(No Model.)

# J. T. BIBB.

## CURRENT MOTOR.

No. 500,465. Patented June 27, 1893.

Fig. 1.

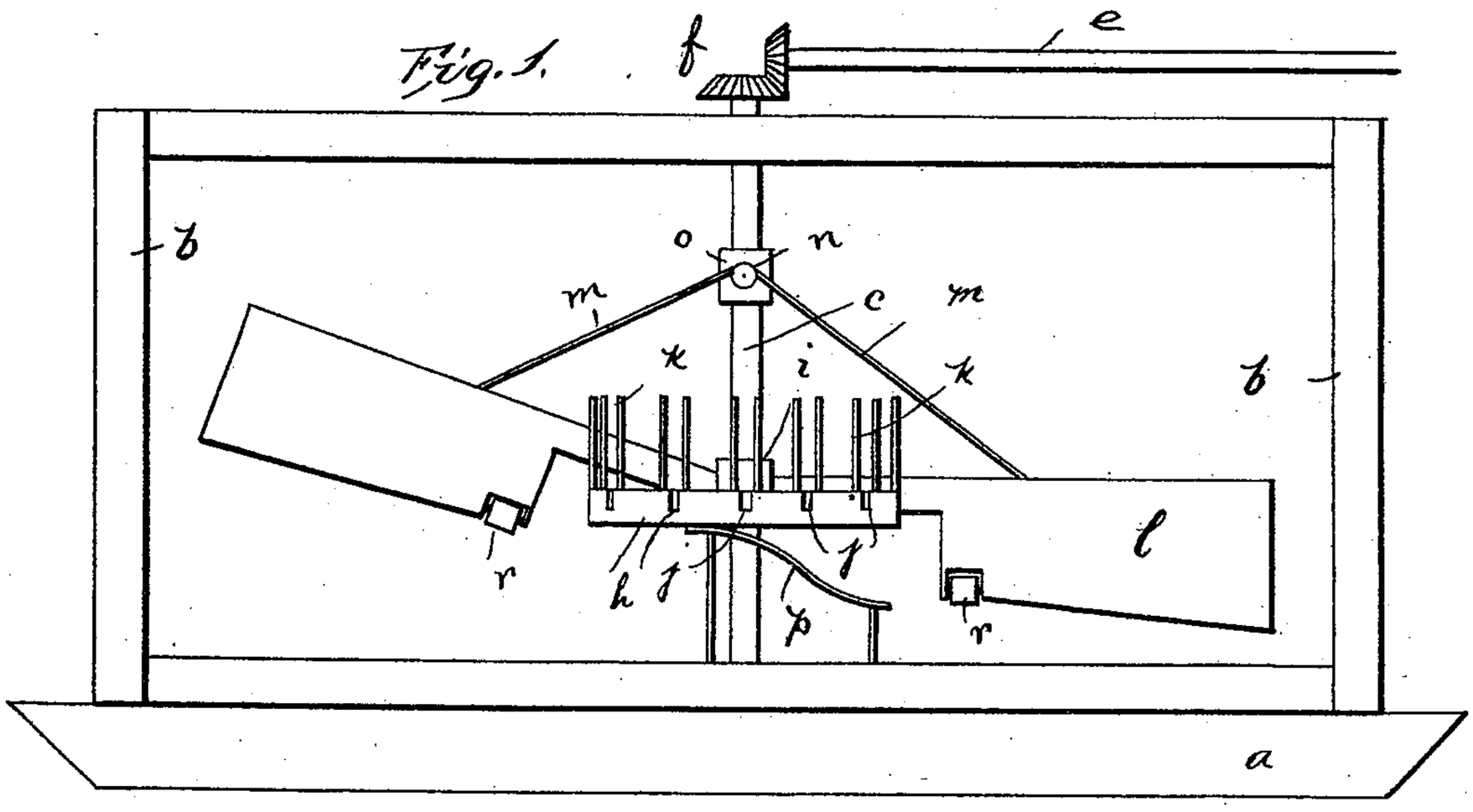
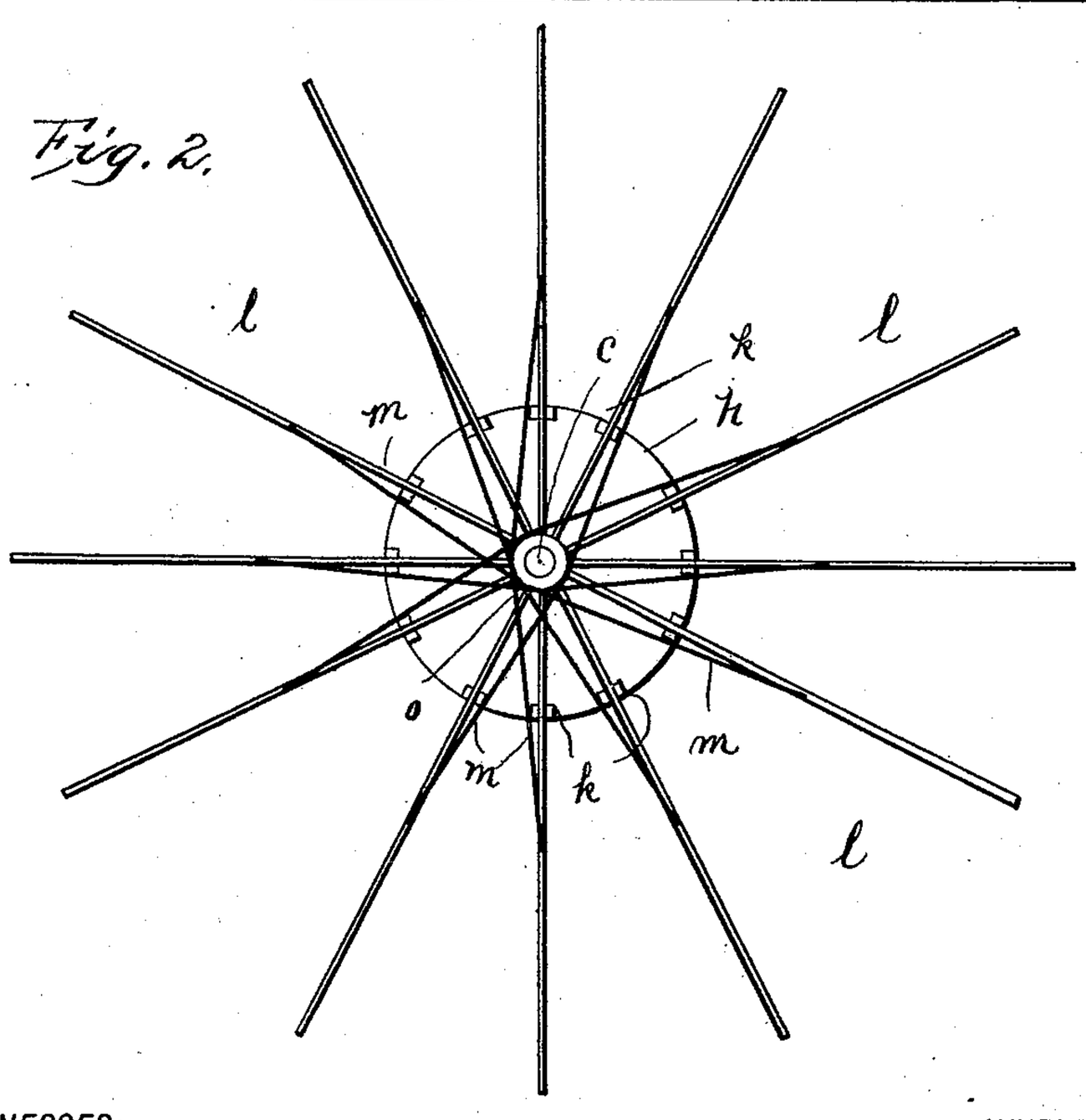



Fig. 2.

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# UNITED STATES PATENT OFFICE.

JOHN T. BIBB, OF TACOMA, WASHINGTON.

## CURRENT-MOTOR.

SPECIFICATION forming part of Letters Patent No. 500,465, dated June 27, 1893.

Application filed February 2, 1893. Serial No. 460,697. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN T. BIBB, of Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Current-Motors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in current motors.

An object of the invention is to provide a cheap, simple and durable current motor, sure, reliable, and automatic in action, and composed of a minimum number of parts.

The invention consists in certain novel features of constructions and in combinations of parts more fully described hereinafter and particularly pointed out in the claims.

Referring to the accompanying drawings:—Figure 1 is a side elevation of the current motor and supporting parts, two only of the blades or paddles being shown. Fig. 2 is a top plan view of the motor, parts being broken away.

In the drawings the reference letter *a*, indicates a float of any suitable or desirable construction secured at the desired point in the stream.

*b*, indicates an upright frame, preferably, although not necessarily rectangular and composed of bottom and top sills and end uprights. This frame is securely fastened to the float.

*c*, indicates the vertical wheel shaft at its lower end mounted in suitable bearings as ball bearings in or on the lower sill of said frame. The upper end of this shaft is mounted in a bearing on the upper portion of the frame and is geared by gearing *f*, to horizontal shaft *e* mounted on the upper portion of the frame. This horizontal shaft *e*, is driven by the wheel shaft and is constructed to transmit power by suitable means.

*h*, is a wheel having the hub *i*, through which the wheel shaft passes and in which it is secured. This horizontal wheel is provided with a series of radial grooves or sockets *j*, in its upper face with the vertical guides *k*, at the outer ends of the grooves.

*l*, indicates vertically movable paddles or blades at their inner ends pivoted to the hub of the wheel above the face of the wheel, so that the outer enlarged working faces of the paddles can raise and lower from the water, and the inner portion or shank of each blade will move up from its socket and guides when the blade is raised out of operative position and will drop into its socket and guides when the blade drops into operative position to receive the force of the current. The wheel is made strong to receive the strain on the blades. Each blade is strongly and yet lightly constructed, and has its lower edge inclined, so that said edge will be lifted clear of the water when the blade is tilted up and when lowered will present a large surface to the force of the current.

Blades diametrically opposite are connected so as to move together. Each pair of opposite blades are connected by a flexible connection *m*, secured to the outer portions of the blades and extending up over the pulleys *n*, mounted on the sleeve *o*, secured to the upper portion of the wheel shaft. Each connection is of such length that both blades cannot be in the lowered position, but one blade will be raised from the water while the other blade is in the water. The blades also counterbalance each other so that when one blade is raised the other blade drops and assists in raising the blade moving up. At the downstream side of the wheel the blade raising incline *p*, is located and suitably supported. This incline is in the form of a segment concentric with the wheel and is inclined up in the direction of rotation of the wheel so that as the blades in the water on one side of the wheel are moved down by the current to point down stream from the wheel the rollers *r* journaled in the lower edges of the blades strike the incline and thereby raise said blades from the water and permit the diametrically opposite blades on the up stream side of the wheel to drop into the water and receive the full force of the current. The blades pass up on one side raised out of the water, and pass down the other side in the water, the action being entirely automatic and sure and reliable.

The float carrying the motor rises and falls with the water and of course always keeps the blades in the proper position to move into and out of the water and receive the full force of the current.

It is evident that various changes might be made in the forms, constructions and arrangements of the parts described without departing from the spirit and scope of my invention.

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

1. The current motor comprising the vertical shaft, a support therefor, a rigid supporting wheel on the shaft, the series of radial blades pivoted at their inner ends so as to permit the blades to rise and fall vertically, and flexible connections between diametrically opposite blades passing up over pulleys on the shaft, substantially as and for the purposes set forth.

2. The herein described current motor comprising the shaft, vertically movable blades pivotally joined to the shaft at their inner ends, flexible connections between diametrically opposite blades so that one blade will counterbalance the other, and so that the blades can move vertically and independently of each other substantially as set forth, and means substantially as described arranged to lift the blades on one side of the wheel, as and for the purposes set forth.

3. The current motor comprising the vertical shaft, the wheel rigid thereon having the radial guides, the vertically movable blades hinged at their inner ends to permit the blades to move into and out of the water, the blades arranged to fit in said guide, supports, such as pulleys, on the shaft above the wheel, and flexible connections connecting diametrically opposite blades so as to counterbalance the same, and means to raise the blades on one side of the wheel, substantially as set forth.

4. The current motor comprising the support, the vertical shaft, a wheel rigid thereon having the radial grooves in its upper face, and guides extending up from said grooves, the vertically movable blades hinged at their inner ends, and arranged to fit in said grooves, and travel between the guides, supports on the upper portion of the shaft, the flexible connections between diametrically opposite blades passing up over said supports, and the incline on one side of the wheel for raising the blade on that side, as and for the purposes set forth.

5. In combination, a support, a vertical shaft, a wheel on said shaft having guides, the radial vertically movable blades at their inner ends pivoted to the hub of said wheel, flexible connections between diametrically opposite blades passing over supports on the shaft, the incline on one side of the wheel to raise the blades as they pass on that side, the blades having rollers on their lower edges to engage said incline, each blade composed of the reduced shank and the enlarged outer portion provided with the inclined lower edge, as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN T. BIBB.

Witnesses:
M. A. DAILEY,
GUS. S. FORD.