

No. 649,790.

Patented May 15, 1900.

E. C. AKERS.
STEERING GEAR.

(Application filed Mar. 15, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

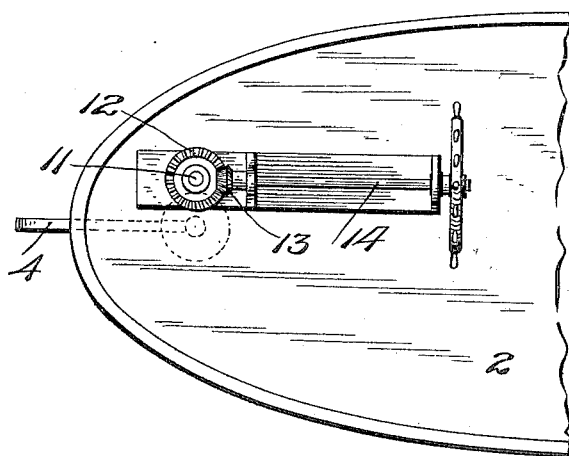
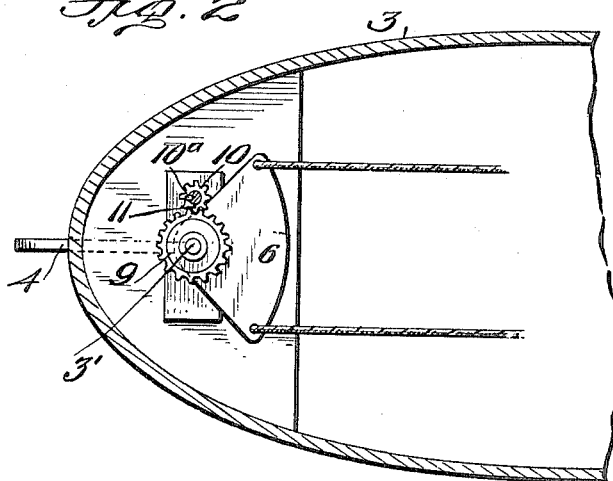


Fig. 2.



Witnesses
E. C. Akers
E. C. Akers

Inventor
Earl C. Akers
by *A. B. Wilson & Co.*
Attorneys

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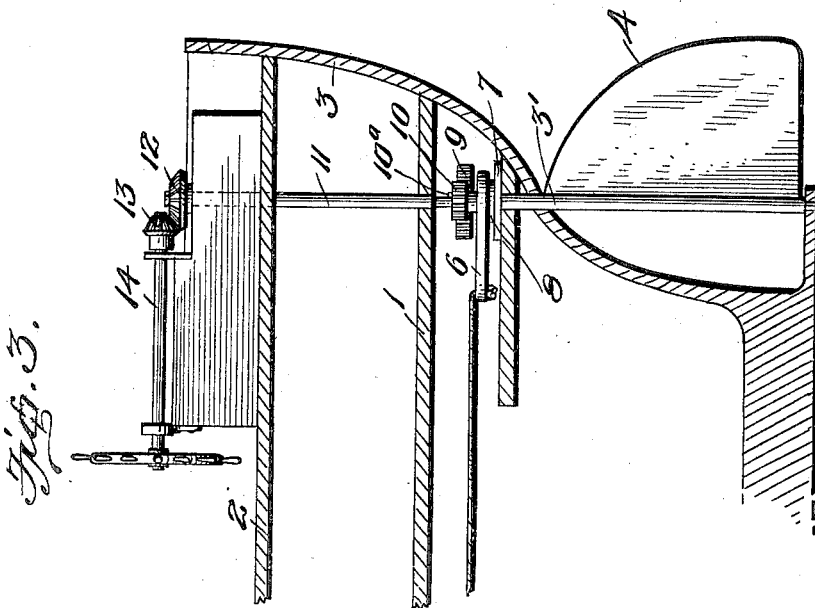
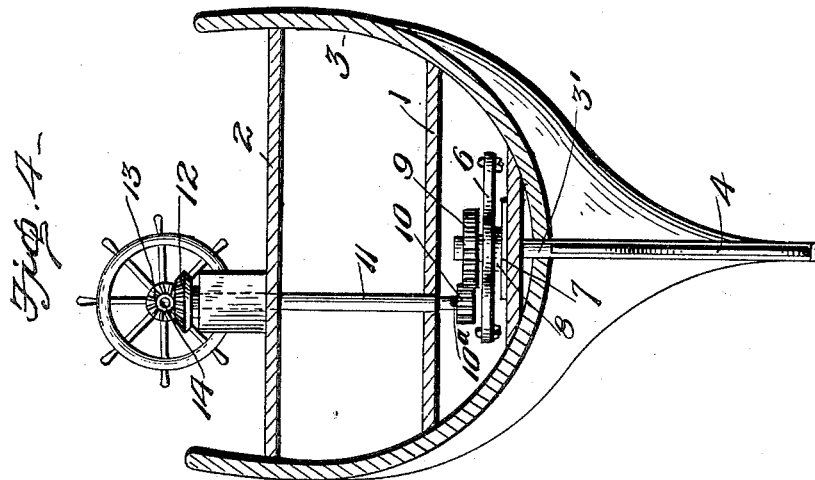
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Witnesses
C. E. Hunt.
J. B. Wilson

Inventor
Earl C. Akers
by A. B. Wilson & Co
Attorneys

UNITED STATES PATENT OFFICE.

EARL C. AKERS, OF PORT HURON, MICHIGAN.

STEERING-GEAR.

SPECIFICATION forming part of Letters Patent No. 649,790, dated May 15, 1900.

Application filed March 15, 1900. Serial No. 8,799. (No model.)

To all whom it may concern:

Be it known that I, EARL C. AKERS, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Steering-Gear; 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 steering-gear for steamboats, and is an auxiliary steering apparatus that may be always in readiness for connection with the main steering-gear of the ship or boat; and the invention consists in the construction and novel combination of parts, as hereinafter fully described and claimed.

The object of the invention is to furnish an auxiliary steering-gear for steamboats, which steering-gear will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a steering-gear embodying my improvements. Fig. 2 is a horizontal sectional view taken immediately below the main-deck, so that when looking downwardly upon the view the engaged gearing will be shown partly in sectional view. Fig. 3 is a vertical sectional view taken through the top gear, the vertical shaft, and the gearing connecting with the quadrant. Fig. 4 is a section through the hull of the vessel, showing the steering apparatus in rear elevation.

Referring by numerals to the accompanying drawings, 1 designates the main-deck below the hurricane-deck 2 of a vessel, the bulwarks 3 intervening the main-deck 1 and the hurricane-deck 2.

3' is the rudder-post, and 4 is the rudder-blade, which is suspended or supported in suitable bearings built below the bulwarks immediately below the main-deck.

4 is the rudder-blade, which is supported on the vertically-disposed rudder-post 3', the latter being supported in a suitable platform below the main-deck and provided with a quadrant 6, fixed to the rudder-post 3' near its upper end. Below the quadrant 6 is a wear-plate 7, and between this wear-plate 7 and the quadrant 6 is interposed a washer 8.

Near the upper end of the rudder-post 3' is a gear-wheel 9, which engages with a pinion 10 upon the lower end of a vertical depending shaft 11. This shaft 11 is supported in suitable bearings and is provided at its upper end with a crown gear-wheel 12, which engages a pinion 13 on the horizontally-disposed wheel-shaft 14, whereby when the wheel is operated the rudder will respond. The spur gear or pinion secured to the lower end of the vertical depending shaft 11 engages or meshes with the gear-wheel 9, so that when the steering-wheel is turned to operate the vertical shaft 11 motion is imparted to the rudder-post 3' through the intervening gearing and the rudder is set in the position desired. The pinion 10 is an idler, except when secured to the shaft by a key or pin 10^a.

On small steamers hand-power is used to operate the improved steering-gear; but on the larger vessels steam-power is used for this purpose. It should be noticed in this connection that I may make or provide the quadrant with teeth and connect the idler therewith on the miter-gear principle. However, I prefer the construction hereinbefore described, as the quadrant is liable to break in the latter construction. One advantage worth calling particular attention to is that in this construction the pinion will be large enough in diameter to throw the perpendicular shaft off to one side of the center of the boat, thereby putting it out of the way of the tow-line in case the steamer is towing another vessel. The steering-wheel is also placed at one side on the hurricane-deck to enable the steersman to see forward clear of the smoke-stack. The tow-line is made fast to the timber-heads on the main-deck forward of the rudder-post. The tow-line has quite a "sweep" from timber-heads to stern-chalk, especially when rounding curves or bends in channels.

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.

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

In a steering-gear for vessels, the combination with the rudder-blade and rudder-post the latter having near its upper end a gear-wheel fixed thereto, a vertical shaft supported in suitable bearings above and at one side of the gear-wheel of said rudder-post, and provided also with a pinion loosely keyed to the lower end of said vertical shaft and adapted to be converted to an idler by removing the securing-key therefrom, the quadrant-plate fixed to said rudder-post and provided with means for attaching tiller-

ropes thereto to enable the steersman to operate the rudder independently of the vertical shaft and its connected steering-wheel, substantially as specified. 15

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

EARL C. AKERS.

Witnesses:

JAS. H. MCWHORTER,
M. J. BRADBEER.