

No. 658,043.

Patented Sept. 18, 1900.

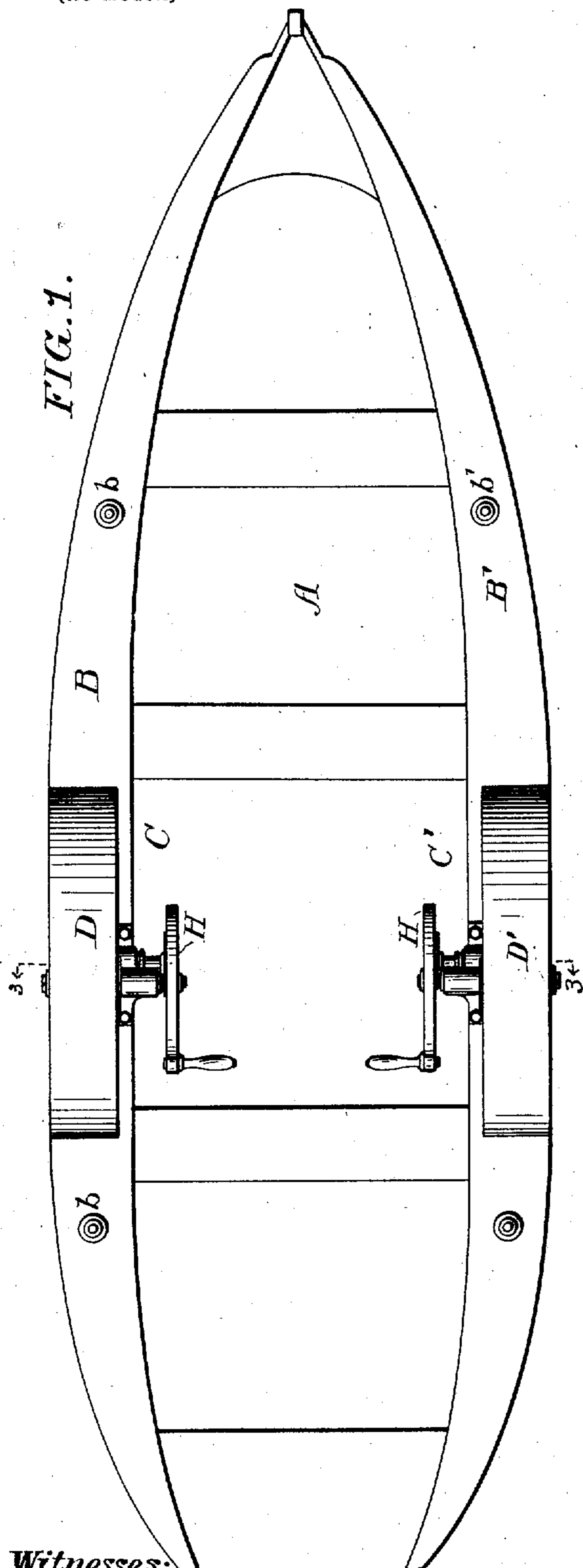
D. M. PFAUTZ.
HAND PROPELLED BOAT.

(Application filed Dec. 5, 1899.)

(No Model.)

3 Sheets—Sheet 1.

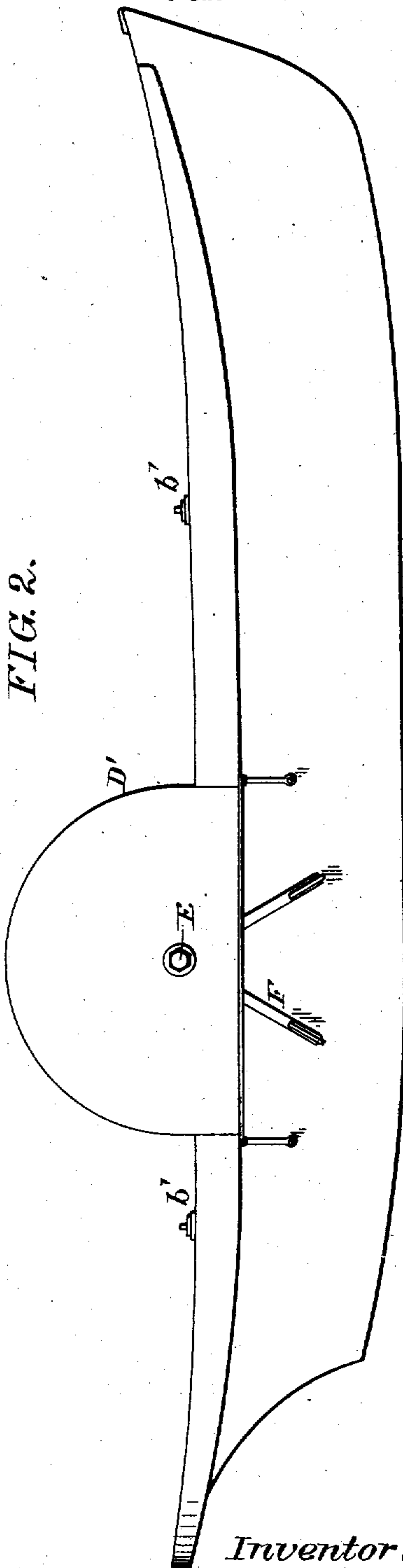
FIG. 1.



Witnesses:

Wm F. Donnelly
P. D. Goodwin

FIG. 2.



Inventor:

Daniel M. Pfautz
by his Attorney

Bertram Hearse

No. 658,043.

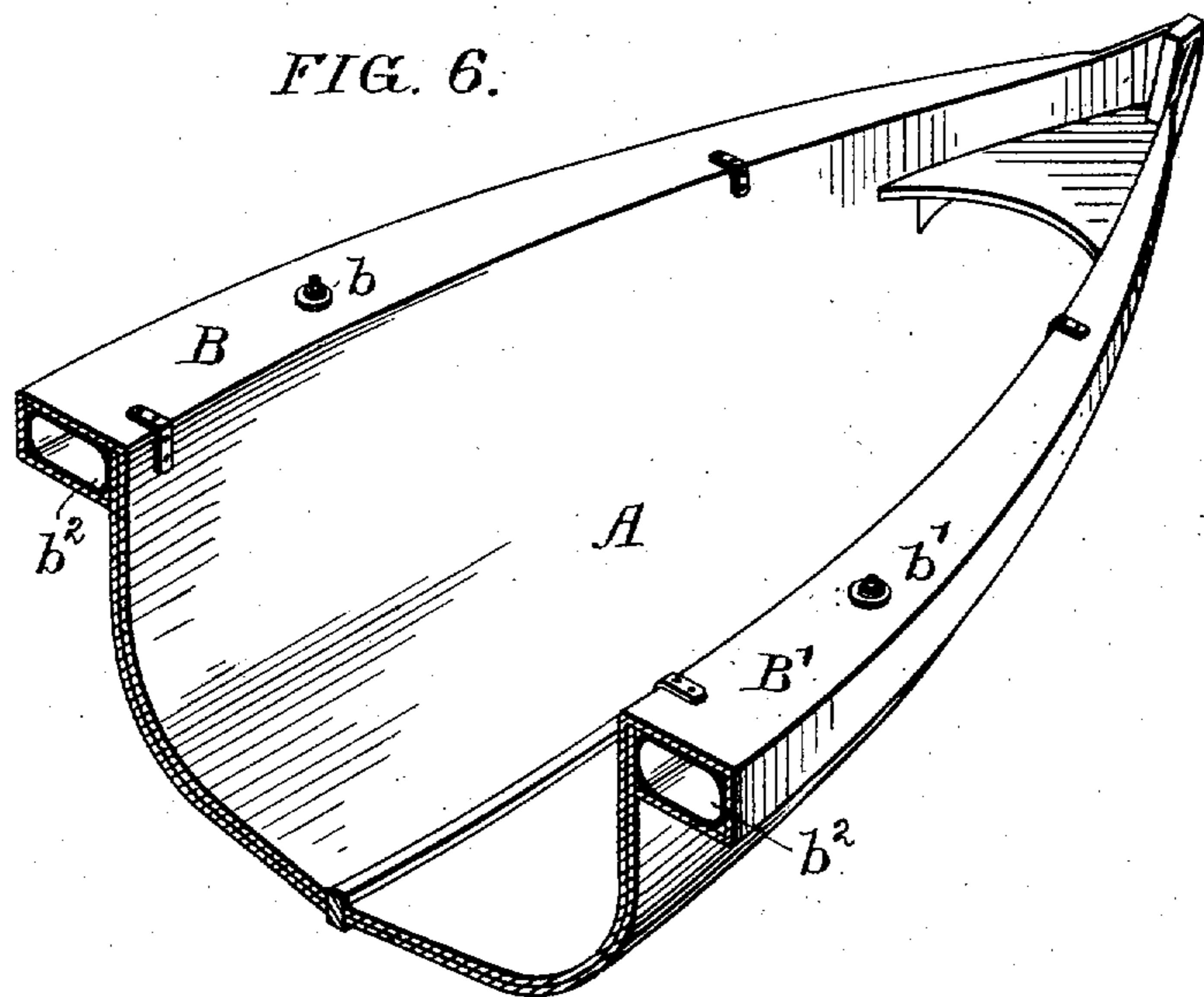
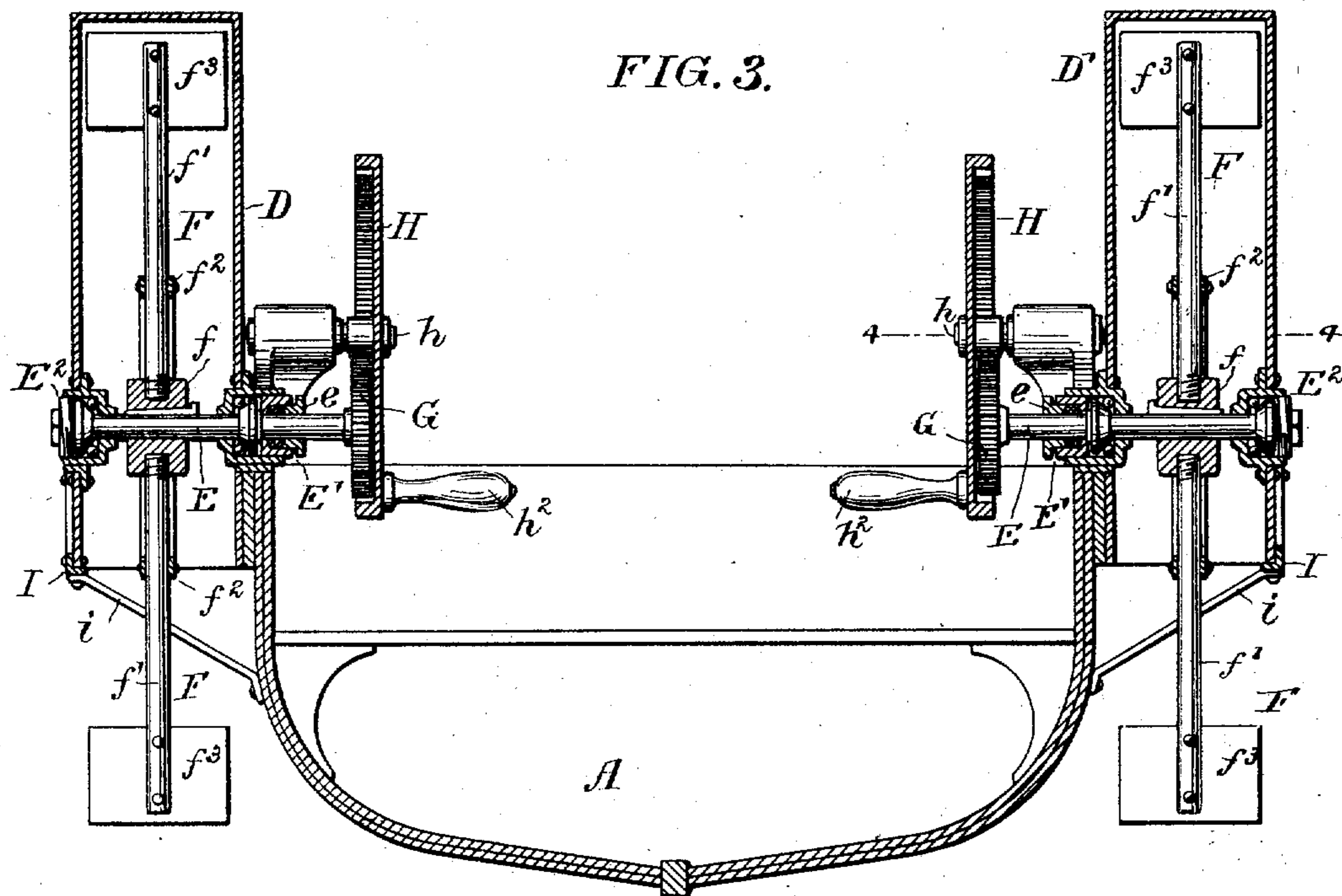
Patented Sept. 18, 1900.

D. M. PFAUTZ.
HAND PROPELLED BOAT.

(Application filed Dec. 5, 1899.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:

Wm F Donnelly

F. D. Goodwin

Inventor:

Daniel M. Pfautz

by his Attorney

Bertram D. Learick.

No. 658,043.

Patented Sept. 18, 1900.

D. M. PFAUTZ.
HAND PROPELLED BOAT.

(Application filed Dec. 5, 1899.)

(No Model.)

3 Sheets—Sheet 3.

FIG. 4.

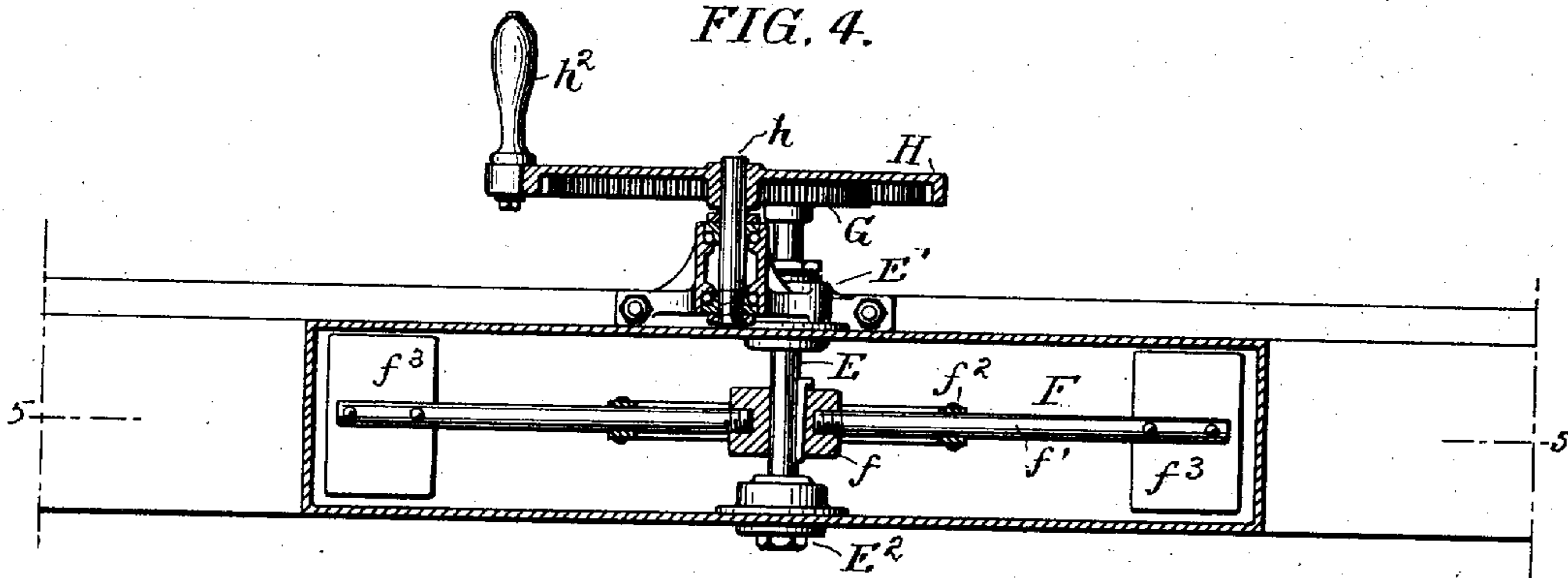
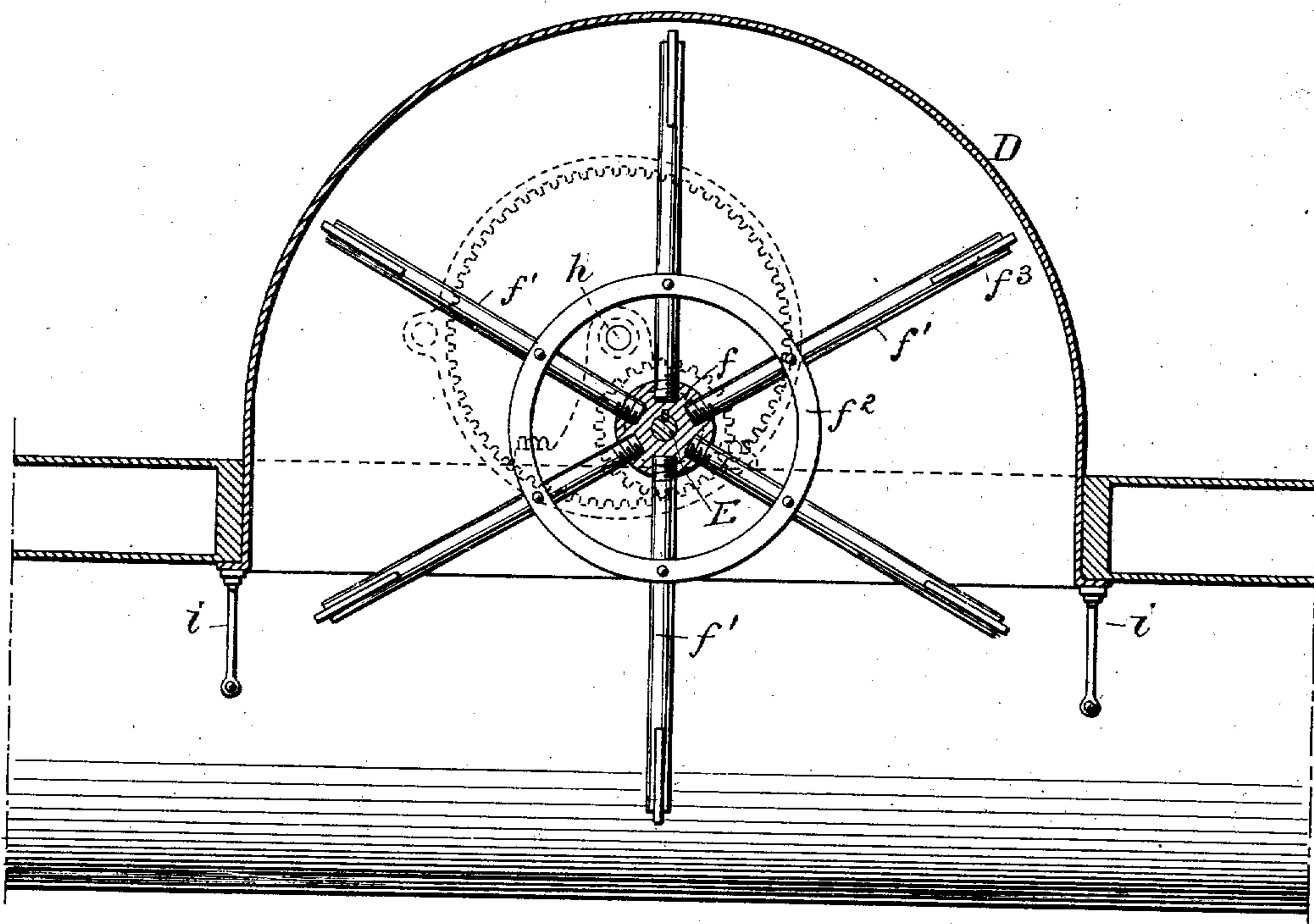


FIG. 5.



Witnesses:

Wm F. Donnelly

A. D. Goodwin

Inventor
Daniel M. Pfautz
by his Attorney
Bertrand D. Kearick

UNITED STATES PATENT OFFICE.

DANIEL M. PFAUTZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF THREE-FOURTHS TO CHARLES F. MAIZE, JOSIAH DEARNLEY, JOHN F. REICHARDT, BERTRAM D. REARICK, JOHN E. CHALLENGER, JOHN BINKIN, JR., CHARLES J. McDOUGALL, ABRAHAM B. METZLER, AND JOHN W. BARR, OF SAME PLACE, AND CHRISTIAN E. METZLER, OF LANSDALE, PENNSYLVANIA.

HAND-PROPELLED BOAT.

SPECIFICATION forming part of Letters Patent No. 658,043, dated September 18, 1900.

Application filed December 5, 1899. Serial No. 739,287. (No model.)

To all whom it may concern:

Be it known that I, DANIEL M. PFAUTZ, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Hand-Propelled Boats, of which the following is a specification.

This invention consists of improvements in hand-propelled boats, the construction of which being such as to make the boat non-sinkable and to provide means for propelling same.

The object of this invention is to construct a boat that can be operated by one or more persons and to provide a device for propelling said boat in which nearly all friction is overcome and the amount of labor for driving said boat reduced to a minimum.

The invention will be more fully described hereinafter, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of the boat embodying my invention. Fig. 2 is a side view of the same. Fig. 3 is a transverse section on line 3 3, Fig. 1. Fig. 4 is a sectional plan view on line 4 4, Fig. 3. Fig. 5 is a vertical section on line 5 5, Fig. 4. Fig. 6 is a sectional perspective view of the boat, showing the air-chambers on either side.

Referring to Fig. 1, A represents the body of the boat, either side of which is provided with air-chambers B and B', the same extending from bow to stern, with the exception of the space occupied by the driving mechanism C and C'. Said mechanism is located slightly to the rear of center of the length of the boat and on either side of said boat, either side of which mechanism can be operated independently of the other, the paddle-wheels of same being inclosed in casings D and D' to prevent any splashing of water upon the occupants or into the boat. The handles for the driving mechanism extend inwardly and are close enough together so that they can be conveniently operated by one person seated between them. The driving mechanism consists of a shaft E, mounted in bearings E' and E², secured to the framework of the boat, as

clearly shown in Figs. 3, 4, and 5. On the shaft E is keyed a paddle-wheel F, consisting of a hub *f*, carrying radial arms *f'*, made of tubing or other suitable material, the same being rigidly secured by the rings *f*² on either side of said arms. At the outer end of each arm is carried a paddle *f*³.

A gear-wheel G is mounted on the inner end of the shaft E and meshes with a larger wheel H, having internal gear-teeth. Said wheel H is mounted upon a stud-shaft *h*, secured in a portion of the bearing E', the wheel H being also provided with a handle *h*², by which the same is operated. The bearings carrying the shafts E and *h* are ball-bearings and are constructed so as to avoid as much friction as possible. The outer bearing E² is supported by the overhanging framework of the boat, while the inner bearing E' is bolted to the framework on top of the side of the boat, said bearing being provided with a stuffing-box *e* to prevent the water from following the shaft and dropping inside the boat. The different portions of said bearings and the cones carried by the shaft E are made of phosphor-bronze, brass, or of some other non-rusting metal.

The paddle-wheels are inclosed in the circular casings D and D', which are riveted to the sides of the boat and extend below the center of the paddle-wheel, thus preventing any water from entering the boat, the same being supported on the outer side by the angle-iron I, which is in turn supported by the braces *i*, as shown in Fig. 3.

The air-chambers, as shown in Fig. 6, consist of hollow boxes overhanging the sides of the boat, the same being gradually diminished in width as they near the bow and stern of the boat. The said chambers are constructed of light-weight material and are provided with a lining of rubber or chemically-treated canvas *b*², thereby making them airtight, the chambers being provided with valves *b* and *b'*, to which may be connected a pump whereby the air in said chambers may be compressed.

The operation of my invention is as follows:

By turning the handles of the propelling devices simultaneously the boat will be driven forward in a straight line, by turning one handle faster than the other the boat can be directed in any direction, or by turning one handle backward and the other forward the boat can be rapidly turned around, as upon a pivot, thus giving the operator complete control of the boat and dispensing with the use of a rudder. The air-chambers permit the boat to be used in rough waters and make it exceedingly useful as a life-boat, as it is impossible to sink the same.

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

The combination in a hand-propelled boat of frame in the form of a parallelogram extending laterally outward from the gunwale of the boat, on each side braces for strengthening said frame, ball-bearing on the top of the frame directly over the side of the boat and a like bearing on top of the outer side of the frame, shaft carried by the said ball-bearings, inner end of said shaft extending inward over

side of boat stuffing-box protecting inner bearing, spur-wheel on inner end of said shaft operated by an internal gear-wheel turning on a stud-shaft, said stud-shaft carried in double ball-bearings fixed in casting secured to the frame over the gunwale of the boat, handle fixed to the rim of said internal gear-wheel, between the bearings a hub keyed on said principal shaft, radial arms of metal tubing or other suitable material fixed in said hub, rings for bracing said arms, plates fixed crosswise in slots at outer end of said arms, and cap fixed firmly on aforesaid frame covering said hub, arms and plates, and extending below the gunwale of boat, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 4th day of December, 1899.

DANIEL M. PFAUTZ.

Witnesses:

M. E. GODSHALL,

C. B. HERRINGTON.