

(No Model.)

F. E. TREMPER.
SPEEDING AND REVERSING GEAR.

No. 465,570.

Patented Dec. 22, 1891.

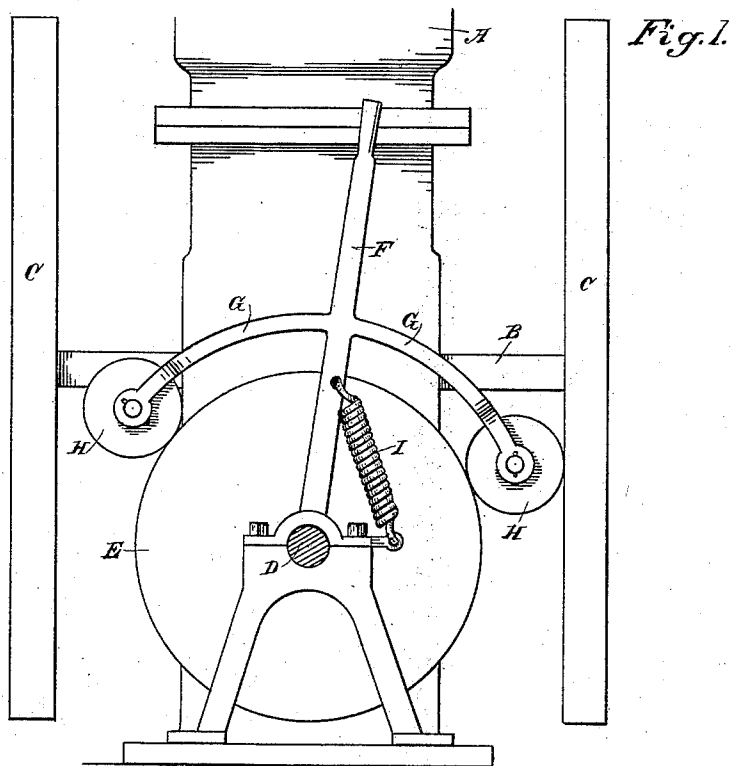


Fig. 2.

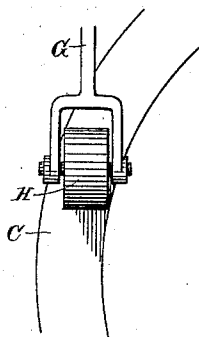
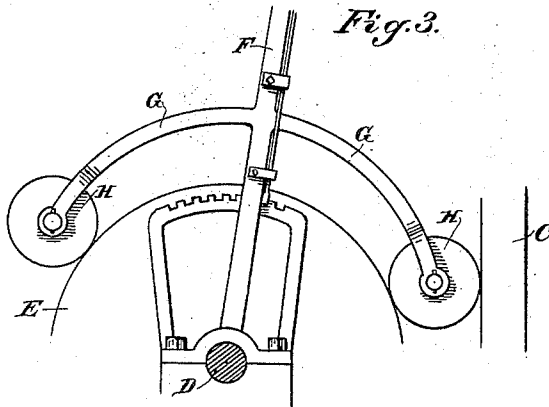


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK E. TREMPER, OF SAN FRANCISCO, CALIFORNIA.

SPEEDING AND REVERSING GEAR.

SPECIFICATION forming part of Letters Patent No. 465,570, dated December 22, 1891.

Application filed May 25, 1891. Serial No. 394,055. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. TREMPER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Speeding and Reversing Gears; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of mechanism for reversing the movement of an engine usually termed "speeding and reversing gear."

It consists in the novel construction and arrangement of parts hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple and effective gear of this class which is especially adapted for small-boat engines, in which the driving-shaft of the engine may be placed transversely of the boat and may communicate power to the screw-shaft, which is located longitudinally thereof.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is an elevation of my device. Fig. 2 is a view showing one of the intermediate wheels on the face of the fly-wheel. Fig. 3 is a view showing a pawl and rack for controlling the lever carrying the intermediate wheels.

A represents, generally, the engine, B the engine-shaft, and C a fly-wheel on each end of said shaft.

D is the screw-shaft, to which the power of the engine-shaft is to be transmitted, and it will be seen that these two shafts are in lines at right angles to each other. Upon the driven shaft D is a wheel E, preferably a friction-wheel. The inner faces of the fly-wheels C are made very broad to provide engaging surfaces, preferably frictional.

F is a swinging lever, having arms G extending to each side. At the extremities of these arms are suitably mounted the intermediate wheels H, one for each arm. The position of these wheels is such that they are adapted to fit alternately between the friction-surfaces of the wheel E and the fly-wheels C, and when one of these intermediate wheels is thrown into action the other is thrown out

of action, and vice versa. A spring I may be made to hold one of these wheels normally in active position. Other means may be employed for mounting and carrying these intermediate wheels into and out of action, and in Fig. 3 I have shown the lever as controlled by a rack and pawl.

The operation of this mechanism is as follows: By the movement of the lever in one direction one of the intermediate wheels H is thrown into engagement and the power of the fly-wheel on that side is transmitted through it to the friction-wheel E and thence to the driven shaft. When the lever is moved in the other direction, the first intermediate wheel is raised up out of engagement and the other intermediate wheel is thrown into action, whereby the power of the fly-wheel on the other side is transmitted to the friction-wheel E to rotate it and the driven shaft in the opposite direction. Thus the driving-shaft of the engine may be placed transversely in a boat and may be easily made to drive in either direction the screw-shaft of the boat. By making the friction-wheel E one-half the diameter of the fly-wheel I can give double speed to the propeller-shaft, to which wheel E is attached. The intermediate wheels H, which are thrown into and out of action, need not be of any given diameter except as will best fit and conform to the space between the fly-wheels and the friction-wheel E. The fly-wheels can be made of metal, and also the wheel E, or of other materials, and the intermediate wheels H may likewise be made of metal, or it may be found of advantage to face them with rubber, paper, leather, &c.

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

1. A speeding and reversing gear consisting of a driving-shaft and a driven shaft in lines at right angles to each other, fly-wheels, one on each end of the driving-shaft, a wheel on the driven shaft, and intermediate wheels, one on each side, adapted to be alternately thrown into the space between the sides of the fly-wheels and the wheel on the driven shaft to form contact therewith, substantially as herein described.

2. A speeding and reversing gear consisting

of a driving and a driven shaft in lines at right angles to each other, a fly-wheel on each end of the driving-shaft, a wheel on the driven shaft, a lever with arms, and intermediate wheels, one at the end of each arm and adapted to be alternately thrown into the space between the sides of the fly-wheel and the wheel on the driven shaft and form contact therewith, substantially as herein described. 10

In witness whereof I have hereunto set my hand.

FRANK E. TREMPER.

Witnesses:

JAMES L. KING,
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