

No. 774,693.

PATENTED NOV. 8, 1904.

J. PETERSON.
STEERING APPARATUS FOR SHIPS.

APPLICATION FILED JULY 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

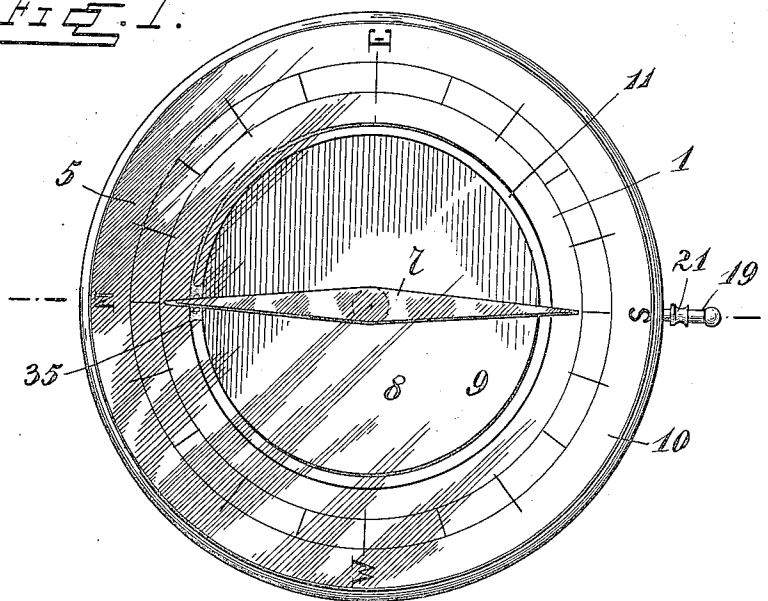
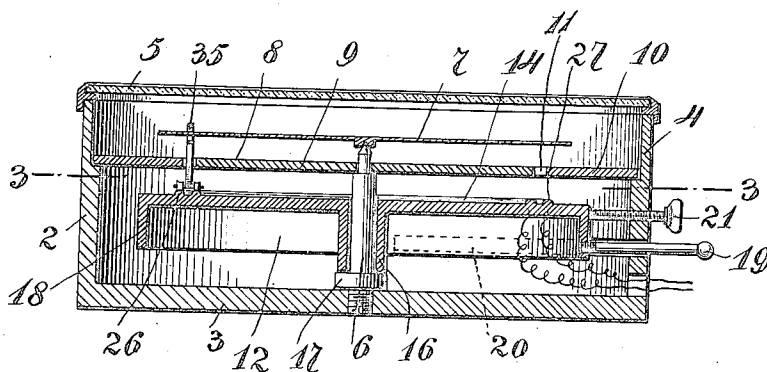


FIG. 2.



Witnesses
C. Munk
G. H. Greibauer.

Inventor
John Peterson
by *A. Wilson*
Attorney

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2 SHEETS—SHEET 2.

FIG. 3.

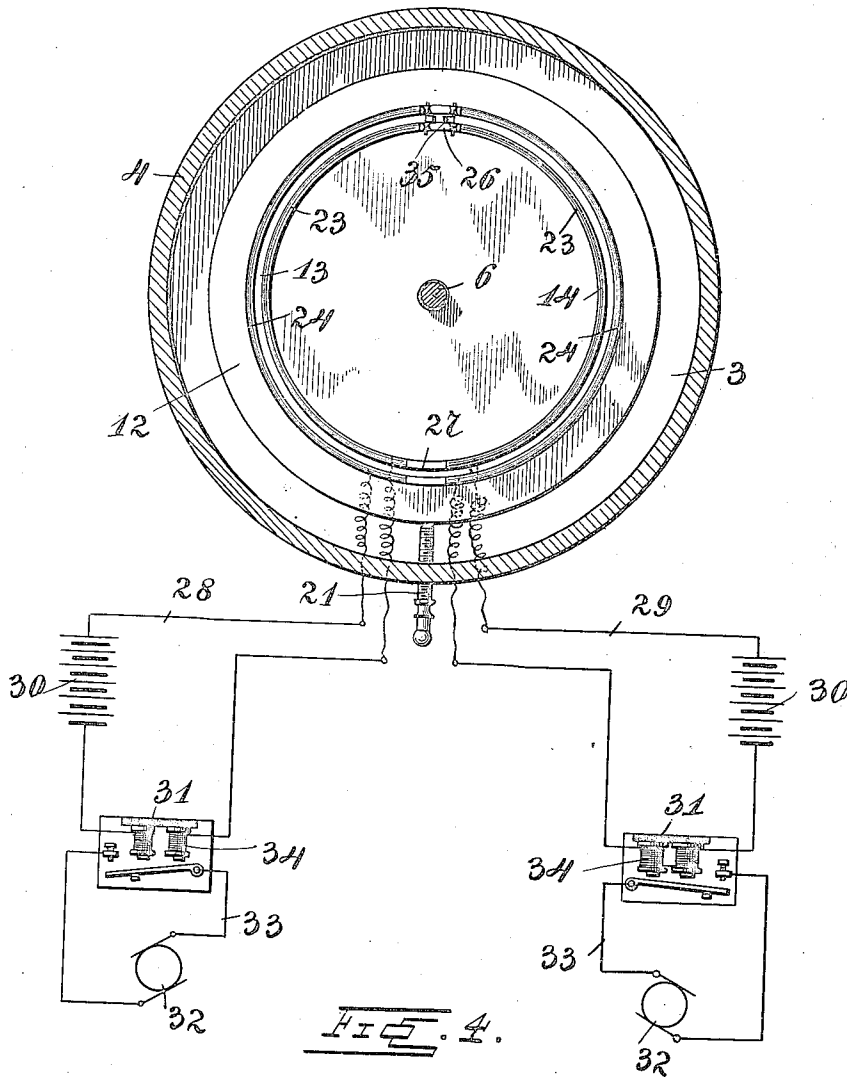
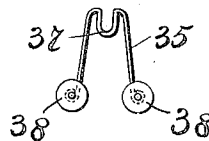


FIG. 4.



Witnesses
C. Muntz
E. H. Christensen

Inventor
John Peterson
by *H. B. Wilson*
Attorney

UNITED STATES PATENT OFFICE.

JOHN PETERSON, OF ABENIA, NEW YORK.

STEERING APPARATUS FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 774,693, dated November 8, 1904.

Application filed July 11, 1904. Serial No. 216,123. (No model.)

To all whom it may concern:

Be it known that I, JOHN PETERSON, a citizen of the United States, residing at Abenia, in the county of Warren and State of New York, have invented certain new and useful Improvements in Steering Apparatus for Ships; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in electrical apparatuses for steering ships; and it consists in certain novel features of construction, combination, and arrangement of parts hereinafter fully described and claimed.

The object of my invention is to provide simple and efficient means for automatically operating and controlling the rudder of a ship for the purpose of steering or keeping her upon her course.

The above and other objects which will appear as the nature of my invention is better understood may be attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a compass constructed in accordance with my invention. Fig. 2 is a vertical sectional view through the same. Fig. 3 is a horizontal sectional view taken on the line 3-3 of Fig. 2 and illustrating diagrammatically the electrical connection. Fig. 4 is a detail view showing the electrical circuit-closing device carried by the magnetic needle of the compass.

Referring to the accompanying drawings, in which I have illustrated one embodiment of my invention, the numeral 1 denotes a compass of any well-known or approved form and construction. As illustrated, the same comprises a casing 2, consisting of a circular bottom or base 3, side wall 4, and a transparent cover of glass or the like 5. Projecting vertically from the center of the base is a post 6, upon the upper pointed end of which is mounted the magnetic needle 7 of the compass. Disposed within the casing 2 beneath the magnetic needle is the ordinary compass card or dial 8, which is here shown in two parts—namely, an inner circular portion 9, which is mounted upon the post 6, and an outer ring-

like portion 10, which is secured to the side wall 4 of the compass-casing—and has its central opening disposed concentrically with the pivot-post, so as to provide a slot 11 between the two portions 9 and 10 of the compass-card.

Mounted to rotate upon the post 6 beneath the compass-card 8 is a plate or disk 12, upon the upper side of which is secured two sets 13 and 14 of electrical conductor-rails, as clearly shown in Fig. 3. Said movable element or plate 12 may be mounted to rotate concentrically with the post 6 in any desired manner and may be rotated and adjusted at any desired position by any suitable device. As illustrated in Fig. 2, said plate 12 is formed at its center with a depending sleeve 16, through which the post 6 projects and by means of which said disk is supported and guided, the lower end of the sleeve resting upon a fixed collar or hub 17, provided upon the post, as illustrated. Surrounding the outer edge of the plate 12, which is circular in form, is a depending flange 18, at a suitable point upon which is provided a laterally-projecting operating arm or handle 19, which is adapted to extend through and swing in a slot 20, formed in the side wall 4 of the compass-casing 2. It will be seen that by swinging the operating-arm 19 in said slot said plate 12 may be rotated about the post 6 to any desired position. In order to secure said plate in its adjusted position, I preferably provide a set-screw 21, which is passed through a screw-threaded opening formed in the side wall 4 and is adapted to impinge against a depending rim or flange 18 upon said plate 12, as clearly shown in Fig. 2. It will be seen that when it is desired to rotate or adjust said plate 12 the set-screw 21 is loosened by turning the finger or thumb piece 22 upon its outer end.

Each of the two sets 13 and 14 comprise two semicircular-shaped conductor-rails 23 and 24, which are disposed parallel with each other and are insulated from each other in any suitable manner. The insulation of these rails may be effected by constructing the plate 12 of a suitable non-conducting material, or each of said rails may be mounted upon a suitable

non-conducting material provided upon said plate. As clearly shown in Fig. 3, the conductor-rails 23 and 24 of each set 13 and 14 are disposed concentric with the post 6 or axis of the disk, and said rails of each set have the same curvature, so that they form an interrupted trackway, which is disposed directly beneath the circular opening or slot 11, formed in the compass-card.

The conductor-rails 23 and 24 of the two sets 13 and 14 are insulated from each other at diametrically opposite points 26 and 27. At points 26 they are insulated, preferably by means of rail-sections of non-conducting material, so that the rails 23 and 24 of each set will form a continuous trackway at said point. At the point 27 the rails 23 and 24 of each set is connected to independent electrical circuits 28 and 29, which are normally open, owing to the interruption or break in the conductor-rails at the point 26. The electrical circuits 28 and 29 are similar, and each includes an electrical generator 30, here shown in the form of an electrical battery, and an electromagnet 31, which is adapted to operate any suitable means for controlling the rudder of a ship. As illustrated diagrammatically in Fig. 3, each of said electromagnets 31 is adapted to control an electric motor 32, which is in a separate electrical circuit 33, in which the armature 34 of said magnet is included and forms a circuit-closing device. It will be seen that when the electromagnet 31 is energized its armature will complete the electric circuit 33 and set the motor 32 in operation. Each of the motors 32 may be driven by any suitable source of power, (not shown,) and each motor is adapted to be geared to a suitable mechanism (not illustrated) for changing the course of the ship, the mechanism operated by one of the motors moving the rudder in one direction and the mechanism operated by the other motor moving the rudder in the opposite direction. In place of the motors 32 any other suitable electrical or mechanical means may be provided for operating and controlling the rudder.

In order to complete either of the open circuits in which the two sets 13 and 14 of conductor-rails are included, I provided upon one end of the magnet-needle 7 a suitable circuit-closing device. In Fig. 4 of the drawings I have illustrated one form of circuit-closer which may be employed for this purpose. As shown, a frame 35, constructed of suitable non-conducting material which is very light in weight, is provided and mounted to travel upon the conductor-rails 23 and 24 of the two sets 13 and 14. The upper portion of said frame is bent or formed with a suitable recess 37, into which the end of the magnetic needle projects. Upon the lower portion of the frame 36 are journaled suitable friction-rollers 38, which contact with and ride upon the con-

ductor-rails 23 and 24 in order to support said frame and complete the electrical circuit through said rails of one or the other of the sections 13 and 14. It will be seen that when the circuit-closing device carried by the magnetic needle is at the point 26 upon the plate 12 both of the electrical circuits 28 and 29, in which the conductor-rails 23 and 24 are included, will be opened; but as soon as the magnetic needle moves so as to bring said circuit-closing device into contact with rails 23 and 24 of either of the sets 13 or 14 the circuits through one or the other of said sets will be completed, so that this electromagnet 31 will be energized to close one of the electrical circuits 33, and thus set the motor and the rudder-operating mechanism into operation.

The use, operation, and advantages of my invention will be readily understood from the foregoing description taken in connection with the accompanying drawings. When it is desired to keep the ship upon which the apparatus is located in a certain course, the plate 12 is adjusted by means of the arm 19 and set-screw 21, so that the insulated point 26 upon said plate will be disposed directly beneath the positive pole of the needle, which always points north and upon which the circuit-closing device is mounted. As long as the ship continues this course the magnetic needle will remain quiet and the circuit-closing device will rest upon the insulated point 26; but as soon as the ship deviates in either direction from its course the magnetic needle will swing upon its pivot and move its circuit-closing device into contact with the electrical conductors 23 and 24 of either of the electrical circuits 28 and 29, and thereby set one or the other of the rudder-operating devices into operation, so that the ship will be returned to its proper course.

While I have shown and described one means by which my invention may be carried into practice, it will be understood that I do not wish to be limited to the construction herein set forth, since various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention. It will be further understood that the compass will be mounted or hung in a suitable frame, so as not to be affected by the movement of the vessel.

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

1. The combination of a compass, insulated electrical conductors in open circuit with an electrical generator and a rolling contact device carried by the magnetic needle of said compass and adapted to close said open circuit through said insulated conductors, substantially as described.

2. The combination of a compass, insulated conductors disposed adjacent to the path of the magnetic needle of said compass, an open circuit connected to each of said sets of conductors, an electrical generator in each of said open circuits and a circuit-closing device carried by said magnetic needle, and adapted to be moved thereby to complete any one of said open circuits, substantially as described.

3. The combination of a compass having a movable element adjacent to its magnetic needle, open-circuit conductors carried by said movable element, means carried by said magnetic needle for closing an electric circuit through said conductors, and means for adjusting said movable element, substantially as described.

4. The combination of a compass having an oscillatory element disposed concentrically beneath its magnetic needle, electrical conductor-rails upon said movable element, an electrical generator, and electrical conductors connecting said electrical generator, conductor-rails in open circuit, a circuit-closing device carried by the magnetic needle of said compass and coacting with said conductor-rails, and means for adjusting said oscillatory element, substantially as described.

5. The combination of a compass having an oscillatory element disposed concentrically beneath its magnetic needle, electrical conductor-rails upon said movable element, an electrical generator, electrical conductors connecting said electrical generator, and conductor-rails in open circuit, a circuit-closing device carried by the magnetic needle of said compass and coacting with said conductor-rails, means for oscillating said oscillatory element, and a set-screw for securing said oscillatory element

in an adjusted position, substantially as described.

6. The combination of a compass having a rotatable element disposed concentrically beneath its magnetic needle, concentrically-disposed conductor-rails upon said movable element, an electric battery, electrical conductors connecting said battery and conductor-rails in open circuit, a circuit-closing device carried by the magnetic needle of said compass and coacting with said conductor-rails, means for oscillating said rotatable element, and a set-screw for securing said rotatable element in an adjusted position, substantially as described.

7. The combination of a compass having a circular slot in its face-card, a rotary plate mounted beneath said face-card, open-circuit electrical conductors upon said plate, and a circuit-closer carried by the magnetic needle of said compass and extending through said slot, substantially as described.

8. The combination of a compass, conductor-rails, and a circuit-closer mounted to travel upon said rails and to be actuated by the magnetic needle of said compass, substantially as described.

9. The combination of a compass, electrical conductor-rails and a circuit-closer comprising a frame loosely engaged by the magnetic needle of said compass, and wheels upon said frame to run upon said conductor-rails, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN PETERSON.

Witnesses:

GUS RUNDBERG,
EMIL STRAND.