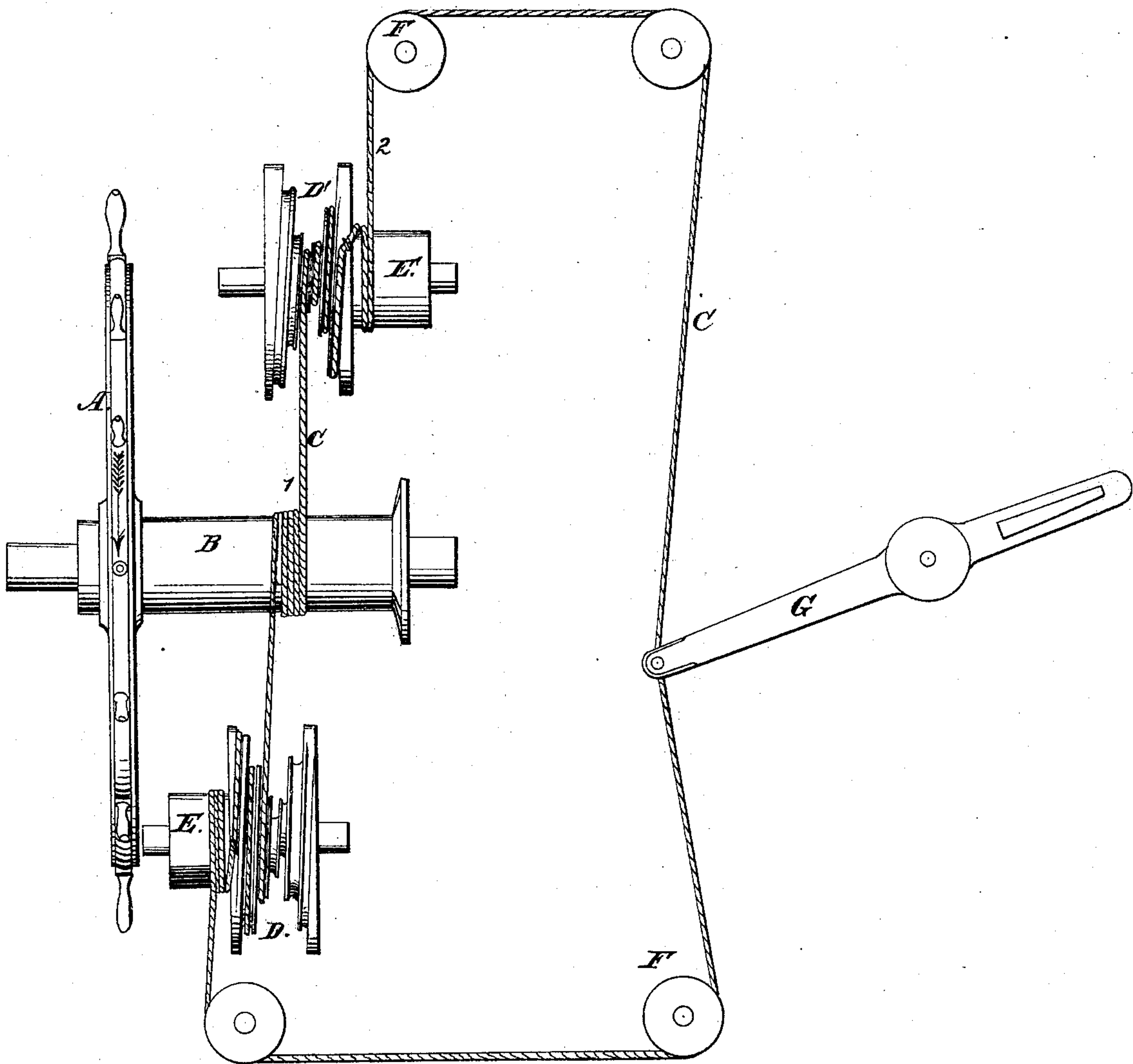


Dupraz, Dumont & Dickason.

Steering Apparatus.

N^o 58,791.

Patented Oct. 16, 1866.



Witnesses.

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UNITED STATES PATENT OFFICE.

F. P. DUPRAZ, S. M. DUMONT, AND JOHN DICKASON, OF VEVAY, INDIANA.

IMPROVED STEERING APPARATUS.

Specification forming part of Letters Patent No. 58,791, dated October 16, 1866.

To all whom it may concern:

Be it known that we, FRANK P. DUPRAZ, SIDNEY M. DUMONT, and JOHN DICKASON, all of Vevay, Switzerland county, Indiana, have invented a new and useful Improvement in Steering Apparatus for Vessels; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, the same being a top view of a steering apparatus embodying our improvement.

Our invention consists in the provision of an intermediate eccentric sheave and windlass between the customary pilot-wheel and the tiller, whereby the rudder from its midway position to either side may be operated by a progressive power or mechanical leverage and the circuit connection of rope always remain taut.

A B represent a pilot-wheel and hub or windlass of the common form.

The tiller-rope C is secured to the hub B in the usual manner, but instead of passing direct to the tiller is engaged around a doubly-spiral pulley, D, having a drum or windlass, E, whose diameter is intermediate between the extremes of the spiral pulley D.

The double eccentric pulley and windlass D E is repeated (D' E') on the other side of the pilot-wheel. From the drum or windlass E and E' the tiller-rope is carried around customary sheaves F to the tiller G, which may be of any approved or usual construction.

Operation: It being desired, for example, to put the rudder to starboard, the wheel is rotated in direction of the arrow, so as to unwind the portion 1 of the rope from the eccentric or spiral pulley D', and to wind the portion 2 of said rope upon the drum E'. It is evident that at the commencement of the operation, the portion 1 of the rope operating upon a part of the spiral pulley D' of less diameter than the drum E', a less movement of the

wheel will suffice to produce a given movement of the rudder than if the rope were carried direct to the tiller in the ordinary way; but as the movement proceeds the rope 1 climbs upon a larger and larger portion of the pulley D' until it acquires a purchase or leverage which increases regularly until the rudder is hard up; but as this purchase or leverage is accompanied by a slower and slower motion of the pulley-shaft it is manifest that slack would arise were it not for the provision of the drum E', which takes up all of the slack. While these movements are in progress the opposite pulley is, through the medium of its drum, giving out slack in exact proportion to the take up of the, for the time being, effective roller. By these means the pilot is enabled to move the tiller rapidly by a comparatively slight motion of the wheel when the rudder is near amidships, and is enabled to exert a force of nearly four to one when the rudder is hard up.

It will be perceived that our improved steering apparatus is equally applicable in a backward as well as in a forward motion of the boat.

We claim herein as new and of our invention—

1. The intermediate sheave or double spiral and drum D E, constructed substantially as set forth, for the purpose specified.

2. The arrangement of wheel A, drum B, rope or chain C, drums E E', pulleys D D' F, and tiller G, forming a progressive power-steering apparatus, as described.

In testimony of which invention we hereunto set our hands.

FRANK P. DUPRAZ.
SIDNEY M. DUMONT.
JOHN DICKASON.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.