

(No Model.)

3 Sheets—Sheet 1.

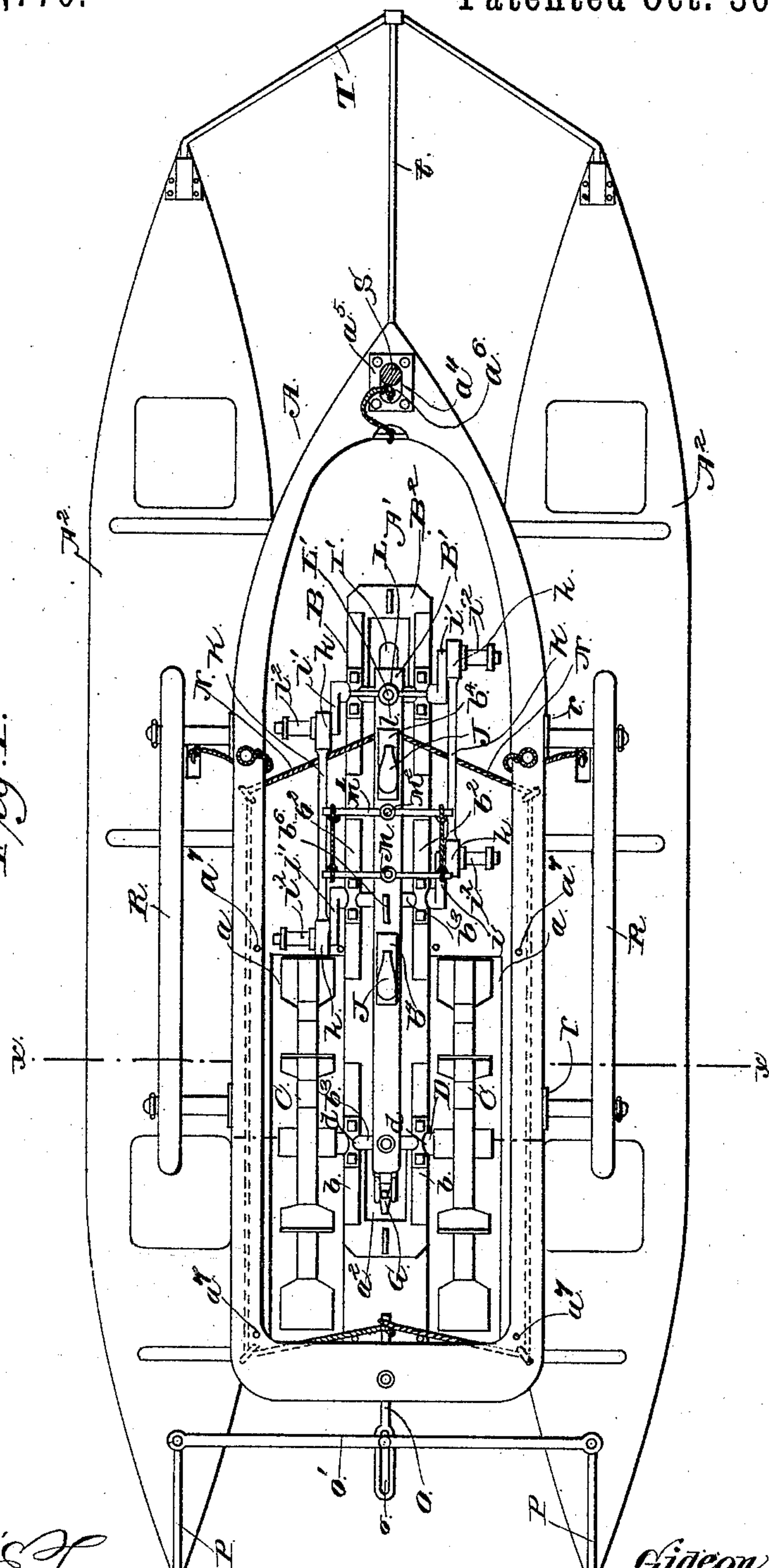
G. S. ADAMS.

BOAT PROPELLING AND STEERING APPARATUS.

No. 391,770.

Patented Oct. 30, 1888.

Fig. 1.



Witnesses,

M. E. Fowler.
J. F. Riley.

Inventor,

Gideon S. Adams.

By *his* Attorneys

C. A. Howard.

(No Model.)

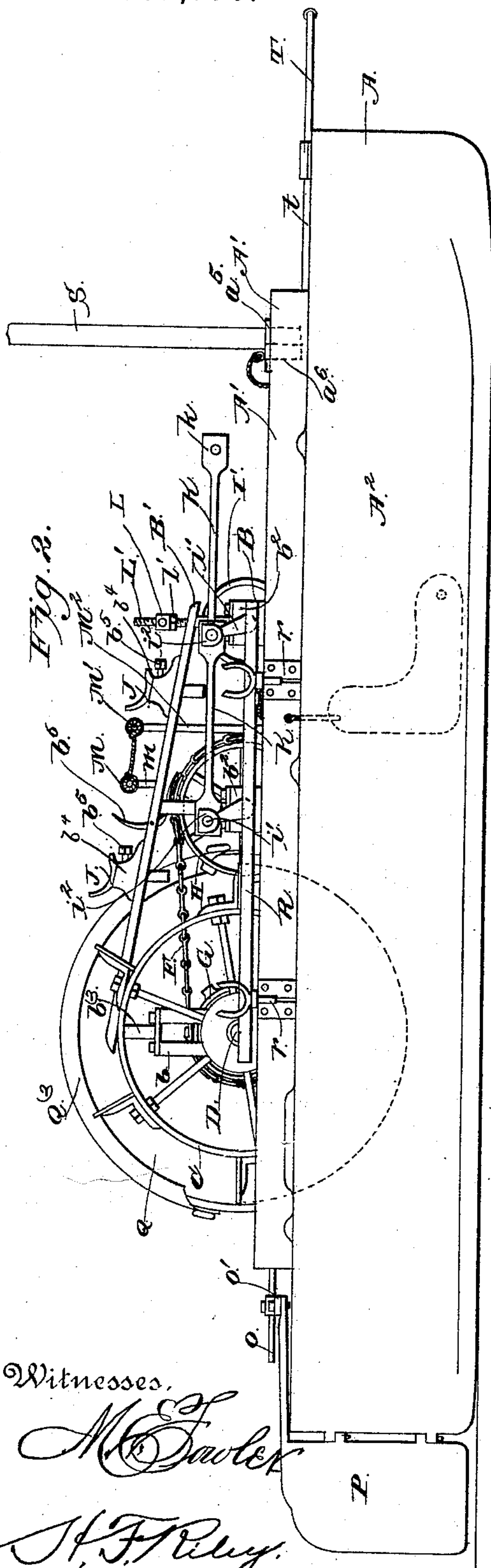
3 Sheets—Sheet 2.

G. S. ADAMS.

BOAT PROPELLING AND STEERING APPARATUS.

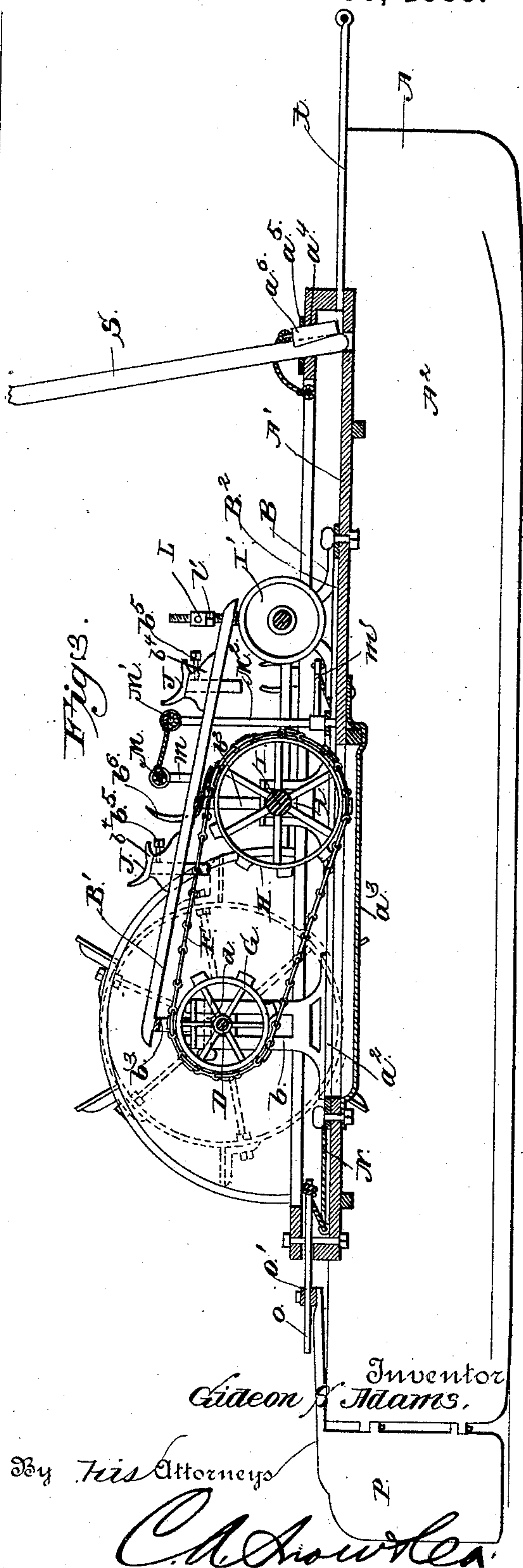
No. 391,770.

Patented Oct. 30, 1888.



Witnesses.

M. S. Fowler
J. F. Riley



Inventor
Gideon S. Adams.

By *His Attorneys*

C. A. Howden

(No Model.)

3 Sheets—Sheet 3.

G. S. ADAMS.

BOAT PROPELLING AND STEERING APPARATUS.

No. 391,770.

Patented Oct. 30, 1888.

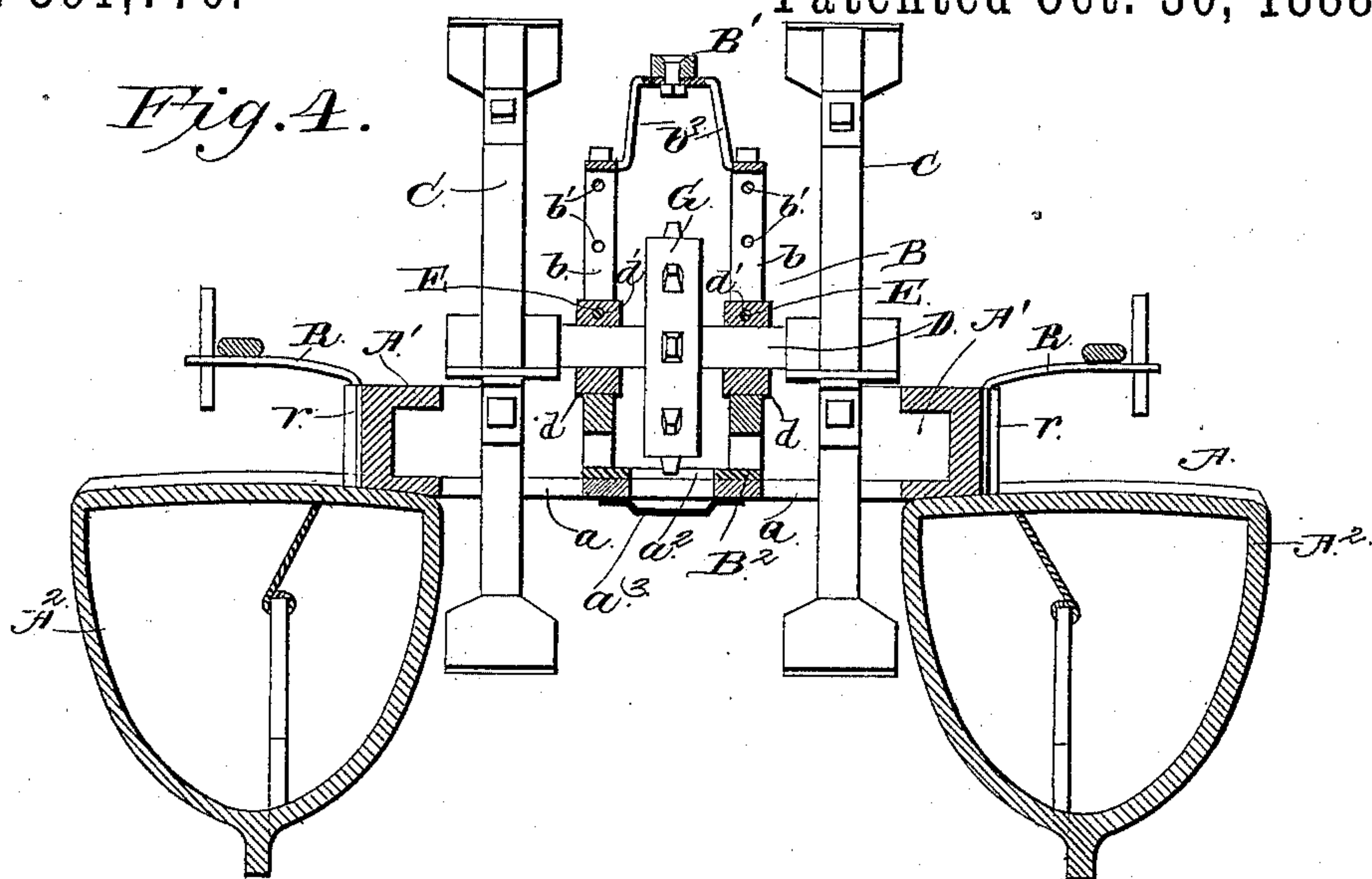
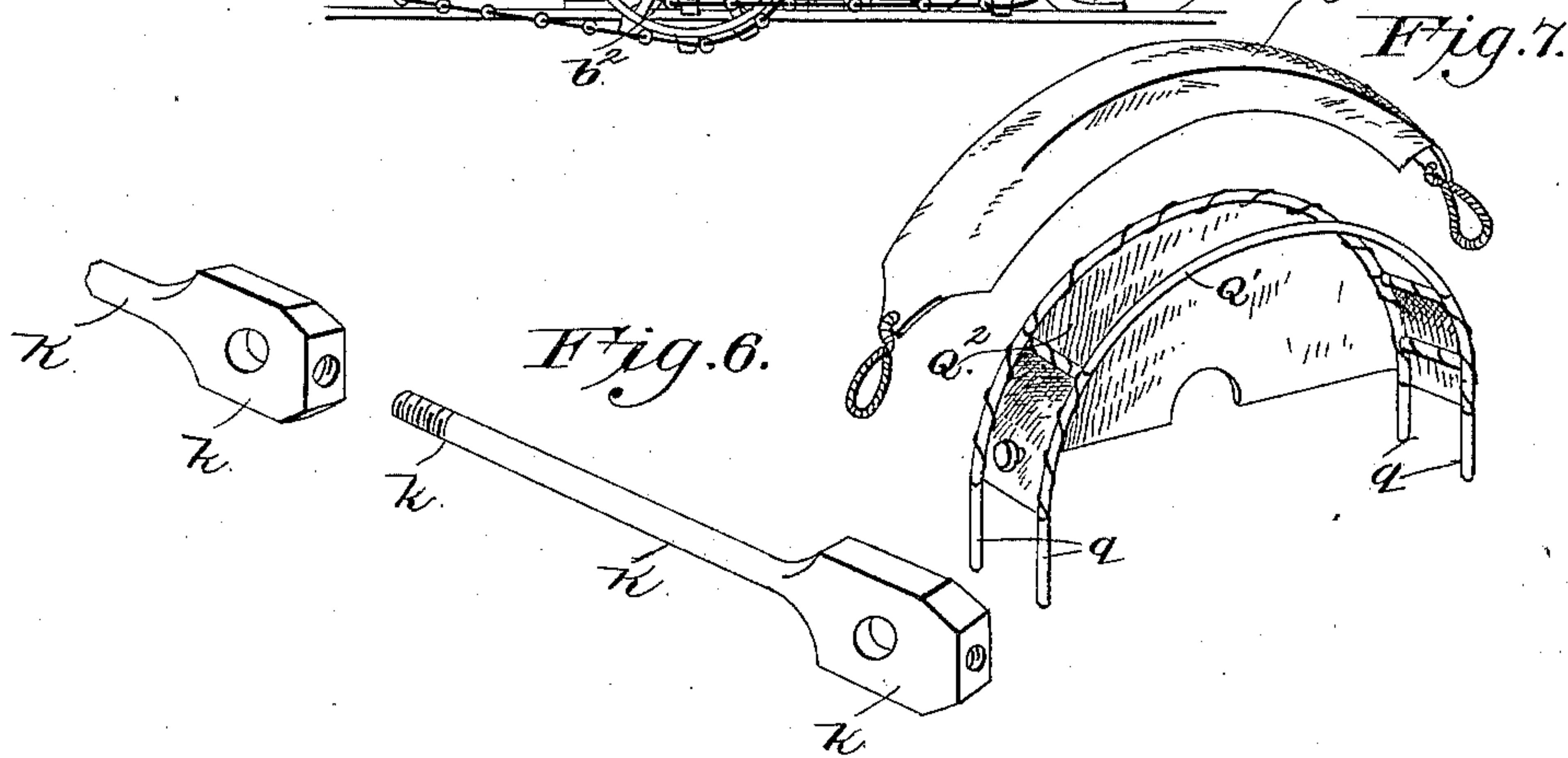
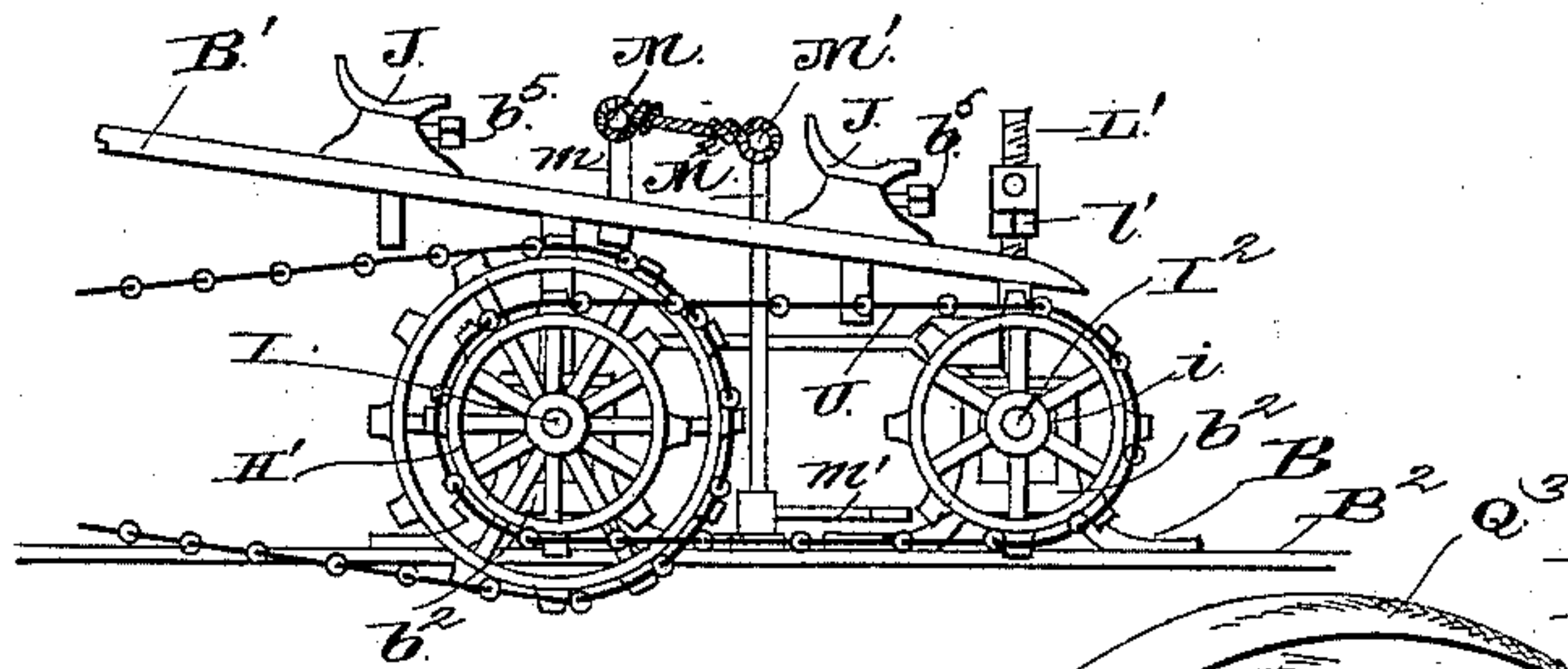


Fig. 5.



Witnesses

Witnesses,
M. E. Fowler,
H. F. Riley.

Inventor,

Gideon S. Adams,

By *His* Attorneys

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

GIDEON S. ADAMS, OF CAMDEN, NEW JERSEY.

BOAT PROPELLING AND STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 391,770, dated October 30, 1888.

Application filed May 23, 1888. Serial No. 274,735. (No model.)

To all whom it may concern:

Be it known that I, GIDEON S. ADAMS, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented a new and useful Improvement in Boat-Propellers, of which the following is a specification.

The invention relates to improvements in propellers.

10 The object of the invention is the production of a propeller which is adapted to be attached to any of the forms of vessels now in use and that is capable of being adjusted to regulate the depth of the paddle-wheels in the
15 water and raise them out of the water.

Furthermore, the object of the invention is to provide a propeller that may be quickly and conveniently removed from the vessel when it is desired to use the same for rowing
20 or sailing, and which is also readily replaceable.

The invention consists in the novel combination and arrangement of parts hereinafter fully described, illustrated in the drawings,
25 and pointed out in the appended claims.

In the drawings, Figure 1 is a plan view illustrating a catamaran boat provided with the improved propelling apparatus. Fig. 2 is a side elevation showing one of the paddle-
30 boxes in place. Fig. 3 is a central vertical longitudinal sectional view, the paddle-wheels being elevated. Fig. 4 is a transverse sectional view taken on the line xx of Fig. 1. Fig. 5 is a side elevation illustrating a modification of the invention. Fig. 6 is a detail view illustrating the manner of joining the connecting-
35 rods to each other. Fig. 7 is a detail view of one of the paddle-boxes.

Referring to the accompanying drawings, I
40 have shown the improved propelling apparatus applied to a catamaran boat, A, which may also be used either for rowing or sailing purposes; and to this end the frame B, in which the propeller is mounted, is secured to the middle portion or deck, A', that connects the side
45 portions or floats, A², by bolts, screws, or the like, which may be conveniently withdrawn, whereby the propeller is rendered readily removable and replaceable.

50 Although I have shown the propelling apparatus applied to a catamaran, it may be employed in connection with any of the forms of

vessels now in use, and I desire it to be understood that I do not limit myself to the precise details of construction herein shown and
55 described, as I may, without departing from the spirit of the invention, make any minor changes therein.

The boat is propelled by paddle-wheels C, that reach the water through openings a in the
60 deck A', and are mounted on a shaft, D, which is journaled in the bearings d , and the bearings d are vertically movable in the upright standards b of the frame B, whereby the paddle-wheels C are made adjustable, and they
65 may either be wholly withdrawn from the water when it is desired to row or sail the boat, or they may be only partially withdrawn and their depth in the water regulated.

In order to secure the paddle-wheels C at any
70 desired height, the upright standards b are provided with a series of pin-holes, b' , which are adapted for the reception of pins E, that pass through these pin-holes b' , and also through openings d' in the upper portions of
75 the movable bearings d , and thereby hold the movable bearings d , which are capable of sliding up and down between the upright standards b ; and when it is desired to adjust the
80 paddle-wheels C the openings d' in the movable bearings d are made to register with the pin-holes b' of the upright standards b at the right height and the pins E are inserted, which retain the movable bearings at that height.

The paddle-wheels C are operated by a
85 sprocket-chain, F, which is geared with a sprocket-wheel, G, mounted on the shaft D intermediate of the ends and between the pairs of upright standards at each side of the frame B, and is also geared with another sprocket-
90 wheel, H, that is mounted on the shaft I, which is journaled in fixed bearings i in upright standards b^2 .

The deck A' is provided with an opening,
95 a^2 , situated between the paddle-wheel openings a' , to form a passage-way for the sprocket-chain F, and to keep the water from said chain, and also to prevent the chain being lost overboard should it become broken or part from the sprocket-wheels, a metal bottom or casing,
100 a^3 , is fastened to the deck A' just beneath the opening a^2 .

The boat is propelled by foot-power in a manner similar to velocipedes; and to this end

the shaft I is provided with crank-pedals i' , and the seats to accommodate the persons propelling the boat are placed upon the upper portion, B' , of the frame B, which upper portion, B' , is secured to the lower portion, B^2 , by means of its depending legs b^3 , that are suitably secured to the top of the upright standards b^4 and straddle the wheels. The upper portion, B' , of the frame B may be provided with any number of seats J, in order that as much power as desirable may be brought to bear to propel the boat, and the seats are vertically movable in enlarged portions b^4 of the upper portion of the frame B, to accommodate them to various sized persons, and they are retained at any position by the thumb-screws b^5 .

In operating the device the persons sit upon the seats J and straddle the frame B and work with their feet the crank-pedals i' , which are provided with the usual rubber or other sleeves, i^2 , to keep the feet from slipping, and they have attached to them connecting-rods K, that are secured to the crank-pedals i' by slipping enlarged ends k , provided with openings, upon the outward-extending arms of said crank-pedals i' , then putting the sleeves i^2 in place, and securing the whole by nuts which take upon threaded ends of the outward-extending arm of the crank-pedals.

The frame B may have any desired number of the upright standards b^2 , provided with shafts I, that are constructed similar to that above described; but instead of having sprocket-wheels mounted on them they have the fly-wheels I' , that are adapted to carry the crank-pedals i' past the dead-points and enable the device to be operated with greater ease. The connecting-rods that connect the shaft I, carrying the sprocket-wheel H, and the next shaft, upon which is mounted one of the wheels I' , have the enlarged portion k at each end, and are secured to said shafts, as heretofore described; but the other connecting-rods K have the enlarged portions k at only one end, provided with an internally-screw-threaded cavity, while the other end, k' , is screw-threaded and screws into an internally-screw-threaded cavity in the adjacent enlarged end, k . By this construction any of the crank-pedals may quickly and conveniently be disconnected from the rest when it is wished to operate the boat by a less number of persons.

In order to assist the persons propelling the vessel in retaining their places on the frame, adjustable handles L are provided in front of each seat, except the last, which instead has the tiller-handle, hereinafter to be described. These adjustable handles L have intermediate of their ends enlarged portions, which are provided with screw-threaded openings l , that take upon screw-threaded extensions L' , and the handles L are turned in order to adjust them to a higher or lower position on the threaded extensions L' . A nut, l' , is provided upon each of the threaded extensions L' , and it is adapted

to be screwed up under the adjustable arm L, whereby the arm is retained rigidly in position and prevented from gaining a lower place on the threaded extension. Besides providing the means by which the arms L are adjusted, the threaded extensions L' serve to secure the depending legs to the top portion of the frame B by passing through them and having nuts upon each side to clamp the two parts together. In front of the last seat is a handle, M, which may be adjustable like the handles L, and is employed to operate the steering-gear. The handle M is secured to the post m , and is connected, by means of ropes, chains, or the like at each end, to the ends of a cross-piece, M' , fastened to a rod, M^2 . At the lower end of the rod M^2 is an outward extending arm, m' , that is connected with the rudder chains or ropes N, which extend along the sides of the deck A' , crossing it forward of the rod M^2 , where it is secured to arm m' , and also crossing the deck at the stern, where it is attached to the tiller O. The tiller O is pivoted to the stern, and has its outer end slotted and adapted to receive a pin which fastens it to rod O' , that connects the rudders P, and during the movements of the tiller O the pin works back and forth in the slot o , thereby causing very little friction. In front of this last seat is also provided the brake b^6 , pivoted in the frame and adapted to engage the sprocket-wheel G when it is desired to stop the revolution of the paddle-wheels C.

To protect the machinery and operative parts from the action of water, the paddle-boxes Q, which are constructed of the metal frame-work Q' and the covering Q^2 , made of canvas or other fabric, are open at the top and provided at that point with a cap or supplemental piece, Q^3 , that may be removed to permit the paddle-wheels C to be elevated. The paddle-boxes are secured in place by putting the ends q of the frame-work Q' in suitable steps, a' , formed on deck A' .

When it is desired to use the boat for rowing or sailing, the propelling apparatus may be removed from the boat or the paddle-wheels may be simply raised out of the water. In the former case a supplemental deck is provided to close the opening, and the rowlock is supported by a removable spring-frame, R, which may be slipped out of the retaining devices r , and the frames R, when not employed for other purposes, may be used as seats.

In the bow of the boat is the step a^4 , provided with the deck-iron a^5 , having an elongated opening, by means of which and a plug, a^6 , the mast S may be held approximately perpendicular or backward inclined or rakish. When the plug a^6 is inserted behind the mast, the same is held perpendicular; but when it is desired to have the mast inclined the plug is put in front of it.

The fender T is constructed of suitable metal, and is approximately V-shaped and provided with a brace or strengthening-strip, t . By

this means all obstructions are prevented coming between the side portions, A², and paddle-wheels are protected from injury.

In Fig. 5 of the drawings I have shown a modification of the invention, in which I have employed, besides the connecting-rods K, a connecting sprocket-chain, U. The paddle-wheels C are geared to the sprocket-wheel H, as heretofore described, and the said sprocket-wheel is provided with another and smaller sprocket-wheel, H', integral with it. The other shaft, I², engages the sprocket-chain U, which passes around them, and also around the sprocket-wheel H', whereby the motion is transmitted to the paddle-wheels C. The other parts are constructed similarly to those already described, and it may be preferable to employ the sprocket-chain connection without the connecting-rods, or vice versa, or I may prefer to use them both together.

From the foregoing description and the accompanying drawings the construction, operation, and advantages of the invention will be understood.

Having described my invention, I claim—

1. The combination of the frame, the series of shafts I, connected together by rods and provided with crank-pedals, the sprocket-wheel H, secured to one of the shafts, the shaft D, vertically movable in the frame, the paddle-wheels mounted on the shaft D, and the sprocket-wheel G, secured to said shaft D and connected to the other sprocket-wheel, H, by a chain, substantially as described.

2. The combination of the frame, the two shafts I, connected together by rods and provided with crank-pedals, the sprocket-wheel secured to the rear one of said shafts, the shaft D, vertically movable in the frame, the paddle-wheels, and the sprocket-wheel G, verti-

cally movable with the shaft D and connected to the sprocket-wheel H by a chain, substantially as and for the purpose specified.

3. The combination of the frame, the sprocket-wheel H, mounted in the frame, and the brake secured to the frame and adapted to engage said sprocket-wheel, substantially as described.

4. The combination of the frame, the rod M², provided at the top with a cross-piece and at the bottom with an outward-extending arm, the vertically-adjustable handle M, suitably connected with said cross-piece, the connecting ropes or chains N, the tiller having one end attached to the rope or chain N and the other provided with a longitudinal slot, the rudders, and a cross piece connecting the rudders and provided with a pin to engage in the longitudinal slot of the tiller, substantially as described.

5. The combination of the frame, the rod M², provided at the top with a cross-piece and at the bottom with an outward-extending arm, the handle M, parallel with the cross-piece and suitably connected thereto, the tiller, and the rope or chain N, connecting the tiller to the outward-extending arm, substantially as described.

6. The adjustable paddle-box consisting of the metal frame-work and the fabric covering, and provided with a cap capable of being removed to provide an opening in the top of the paddle-box, substantially as described.

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

GIDEON S. ADAMS.

Witnesses:

PHILIP C. BOTT,
JAMES M. CASSADY.