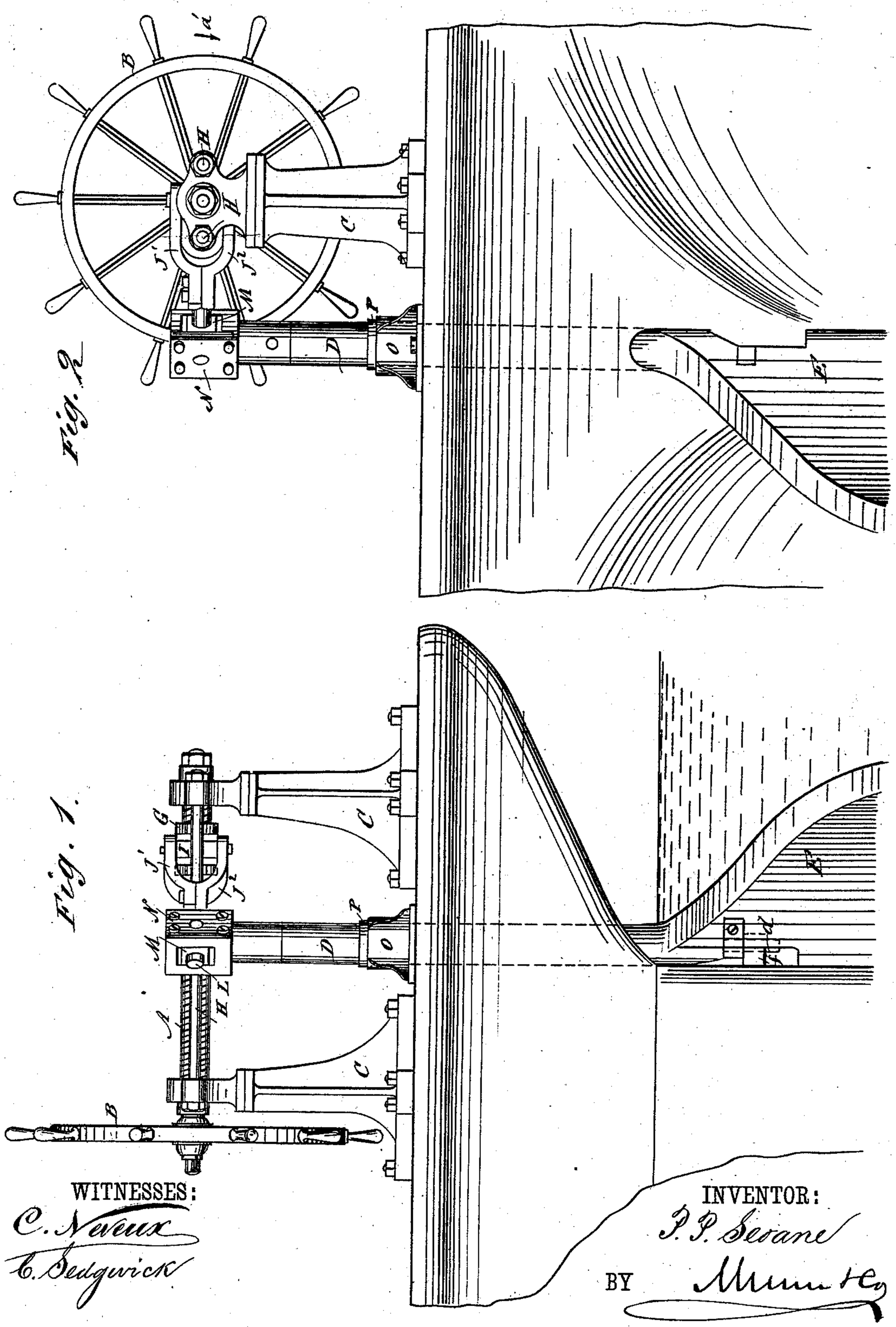
2 Sheets—Sheet 1.

P. P. SEOANE.

Steering Apparatus.

No. 223,395. Patented Jan. 6, 1880.



WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

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2 Sheets—Sheet 2.

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Fig. 5

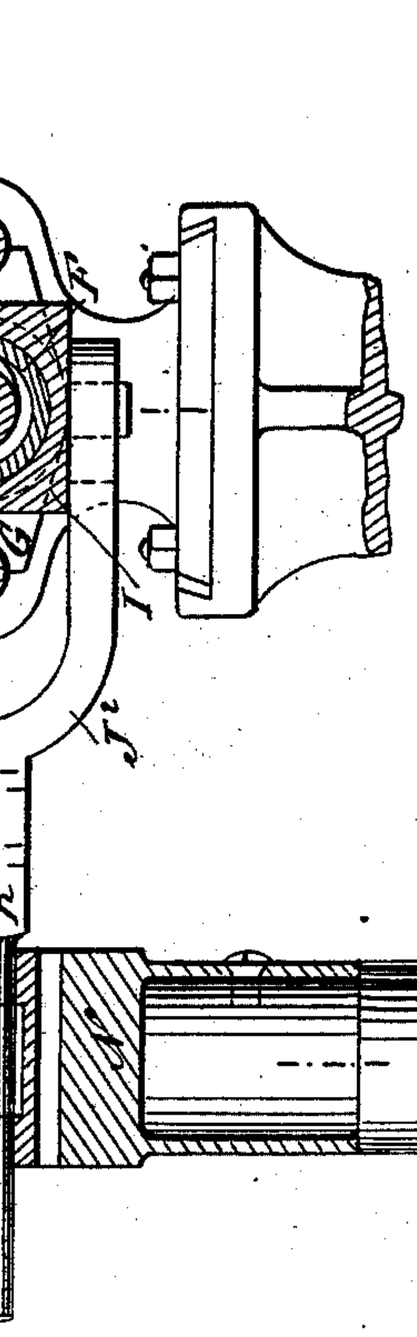


Fig. 6

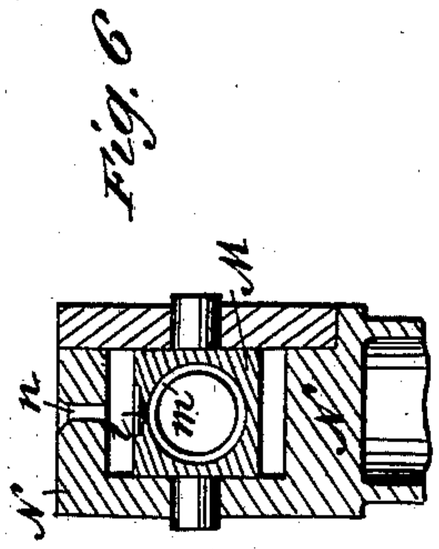
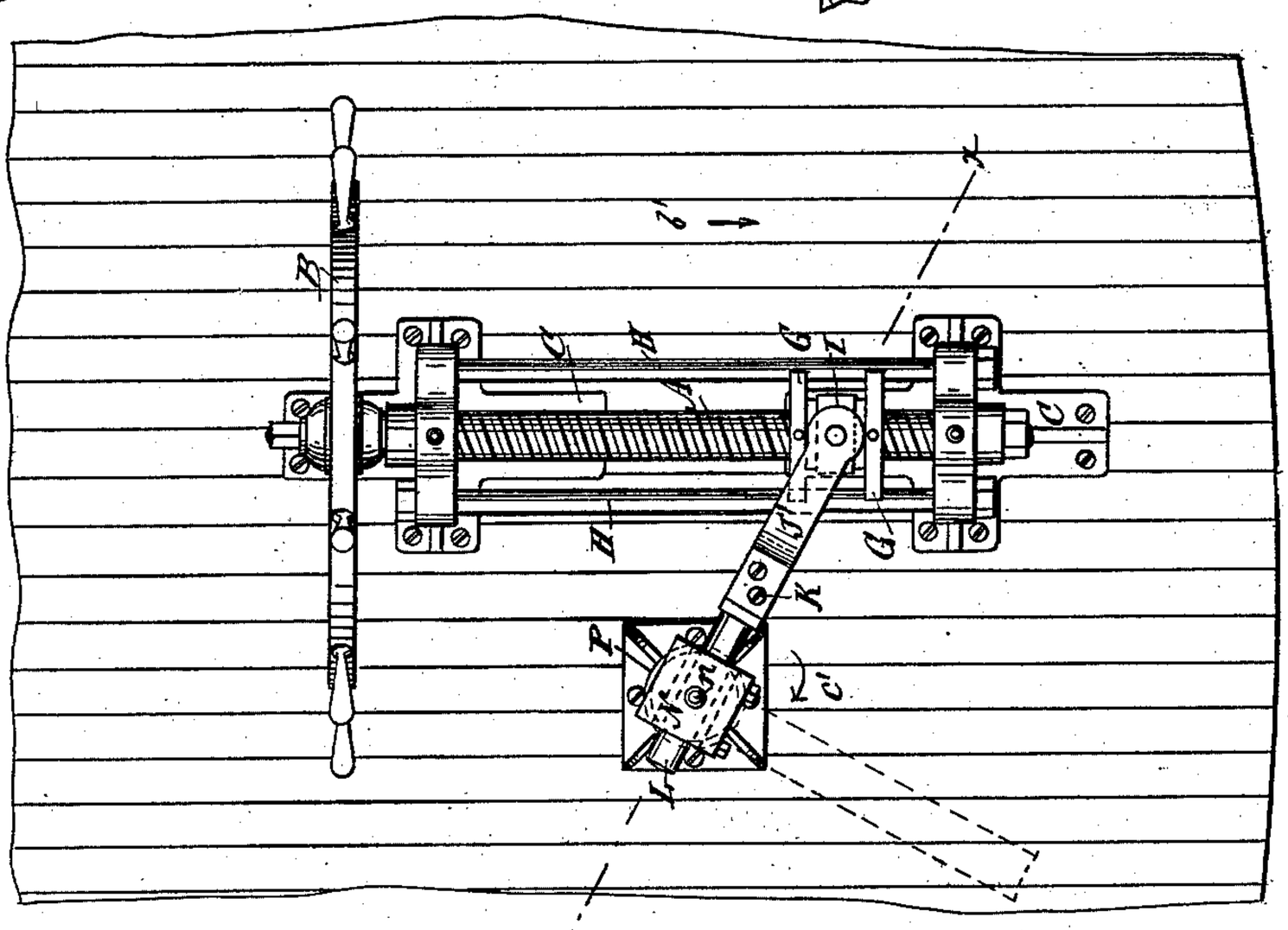


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE.

PABLO PEREZ SEOANE, OF HAVANA, CUBA.

STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 223,395, dated January 6, 1880.

Application filed November 14, 1879.

To all whom it may concern:

Be it known that I, PABLO PEREZ SEOANE, of Havana, Cuba, have invented a new and Improved Steering Apparatus, of which the following is a specification.

The steering apparatus that have been in use heretofore have frequently been broken or seriously damaged, so as to be inoperative, by the sudden rising, falling, and shaking of the rudder-stock when struck by heavy seas, or by the immense strain on the rudder-stock by the running ashore of the vessel.

The object of my invention is to provide a new and improved steering apparatus for ships, which is so constructed as not to be damaged by the jolting or shaking of the rudder or rudder-stock, nor by the pressure exerted by the same.

The invention consists in a threaded traversing nut mounted on a screw and embraced by a journal-box pivoted between a forked lever, the other end of which passes through a sleeve pivoted to the upper end of the rudder-stock.

By rotating the tiller-wheel attached to the screw the traversing nut moves forward or backward, and turns the rudder-stock to the right or left.

In the accompanying drawings, Figure 1 is the side elevation of the stern of a ship provided with my improved steering apparatus. Fig. 2 is a rear elevation of the same. Fig. 3 is a plan view of the same. Fig. 4 is a cross-sectional view of the apparatus on the line *x x*, Fig. 3. Fig. 5 is a longitudinal sectional elevation of the traversing screw-nut. Fig. 6 is a cross-sectional elevation of the pivoted sleeve on the upper end of the rudder-stock.

Similar letters of reference indicate corresponding parts.

A screw, A, provided with a tiller-wheel, B, at one end, is mounted on two standards, C C, arranged at the side of and equidistant from the rudder-stock D, to which the rudder E is attached. The rudder is provided with a pintle, *d*, which hooks into an eyebolt, *f*, in the stern-post of the ship.

The rudder can be hinged to the stern-post in some other similar suitable manner; but in all cases the pintle must be long enough to permit the rudder to rise and fall without unhooking from the eyebolt.

A threaded traversing nut, F, provided with the oil-channels *g g*, and with the guide-flanges G G, resting against the guide rods or bars H H, connecting the standards C C, is mounted on the screw A, and is embraced by a journal-box, I, pivoted between the two arms J′ and J² of a lever, K, thereby permitting the forked lever K to oscillate in the vertical plane with the screw A as center of oscillation, and in the horizontal plane with the rudder-stock D as center of oscillation.

The end L of the forked lever is planed down smooth and passes through a sleeve, M, pivoted in a box, N, fastened to the upper end of the rudder-stock D. The sleeve M is provided with an aperture, *l*, and an annular recess, *m*, for applying lubricants, and the box N is provided with an aperture, *n*, for a like purpose.

The sleeve M is pivoted in such a manner as to leave a space between the top and bottom of the sleeve M and the box N, so that the sleeve can oscillate on its pivots.

The rudder-stock is held and guided by the flanged and based guide-ring O, and is protected from injury by friction by a sleeve, P, fastened to it. The screw may be coarse or fine in pitch, and may have any suitable number of threads. However, I prefer a coarse screw with three threads.

Two tiller-wheels can be attached, one to the front and the other to the rear end of the screw, as may be necessary or desirable. The screw can be either a right or left hand screw. A steam-engine or some other suitable device may be used to rotate the screw A, and this screw need not rest on the standards C C, but can be placed near the deck or floor. It may be desired not to have the rudder to rise and fall, and in such cases the forked lever K can be pivoted directly to the traversing nut F.

The operation is as follows: Assuming that the screw A is a right-hand screw, the rotation of the tiller-wheel B in the direction of the arrow *a′* will cause the screw-nut F to move in the direction of the arrow *b′*, Fig. 3, for the nut cannot turn, as it is held by the guide-flanges G G. If the nut F moves

in the direction of the arrow *b'*, the smooth end L of the lever K will pass into the sleeve M until the lever is at right angles to the screw A, and will then gradually be drawn out of the sleeve, but at the same time will rotate the rudder-stock in the direction of the arrow *c'*, and will turn the rudder toward the port side. By rotating the tiller-wheel B in the opposite direction all the above movements will be reversed, and the rudder will move to the starboard side. In case the rudder receives a shock or jolt from below it will rise, the sleeve M will be slightly inclined toward the screw A, and the lever K will be slightly rotated in the vertical plane around the screw A.

From the above description of the operation it will be seen that if a heavy sea strikes the rudder, or the same receives a severe blow from some floating object, it can never exert any transverse strain upon the screw A, but, from whatever direction the blow or strain upon the rudder may come, the screw will only receive a strain in the longitudinal direction.

The advantage of this must not be underrated, for although a strong screw may not be able to resist a severe transverse strain, it is able to resist an enormous longitudinal strain.

If the rudder is struck from below, in case the ship rolls and is thrown about in a storm, or in case the ship has run ashore in soft ground and settles faster than the rudder, the rudder-stock will rise, but will not exert any strain whatever on the screw, for the shocks may be sudden, severe, or rapid. In every case the smooth end of the lever will be raised or lowered, and the lever K will oscillate on the screw A. In case one of the pintles of the rudder break, or if the ring O is loosened or broken, the rudder-stock will shake and jar, but can never damage the screw or other parts of the steering apparatus, as the parts can yield or can easily resist the strain.

The several parts of the above-described apparatus can be varied in size according to the size of the vessel.

The forked lever K, entering into and sliding on the upper part of the rudder-stock, may also be pivoted to a journal-box embracing a traversing nut which is moved by some other device than a screw.

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

1. The combination of the screw A, provided with tiller-wheel B at one end, the rudder E, having pintle *d*, hooked to the stern-post, the threaded traversing nut F, having flanges G G, resting on bars H, the journal-box I, and the forked lever K, having arms J' J², as shown and described.

2. The combination, with the forked lever K, of the sleeve M, pivoted in the apertured box N, having annular recess *m*, as and for the purpose specified.

PABLO PEREZ SEOANE.

Witnesses:
OSCAR F. GUNZ,
C. SEDGWICK.