C. H. VESSOT & F. CORNU.

BOW FACING OAR.

APPLICATION FILED JUNE 26, 1907.

904,577. Patented Nov. 24, 1908.

FIG. 8.

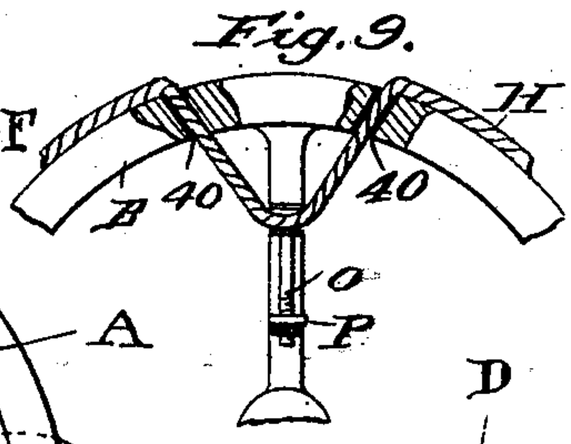

FIG. 1.

FIG. 4.

FIG. 6.

FIG. 2.

FIG. 3.

FIG. 5.

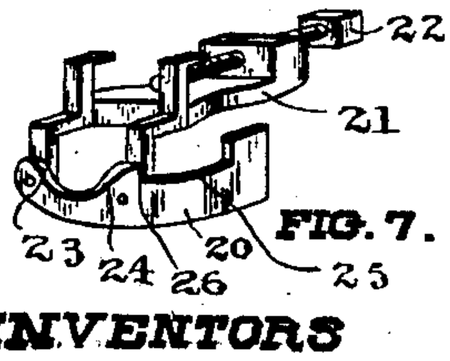

FIG. 7.

WITNESSES

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BOW-FACING OAR.

No. 904,577. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed June 26, 1907. Serial No. 380,955.

To all whom it may concern:

Be it known that we, CHARLES HENRI VESSOT and FÉLIX CORNU, both of the city of Ottawa, in the county of Carleton, Province of Ontario, Canada, have invented certain new and useful Improvements in Bow-Facing Oars, of which the following is a specification.

Our invention relates to improvements in bow facing oars and the objects of the invention are to provide an exceedingly simple and efficient oar of this class, which will feather automatically; and it consists essentially of the construction hereinafter described in the accompanying specification and specifically set forth in the claims.

In the drawings, Figure 1 is a plan view of the mechanism of the oar. Fig. 2 is a longitudinal section through the same. Fig. 3 is a side view. Fig. 4 is an enlarged sectional detail through the end of the oar blade illustrating the mechanism for automatically feathering the same. Fig. 5 is a sectional detail along the line 2—2, Fig. 4. Fig. 6 is a sectional detail along the line 3—3, Fig. 5. Fig. 7 is a perspective detail of the stop and cam plate for operating the feathering mechanism. Fig. 8 is a transverse sectional detail through the ring attached to the spider. Fig. 9 is a detail showing the means for tightening the cord or wire.

In the drawings, like letters of reference indicate corresponding parts in each figure.

A and B represent two circular disks or plates having grooved peripheries *a* and *b*. The upper plate is connected by a suitable bracket *d* with the oar blade C, while the lower plate is connected by a bracket *c* with the operating handle D. Both the disks are revolubly mounted on a single pivoting bolt *k* extending through each, and they are supported by a non-rotatable spider E, which has a ring supported at the extremities of the arms *f* thereon, a plurality of small rollers *e* being also supported from the ring and adapted to bear on the undersurfaces of the disks A and B.

The central portion *g* of the spider is adapted to afford a bearing for the bolt and secured to or formed integral with the sides of the spider are two pintles *h* adapted to extend into the oar locks and thus prevent rotation of the spider and support the same. The spider also supports pintles *l* and *m* which support pulleys F and G. The said pulleys are located opposite to each other and slightly to one side of the axial line drawn through the pintles *h*. A cord or wire H extends around both of these pulleys and in the grooves *a* and *b* in each disk and is preferably tightened by means of a bolt *o* extending through a lug *p* integral with the lower disk the extremities of the cords being led through the slot 40 in the periphery of the lower disk, and then connected to the extremity of the bolt, thus on screwing the nut on the bolt, the extremities of the cord or wire H will be drawn inwardly and tightened.

Should it be necessary to reduce the friction between the brackets connected to one of the disks and the surface of the opposite disk, a small roller *q* may be provided, carried by the bracket, in this case the bracket *c*, and bearing on the surface of the opposite disk A.

In the construction so far described, it will be observed that when the spider E is held fixedly in position, the movement of the handle will cause the oar blade to move in the reverse direction, the power being transmitted from one disk to the other, by means of the cord H which might be tightened sufficiently to accomplish this result.

Proceeding now to describe the means for feathering the oar, the bracket *d* has connection with the oar blade C through the medium of a ring 3 fixed to the oar blade and having a groove 4 therein into which a ring 5 secured to the bracket *d* fits. The inner end of the oar blade is inclosed by a casing J which rotatably engages with a ring 6 secured to the bracket *d*. The casing may be locked in certain positions with reference to the ring, by means of either of two spring-operated dogs K and L, which have projections 7 and 8 thereon adapted to alternately enter a perforation 9 in the ring 6, which latter, in order to render this possible, is extended somewhat forwardly over the face of the casing J.

The two dogs K and L are slidably held in housings 10 and 11 and pressed outwardly by means of springs 13 and 14. The projections 7 and 8 are formed towards the inner edge of their end and the outer portion of the said ends are formed with cam surfaces 15 and 16, by means of which the dogs are operated as hereinafter described. Ad-

ditional cam surfaces 17 and 18 are also formed on a lug 19 integral with the casing. The operation of the dogs K and L is effected by means of adjustable stops M and N adjustably locked on the spider. Each of these stops is the same in form and as shown in Fig. 7, consists of a front plate 20 formed integral with a bracket 21 which extends around the ring formed on the spider and located in adjusted position thereon by means of the set-screws 22. The plate 20 is formed with a cam surface 23 adapted to coöperate with a cam surface formed on the lug 19 and is also provided with a cam surface 24 adapted to coöperate with the cam surfaces 15 or 16 on the dogs K or L to raise the same. Each stop M and N is further provided with a slight recess 25 at the end of the cam surface 24, the said recess having a substantially vertical face 26 at one side thereof.

To enable the oar to be quickly removed, the engagement with the casing J is preferably of a releasable character and this may be effected by means of a spring-operated pivoted dog 27 pivoted to a lug 28 on the casing and having the end 29 thereof, adapted to engage a recess 30 formed in the oar blade.

The operation of the feathering attachment is as follows: The handle being moved in one direction, will operate as hereinbefore described, to communicate a reversed motion to the oar blade. The stops M and N are placed at such positions that, when the desired length of stroke has been attained, the cam surface 15 or 16 on the dog K or L will come into engagement with the cam surface 24 and moving up the same, will move the dog inwardly, retracting the pin 7 or 8 from the perforation in the ring 6. The motion being continued in the same direction the dog will slip into the recess 25, the depth of which is such that the pins 7 or 8 will be held out of the perforation 9 in the ring. The motion of the oar in one direction is finally limited by the dog engaging the far end of the recess 25. The movement being started in the reverse direction, the face 26 contacting with the face of the dog will exert a torque which will rotate the casing J slightly and hence the oar blade, the disengaged pin 7 or 8 permitting this. This will bring either the cam surface 17 or 18 on the lug 19 into engagement with the cam surface 23 and when the motion of the oar is continued, the co-action of these cam surfaces will result in completing the partial rotation of the casing J until the pin 7 or 8 on the opposite dog K or L, comes into alinement with the perforation 9 when the pin will be forced into the perforation under the action of the compression spring 13 or 14.

Fig. 5 shows the relative position when the return stroke is just being commenced, the pin 7 being held out of engagement with the perforation 9. In this case, the action of the cam surface 23 against the cam surface 18 will rotate the casing J until the pin 8 comes into alinement with the perforation 9 when it will be forced therein by the action of the spring 14, thus locking the oar in the desired position. At the opposite end the operation will again be repeated. It will thus be seen that in the operation of our automatic mechanism, the oar blade is turned and locked in position at the end of its stroke, the stops operating automatically to unlock the dog, turn the oar and again lock it. The length of the stroke may be adjusted by the movement of the stops M and N. If it is desired not to feather the oar, the attachment for this purpose may be omitted, leaving simply the two disks, spider and cord or rope connecting the same. Another additional advantage of the oar is its noiselessness in operation since no forms of gear wheels or other similar mechanisms are required in its construction. This advantage in addition to removing the noise prevents any loss of power through friction.

While we have described with great particularity of detail, one specific embodiment of our invention, yet it is not to be understood therefrom that the invention is limited thereto, as certain changes may be made in the details of the construction, without materially departing from the spirit of the invention.

What we claim as our invention is:—

1. An improved bow facing oar comprising two circular disks having grooved peripheries, pivoting means extending between the same, two pulleys, means for fixedly supporting the same, a cord extending partially around the periphery of each disk and over the pulleys, a handle secured to one disk and an oar blade secured to the other, as and for the purpose specified.

2. An improved bow facing oar comprising two circular disks having grooved peripheries, a spider interposed between the two disks, pivoting means extending through the disks and the spider, means for non-rotatably supporting the spider, two pulleys secured on the spider, a cord extending around the groove in each disk and around the pulleys, a handle secured to one disk and an oar blade secured to the other, as and for the purpose specified.

3. In a bow facing oar, the combination with two overlapping disks, a pivoting bolt extending through each, an oar blade connected to one disk, an oar handle connected to the opposite disk, a spider interposed between the disks, friction rollers supported on the spider, and a bearing on both disks, and means for communicating the motion of one disk to the other reversed in direction.

4. In a bow facing oar, the combination

with the rotatably supported oar blade, of locking dogs on the end thereof, a fixed ring having a perforation therein adapted to be alternately engaged by the locking dogs, means for alternately releasing the locking dogs and rotating the oar to bring them alternately in engagement with the perforation in the fixed ring, as and for the purpose specified.

5. In a bow facing oar, the combination with the rotatably supported oar blade, of two dogs slidably supported at the end thereof, means for resiliently pressing the dogs outwardly, a ring having a perforation therein, adapted to be alternately engaged by the dogs, cam surfaces formed on the dogs, and fixed stops adapted to engage each of said cam surfaces alternately at the end of each stroke of the oar, and adapted to disengage the dog from the perforation in the ring and means for turning the oar blade after one dog has been released, to engage the opposite dog with the perforation.

6. In a bow facing oar, the combination with the rotatably supported oar blade, of two dogs slidably supported on the end thereof, means for resiliently pressing the same outwardly, a ring journaling the oar blade and having a perforation therein adapted to be alternately engaged by the dogs, cam surfaces formed on the dogs and stops adapted to alternately engage the said cam surfaces at the end of the stroke, and operating to disengage the dog from the perforation in the ring, a projecting lug secured to the end of the oar blade, a fixed cam surface co-acting with said lug at the end of each stroke to turn the oar after the dog has been unlocked.

7. An improved bow facing oar comprising a handle, two circular disks having grooved peripheries, a bracket extending between the handle and one disk, a bracket rotatably supporting the oar blade and secured to the other disk, a spider extending between the two disks, two pulleys secured to the same, a cord extending partially around the periphery of the disks and around the pulleys, means for locking the oar blade in two predetermined positions with reference to the supporting bracket, means for releasing the locking means at each end of the stroke and means for turning the oar automatically after the locking means has been released, and locking it in the opposite position when rotated.

8. In a bow facing oar, the combination with the handle, oar blade, and means for transmitting the movement of the handle to the oar blade reversed in direction, of a feathering attachment for the oar blade including means for revolubly mounting the oar blade, spring dogs for locking it in two determined positions, and means operating at each end of the stroke for releasing one dog, holding it in released position, effecting the partial revolution of the oar and permitting the opposite dog to lock.

Signed at the city of Ottawa, Province of Ontario, this 21st day of June, 1907.

CHARLES HENRI VESSOT.
FÉLIX CORNU.

Witnesses:
RUSSEL S. SMART,
WM. A. WYMAN.