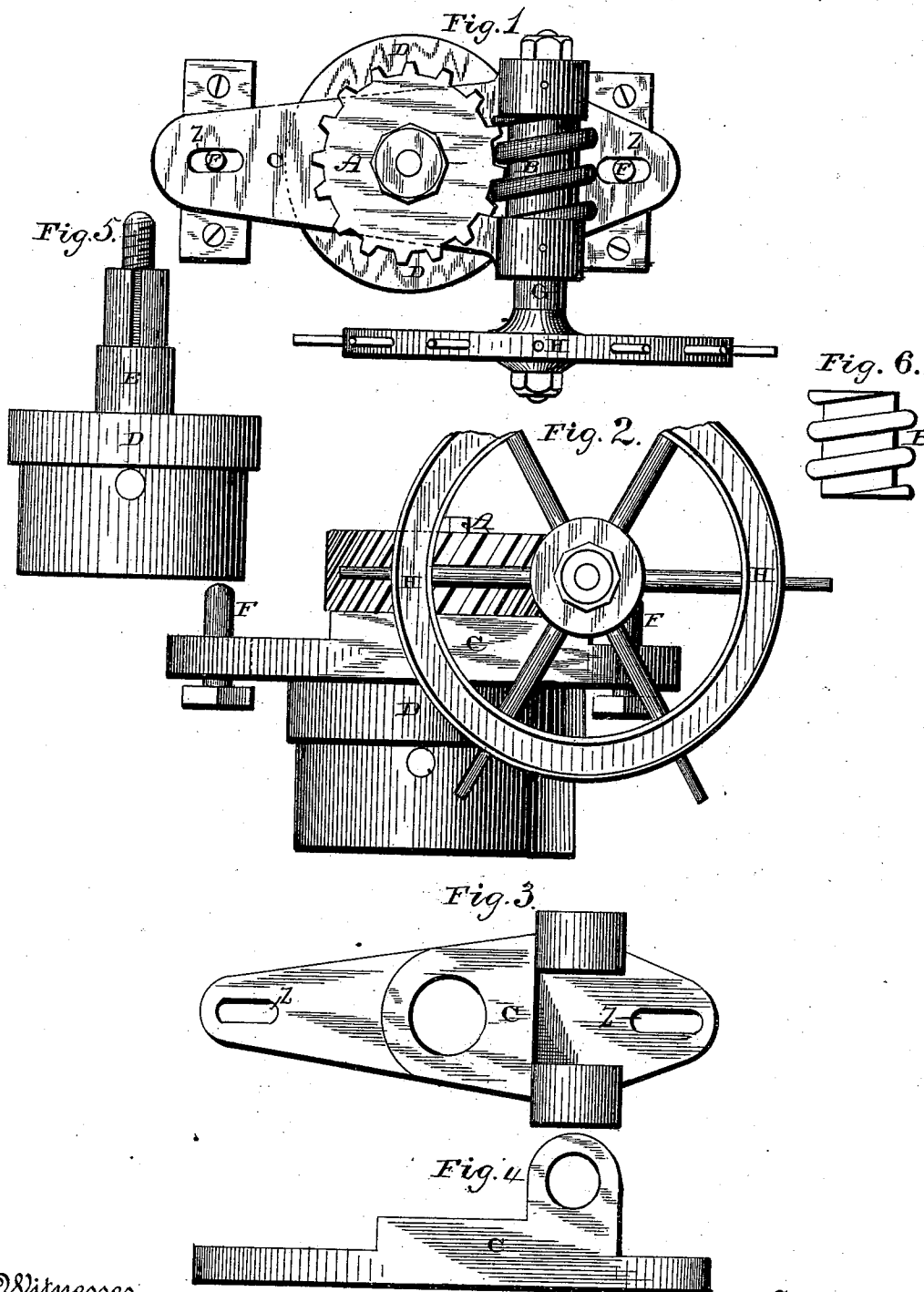


(No Model.)

A. P. & J. A. STODDART & R. A. WILSON.
WORM AND GEAR STEERING APPARATUS.

No. 549,219.

Patented Nov. 5, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

ADAM P. STODDART, JOHN A. STODDART, AND ROBERT A. WILSON, OF
GLOUCESTER, MASSACHUSETTS.

WORM-AND-GEAR STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 549,219, dated November 5, 1895.

Application filed July 8, 1895. Serial No. 555,249. (No model.)

To all whom it may concern:

Be it known that we, ADAM P. STODDART, JOHN A. STODDART, and ROBERT A. WILSON, of Gloucester, in the county of Essex and State of Massachusetts, have jointly invented certain new and useful Improvements in Direct Worm-and-Gear Steering Apparatus; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of the specification, in which—

Figure 1 is a plan or top view. Fig. 2 is a front elevation. Fig. 3 is a plan or top view of frame. Fig. 4 is a side elevation of frame. Fig. 5 is a front elevation of rudder-head and bolt. Fig. 6 is a view of worm.

Like letters in the different figures of the drawings indicate like parts.

The nature of our invention consists of the combination, with a direct worm and gear, of a metal rudder-head which is securely fastened to the rudder-post and a metal frame through which the upper part of said rudder-head passes with a working joint, and above said metal frame the gear is fastened to the upper part of said rudder-head, the worm which meshes into said gear being held in place and operated by a shaft supported by bosses on either side of said metal frame, the wheel for steering being affixed to said shaft, the said metal frame resting on said rudder-head and above two wooden standards, which are fastened to the vessel. The said metal frame is prevented from turning with the rudder by pins set into said standards, which said pins project through slots in each end of said metal frame, by having said metal frame set slightly above said standards, and the holes in the same for said pins being slotted, that will allow the rudder to yield to any sudden strain caused by the violence of the sea or any other pressure that may be brought upon the rudder.

The construction of our invention is described as follows:

D is the rudder-head.

E is a bolt set into the top of rudder-head D and projecting through the shoulders of the same, as shown in Fig. 5, the rudder-head D being securely fastened to the rudder-post and the top of the same being set above two

wooden standards in which are set pins F F. (See Fig. 2.) The frame C, Fig. 3, is set on over rudder-head D, fitting loosely over the lower shoulder of the same. The gear A is fastened to the upper shoulder on rudder-head D (see Fig. 5) by keys to prevent its turning on said shoulder and being held down by a nut on bolt E. The frame C is set with the ends of the same over and slightly above the said wooden standards and held in place and kept from turning by pins F F set into said standards, which said pins F F project through slots Z in each end of frame C, (shown in Fig. 3,) which allow a side motion to said frame C. The frame C, fitting loosely around the lower shoulder on rudder-head D, Fig. 5, and between the face of said rudder-head D and gear A will allow said rudder-head D to revolve, the pins F F being of sufficient length to allow the steerer to move up and down should anything cause the rudder-post to lift from its natural position. The worm B, Fig. 6, is then put into place on frame C between the bosses, (shown on Fig. 3) and the shaft G, Fig. 1, is placed in position through the holes of said bosses. (Shown on Fig. 4.) The said worm B is held in place by being keyed to said shaft G, and the said shaft G is secured by a nut on one end of the same and by the steering-wheel H, Fig. 1, upon the other end of said shaft G.

The vessel is steered by turning the hand-wheel H, which turns the worm B, imparting movement to the gear A, which, being securely fastened to the rudder-head D, causes the rudder to revolve.

What we claim as our invention is—

The frame, having bearings formed upon its top to receive the ends of the screw shaft, and provided with an opening for the upper end of the rudder post to pass through, and with the slots Z through its ends, combined with the worm shaft, having a hand wheel secured to one end, the rudder post projecting above the top of the frame, and the worm wheel, secured to the upper end of the post and meshing with the worm shaft, substantially as shown.

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Witnesses:

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