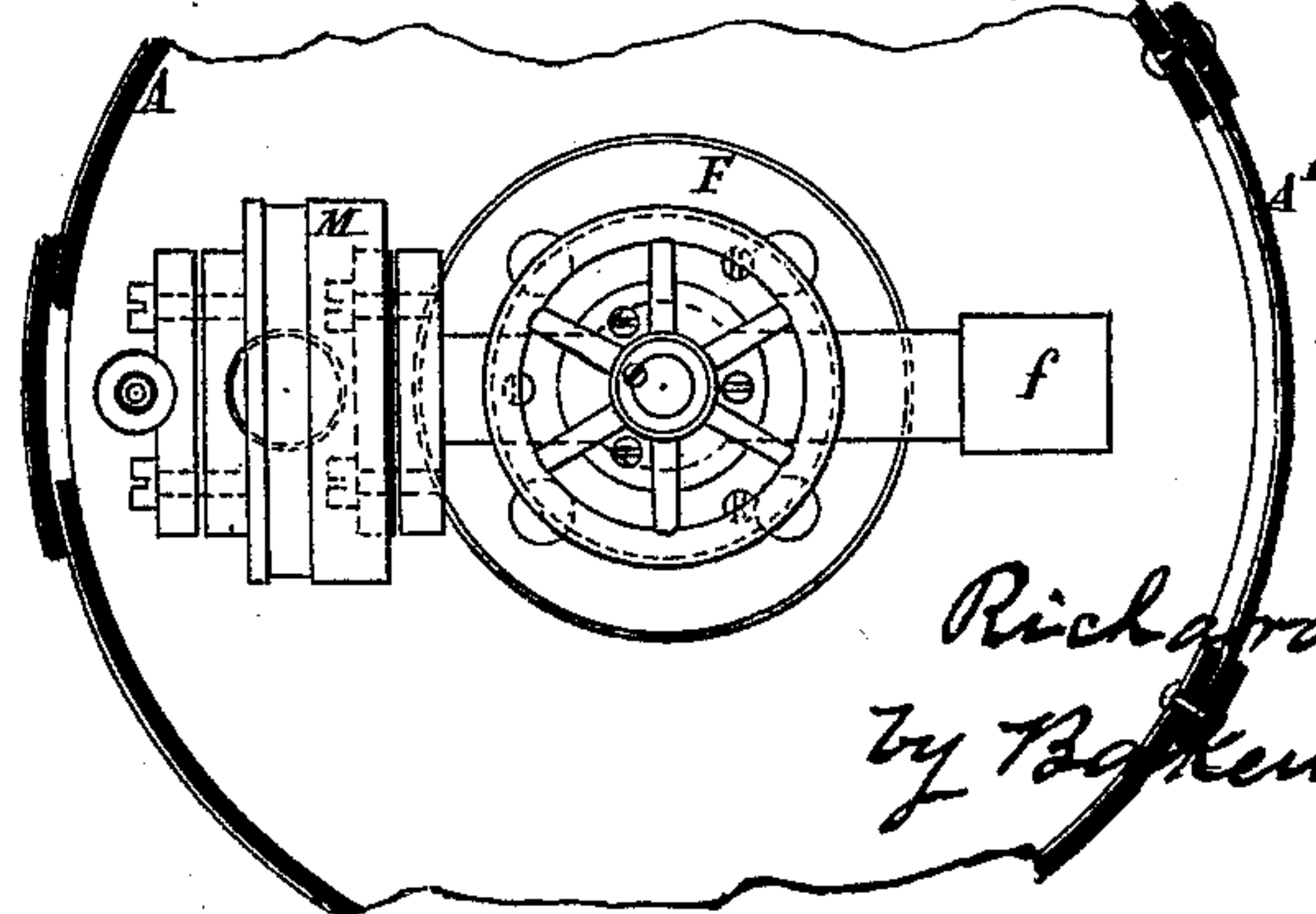


Fig. 6.



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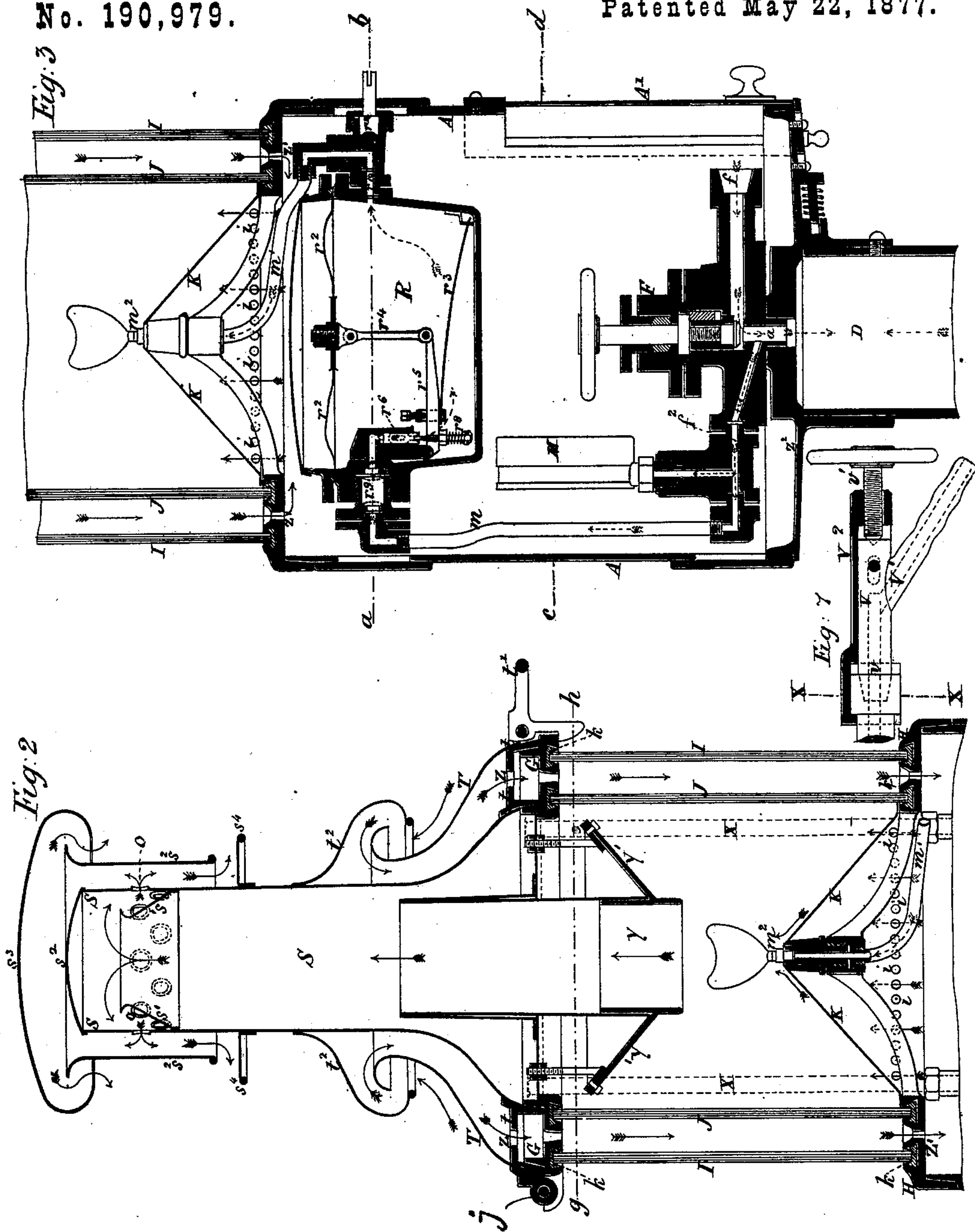
Witnesses  
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# UNITED STATES PATENT OFFICE.

RICHARD PINTSCH, OF BERLIN, PRUSSIA.

## IMPROVEMENT IN FLOATING SIGNAL-LIGHTS.

Specification forming part of Letters Patent No. **190,979**, dated May 22, 1877; application filed January 23, 1877.

*To all whom it may concern:*

Be it known that I, RICHARD PINTSCH, of Berlin, Prussia, engineer, have invented an Improvement in Floating Lights; and do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent—that is to say:

This invention relates more particularly to improved means and apparatus whereby buoys moored off the sea-coast, or in other waterways, are rendered available as floating lights, for indicating their position at night or in dark weather, such apparatus being also available for use in light-ships, or for floating lights generally.

The invention consists, mainly, in utilizing such buoys as recipients for illuminating-gas under pressure, which is supplied thereto at intervals from a reservoir on board a boat by means of flexible hose temporarily attached to an inlet-pipe, with stop-cock on the buoy. A vertical tube leads from the latter to a lantern raised some height above the water-level, in which are one or more gas-burners, supplied with gas from the interior of the buoy, a regulator being provided at any convenient point of the supply-pipe for reducing the pressure of the gas, as it passes from the buoy, to the ordinary pressure of illuminating-gas before it issues from the burner or burners.

The construction and the arrangement of such apparatus, which I prefer to employ for the purposes of my invention, are shown on the accompanying drawing, in which—

Figure 1 shows an elevation of the buoy and lantern. Figs. 2 and 3 show an enlarged vertical section, respectively, of the lantern and of the casing below. Figs. 4 to 6 show cross-sections, taken respectively on lines *gh*, *ab*, and *c d*, Figs. 2 and 3. Fig. 7 shows a longitudinal section, and Fig. 8 a cross-section at X X, of a device for connecting the charging-hose to the inlet-pipe of the buoy, for filling the latter with gas.

The recipient or buoy B, Fig. 1, is construct-

ed of strong sheet metal, of cylindrical or other suitable form, capable of withstanding considerable internal pressure. It is secured at its lower end to any suitable moorings, in the usual manner, and has fixed on its upper end a tube, D, strengthened by stays, and carrying at its upper end a casing, A, surmounted by a lantern, C.

The tube D serves both to convey the supply of gas under pressure from the charging-reservoir into the buoy, and to conduct the gas from the buoy to the burner  $m^2$  in the lantern. For the first-named purpose the tube has at its upper end, within the casing A, a side branch, *f*, the communication between which and the tube is closed by a screw-valve, F. The branch *f* has a coned recess at its end, as shown, for receiving the coned end *v* of the nozzle V, Fig. 7, the branch  $V^1$  of which is attached to a flexible pipe leading to the charging-reservoir.

For charging the buoy, the boat, with the reservoir for compressed gas, is brought close alongside, and a sliding door, A', in the casing being opened, the end *v* of the nozzle V is placed inside the socket of the branch *f*, and is forced gas-tight therein by means of a screw,  $v'$ , carried by a sleeve,  $V^2$ , connected to the nozzle, and having a claw, embracing a collar on the branch *f*, as shown. The nozzle having been securely fixed, the screw-valve F is opened, and the compressed gas is allowed to flow from the reservoir into the buoy until the pressure-gage M, fixed on another branch pipe,  $f^2$ , indicates that the gas in the buoy has attained the required degree of compression. The valve F is then again closed and the supply-hose detached. The compressed gas now passes from the buoy, through the passage  $f^2$  and pipe *m*, into the regulator R, which is, by preference, of the same construction as that described in my previous patent of 4th May, 1875, No. 162,946, in which the gas flowing from the pipe *m* passes, through the dust-collector  $r^3$  and valve  $r^6$ , into the chamber R, in which is a lever  $r^5$ , connected to the valve  $r^6$ , and also to an impermeable flexible diaphragm,  $r^2$ , by a rod,  $r^4$ , so that the pressure of the gas entering the chamber tends to raise the diaphragm, and so to close the inlet-valve more or less.



A spring,  $r^3$ , is connected to and acts upon the lever  $r^5$ , in such a manner as to hold the valve open in the exact position for admitting sufficient gas to maintain the required pressure in the regulator. A second spring,  $r^8$ , is also connected to the lever  $r^5$  and to the stem of the valve, so that when the lantern is made to assume an inclined or nearly horizontal position by the action of the waves, this spring will replace the action of gravity in pulling the valve open after it has been closed through excess of pressure.

From the regulator the gas passes, through the passage  $r^{10}$  and cock  $r^{11}$ , to the pipe  $m^1$ , whence it passes to the burner  $m^2$ . The cock  $r^{11}$  can be turned from outside the casing to adjust the flame of the burner.

The lantern consists of two concentric glass cylinders, I J, fitting with their upper and lower ends air-tight against caoutchouc packing  $k$  in undercut grooves formed in metal rings G H, of which H is fixed to the casing A, while G is tied down to H by means of tie-bolts X. The top of the lantern is closed by a cover, T, hinged to the ring G at  $j$ , and fitting with beveled rims  $t$ , in an air-tight manner, against corresponding rims on G, and secured by a catch,  $t^1$ . The cover has, first, a chimney, S, into which the products of combustion from the burner are led through the chimney  $y$ , which is, by preference, of oval transverse section, as shown at Fig. 4, and is supported by the upper reflector  $y'$ . The chimney S is closed by a cap,  $s$ , at top, the gases being made to escape through the conical piece  $s^1$  and holes  $o$ , protected by the wind-guard  $s^2$   $s^3$ , and also by a projecting rim,  $s^4$ , against the action of the wind, and also against the ingress of water-spray. The air for supporting combustion enters through the wind-guard  $t^2$ , and, passing through holes Z into the annular space between the two glass cylinders I J, descends therein, and issues through holes  $Z^1$  in the ring H into the space below the reflector K, whence it passes, through a number of small holes,  $i$ , in the reflector, into the interior of the lantern. Any water-spray that may possibly find its way through the wind-guard will flow off through the holes Z  $Z^1$ , and through other holes,  $Z^2$ , in the bottom of the casing A, without interfering with the action of the lamp.

It will be readily understood that the above-described arrangement of a reservoir for compressed illuminating-gas, in combination with the regulator and lantern, may also be used with advantage on board light-ships without further invention.

Having thus described the nature of this invention, and in what manner the same is to be performed, I claim—

1. The combination of a buoy or floating recipient for compressed illuminating-gas with a lamp and a regulating apparatus, for reducing the pressure of the gas as it passes from the recipient to the burner, substantially as herein described.

2. An illuminating apparatus for floating lights, consisting of a recipient for compressed illuminating-gas, with charging-inlet closed by a valve, combined with a regulator and gas-burner, arranged and operating substantially as herein described.

3. In a lantern for floating lights, the combination of the two concentric cylinders which surround the burner with the wind-guard  $t^2$  and perforated reflector K, substantially as and for the purpose specified.

4. In lanterns for floating lights, the concentric glass cylinders I J, secured with caoutchouc packing  $k$  in metal rings G H, having holes Z for the inlet of air, in combination with the hinged cover T and chimney S, arranged and operating substantially as herein described.

5. In illuminating apparatus for floating lights, the lantern H G I J, with burner  $m^2$ , in combination with the closed casing A, containing the regulator R and charging-inlet F, communicating with the tube D, substantially as herein described.

6. In a lantern for floating lights, the combination of chimney S, and its conical piece and cap, with the wind-guard and the burner and its chimney, substantially as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

RICHARD PINTSCH.

Witnesses:

BERTHOLD ROE,  
ROBERT GOTTHEIL.