

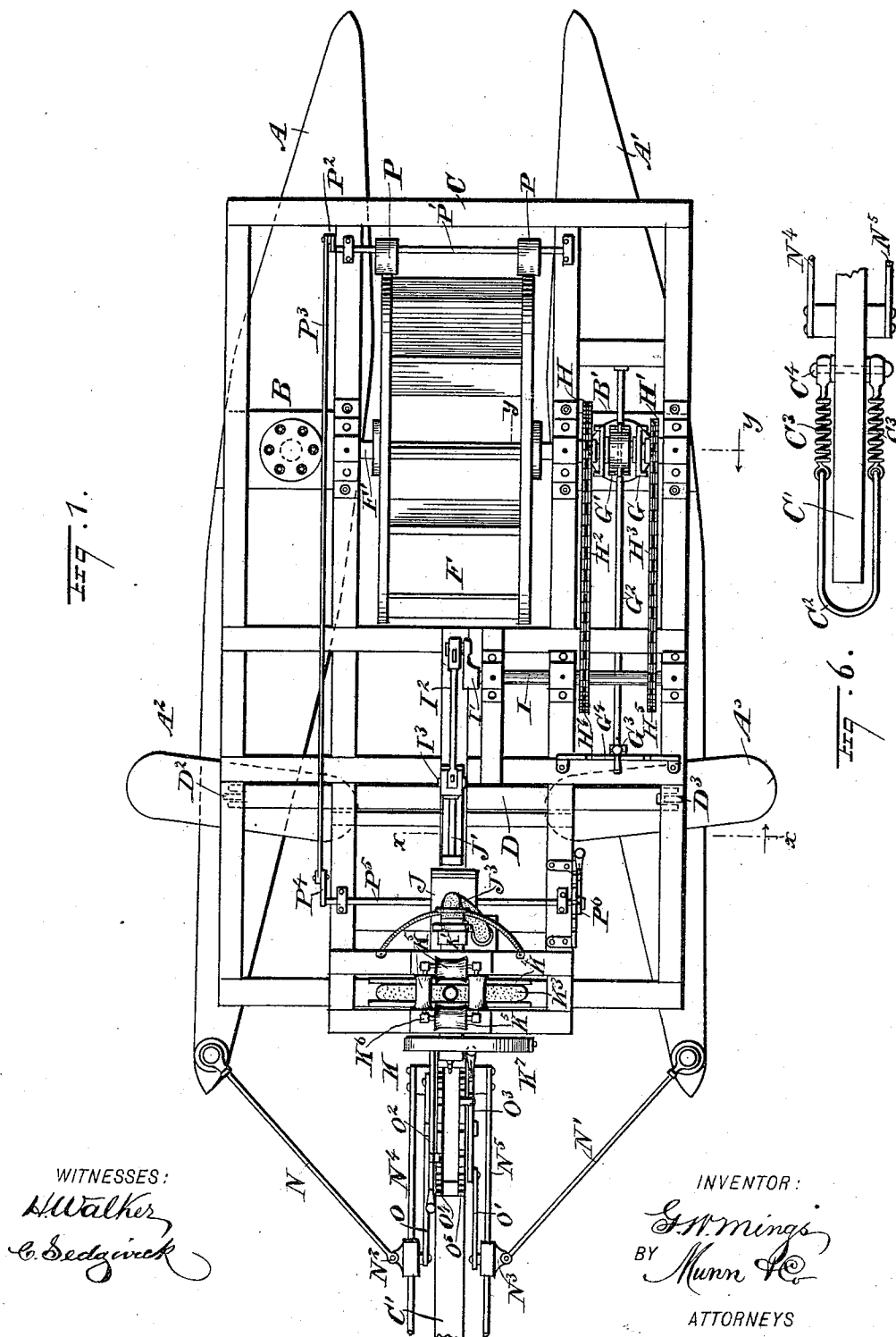
(No Model.)

4 Sheets—Sheet 1.

G. W. MINGS.
MOTOR.

No. 473,328.

Patented Apr. 19, 1892.



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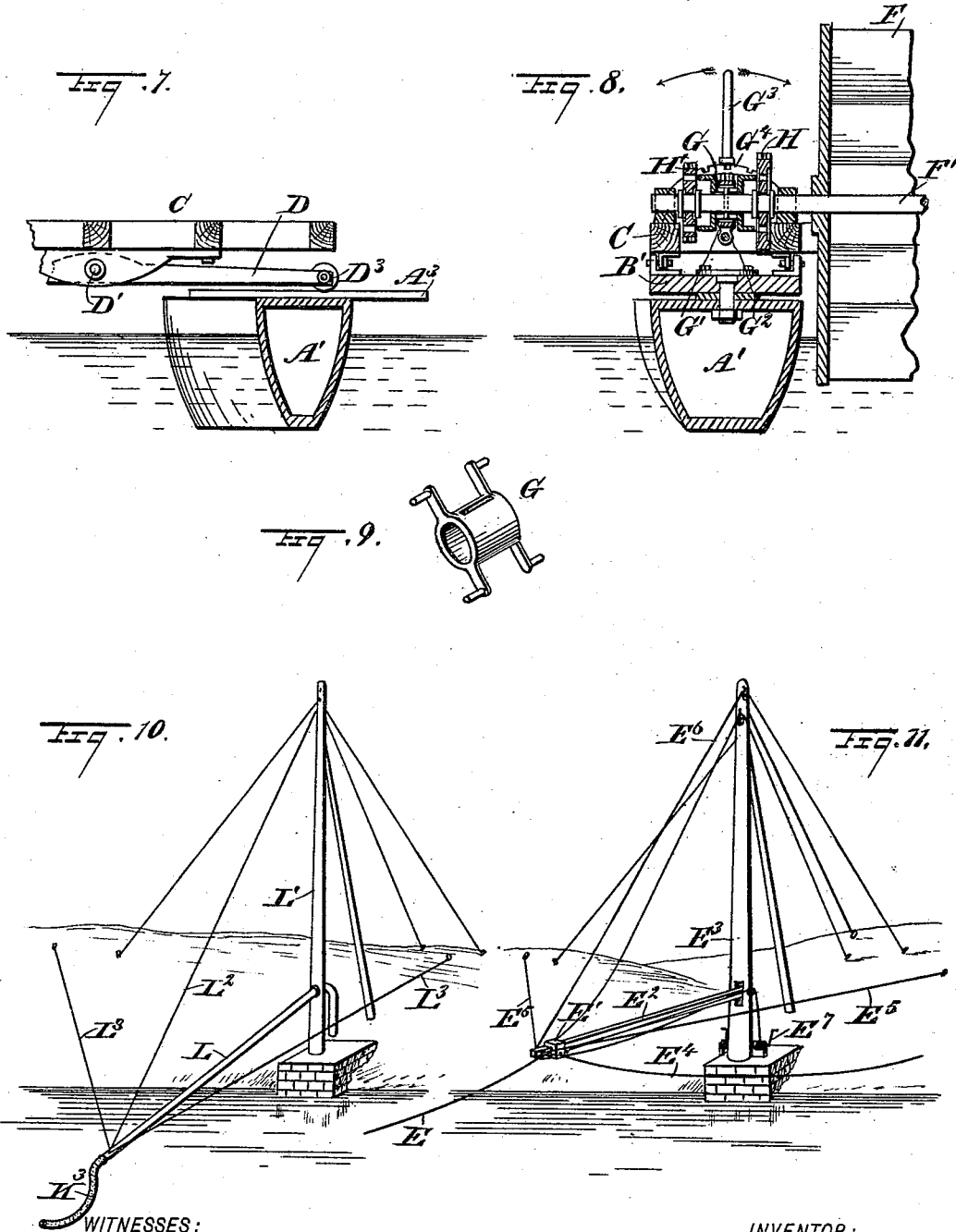
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4 Sheets—Sheet 3.

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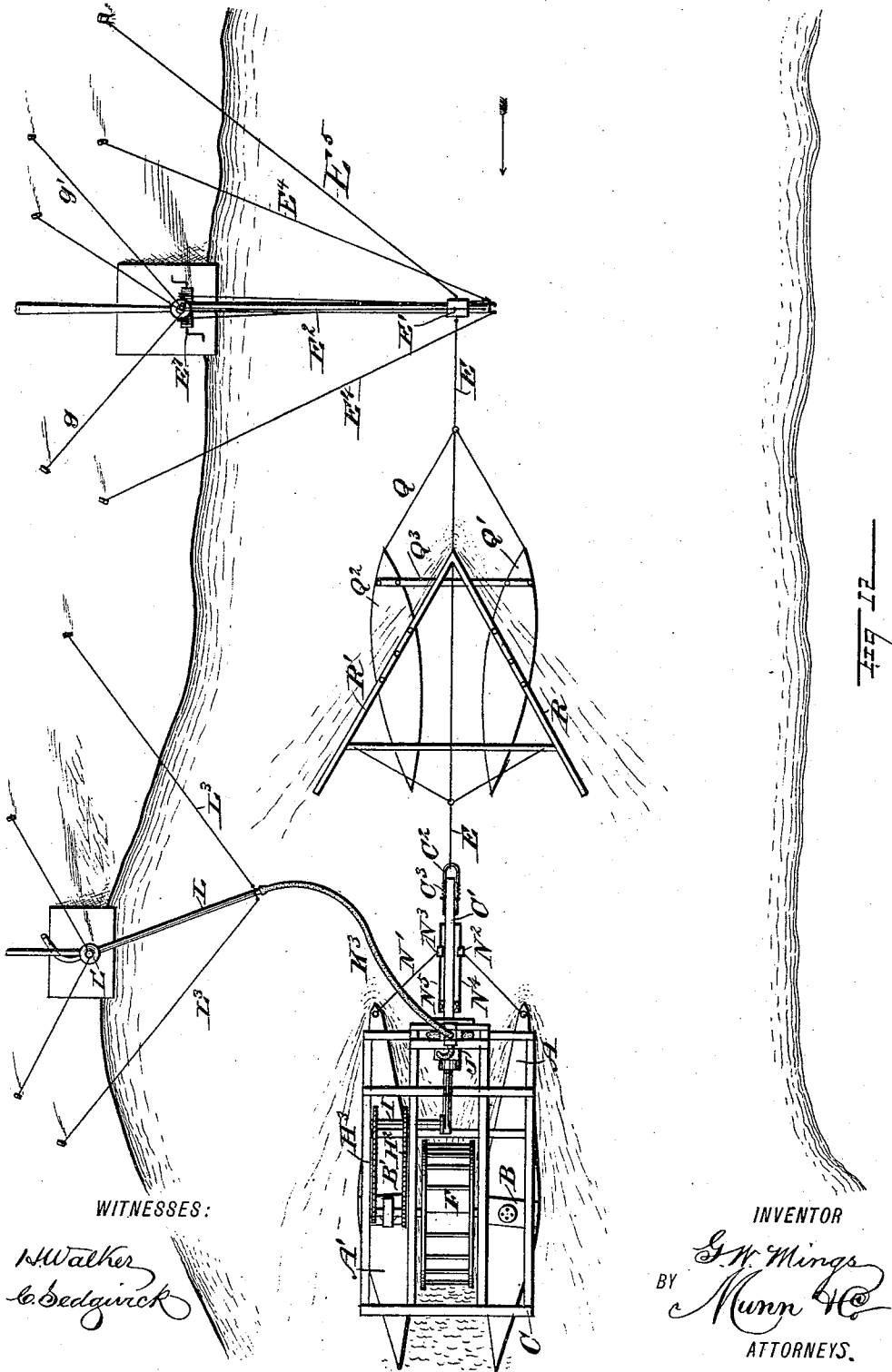
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UNITED STATES PATENT OFFICE.

GEORGE W. MINGS, OF NEW CASTLE, COLORADO.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 473,328, dated April 19, 1892.

Application filed May 22, 1891. Serial No. 393,761. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MINGS, of New Castle, in the county of Garfield and State of Colorado, have invented a new and Improved Motor, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved motor adapted to be actuated by the current of a stream, and more especially designed to operate a pump for irrigating land adjacent to the stream or for placer mining or other purposes.

The invention consists principally of a water-wheel mounted on a frame supported on two boats floating in the water and held adjustably one to the other.

The invention also consists of certain parts and details and combinations of the same, as will be described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of the reel. Fig. 4 is a transverse section of the same. Fig. 5 is a side elevation of the clevis connected with the frame-pole. Fig. 6 is a plan view of the same. Fig. 7 is a transverse section of part of the improvement on the line *x x* of Fig. 1. Fig. 8 is a like view of another part of the improvement on the line *y y* of Fig. 1. Fig. 9 is a perspective view of the double clutch. Fig. 10 is a perspective view of the support for the discharge-pipe on the bank of the stream. Fig. 11 is a like view of the device for holding the boats in the stream, and Fig. 12 is a plan view of the improvement as applied.

The improved motor is provided with two boats A and A', closed on all sides and on top, so as to prevent the sinking of the same. The boats A and A' are placed alongside each other, with a suitable space between them, and the said boats are pivotally connected at or near their middles by king-bolts with bolsters B and B', respectively, pivotally connected with a frame C of any approved construction and extending horizontally above the two boats A and A'.

Near the front end of the frame C, at the middle of the under side of the same, is pivoted at D' a transversely-extending lever D, carrying on its outer ends friction-rollers D² and D³, mounted to travel on top of the plates A² and A³, respectively secured on the tops of the boats A and A' near their front ends, so that the said frame C is firmly supported on the boats and the latter are free to swing, the king-bolts of the bolsters B and B' being the centers.

On the front end of the frame C is secured a pole C', provided at its outer end with a U-shaped clevis C², connected at its ends by springs C³ with the clevis-bolt C⁴, held in the pole C'. (See Figs. 5 and 6.) The clevis is connected by a rope or chain E with a block E', fitted to slide on a beam E², pivoted in a post E³, erected on a suitable foundation at the bank of the stream or river in which the boats A and A' are located. The block E' can be drawn inward by a rope E⁴, extending to the bank of the river, as is plainly shown in Fig. 11. The beam E² is connected at its ends with guy-ropes E⁵ for holding the said beam in the proper position, and the said beam E² may be raised or lowered by a rope E⁶, passing over a pulley in the post E³ and adapted to be fastened to a stake on the ground. A windlass E⁷, erected on the foundation for the post, serves to draw in the block E', if desired. By raising or lowering the beam E² the rope or chain E is held sufficiently high out of the water to hold the boats A and A' in the proper position out in the current of the stream or river.

Between the two boats A and A' is erected an undershot water-wheel F, adapted to be driven by the current of water passing through the space between the two boats A and A'. The water-wheel F is provided with a shaft F', extending transversely and mounted to turn in suitable bearings secured on the frame C. The shaft F' is preferably located above and in-line with the line connecting the two king-bolts of the bolsters B and B' with each other. A double clutch G is mounted to turn and to slide on the shaft F', the said clutch being adapted to engage alternately clutches on the sprocket-wheels H and H', mounted to turn loosely on the shaft F', said sprocket-wheels being of different diameters, as is

plainly shown in the drawings. The clutch G is adapted to be shifted on the shaft F' by a fork G', held on a shaft G², mounted to turn in suitable bearings held in the frame C.

5 The shaft G² extends longitudinally and has its front end connected with a lever G³, adapted to be locked to a segment G⁴, held on the frame C. When the lever G³ is shifted, the clutch G is thrown from an intermediate

10 position into engagement with either the clutch on the sprocket-wheel II or the clutch on the sprocket-wheel II', so that the respective sprocket-wheel is rotated with the shaft F' when the wheel F is actuated by the current of the water.

Over the wheels II and II' pass the sprocket-chains II² and II³, respectively, also passing over sprocket-wheels II⁴ and II⁵, respectively secured on a shaft I, extending transversely

20 in front of the wheel F and mounted to turn in suitable bearings on the frame C. On the inner end of the shaft I is secured a crank-arm I', pivotally connected by a pitman I² with a cross-head I³, mounted to slide in suitable bearings and connected with the piston-rod J', connected with the piston of a pump J of any approved construction and located on the frame C. The pump J is provided with a suction-pipe J², extending downward

25 into the water between the two boats A and A'. The pump J is also provided with a discharge-pipe J³, connected with a coupling K', held on a hollow shaft K² of a reel K, supported on the front end of the frame C, as is plainly illustrated in Figs. 1 and 2. The hollow shaft K² of the reel K is connected by an opening with the inner end of a hose K³, (see

30 Figs. 3 and 4,) coiled around the said shaft between two flanges K⁴, secured on the shaft, as is plainly shown in the said figures. The outer end of the hose K³ extends upward and passes between a series of rollers K⁵, mounted to turn on a suitable frame K⁶, projecting from the frame-work K⁹ of the reel K. The

35 rollers K⁵ are preferably arranged in a square, so that no matter how the boats swing in the river the discharge-hose K³ is always guided and passes over one of the said rollers K⁵, thus preventing injury to the said hose and

40 permitting it to run off or wind on the reel easily. In order to compensate for the movement of the boats and so as to hold the hose K³ taut, a spring K⁷ is provided, which is fastened by one end to the said shaft K² and by

45 its other end to the frame-work K⁹, as is plainly shown in Fig. 3. Thus when the shaft K² is revolved by the hose K³ being drawn out the spring K⁷ is compressed, and when the pressure on the hose K³ is released the

50 spring K⁷ revolves the shaft K² in an opposite direction to again wind up the hose K³. In the closed end of the shaft K² is arranged a faucet K⁸ for drawing off the water from the shaft K² and the hose K³ whenever desired.

55 The hose K³ is stretched from the reel toward the bank of the river or stream, as is plainly illustrated in Fig. 10, the outer end of the

said hose being connected with a pipe L, held in a post L', mounted on a suitable foundation on the river edge. The pipe L is supported and held in place by a rope L², projecting from the upper end of the post L' to the outer end of the pipe, which latter is also connected with guy-ropes L³, extending to stakes driven in the bank of the river. The

70 end of the pipe L at the post L' is connected with a suitable hose or other means and into which the water is discharged.

In order to regulate the current of the water passing to the water-wheel F, the two boats A and A' are adjusted with relation to each other, so that the front ends of the boats extend farther apart or come nearer together to permit more or less water to pass in the space between the two boats and to the water-wheel

80 F. In order to accomplish this, the front ends of the boats A and A' are pivotally connected by links N and N', respectively, with blocks N² and N³, respectively mounted to slide longitudinally on guide-rods N⁴ and N⁵, respectively secured to the sides of the pole C'.

85 The blocks N² and N³ are pivotally connected by links O and O' with levers O² and O³, respectively fulcrumed on the sides of the pole C' and adapted to be locked by suitable means to the notched segments O⁴ and O⁵, held on top of the pole C'.

90 It will be seen that by manipulating either of the levers O² and O³ the front end of the respective boat connected with the said lever is moved inward or outward, according to the direction in which the lever is moved, the said boat turning, as previously mentioned, on its respective king-bolt and in its bolster. Thus the distance between the two boats can be increased or decreased

95 at the front end to permit more or less water to pass between the two boats to the water-wheel F.

In order to regulate the speed of the water-wheel F, a brake mechanism is provided, as shown in Figs. 1 and 2. The brake-shoes P are adapted to engage the circular flanges of the wheel F and are secured on a transversely-extending shaft P', journaled in the frame C. The shaft P' carries a crank-arm P², connected by a link P³ with a crank-arm P⁴, secured on a shaft P⁵, provided with a lever P⁶, adapted to be locked to a notched segment and under the control of the operator, so as to enable the latter to brake the wheel F more

110 or less, according to the force of the current of water passing to the wheel. A V-shaped protector may be arranged in front of the boats to prevent drift-wood from passing to the wheel. The speed of the pump J can be increased or decreased by driving the shaft I from either the gear-wheel II or II', as these gear-wheels have different diameters. A high rate of speed is obtained for the pump J when the clutch G connects the shaft F' with the sprocket-wheel II, and the pump J is driven

115 slower when the clutch G connects the shaft F' with the sprocket-wheel II'. Water discharged by the pump J passes through the

stuffing-box into the discharge-hose J³ into the hollow shaft K² of the reel K, and from the said shaft the water passes through the discharge-pipe K³ to the pipe L, reaching to the shore.

In order to prevent injury to the boats A A' and the mechanism supported thereon by logs, drift-wood, &c., floating down the river, a protector Q is arranged on the line E between the pole C' and front ends of the boats, as is plainly shown in Fig. 12. This protector is formed of two boats Q' Q², connected with each other by cross-beams Q³ and supporting two beams R R', arranged in the shape of a V, with the apex pointing upstream between the two boats. The beams R R' extend into the water to direct the drift-wood away from the boats A A' of the motor. By supporting the boats A and A' in the manner previously described from the shore by the rope E, block E', and arm E² they can readily be held in line with the current, so that the latter is utilized to the best advantage.

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

1. In a motor, the combination, with two boats, of a frame pivotally connected with the said two boats and a water-wheel journaled in the said frame and extending between the said two boats, substantially as shown and described.

2. In a motor, the combination, with two boats, of a frame pivotally connected with the said two boats, and a water-wheel journaled in the said frame and extending between the said two boats, and means for swinging the said boats on their pivots to adjust their front ends to permit more or less water to pass between the boats, substantially as shown and described.

3. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, and a water-wheel journaled in the said frame and extending into the water between the said two boats, substantially as shown and described.

4. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, a water-wheel journaled in the said frame and extending into the water between the said two boats, a pole held on the front end of the said frame, and means, substantially as described, for holding the said boats out in the river or stream, substantially as shown and described.

5. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, a water-wheel journaled in the said frame and extending into the water between the said two boats, a pole held on the front end of the said frame, means, substantially as described, for holding the said boats out in the river or stream, and a drift-

wood protector arranged in front of the said pole, substantially as shown and described.

6. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, and a water-wheel journaled in the said frame and extending into the water between the said two boats, a rope connected with the said frame, a block connected with the said rope, and a pivoted beam on which the said block is fitted to slide, substantially as shown and described.

7. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, a water-wheel journaled in the said frame and extending into the water between the said two boats, a rope connected with the said frame, a block connected with the said rope, a pivoted beam on which the said block is fitted to slide, and a post erected on the shore of the river or stream and carrying the said beam, substantially as shown and described.

8. In a motor, the combination, with two boats, of bolsters pivotally connected with the said boats, a frame pivotally connected with the said bolsters, a water-wheel journaled in the said frame and extending into the water between the said two boats, a rope connected with the said frame, a block connected with the said rope, a pivoted beam on which the said block is fitted to slide, a post erected on the shore of the river or stream and carrying the said beam, and a windlass for raising and lowering the said beam, substantially as shown and described.

9. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, and a lever pivoted on the said frame and provided with friction-rollers traveling on plates on the said boats, substantially as shown and described.

10. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, a lever pivoted on the said frame and provided with friction-rollers traveling on plates on the said boats, and a water-wheel journaled in the said frame and extending into the water between the said boats, substantially as shown and described.

11. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, a lever pivoted on the said frame and provided with friction-rollers traveling on plates on the said boats, links connected with the front ends of the said boats, blocks mounted to slide longitudinally on the said frame and connected with the said links, and levers for shifting the said blocks, substantially as shown and described.

12. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, a le-

ver pivoted on the said frame and provided with friction-rollers traveling on plates on the said boats, links connected with the front ends of the said boats, blocks mounted to slide longitudinally on the said frame and connected with the said links, levers for shifting the said blocks, and means for locking the said levers in place, substantially as shown and described.

10 13. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, a lever pivoted on the said frame and provided with friction-rollers traveling on plates on the
15 said boats, links connected with the front ends of the said boats, blocks mounted to slide longitudinally on the said frame and connected with the said links, levers for shifting the said blocks, and a water-wheel journaled in
20 the said frame and extending into the water between the said boats, substantially as shown and described.

14. In a motor, the combination, with two boats, of bolsters held on the said boats, a
25 frame connected with the said bolsters, a lever pivoted on the said frame and provided with friction-rollers traveling on plates on the said boats, links connected with the front ends

of the said boats, blocks mounted to slide longitudinally on the said frame and connected with the said links, levers for shifting the said blocks, a water-wheel journaled in the said frame and extending into the water between the said boats, and a pump held in the said frame and actuated from the said water-wheel, substantially as shown and described. 30 35

15. In a motor, the combination, with two boats, of bolsters held on the said boats, a frame connected with the said bolsters, a lever pivoted on the said frame and provided with friction rollers traveling on plates on the said boats, links connected with the front ends of the said boats, blocks mounted to slide longitudinally on the said frame and connected with the said links, levers for shifting the said blocks, a water-wheel journaled in the said frame and extending into the water between the said boats, a pump held in the said frame and actuated from the said water-wheel, and means for increasing or diminishing the speed of the said pump, substantially as shown and described. 40 45 50

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Witnesses:

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