

W. W. DUNGAN.

Apparatus for Steering Vessels by Steam.

No. 136,493.

Patented March 4, 1873.

Fig. 1.

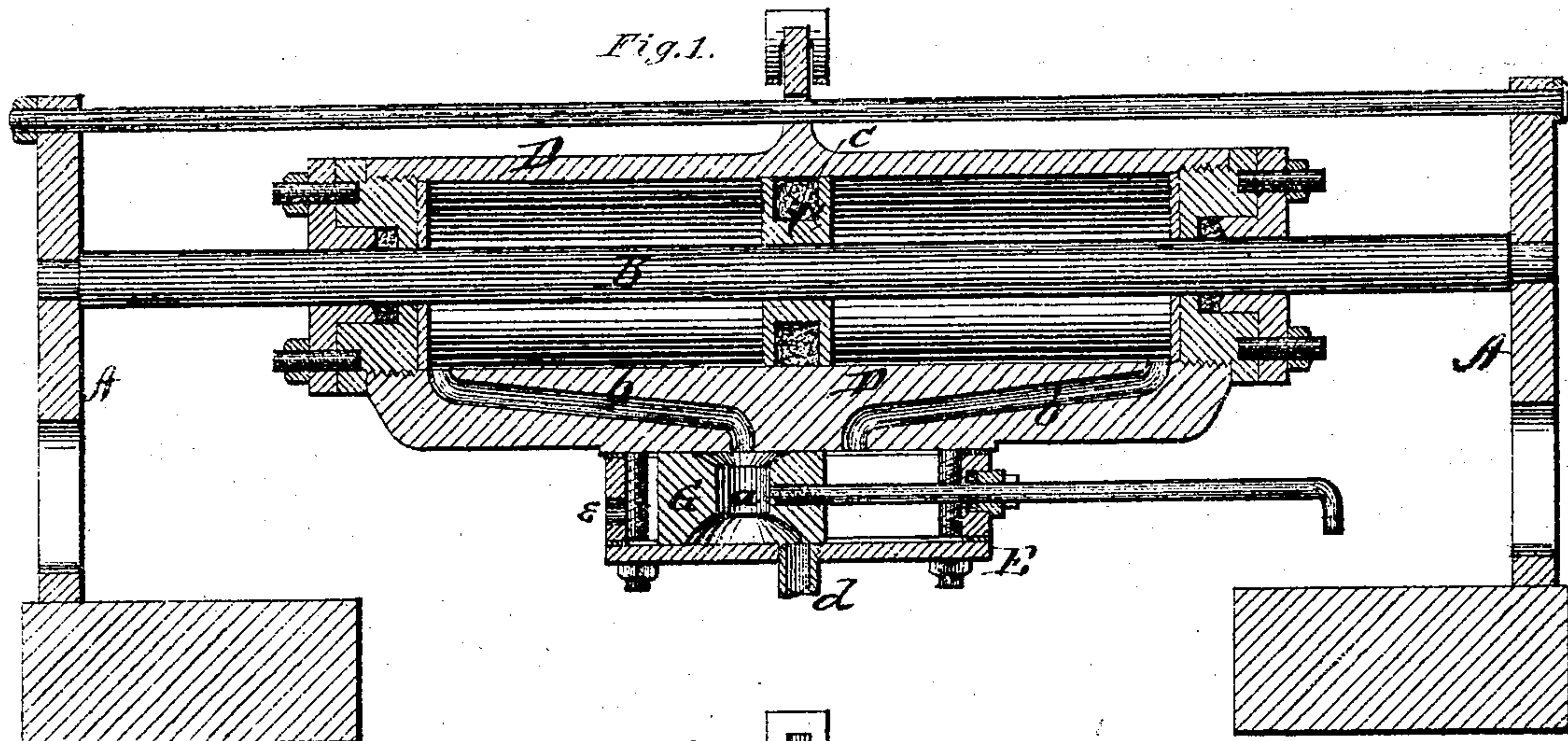


Fig. 2.

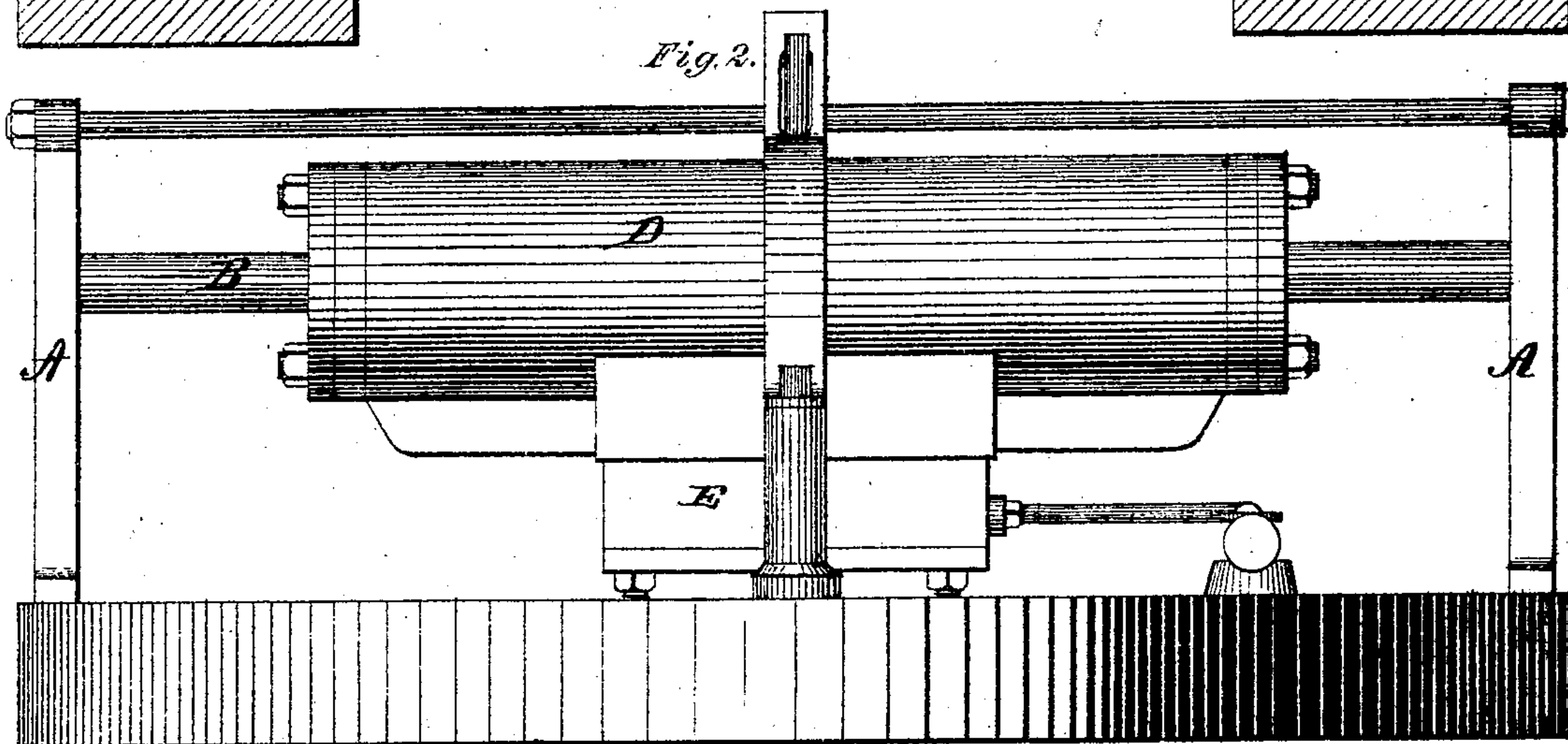
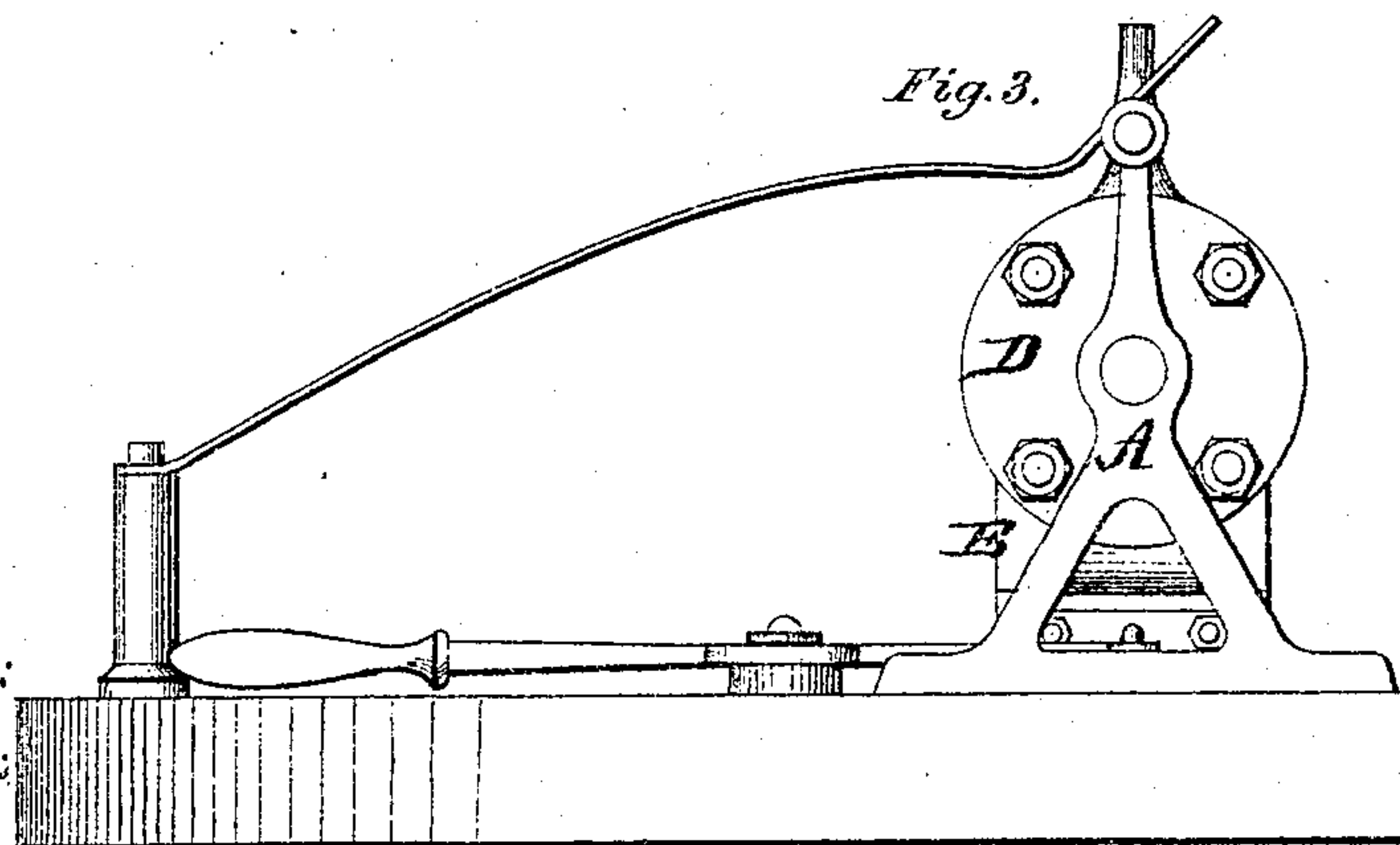


Fig. 3.



Witness:  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN APPARATUS FOR STEERING VESSELS BY STEAM.

Specification forming part of Letters Patent No. 136,493, dated March 4, 1873.

*To all whom it may concern:*

Be it known that I, W. W. DUNGAN, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Apparatus for Steering Vessels by Steam; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a stationary piston with a movable cylinder and steam-chest, with valve on said cylinder for steering vessels by steam, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section; Fig. 2, a side elevation; and Fig. 3, an end view of my apparatus for steering vessels by steam.

A A represent two standards or supports, in the upper ends of which is placed a piston-rod, B. Upon this shaft is firmly secured a piston, C. D represents a cylinder of any suitable dimensions, through which the piston-rod B passes, and within which the piston C fits steam-tight.

It is of course understood that the piston should be provided with suitable packing, and the ends of the cylinder around the rod with packing-boxes, to render all the joints perfectly steam-tight.

Under the center of the cylinder D is formed or attached the steam-chest E, having the valve G, with a steam-port *a* through its center. *b b* are the steam channels in the cylinder D, leading from near the center of the steam-chest to the ends of the cylinder. The steam enters the steam-chest through the port *d* in the center and exhausts through one or more ports, *e*, in one or both of the ends of the chest.

It will readily be seen that when the valve

G is moved so that the steam from the inducing-port *d* can pass through the port *a* in the valve, the steam will enter the cylinder through one of the channels or passages *b*, and the piston C being stationary while the cylinder is movable, the steam will move the cylinder in the same direction in which the valve was moved.

The object of making the piston stationary and the cylinder movable is to close the steam-port by the motion of the cylinder, for as the cylinder is moved by the incoming steam in the same direction as the valve the steam-port *b* will move beyond the port *a* and thus close itself. The steam being admitted to the cylinder from the inside of the valve and exhausted at the ends reverses the ordinary method of valves of this kind, and thereby causes the valve and cylinder to move in the same direction.

The valve G may be connected with a lever in the pilot-house, (by a series of rods, &c.,) traveling on an arc laid off in degrees, showing the position of the rudder. By placing the lever at any one of the points on the arc the valve is moved to a corresponding distance, and the cylinder moves up and closes the port, placing the rudder in the desired position. The condensation of steam will not affect its operation, as the slightest movement of the cylinder will open the proper port for the admission of steam, and the same will be the result in case the rudder is forced around by a sea.

The cylinder D may be connected to the tiller either by ropes, rack and pinion, or other suitable means. The valve is placed on the bottom of the cylinder to allow the condensed water to escape through the exhaust-ports.

The object of this device is to work the rudder rapidly and with but little manual labor, and to obtain that nicety and self-adjustment so necessary, especially in the often-required rapid change of direction of iron-clads, torpedo-boats, and rams, when engaged.

In large apparatus friction-rollers should be placed between the valve and the steam-chest cover.

The valve may be made balanced by placing a packing-ring on the back of the valve and forming a communication with the inner port

*a* of the valve and the room contained within the packing-ring.

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

The combination of the shaft B, stationary piston C, movable cylinder D with steam-channels *b b*, chest E with inlet *d* and outlet *e*, and the valve G with port *a*, all constructed and

arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of July, 1872.

WILLIAM W. DUNGAN.

Witnesses:

CALVIN PAGE,  
ASA WALKER.