

J. VIVIAN & H. S. MACKENZIE.

Converting Motion.

No. 149,696.

Patented April 14, 1874.

Fig. 1

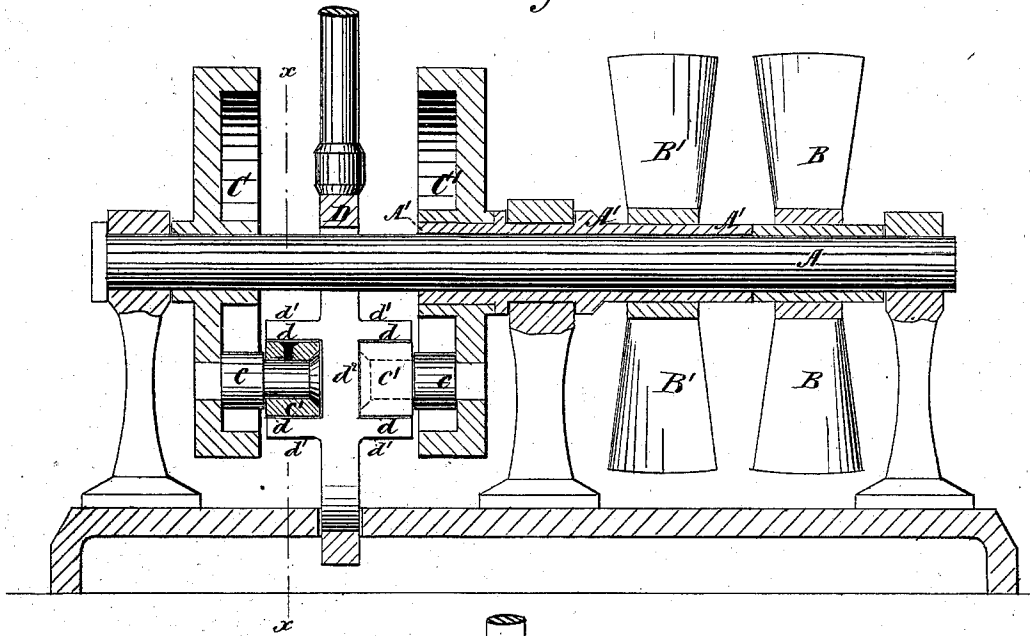
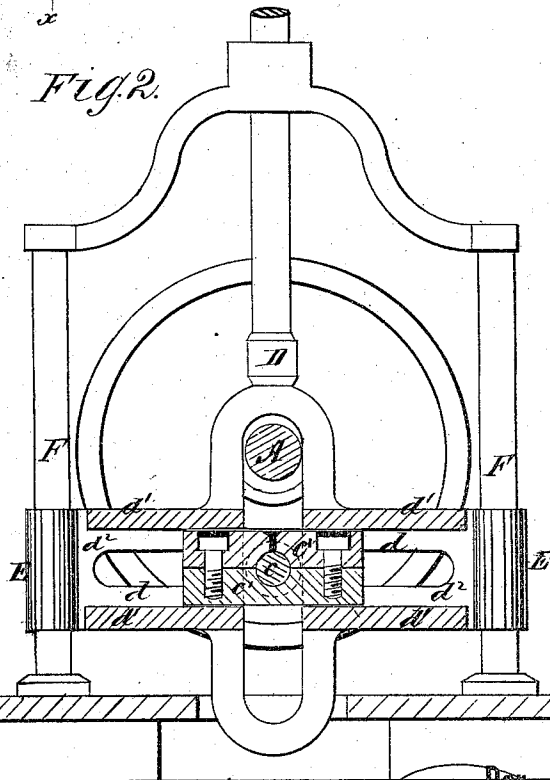


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES VIVIAN AND HENRY S. MACKENZIE, OF FALMOUTH, ENGLAND.

IMPROVEMENT IN CONVERTING MOTION.

Specification forming part of Letters Patent No. **149,696**, dated April 14, 1874; application filed October 10, 1873.

To all whom it may concern:

Be it known that we, JAMES VIVIAN and HENRY SOMERSET MACKENZIE, of Falmouth, in the county of Cornwall, England, have invented a new and useful Improvement in Converting Motion; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section. Fig. 2 is a cross-section in line *x x* of Fig. 1.

The invention relates to means whereby two screw-propellers on the same shaft may be conveniently rotated in the same or opposite directions.

It will be first fully described and then pointed out in the claim.

A represents a shaft to which is rigidly attached the screw-propeller B; and A', a sleeve on which is made fast a second propeller, B', and which is itself loose on shaft A. C C' are two wheels, one fast on shaft A, and the other on sleeve A', having, respectively, the wrist-pins *c c* placed on their opposite faces, and each pivoted in the sliding blocks *c' c'*. D is the piston, which is bifurcated to straddle the shaft, and provided with the confined guide-boxes *d d*, placed side by side, and formed by plates *d¹ d¹* and a partition, *d²*. In these boxes

the wrist-pin blocks *c' c'* slide from one end to the other at each half-revolution of shaft A, going back on the second half-revolution. If these blocks are on the same side of the shaft A when the piston is operated the propellers will both move in the same direction, while if placed on opposite sides they will be carried in reverse directions. E E are eyes on the box-plate, which slide up and down on guides F F to confine the motion of the piston to a right line.

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

The combination of the propeller-shaft A, loose propeller-sleeve A', and their respective crank-wheels C C', having opposite wrist-pins *c c*, with the swiveled blocks *c' c'*, and the tracks *d d* of the reciprocating piston D, as and for the purpose described.

The above specification signed by us this 22d day of January, 1873.

JAMES VIVIAN. [L. S.]
H. SOMERSET MACKENZIE. [L. S.]

Witnesses:

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W. GREGG,
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