(No Model.)

O. ADAMS.

STEERING GEAR FOR SHIPS, &c.

No. 370,844. Patented Oct. 4, 1887.

Fig. 1.

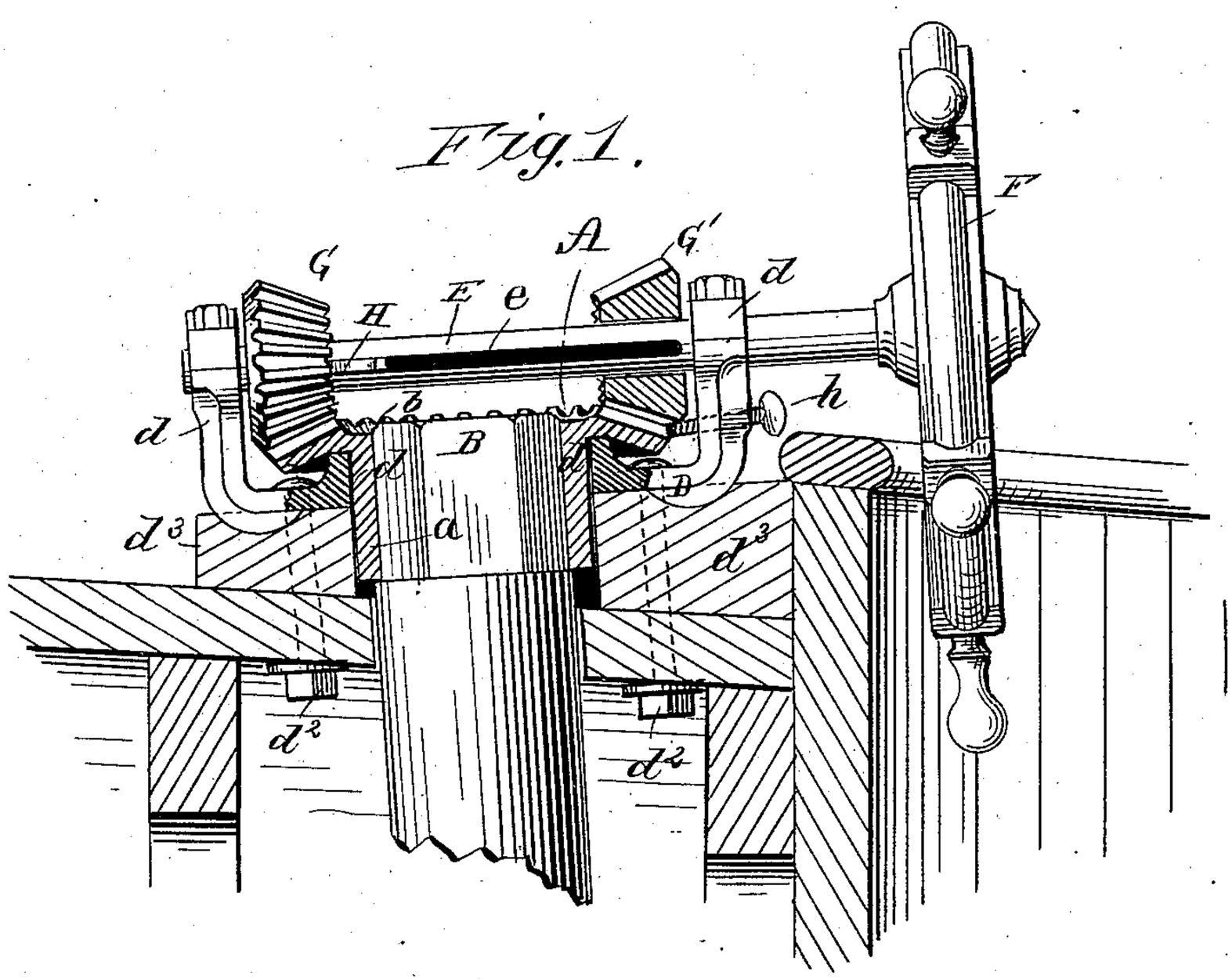
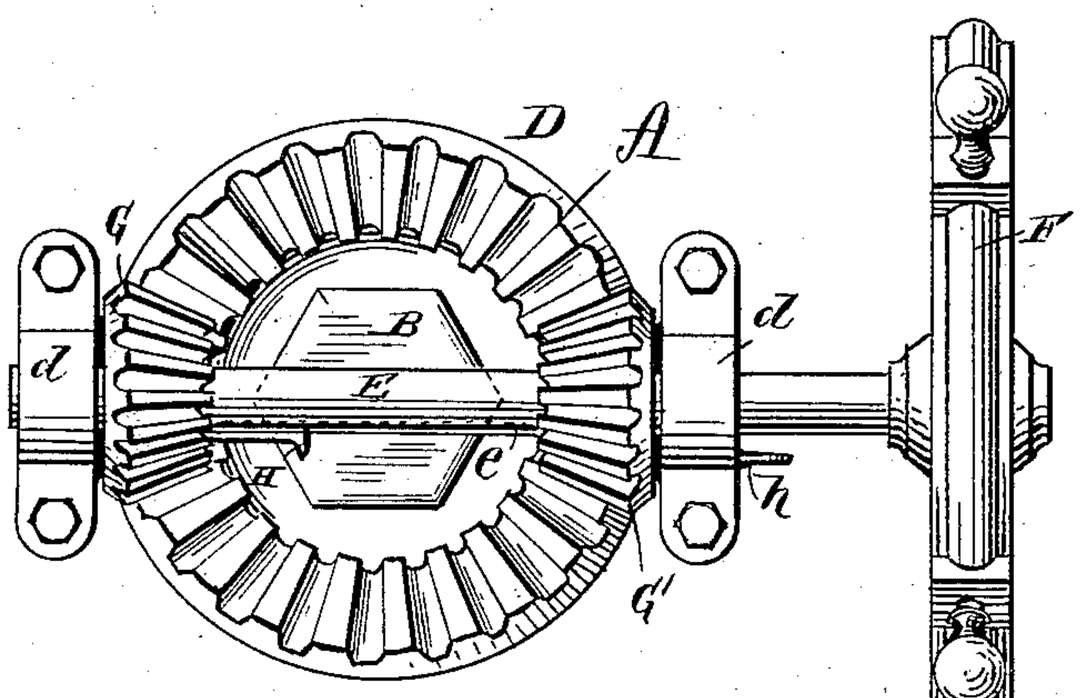


Fig. 2.



WITNESSES:

J. D. Garfield

C. Sedgwick

INVENTOR:

O. Adams

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

OLIVER ADAMS, OF LARCHMONT, NEW YORK.

STEERING-GEAR FOR SHIPS, &c.

SPECIFICATION forming part of Letters Patent No. 370,844, dated October 4, 1887.

Application filed January 17, 1887. Serial No. 224,592. (No model.)

To all whom it may concern:

Be it known that I, OLIVER ADAMS, of Larchmont, in the county of Westchester and State of New York, have invented a new and Improved Steering-Gear, of which the following is a full, clear, and exact description.

My invention relates to an improvement in steering-gear for boats, and has for its object to provide a gear whereby the wheel may be turned in direction with the rudder-blade, as in a ship, or the reverse, as with a tiller, as may be found most convenient, and also to provide a compact steering apparatus which will occupy but little space if situated in the cock-pit of a small yacht.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation, partly sectional, of my apparatus attached to a rudder-post; and Fig. 2 is a plan view thereof.

I aim by my invention to dispense with the tiller in small yachts or kindred vessels and substitute a light, strong, and compact steering-gear therefor, operated by a wheel, attaining thereby much more room and comfort in the cock-pit of such vessels than heretofore. To that end I provide a bevel-gear, A, having cast integrally therewith a downwardly-extending sleeve, *a*, the said gear being recessed centrally, so that an unobstructed central opening, *b*, is made through the gear-wheel A in alignment with the interior of its integral sleeve. The inner sides of the opening *b* in the gear-wheel and the corresponding inner sides of the sleeve *a* are preferably made hexagonal or octagonal. The gear-wheel A and sleeve *a* are fixed upon the rudder-head B, the said head being adapted to extend through the wheel A nearly flush with the upper edge thereof, the sleeve *a* passing through an annular frame, D, having fore and aft upwardly-extending posts, *d*, upon opposite sides, and a shoulder, *d'*, formed in the under surface of the gear-wheel A at the intersection of the sleeve therewith, rests upon said annular frame and contributes to the support of the gear-wheel. The annular frame D is held in position by bolts d^2, which pass through the decking and intermediate blocks, d^3. A shaft, E, provided with a longitudinal slot, *e*, upon one side, is journaled in the posts *d* of the annular frame D, and has attached at its forward end a hand-wheel, F. The said shaft is also provided with two pinions, G G', set opposite each other between the posts *d*, both adapted to mesh with the gear-wheel A, either one of which may be keyed fast to the shaft, while the other is allowed to run loose thereon. The entire device, with the exception of the hand-wheel F, may, if found desirable, be incased in any suitable manner.

In operation, when the after pinion, G, is keyed to the shaft and the forward pinion, G', allowed to run loose, as illustrated, the action of the steering-wheel upon the rudder will correspond to that of a tiller, while by reversing the arrangement of the pinions, which is quickly and readily accomplished by withdrawing the key H, attaching the forward pinion to the shaft, and allowing the after pinion to run loose, the action of the steering-wheel is opposite to that of a tiller or similar to the ordinary action of a steering-wheel.

It will be observed that in changing the mode of steering the appearance of the apparatus is not in the slightest degree altered, and that the sleeve will revolve freely in the annular frame D in either case, and, furthermore, that the said sleeve, and in fact the entire device, may be made very light. The loose pinion tends to keep the keyed pinion down to its work at all times, and should one pinion become so damaged from any cause as not to work properly the other pinion may be quickly made to act.

When the vessel is at anchor, to avoid the noise caused by the washing of the rudder, I provide a set-screw, *h*, in the forward post, *d*, which may be made to enter the teeth of the wheel A and hold the rudder securely in one position.

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

1. The combination, with the rudder-post and a beveled gear, A, attached to said post, of a shaft, E, supported above said gear, carry-

ing pinions G G′ between its bearings and meshing with said bevel-gear, said pinions adapted to be interchangeably keyed to said shaft, and a hand-wheel for turning the shaft, substantially as shown and described, whereby the rudder may be made to turn in the same direction with the wheel or in an opposite direction, as set forth.

2. The combination, with the rudder-post and a bevel-gear, A, attached to said post, of a shaft, E, supported above said gear, provided with a longitudinal groove, *e*, and pinions G G′, mounted upon said shaft between its bearings, an interchangeable key, H, adapted to enter said groove, and a wheel, F, secured at one end of the shaft, substantially as shown and described, whereby the rudder may be turned as with a ship's wheel or a tiller, as set forth.

OLIVER ADAMS.

Witnesses:
J. F. ACKER, Jr.,
E. M. CLARK.