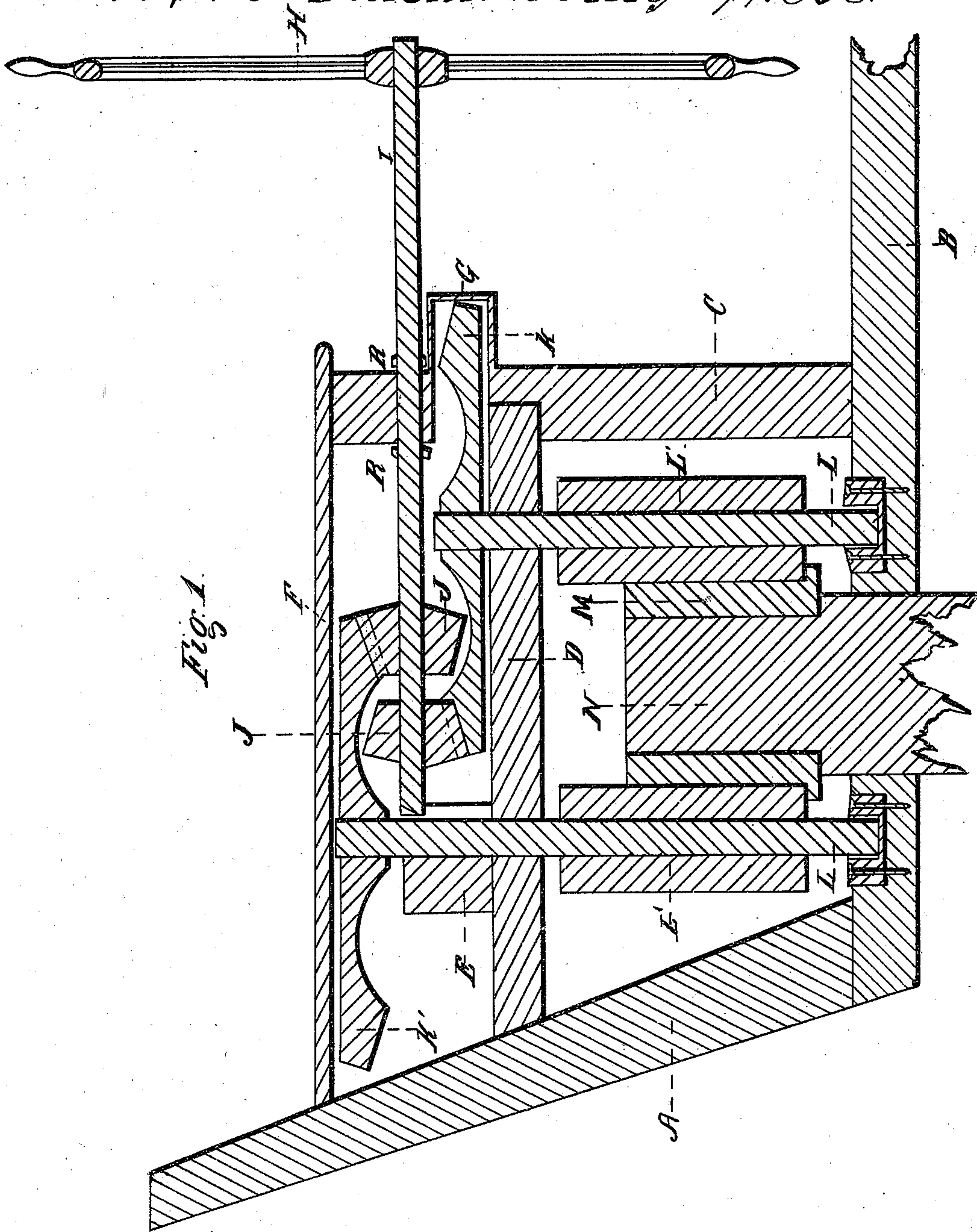
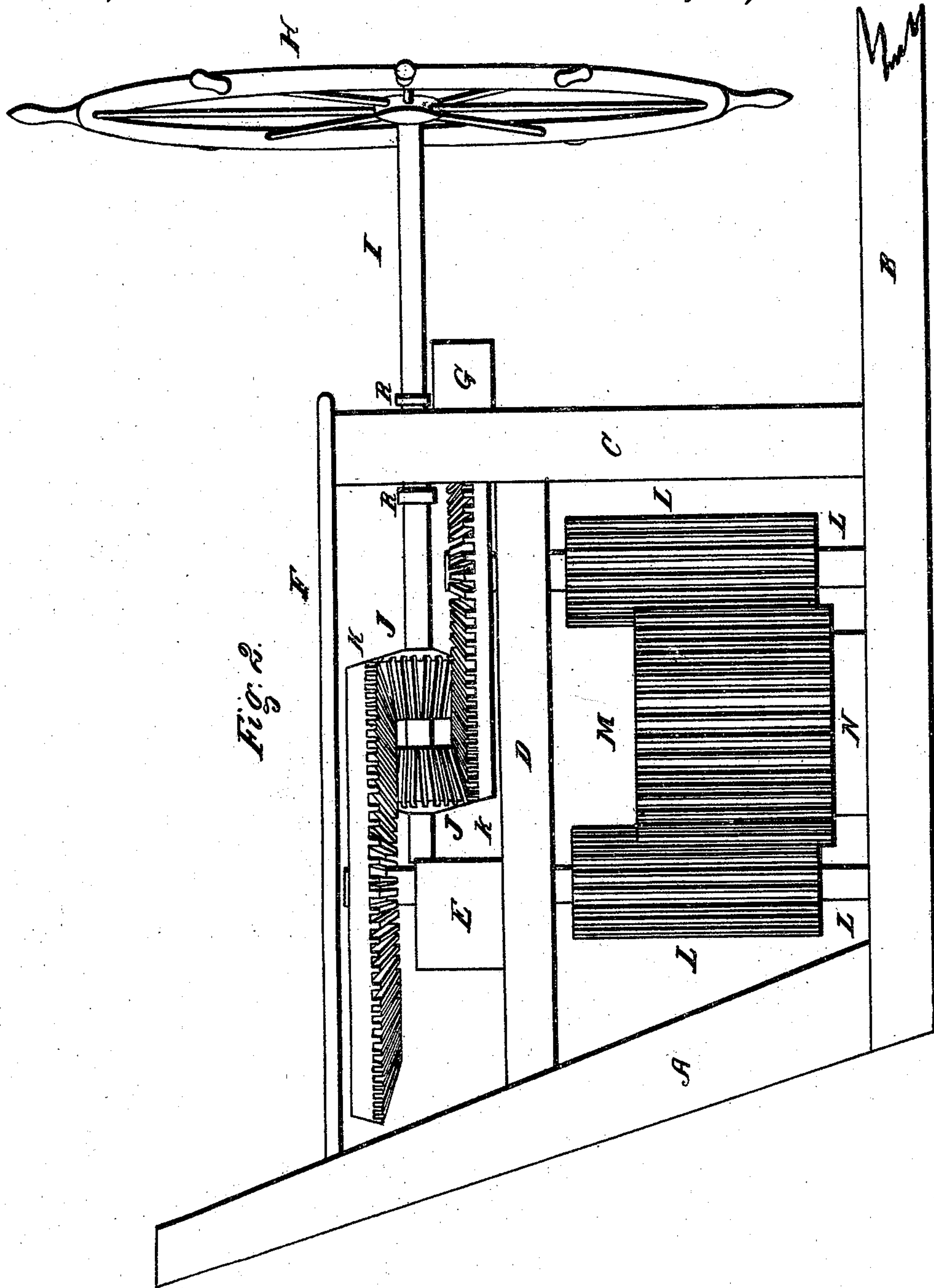


F. A. Morley. Sheet 1, 2, Sheets.
Steering App's.
N^o 21,210. Patented Aug. 17, 1858.



F. A. Morley. Sheets, 2 Sheets
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UNITED STATES PATENT OFFICE.

FRANKLIN A. MORLEY, OF SODUS POINT, NEW YORK.

STEERING APPARATUS.

Specification of Letters Patent No. 21,210, dated August 17, 1858.

To all whom it may concern:

Be it known that I, FRANKLIN A. MORLEY, of Sodus Point, in the county of Wayne and State of New York, have invented a new and useful Apparatus for Operating the Rudders of Vessels; and I do hereby declare that the same is described and represented in the following specifications and drawings.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

Figure 1 is an elevation of my invention with a section of the deck and taffrail of a vessel. Fig. 2 is a sectional elevation.

The nature of my invention consists in a combination and arrangement of gearing and shafts to operate the rudders of vessels and allow them ample room to traverse perpendicularly and vibrate slightly horizontally.

In the accompanying drawing A, is a section of the taffrail, and B, the section of the deck of a vessel, with the stem or shaft N, of a rudder projecting up through it, as shown in section Fig. 2.

C, is a post firmly fastened to the deck, and D, is a bar or girder firmly fastened to the taffrail and to the post C.

I, is a horizontal shaft fitted to turn freely in the post C, and box E, (fastened on the bar D). This shaft has the steering wheel H, fastened to it by which it may be turned to operate the pinions J, J, fastened to it, which pinions act on the gears K, K, to turn the shafts L, L, and pinions L', L', which act on the opposite sides of the gear M, fastened to the rudder head or shaft N, to turn it, and vibrate the rudder, to steer the vessel as desired. The shafts L, L, are fitted to turn in the bar D, and in boxes fastened to the deck B, as shown in section Fig. 2. The pinions L', L', are made longer than the gear M, so as to allow it to traverse perpendicularly or be shoved up between the pinions should the rudder strike the bottom or otherwise be moved upward, and the backlash or play in the gears and shafts will allow the head of the rudder to vibrate slightly horizontally or transversely, if the hole in the deck is large enough to permit it to do so.

The collar R, on the shaft I, may be so

placed as to allow the shaft to traverse a little, or have a little play endwise; so that the pinions J, J, may act with the same power or force on each of the gears K, K, and the hole in the box E, may be enlarged or made a little broader, horizontally, so as to let the end of the shaft I vibrate a little for the same purpose if desirable. This gearing may all be inclosed by a box the top of which is shown at F, and a circular case G, put around that portion of the wheel K, which projects through the post C.

Some of the advantages of my invention may be enumerated as follows: The rudder may traverse perpendicularly or rise and fall without deranging the gearing or disturbing any part of the work, hence it is perfectly reliable at all times, and under all circumstances when the rudder is unobstructed. The pinions act equally on the opposite sides of the wheel on the rudder head, so that there is the least possible friction. The size and strength of the gearing may be varied to adapt it to the circumstances in which it is to be used and to vary its force or power to the resistance to be overcome; while at the same time it is more compact and durable than most of the inventions for the same purpose.

I believe I have described and represented the apparatus which I have invented for operating the rudders of vessels, so as to enable any person skilled in the art to make and use it.

I will now state what I desire to secure by Letters Patent to wit:

1. I claim the combination of gears and shafts, arranged substantially as described, for operating the rudders of vessels and at the same time allow them ample room to traverse perpendicularly and vibrate slightly horizontally.

2. And in combination with the above I claim making the journals of the shaft I, longer than the boxes in which it turns, or elongating the hole in the box E, so the shaft can vibrate horizontally, or both of these devices combined to accommodate the pinions J, J, and make them act with the same power or force on each of the gears K, K, as described.

FRANKLIN A. MORLEY.

Witnesses:

CON. A. WALDRON, Jr.,
C. A. WALDRON.