J. H. STEWART.

BOW FACING SELF FEATHERING OAR.

APPLICATION FILED MAY 25, 1909.

951,464. Patented Mar. 8, 1910.

Fig. 1.

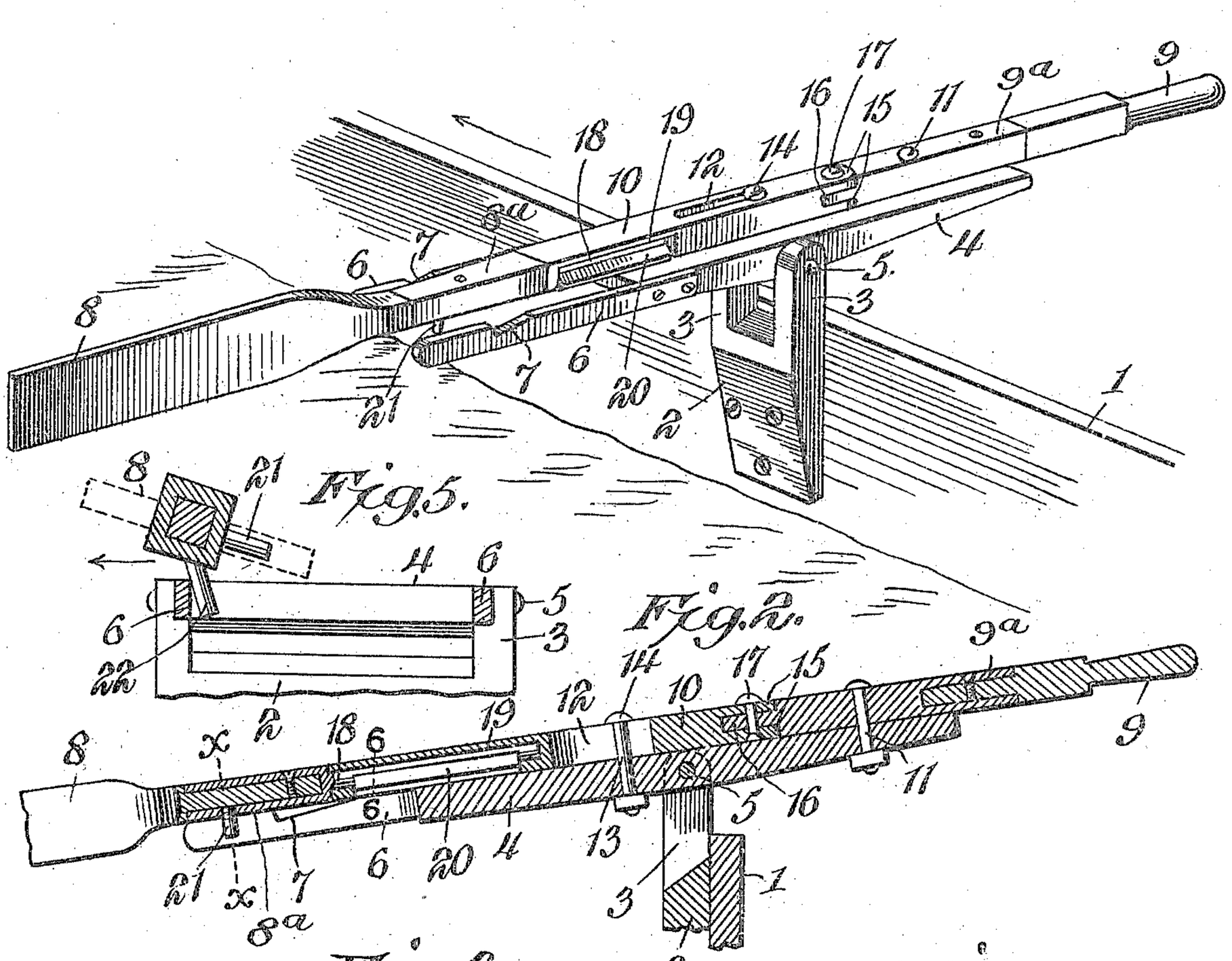
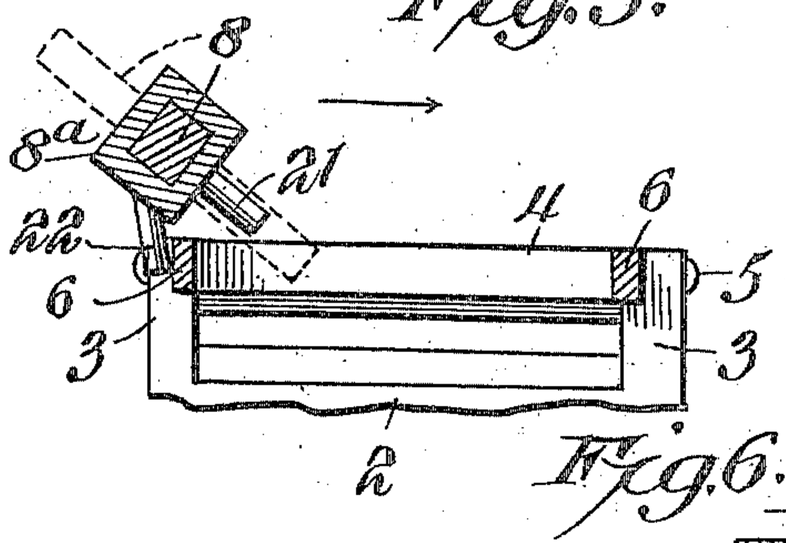


Fig. 5.

Fig. 2.

Fig. 3.

Fig. 4.



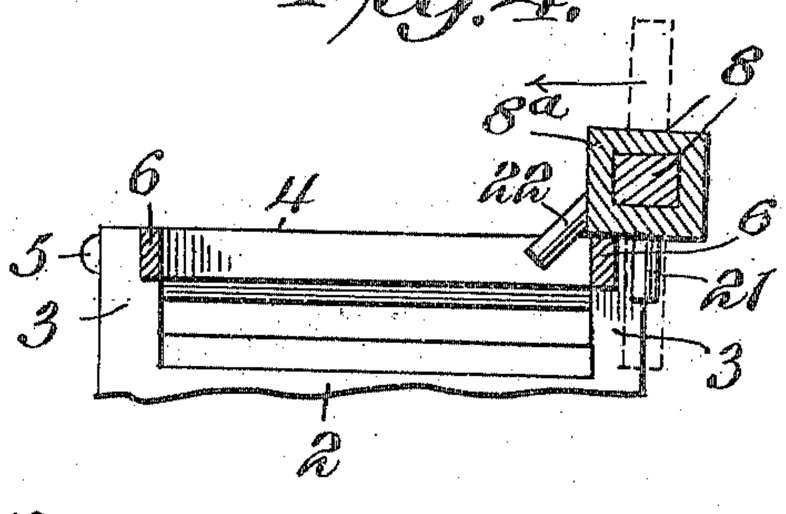
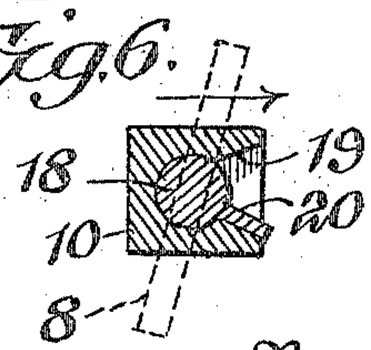


Fig. 6.



Witnesses

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BOW-FACING SELF-FEATHERING OAR.

951,464. Specification of Letters Patent. Patented Mar. 8, 1910.

Application filed May 25, 1909. Serial No. 498,252.

To all whom it may concern:

Be it known that I, JOSEPH H. STEWART, a citizen of the United States, residing at Bluff City, in the county of Sullivan and State of Tennessee, have invented a new and useful Bow-Facing Self-Feathering Oar, of which the following is a specification.

My invention relates to certain new and useful improvements in bow-facing oars which are so constructed as to allow of the oarsman sitting with his face toward the bow of the boat, and particularly the object of my invention is to so improve the construction shown in my prior patent, No. 419,898, granted January 21, 1890, as to provide for an automatic feathering action of the oar blade.

The invention consists in the provision of an axially rotatable blade portion and of abutments arranged in the path of travel of the blade and adapted to contact with a projection thereon so that the blade shall be rotated through an arc of about 90° just prior to its movement in either direction.

In the drawings, Figure 1 is a perspective view showing my invention applied to the gunwale of a boat, the oar blade being in a middle position; Fig. 2 is a longitudinal fragmentary section of the oar and its support; Fig. 3 is a transverse section on the line *x*—*x* of Fig. 2 looking from the blade toward the handle end of the oar showing the blade immediately prior to its assuming a normal position for making a stroke; Fig. 4 is a transverse section on the line *x*—*x* of Fig. 2, showing the blade in a position just prior to its boward movement; Fig. 5 is a transverse section on the line *x*—*x* of Fig. 2, showing the position of the blade as it moves toward the bow or "feathers." Fig. 6 is a section on line 6—6, Fig. 2.

I attach my oar to the gunwale of a boat, 1, by means of a block 2, having upwardly projecting spaced arms 3, constituting a pivotal support for the oar. Pivotally mounted between the arms 3 is the metal oar supporting plate 4, pivoted to the arms by a transverse pin 5. The outer end of this plate 4 is provided with two parallel outwardly extending arms, 6, whose upper edges are flush with the upper face of the plate 4, but notched as at 7.

The oar proper is formed in three parts—a wooden blade 8, a wooden handle 9 and an intermediate metal shank portion 10. This latter is pivoted at one end to a metal socket piece 9ª of the handle 9 and at its other end is rotatably connected with the blade 8. The handle is pivoted by a bolt 11 for movement in a substantially horizontal plane—that is, across the face of the plate 4. The intermediate section or shank 10 is slotted as at 12 and a bolt or pin 13 passes upward through the plate 4 and through this slot, the bolt being formed with an enlarged head 14, which is larger than the slot and holds the shank 10 to the face of the plate 4. At its inner end the section 10 is formed with the spaced ears 15, receiving between them a tongue, 16. A pivot bolt 17 passes through the tongue and ears and pivotally connects the two.

The blade 8 at its inner end is fitted in and secured to a metal socket piece 8ª that is provided with an axially extending pintle 18, which is received into the outer end of the shank section 10 and rotates therein. It will be seen from Fig. 2 that this pintle has an extended bearing within the shank section so that the blade is very rigidly connected to the shank section. As shown most clearly in Fig. 6, the outer end of the section 10 is cut away at one side as at 19 to the interior bore which receives the pintle 18. This cutaway portion accommodates a fin, 20, which projects radially from the pintle. This fin extends from the pintle at such an angle that when the blade is making a stroke, that is, moving toward the stern of the boat, the fin 20 will bear against the lower face of the recess, 19, with the blade at an angle, with its upper edge somewhat in advance of its lower edge, as shown in Fig. 6. This prevents the blade turning over further while making a stroke and thus holds it in the most approved position to properly engage the water. This position is shown in dotted lines in Fig. 6. The fin also prevents the withdrawal of the blade from engagement with the intermediate shank portion 10. It will thus be seen that the blade 8 has an independent axially-rotatable movement in relation to the shank portion 10, but moves longitudinally and laterally with this shank portion as the latter is oscillated through the action of the handle 9.

For the proper presentation of the oar to the water, it is necessary that upon a stroke, the blade be turned to the position shown by dotted lines in Fig. 6 and in full lines in

Fig. 1, but that for a return movement (or movement of the blade toward the bow) the blade be feathered, that is, turned to the position shown in dotted lines in Fig. 5, or nearly horizontal, and that upon the sternward motion of the blade to again make a stroke, the blade be again turned back to the position shown in Fig. 6. To accomplish this rotative movement of the blade, I provide the two arms 6 and in conjunction therewith the two right-angularly disposed pins 21, 22, projecting from the inner end of the socket piece 8a. One of these pins 21 projects downward from the bottom face of the socket piece supporting the blade section and substantially in line with the face of the blade. The other pin projects outward and downward from the side of the socket piece 8a so that it forms an angle less than a right angle with the pin 21. These pins engage one or the other with one or the other of the arms 6, the notches 7 permitting the pins to pass the arms upon the return movement.

The operation of my invention is as follows: Upon an oarsman facing the bow of the boat, and drawing upon the handle, the oar 8 will be moved toward the stern, thus giving a forward movement to the boat itself as shown by the arrow in Fig. 1. The blade during its sternward movement is in the position shown in Figs. 1 and 6. As the blade nears the end of its sternward movement, the pin 21 passes through the notch 7 of the arm 6, and the parts are brought to the position shown in Fig. 4. Upon the return movement, that indicated by the arrow in Fig. 4, the pin will engage with the arm 6 as the blade passes the arm, and the blade will be thereby turned into a horizontal position and will feather, as shown in Fig. 5. As the blade passes the forward arm 6, the pin 22 will pass through the notch of the arm, and on its return the pin 22 will engage with the arm to turn the blade back from the position shown in Fig. 3 to the stroke position. It will be seen that the slot 12 permits of the reciprocation of the oar as well as the longitudinal movement thereof to accommodate this reciprocation, and that the blade will be rotated at the end of its travel in both directions. The pivot blade 4 permits the oar as a whole to yield vertically as well as reciprocate, thus all motions of the oar are accommodated by my construction, while, at the same time, the feathering is entirely automatic and the handle does not have to be turned to accomplish this end.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In an oar of the class described, a support mounted for oscillation in a vertical plane, a non-rotatable shank mounted on the support for longitudinal and lateral oscillatory movement, a blade having an axially-extending pintle mounted in the shank, means for limiting the rotary movement of the blade on its pintle, angularly-disposed members on the blade, spaced abutments carried by the said support over which the members pass at the end of each stroke to engage behind the abutments and rotate the blade at the initial part of the succeeding stroke, and means carried by the support for oscillating and reciprocating the shank.

2. In an oar of the class described, the combination of an oscillatory support, spaced members extending outwardly from the outer end thereof and having notches, a handle connected with the support, a non-rotatable shank hingedly connected with the handle and oscillated thereby, a blade rotatably mounted on the shank and movable over the said members, and projections on the blade arranged to pass through the notches at the end of each stroke to engage behind the members at the initial part of the succeeding stroke for moving the blade to and from feathering or normal position.

3. In an oar of the class described, the combination of an oscillatory supporting plate, a socket piece fulcrumed thereon, a handle secured in the socket piece, a shank resting on the support and hingedly connected with the socket piece for an oscillatory and longitudinal movement, means on the support for guiding the shank, said shank having a bore at one end and there being a slot in the wall of the said bore, a socket piece provided with a pintle engaging in the bore to rotate therein, a member engaging in the slot of the bore for limiting the rotary movement of the second socket piece, an oar blade secured to the second socket piece, members on the support disposed adjacent the second socket piece, and means on the second socket piece arranged to pass over and engage outside of the members at the ends of the strokes for moving the blade to and from feathering or normal position.

4. In an oar of the class described, the combination of a support mounted for oscillation in a vertical plane, upright pivots mounted on the support at opposite sides of its axis of oscillation, an oscillatory handle on one of the pivots, a shank hingedly connected with the handle and having a slot through which the other pivot extends, a blade having a longitudinally-extending pintle rotatably mounted in the shank at the end thereof opposite that connected with the handle, means for limiting the rotary movement of the blade, and coacting devices carried by the blade and said support for moving the blade to and from feathering or normal position as the blade is oscillated, the devices on the blade being arranged to alternately pass over the devices on the support

and engage outside the latter to turn the blade at the initial part of each oscillatory movement of the oar.

5. In an oar of the class described, the combination of a support mounted to oscillate in a vertical plane, a handle section, a blade section hingedly connected thereto, a fixed pivot on the support for the handle section, means for guiding the blade section on the support to have a combined longitudinal and oscillatory movement, a pair of spaced members fixed with respect to the support and disposed adjacent the path of movement of the blade section, and devices on the blade section each movable over one of the members during the last part of the stroke to engage behind the member and to be turned thereby at the initial part of the succeeding return stroke for moving the oar blade to or from feathering position.

6. In an oar of the class described, the combination of a blade section mounted to turn on its axis, means for oscillating the blade section, fixed members disposed along the path of movement of the blade section, and angularly-disposed devices on the blade section arranged respectively to pass over the said members and engage the outside thereof during the last part of a stroke and to be turned by the said members during the initial part of the succeeding reverse stroke.

7. The combination of an oscillatory support, an oar composed of hingedly connected sections mounted thereon, one of the sections including a rotatable blade, spaced members extending outwardly from the support and having notches in their upper surfaces, and angularly-disposed devices arranged respectively to pass through the notches of the members for engaging the outer side faces of the latter to be turned to and from feathering position at the initial part of each stroke of the oar, said notches being located inwardly from the outer extremities of the members to permit the devices to engage the portions of the members between the notches and their outer extremities.

8. In an oar of the kind described, a supporting plate having pivotal movement in a vertical plane, a handle pivoted to the upper face of the plate, a shank pivoted to one end of the handle and having a slot, a pin passing through the plate and through the slot, said shank having a socket in its outer end formed with a longitudinal slot at one side, a blade having an axially extended pintle projecting into the socket of the shank, a longitudinally-extending fin on the pintle movable in the slot of the socket for preventing the blade being withdrawn from the shank and limiting the rotary movement of the blade, pins projecting from the blade at right angles with each other, and spaced abutments supported below the blade adapted to contact with the pins, as the blade is oscillated, to turn the blade through a quarter of a circle.

9. In an oar of the kind described, a supporting plate pivoted for movement in a vertical plane, a handle pivoted to the upper face of the supporting blade, a shank pivotally engaged with the handle and having a longitudinal slot, a pin projecting from the face of the plate and extending through said slot, a blade formed with an axially projecting pintle extending into the shank and having a radially projecting fin, said shank being formed with a radial recess receiving said fin, pins projecting at right angles to each other from the blade, and spaced abutments supported on both sides of the blade adapted to engage the pins to turn the blade through a quarter of a circle.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH H. STEWART.

Witnesses:

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D. B. PAYNE.