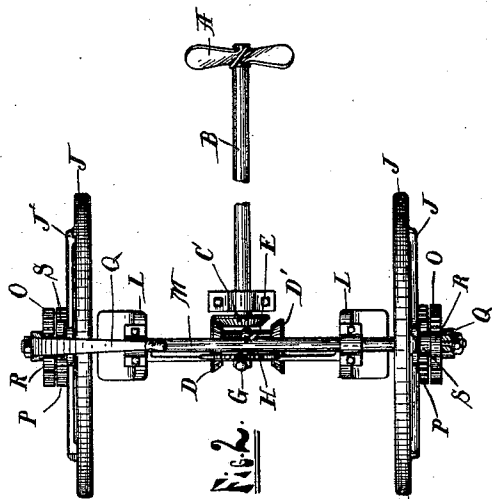
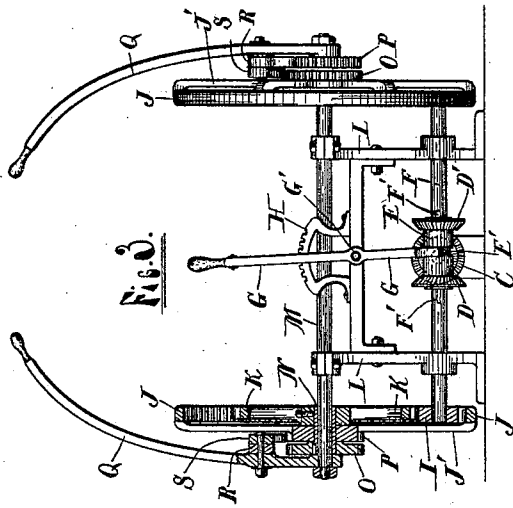
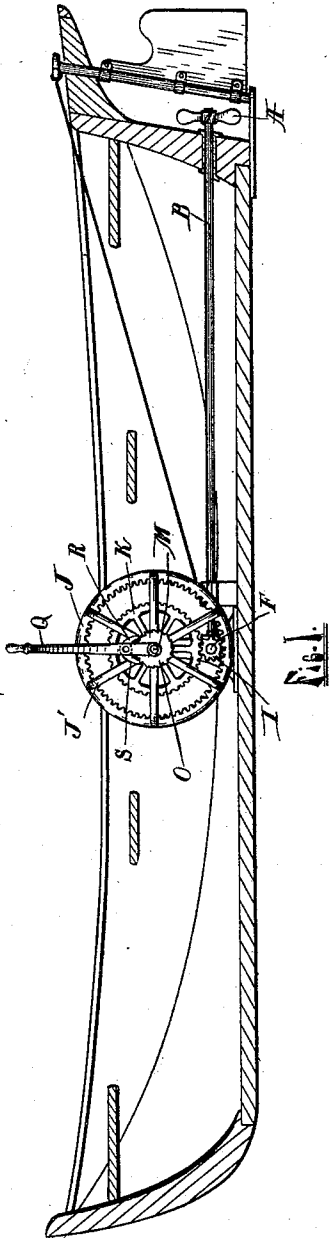


(No Model.)

L. SANDS.
BOAT PROPELLER.

No. 581,086.

Patented Apr. 20, 1897.



WITNESSES:

Leta C. Buck
Lois Moulton

INVENTOR:

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By

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Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS SANDS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-THIRD TO
CARL OSCAR BERG, OF SAME PLACE.

BOAT-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 581,086, dated April 20, 1897.

Application filed May 18, 1896. Serial No. 591,908. (No model.)

To all whom it may concern:

Be it known that I, LOUIS SANDS, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Boat-Propellers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in boat-propelling mechanism; and its object is to provide the same with certain new and useful features hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of a boat with a device embodying my invention shown therein; Fig. 2, a plan view of said device, and Fig. 3 an end elevation with parts broken away to show construction.

Like letters refer to like parts in all of the figures.

A is a propeller-wheel mounted on the end of the shaft B, and on the opposite end of said shaft is a bevel-gear C, adapted to be engaged by the gears D and D', which are mounted on the sleeve E on the shaft F. Said sleeve E is secured to and longitudinally movable on said shaft F by means of the spline F', and a groove E' is provided in the sleeve E to receive the ends of the forked lever G, which is pivoted at G', and has a spring-latch adapted to engage the sector H. On the ends of the shaft F are secured the pinions I, which engage internal gear-wheels J and gear-wheels K, said shaft F being journaled in bearings in the standards L, which standards also provide bearings at their upper ends for the shaft M. Near the respective ends of said shaft M are the rotative sleeves N, to which are secured said gear-wheels K and the ratchets O, and loosely journaled on said sleeves between said ratchets and gear-wheels are the said internal gear-wheels J, which have ratchets P on their hubs, and are also provided with offset arms J', whereby the gear-teeth of said wheels J are brought in mesh with the gears K. The levers Q are journaled on said shaft M outside the ratchets O, and the pawls R and

S, adapted to engage the ratchets O and P, are pivoted to the said levers. When the levers Q are moved backward and forward, one stroke of the levers causes said pawls R to rotate said gears K by means of the ratchets O and sleeves N, and the opposite stroke causes said pawls S to rotate said wheels J by means of their engagement with said ratchets P, and said pinions I, being engaged by said gears K and wheels J, are rotated by the same, thus transmitting motion to said propeller-wheel A by means of the shaft F, bevel-gears D and C, and shaft B. To reverse the motion of said propeller, the sleeve E is moved longitudinally on the shaft F by means of the lever G until the bevel-gear D' engages said gear C, and said lever is held in either position by said spring-latch on said lever engaging notches in said sector H.

The levers Q may be worked simultaneously, alternately, or only one may be used, and the operator may sit ahead of said levers, riding backward the same as in rowing, or he may sit back of them, or two persons may use them at the same time.

Having thus fully described my invention, what I claim is—

1. The combination with the propeller-wheel and its shaft; of a means for operating the same, embodying a shaft F, geared with the shaft of the propeller-wheel; a pinion on the end of said shaft F; a rotative sleeve; two gear-wheels, one of which is fixed and the other loose on said sleeve, the teeth of both of said gear-wheels being arranged to mesh with those of said pinion, but at different times; a fast ratchet connected with the fast gear and a loose ratchet connected with said loose gear; and a reciprocatory lever, having pawls, one of which engages the loose ratchet when the lever moves in one direction, and the other engages the fast ratchet when the lever moves in the opposite direction, for driving said pinion continuously in one direction.

2. In combination with a propeller-wheel and its shaft, a shaft at right angles thereto, bevel-gears on said shafts, pinions on said transverse shaft, a shaft journaled above said shaft, sleeves on said last-named shaft, gears and ratchets secured to said sleeves, wheels having internal gear-teeth journaled on said

sleeves, ratchets on said wheel, levers on said upper shaft and pawls on said levers, substantially as described.

3. In combination with a propeller-wheel
5 and its shaft, a shaft arranged transversely thereto, a sleeve splined on said transverse shaft, bevel-gears on said sleeve, a bevel-gear on said propeller-shaft, a forked lever engaging said sleeve, a sector, a spring-catch
10 on said lever adapted to engage said sector, a second transverse shaft above the first, sleeves on said upper shaft, gears and ratchets on said

sleeve, internal gear-wheels having ratchet-teeth on their hubs, journaled on said sleeves, levers journaled on said shaft, pawls pivoted 15 to said levers, and pinions on said lower shaft engaging said gears and internal gears, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS SANDS.

Witnesses:

LUTHER V. MOULTON,
LOIS MOULTON.