

(No Model.)

E. C. HINTON & W. H. STANSFIELD.
ROWING MACHINE.

No. 541,857.

Patented July 2, 1895.

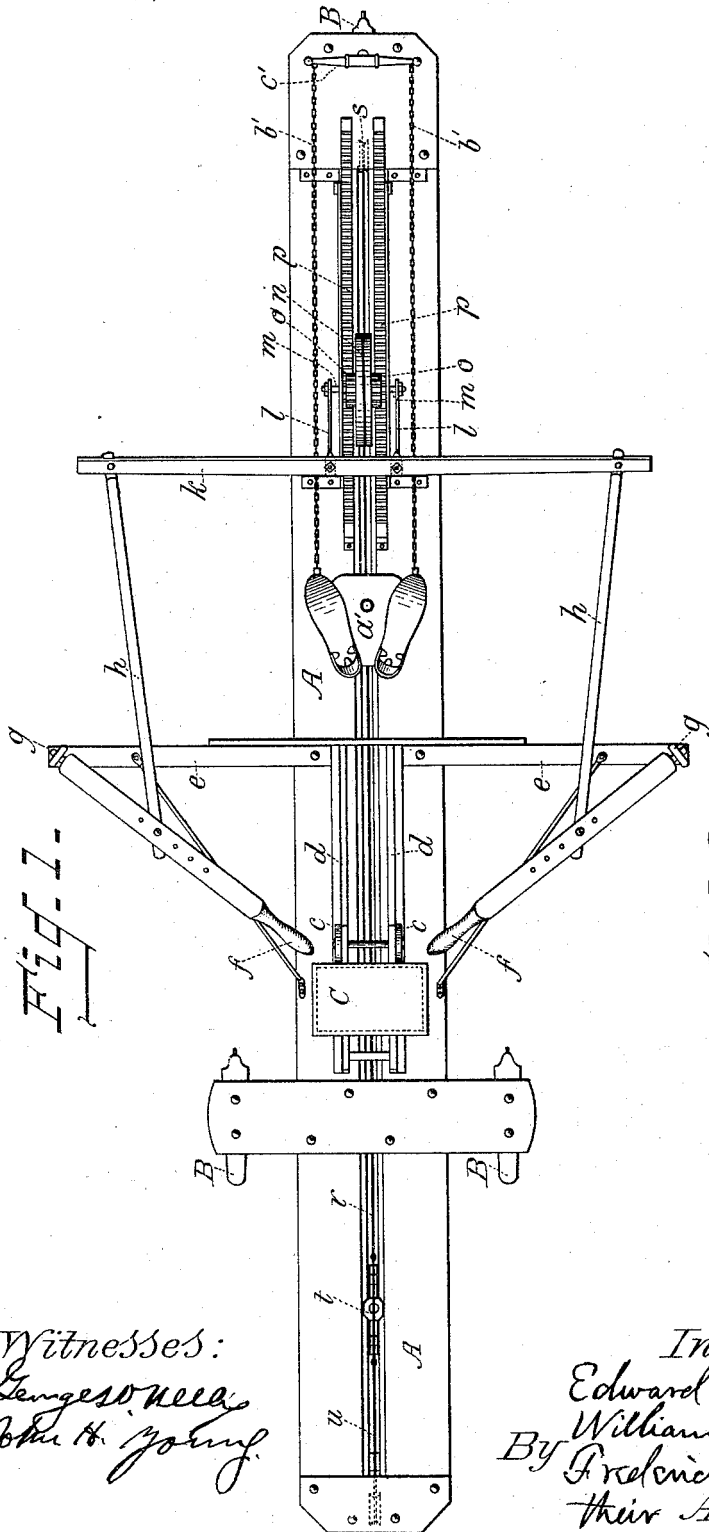
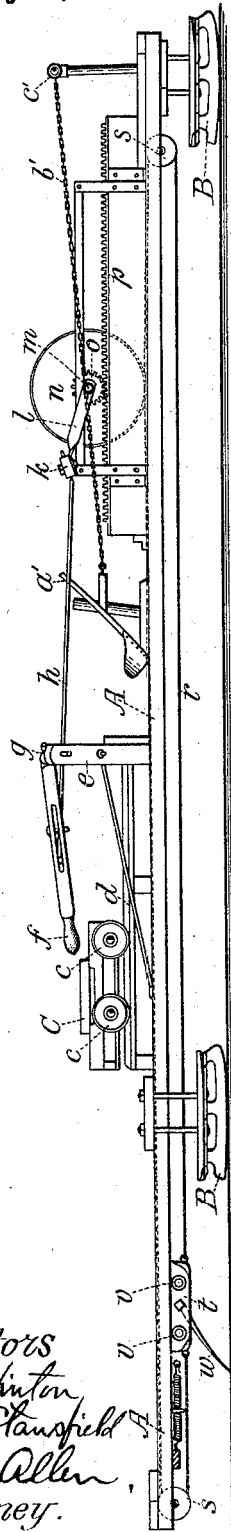


FIG. 1-

FIG. 2-



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UNITED STATES PATENT OFFICE.

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ROWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,857, dated July 2, 1895.

Application filed August 10, 1893. Serial No. 482,799. (No model.)

To all whom it may concern:

Be it known that we, EDWARD C. HINTON and WILLIAM H. STANSFIELD, of the town of Owasco, Cayuga county, New York, have invented certain new and useful Improvements in Rowing-Machines, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to rowing machines and has for its particular object the application of rowing mechanism to an ice-boat or sled so as to furnish means by which the boat or sled may be driven at great speed and at a comparatively slight effort on the part of the oarsman.

In the drawings Figure 1 is a plan view of our machine. Fig. 2 is a side elevation of the same.

Referring to the drawings by letter, A denotes the main frame of the machine. Said frame is provided with three runners or shoes B, two of which are placed parallel with each other and some distance from the sides of frame A, near the rear of the latter; while the other shoe is placed at the front end of said frame A and so mounted as to turn on a vertical post or pivot.

Midway the frame A is secured a cross-bar *e* the extended ends of which form outriggers, to which, at *g*, the oars *f* are jointed. Adjustably secured to the oars *f* are connecting rods *h* which are pivoted to the outer ends of a cross-bar *k*. Said bar *k*, near its center, is provided with the rigid forwardly projecting arms *l*, in the outer ends of which is journaled a wheel *n*. On the shaft *m* of said wheel *n* are fixed the pinions *o*, which rest upon and engage the teeth of racks *p* on either side of the wheel *n*. The wheel *n* is provided with a peripheral groove and lying in this groove is an endless belt *r*, which, after making one complete turn about the wheel *n* passes forward over a small pulley *s* at the front of the frame A and thence rearwardly over a similar pulley *s* at the back end of the machine. On the under side of the frame A is a sliding block *t* which is preferably supported in a central slot *u* in the frame A and provided with anti-friction rollers *v* which bear against the under surface of the frame. Said sliding

block *t* is secured to the endless belt, and carries a spur *w* which is pivoted so as to normally swing downward and rest upon the ice. We provide the usual sliding seat C having the rollers *c* which travel in the guides *b* on the frame A.

From the foregoing it will be apparent that as the oarsman slides forward and swings the oars to their extreme forward position the wheel *n* which carries the belt *r* will be revolved by the racks and pinions so as to carry the sliding block *t* and its spurs *w* forward. Upon the return stroke of the oars the wheel *n* will revolve in the opposite direction and as a result the direction of movement of the belt *r* and sliding block *t* will be changed. On the forward movement of said block *t* the spur *w* will trail over the ice without engaging it, but on the reverse movement said spur *w* will be forced into the ice, and the boat or sled will be driven forward.

The steering mechanism consists of the foot rest *a'* pivoted to the frame A and having tiller ropes or chains *b'* attached to the toe of each foot plate. These chains *b'* pass forward to the tiller-bar *c* which is secured to the vertical post or pivot which carries the shoe B. It will be readily understood that by turning the foot-rest *a'* in either direction the position of the guiding shoe B can be changed and the course of the boat controlled.

We claim—

1. In a rowing machine, the combination with a main frame, of supporting runners or shoes therefor, a cross-bar secured to said frame, oars jointed to said cross-bar, a reciprocating cross-bar connected with said oars, a wheel connected to said reciprocating cross-bar, means for rotating the said wheel as it is reciprocated, an endless belt encircling said wheel and running lengthwise the main frame, a driving spur reciprocated by said belt, and means for steering the machine, substantially as described.

2. In a rowing machine, the combination with a main frame slotted centrally nearly its entire length, supporting shoes or runners for said frame, a cross-bar rigidly secured to the frame midway its length and forming outriggers, oars pivoted to the ends of said cross-bar, a sliding seat mounted in guides in prox-

imity to said oars, a reciprocating cross-bar
 near the front of said frame, connecting rods
 joining said oars and reciprocating cross-bar,
 a grooved wheel journaled in supports rigid
 5 with said reciprocating bar, driving pinions
 on the shaft of said wheel, racks on either
 side of the wheel, which racks are engaged by
 said pinions, to rotate the wheel as the recip-
 10 rocating cross-bar is moved forward and back-
 ward by the oars, an endless belt running
 lengthwise the frame and encircling the said
 grooved wheel, a sliding block carrying a driv-
 ing spur mounted in the central slot of the
 frame and connected with said endless belt,
 15 a pivoted foot rest mounted just in front of
 said sliding seat, and connections between
 said foot rest and the forward supporting shoe,
 whereby the position of the latter can be var-
 20 ied at will and the course of the machine
 controlled.

3. The combination in a rowing machine,
 with the frame A, having a central slot *u*, of
 supporting shoes B, the forward one of said

shoes being mounted on a vertical pivot, the
 sliding seat C, the cross-bar *e* forming outrig- 25
 gers, the oars *f* jointed thereto, the recipro-
 cating bar *k*, provided with rigid arms *l*, rods
h connecting said oars with said reciprocating
 bar, the shaft *m* mounted in said arms, the
 grooved wheel *n*, carried by said shaft, 30
 pinions *o* on the said shaft, the racks *p* be-
 tween which said wheel *n* travels and with
 which pinions *o* mesh, the endless belt *r* en-
 circling said wheel, pulleys *s* at the opposite
 ends of the machine and over which said belt 35
 runs, the sliding block *t* reciprocated by said
 belt and having the driving spur *w*, the piv-
 oted foot rest *a'*, the tiller bar rigid with the
 vertical pivot on which the forward support-
 ing shoe is mounted, and the tiller chains *b'* 40
 connecting said foot rest and tiller bar.

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