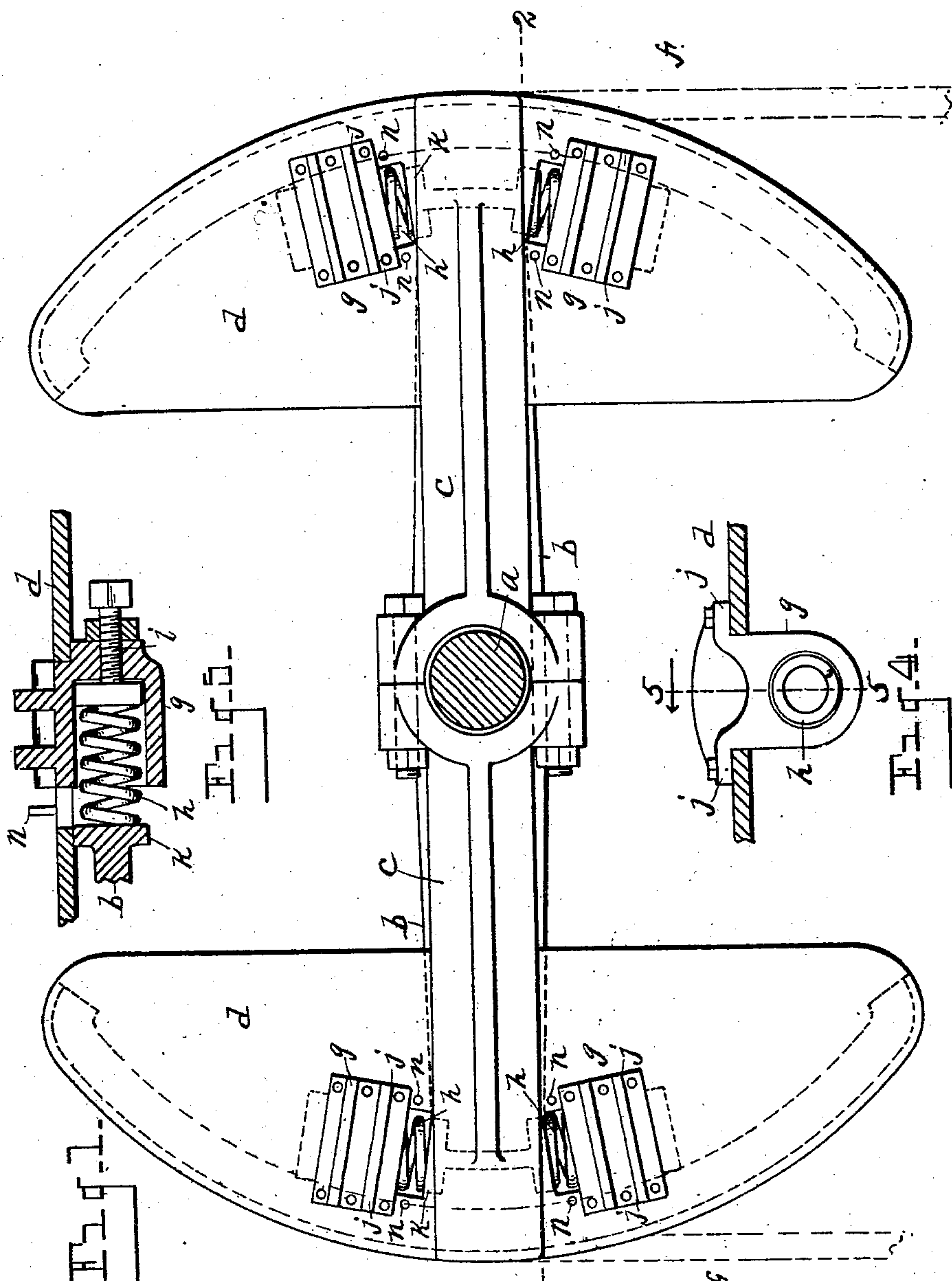


No. 884,292.

PATENTED APR. 7, 1908.

H. PENTON.
STEERING GEAR FOR SHIPS.
APPLICATION FILED FEB. 7, 1907.

2 SHEETS—SHEET 1.



WITNESSES

O. B. Baenziger
E. M. Spielburg

INVENTOR

Henry Penton
By Newell S. Wright

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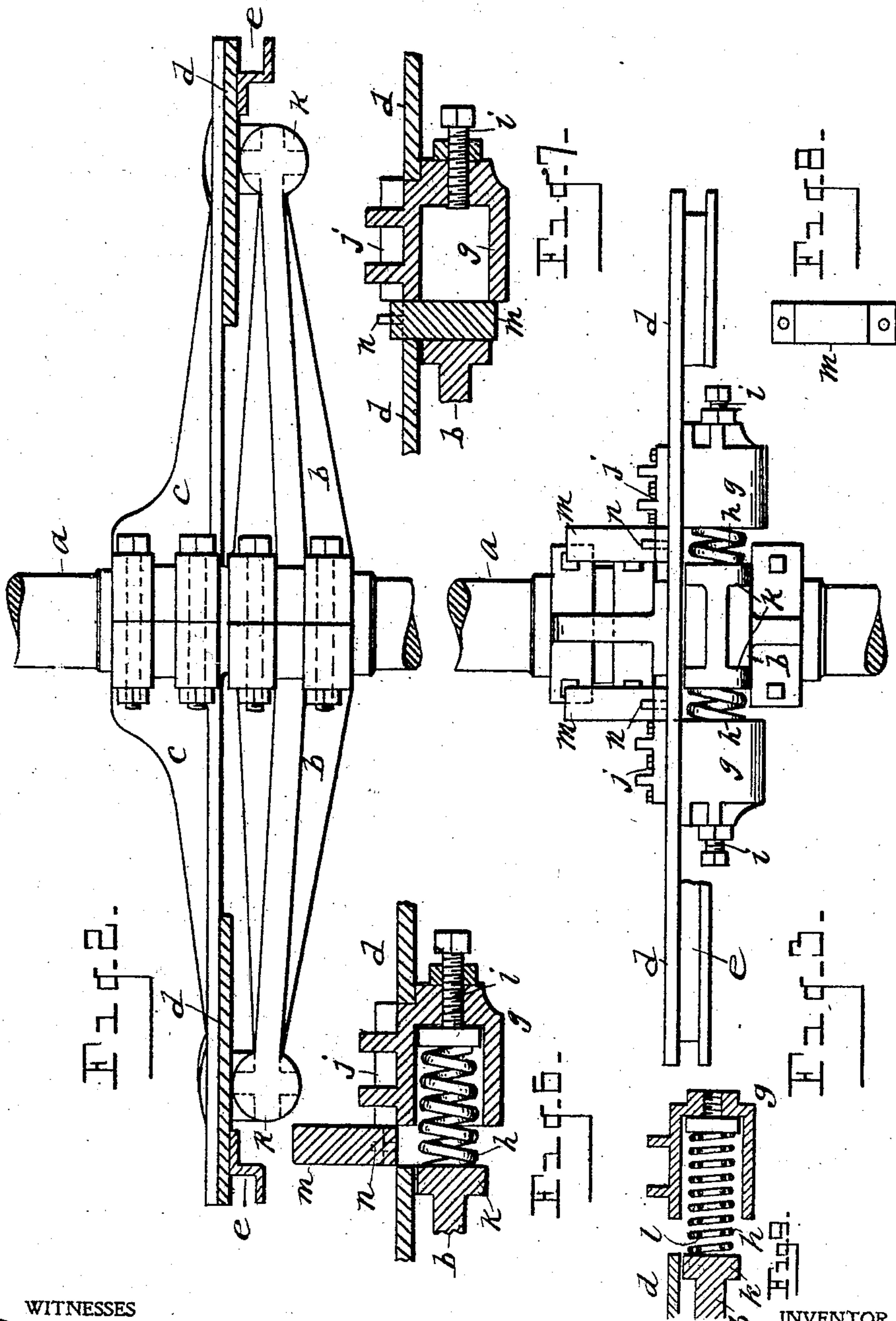
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UNITED STATES PATENT OFFICE.

HENRY PENTON, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO W. I. BABCOCK, OF NEW YORK, N. Y.

STEERING-GEAR FOR SHIPS.

No. 884,292.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed February 7, 1907. Serial No. 356,141.

To all whom it may concern:

Be it known that I, HENRY PENTON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Steering-Gear for Ships, of which the following is a specification.

The object of my invention is to provide certain new and useful improvements in a rudder steering gear for vessels, the design of the steering gear being more particularly applicable to use upon lake vessels as built for use on the great lakes of America, although I do not limit myself solely thereto.

My invention pertains also, more especially to a cushioning mechanism or apparatus to be applied to a steering gear for this purpose in which should the cushioning or shock receiving device be broken or disabled, it would still be possible to steer the vessel, the steering gear as proposed, being positive in its action under all circumstances.

It is understood that in steering gears where it has been found necessary or advisable to provide means for cushioning the apparatus from shocks liable to occur, that in devices of this character should the cushioning mechanism be broken or disabled, immediate control of the tiller would be lost.

The object of my invention is to provide a cushioning mechanism for steering gears, which as above observed, would be positive even should the cushioning mechanism be broken or rendered inoperative.

My improvement is designed for use upon steering gears whether actuated by steam, electricity or other power.

I carry out my invention as hereinafter described and claimed and illustrated in the accompanying drawings, in which,

Figure 1 is a plan view showing the rudder stock in horizontal section. Fig. 2 is a view on the line 2—2, Fig. 1. Fig. 3 is a view in elevation looking toward the outer edge of one of the quadrants. Fig. 4 is an end view of one of the spring cases or cylinders with portions of the quadrant in section. Fig. 5 is a view in section on the line 5—5, Fig. 4. Fig. 6 is a view similar to Fig. 5, but showing the filler block in normal position. Fig. 7 is an analogous view showing the filler block in position between the housing and adjacent contact face of the tiller. Fig. 8 is a plan

view of the filler block. Fig. 9 is a view in section illustrating plural springs in the spring case.

In the drawings *a* represents a rudder stock. A tiller rigidly secured thereupon is indicated at *b*, a quadrant arm *c* is loosely mounted upon the rudder stock, said arm being provided with quadrants indicated at *d, d*.

It will be understood that the tiller may be extended on opposite sides of the rudder stock, as shown, as also the quadrant arm or arms *c*, quadrants *d* being engaged at opposite extremities of the quadrant arm.

I do not limit myself to any particular manner of constructing and securing the tiller and the quadrant arms upon the rudder stock. The quadrant segments or plates *d, d* are constructed with the customary channel on the outer periphery of each, as indicated at *e* to receive the steering chain or cable indicated at *f*, or other means of transmitting power. Supported upon the quadrant segments are spring cases or cylinders indicated at *g*, the cylinders being engaged on the under side of the segment and on opposite sides of the tiller so that in which ever direction the tiller may move, it will be cushioned. Within the case or cylinder *g* is located a suitable spring or springs *h*, the tension thereof being governed by an adjusting screw indicated at *i*. The corresponding segment *d* is preferably cut away in order that the case or cylinder *g* may be engaged in place, the said cases or cylinders being constructed with flanges or castings at the upper portion thereof indicated at *j* whereby the said cylinder or case may be bolted or otherwise secured upon the quadrant segment. The cases or cylinders may, however, be secured in place in any suitable manner. The tiller carries a pad or contact device *k* adjacent to each spring or spring case, against which the corresponding spring contacts, the contact device extending transversely to the tiller so as to provide a means of contact for the two springs on opposite sides of the tiller.

It will be observed that the spring case or cylinder is normally spaced from the adjacent face of the contact device, affording sufficient room to allow for the compression of the springs before the casing or cylinder itself should contact with the said pad.

It will readily be observed that in event of the failure of the spring or its breakage, the tiller arm, through the contact device and the spring cylinder, will come into positive
5 contact, so that the control of the tiller is never lost.

Although I have shown in the accompanying drawings the tiller and quadrant arms extended on opposite sides of the rudder stock and the employment of two quadrants, yet I
10 would have it understood that my invention contemplates also as coming within its scope, a single quadrant with a single tiller arm where such a construction may be found sufficient, or where two arms are employed they
15 may be placed at any angle with each other as found necessary or advisable.

The operation of the mechanism will now be understood. Strain being applied by the
20 cable or chain or otherwise to the quadrant, the same is taken up and transferred through the cushioning devices above described to the tiller. The spring or cushioning device is always in contact with the tiller, and any
25 movement of the quadrant transmits a corresponding amount of strain to the tiller through the cushioning devices. In case of the breakage or disablement of the cushioning device, it will readily be observed that
30 the mechanism still provides for positive action.

It will be observed that the casing or cylinder forms a housing for the cushioning device.

35 It will be evident, so far as the gist of my invention is concerned, that a single or plural springs may be located in each of the housings. In case of plural springs a spring *l* smaller than the spring *h* might be located
40 therewithin as shown, for example, in Fig. 9.

In Figs. 3, 6 and 7, I have shown, in addition to the mechanism above described, a filler block *m* normally located upon the
45 quadrant or otherwise convenient to the space between the housing and the adjacent contact face of the tiller, which, in case of the breakage of the cushioning device could be readily located between the adjacent end of the housing and the contact face of the tiller
50 to take up any lost motion. As shown the blocks *m* may be simply located upon the quadrant as upon pins *n* upon the quadrant. If the filler blocks are needed for use, they may be readily lifted off from the pins and in-
55 verted and dropped into place.

What I claim as my invention is:

1. In a rudder steering gear for vessels, the combination with a rudder stock, of a tiller, a quadrant, separate cushioning devices carried by the quadrant intermediate its extremities and adjacent to the opposite sides of the
60 tiller, said cushioning devices each comprising a spring case secured to the under side of the quadrant normally spaced from the tiller, and a spring within said case, said cases ar-

ranged to contact with the tiller should the springs therewithin become inoperative, and afford positive control.

2. In a rudder steering gear for vessels, the combination with a rudder stock, of a tiller, a
70 quadrant, separate spring cases carried by the quadrant intermediate its extremities on opposite sides of the tiller and adjacent thereto and normally spaced therefrom, and springs in said cases, said cases arranged to
75 contact with the tiller should the corresponding springs become inoperative and afford positive control, said tiller provided with contact devices adjacent to the springs.

3. In a rudder steering gear for vessels the
80 combination with a rudder stock, of a tiller, a quadrant, separate spring cases carried by the quadrant intermediate its extremities on the under side thereof and on opposite sides of the tiller and normally spaced therefrom, 85
springs in said cases to contact with the tiller, and means for the adjustment of the springs, each of said cases arranged to contact with the tiller should the corresponding spring
90 become inoperative, and by such contact afford positive control, said cases provided with outwardly projecting flanges, and said quadrant cut away to receive said cases.

4. In a rudder steering gear for vessels the combination with a rudder stock, of a tiller, a
95 quadrant, contact devices carried by the tiller, spring cases carried by the quadrant intermediate the extremities on opposite sides of the tiller and normally spaced from the said contact devices, and springs within
100 said cases to contact with the contact surfaces of the tiller, the spring cases arranged to contact with said contact surfaces of the tiller should the corresponding spring become
105 inoperative, and thereby afford positive control, said quadrant swiveled upon the rudder stock.

5. In a rudder steering gear for vessels, the combination with a rudder stock, of a tiller, a
110 quadrant, separate spring cases carried by the quadrant intermediate its extremities on the under side thereof and on opposite sides of the tiller and normally spaced therefrom, and plural springs within each of said cases
115 to contact with the tiller, the spring cases arranged to contact with the tiller should the corresponding springs become inoperative and thereby afford positive control, said quadrants swiveled upon the rudder stock.

6. In a rudder steering gear for vessels the
120 combination with a rudder stock, of a tiller, a quadrant, housings carried by the quadrant on opposite sides of the tiller, a spring in each of said housings to contact with the tiller, said housings normally spaced from the
125 tiller, and means to be located between the housing and the adjacent face of the tiller to fill the space therebetween should the corresponding spring become inoperative.

7. In a rudder steering gear for vessels the 130

combination with a rudder stock, of a tiller, a quadrant, housings carried by the quadrant on opposite sides of the tiller, a spring in each of said housings to contact with the tiller, said housings normally spaced from the adjacent face of the tiller, and a filler block to be located between the tiller and an adjacent housing to actuate said space

should the corresponding spring become inoperative.

In testimony whereof I affix my signature
in presence of two witnesses.

HENRY PENTON.

Witnesses:

N. S. WRIGHT,

E. M. SPIELBURG.