J. S. Colvin.

Steering.

No. 26,652. Patented Jan. 3, 1860.

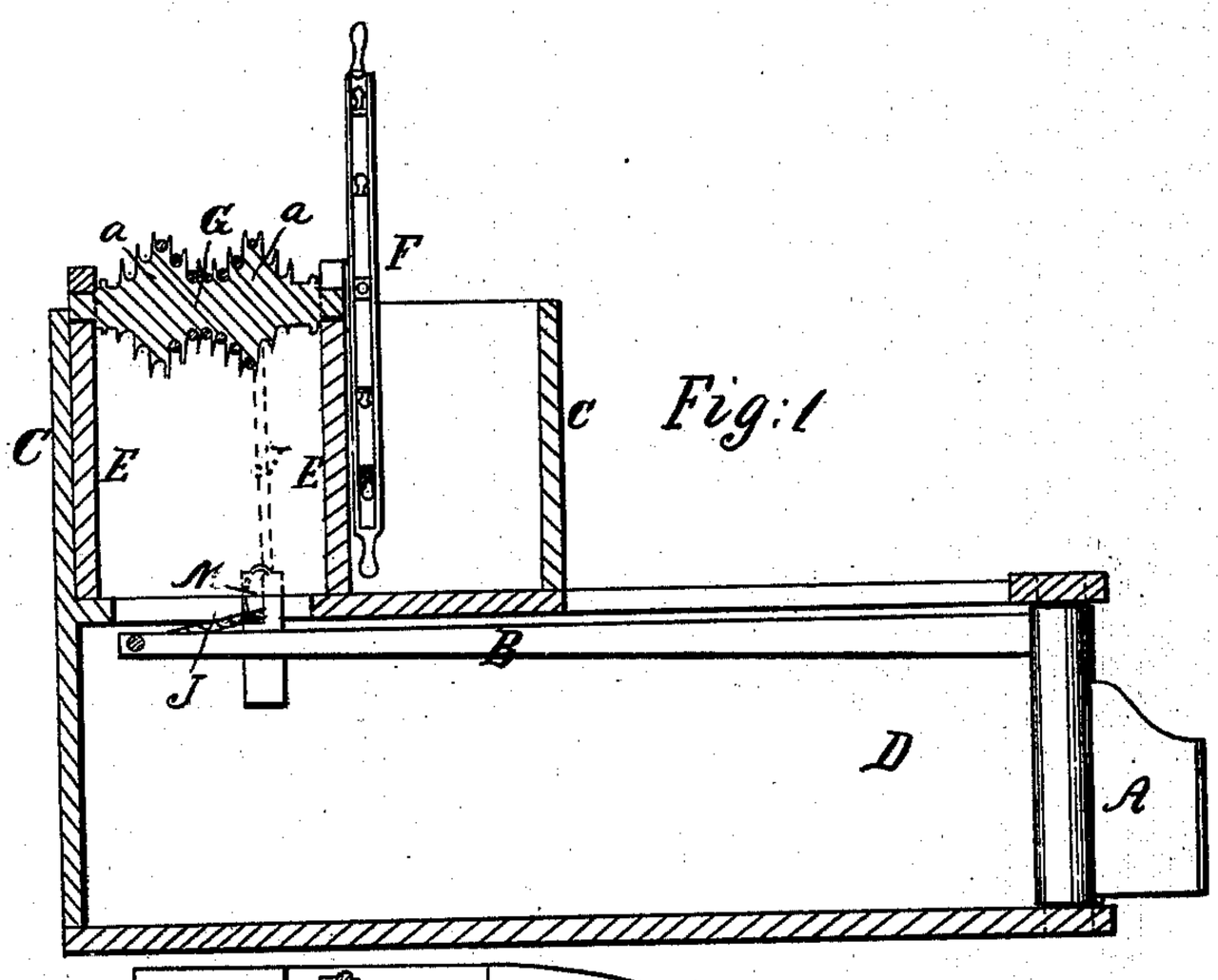

Fig: 1

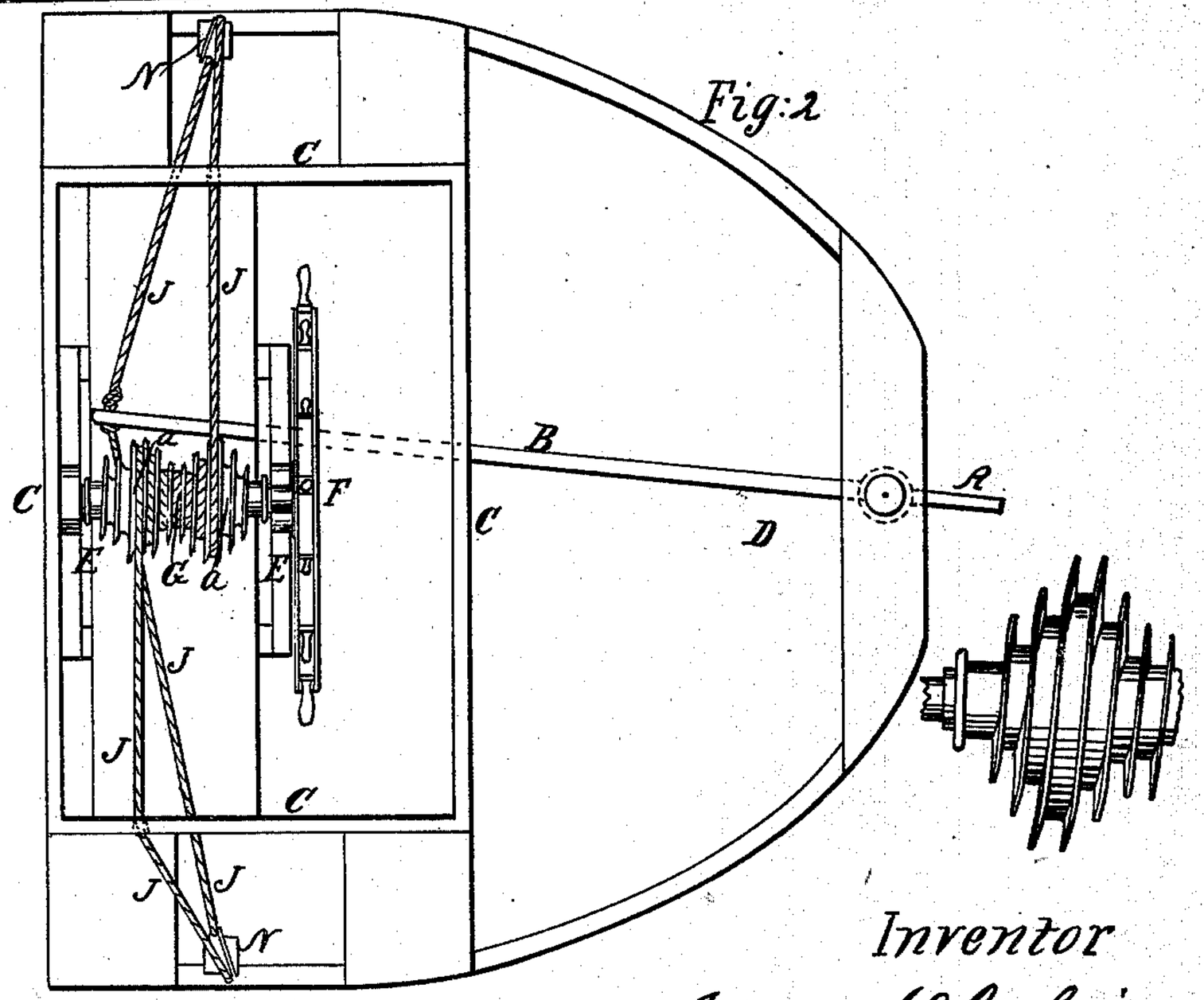

Fig: 2

Witnesses

Leonard S. Johns

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UNITED STATES PATENT OFFICE.

JAMES S. COLVIN, OF PITTSBURG, PENNSYLVANIA.

STEERING APPARATUS.

Specification of Letters Patent No. 26,652, dated January 3, 1860.

To all whom it may concern:

Be it known that I, JAMES S. COLVIN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Pilot-Wheel Drum; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section taken through the drum, wheel house and stern of the vessel, showing the construction of the drum and the arrangement of the tiller rope around the same. Fig. 2 is a plan view of the drum, wheel, and rudder showing clearly the arrangement of the parts and the manner of operating the rudder.

Similar letters of reference indicate corresponding parts in both figures.

The object of my invention and improvement is to give the pilot more perfect control of his vessel, by enabling him to move the rudder with greater speed, certainty and ease than has heretofore been accomplished.

In the present construction of pilot wheels a plain drum is used which if made small enough to move the rudder with ease when it is hard-round much time will be lost in moving it past the center, where but little power is required; and if the drum or axle be made large enough to move the rudders fast as desirable in passing the center, out of its parallel position with the ship, the pilot will not be able to put it hard-round; and furthermore where a plain drum is employed it is a well known fact that the tiller rope cannot be kept always taut, as the distance it traverses is not always the same, for instance, when the tiller is parallel with the sides of the vessel, the tiller rope is extended to its utmost, but when the tiller is brought around hard-a-port the line is straight and is as much shorter as the cord of the arc is to the arc described by the end of the tiller, therefore in using a plain drum an amount equal to this difference must remain.

My invention further remedies the difficulty experienced by the rope riding upon its previous turn which is a source of considerable annoyance at present.

To enable those skilled in the art to fully understand my invention I will proceed to describe its construction and operation.

A represents the rudder mounted and hung in the usual manner, and B, its tiller. C is the wheel-house, and D may be taken for the stern of the vessel. E E are the standards for supporting the axle, and F is the steering wheel. These parts are all in common with those now in use.

G is the axle composed of two double conical enlargements, *a a*, with deep grooves in their surface, running in a continuous channel from end to end of the axle, in which grooves is wound the tiller rope, J. This rope is passed around the drum or axle, G, a sufficient number of times and each end is carried to opposite sides of the vessel, and passed over pulley wheels, N N, and from these they are secured to the end of the tiller, B. Now by turning the steering wheel the rope will be alternately wound from one portion of the drum or double cone, *a*, to the other, the rudder moving, at the same time, in the two extreme opposite positions. The tiller rope is wound upon the cones in such a manner that their largest diameter shall move the rudder while nearly parallel, as shown by Figs. 1 and 2 of the drawing, thereby enabling the pilot to bring the rudder hard-round, or nearly so, with very little labor, as the reaction of the water against the rudder as the ship advances is very slight when it is parallel with the sides of the vessel, and gradually increases as the rudder is made to assume a position oblique to the plane of the masts and keel, therefore to obtain a sufficient leverage to hold the rudder in a firm and steady position, and, at the same time, with little expenditure of power, the axle gradually diminishes in diameter as the rudder is brought hard-round, and vice versa. The same number of revolutions of the steering or pilot wheel as are now required will put the rudder hard-round and every turn may be made with ease, speed will be obtained where it is most desirable and greater ease where it is indispensable.

In order to keep the tiller rope always taut I make the two inner parts of the spiral cones as much smaller than the outer as may be found necessary. This will also prevent

a tendency of the rope to ride, which is a source of considerable annoyance at present; and it will insure its remaining in the spiral grooves.

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

The employment of an axle or drum that is provided with four grooved cones arranged as shown for the purpose specified.

JAMES S. COLVIN.

Witnesses:

LEONARD S. JOHNS,

JNO. W. KLEIN.