J. DAVIES.

AUXILIARY STEERING-GEAR.

No. 194,658. Patented Aug. 28, 1877.

Fig 1.

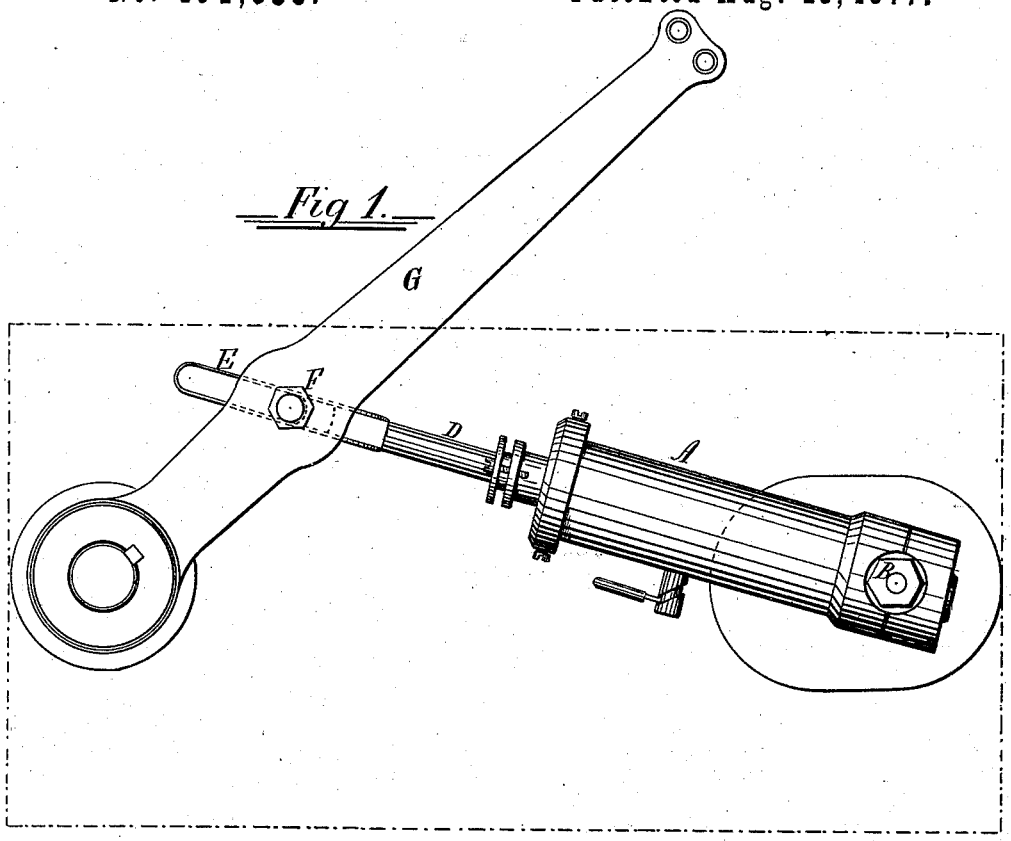


Fig 2.

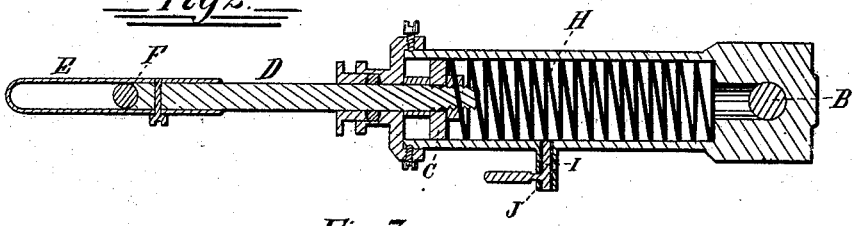
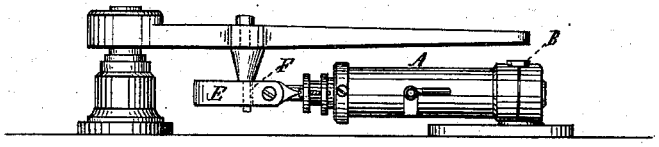


Fig 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES DAVIES, OF LIVERPOOL, ENGLAND.

IMPROVEMENT IN AUXILIARY STEERING-GEAR.

Specification forming part of Letters Patent No. **194,658**, dated August 28, 1877; application filed June 15, 1877.

To all whom it may concern:

Be it known that I, JAMES DAVIES, of Liverpool, in the county of Lancaster, in the Kingdom of England, have invented new and useful Improvements in and relating to Steering Apparatus, of which apparatus the following is a specification:

My invention relates to a contrivance to assist the helmsman in swinging the rudder laterally against the resistance offered by the water; and it consists in the combination of a pivoted cylinder containing a spring and piston, the latter connected with the tiller, as hereinafter explained.

In its simplest form, as shown on the drawings, the apparatus consists in a cylinder, A, pivoted to the deck at B, around which point it is free to oscillate. A piston, C, and piston-rod D, with strap E, bearing against a stud, F, in the tiller G, a spring, H, in cylinder A, completes the apparatus.

Now, it will be seen that when the rudder is in line with the ship the spring can exert no pressure; but when it is never so little turned to one side, and thus encountering the force of the water, tending to bring it back, the spring comes into play to aid the steersman, and exactly as the rudder is brought over, and consequently encountering more resistance, so does the force of the spring increase.

The exact shape of the spring is immaterial. Carriage-springs, such as those in locomotives, will do, provided they be pivoted, and two or three fastened together by their ends and middles alternately, so as to present somewhat the appearance of a lazy-tongs, if coated with nickel or protected from the weather, would form a useful form of my apparatus.

When a steamer backs, however, my apparatus would not aid the steersman, but would act exactly in the contrary way. To avoid this, I attach to the apparatus a stop to keep the spring compressed at such times. There are several ways of doing this, of which the one shown in drawings is, perhaps, the simplest.

I is a spindle, with pin working in spiral groove in socket J, so that if the pin be turned on one side the spindle is clear of the spring. If turned on the other, the spindle projects into the spring-cylinder, and stops the spring. The piston will then, when the strain from the tiller is removed, still remain compressed against the pin I, and thus the spring will not influence the tiller at all, the stud F simply sliding in the strap E with the motion of the tiller.

I claim as my invention—

1. The combination of the tiller G, pivoted cylinder A, spring H, piston C, and rod D, substantially as shown.

2. The combination, substantially as shown and described, of a tiller, a cylinder pivoted in line therewith, a piston mounted in the cylinder and connected directly to the tiller, and a spring mounted in the cylinder and acting against the piston, substantially as shown.

JAMES DAVIES.

Witnesses:

CHAS. V. STEVENS,

WM. P. THOMPSON.