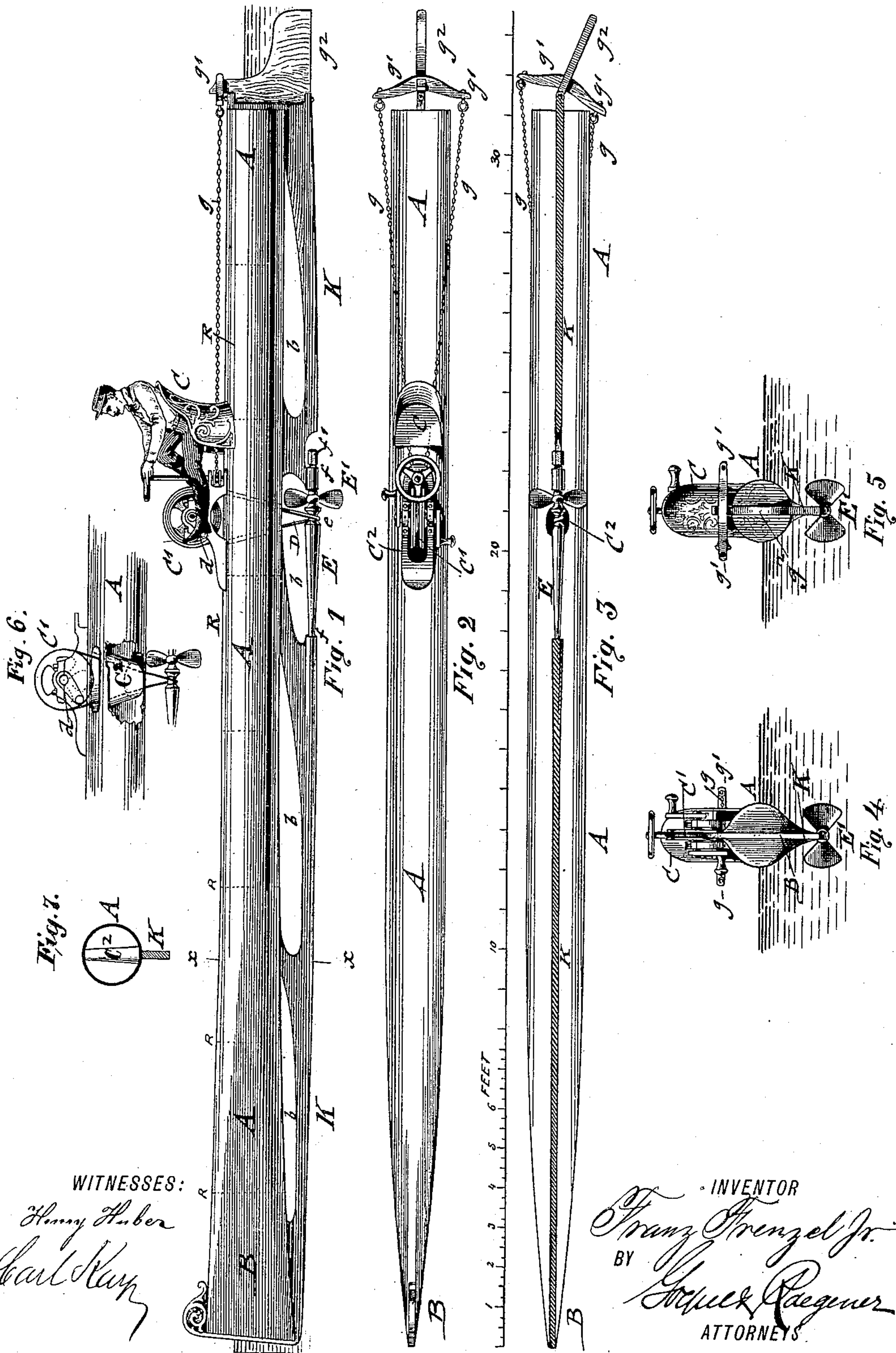


(No Model.)

F. FRENZEL, Jr.  
TUBULAR RACING BOAT.

No. 397,282.

Patented Feb. 5, 1889.





# UNITED STATES PATENT OFFICE.

FRANZ FRENZEL, JR., OF NEW YORK, N. Y.

## TUBULAR RACING-BOAT.

SPECIFICATION forming part of Letters Patent No. 397,282, dated February 5, 1889.

Application filed November 20, 1888. Serial No. 291,379. (No model.)

*To all whom it may concern:*

Be it known that I, FRANZ FRENZEL, Jr., of the city, county, and State of New York, have invented certain new and useful Improvement in Racing-Boats, of which the following is a specification.

This invention relates to certain improvements in racing boats or shells which are propelled by foot-power and steered by hand; and the invention consists of a racing-boat formed of a hollow tubular cylinder having a sharp tapering bow, a heavy keel provided with openings for the passage of the water and with bearings for a propeller-shaft, and a belt-and-pulley transmission leading from a crank-wheel to the shaft of the propeller, said crank-wheel being supported in bearings at the top of the tubular shell vertically above the propeller-shaft.

In the accompanying drawings, Figure 1 represents a side elevation of my improved racing-boat. Fig. 2 is a top view of the same. Fig. 3 is a bottom view. Figs. 4 and 5 are end views of the same; Fig. 6, a side view of the driving part with a portion of the tubular shell broken away; and Fig. 7 is a vertical transverse section of the boat on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the hollow tubular body or shell of my improved racing-boat, which shell is made of a number of sections or compartments, R, that are made of paper, sheet metal, wood, or other suitable material.

The shell A is provided with a sharply-pointed bow, B, and a blunt rear end. Longitudinally below the tubular shell A extends a heavy metallic keel, K, which is of sufficient depth to balance the shell and hold it steadily in vertical position. The keel K is provided with longitudinal openings *b*, through which the water can pass, so as to prevent the rocking of the boat and facilitate the steering of the same. The openings *b* are made tapering toward their rear ends, so that the cutting of the keel through the water is facilitated.

To the top part of the shell A is applied a

seat, C, and a crank-wheel, C', which is operated by foot-power, said crank-wheel being supported in bearings *d*, attached to the top part of the shell A. A rubber or other suitable belt, D, passes from the grooved circumference of the crank-wheel C' through an opening, C<sup>2</sup>, of the shell (shown in Figs. 3 and 6) to a pulley, *e*, on a propeller-shaft, E, which turns in bearings *f* at the lower part of the keel, as shown in Fig. 1. The thrust of the propeller-screw E' is taken up by a screw, *f'*, inserted into the bearing *f* at the rear end of the propeller-shaft.

The steering of the boat is accomplished by a hand-wheel the spindle of which is connected by chains *g g* with a transverse lever-arm, *g'*, applied to the rudder *g*<sup>2</sup>, which is hinged to eyes at the rear end of the tubular shell A. The keel has to be of sufficient weight to counterbalance the weight of the shell and of the person operating the boat.

The length of the boat is to be about thirty feet, more or less. Owing to its pointed bow and comparatively small cross-section it affords but little resistance to the water, and can therefore be propelled at great speed through the same, while it can be steered with facility, as the person working the propeller is so seated as to look forward in the direction of the motion of the boat.

The boat is especially intended for racing and sporting purposes; but it can be also used in the surf of seaside resorts and wherever it is desired to have a boat quickly at hand for life-saving and other purposes.

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

1. A racing-boat consisting of a closed tubular shell having a sharply-pointed bow and longitudinal balancing-keel below said shell, a shaft supported in bearings of said keel, a propeller-screw on said shaft, and mechanism, substantially as described, for imparting rotary motion to the propeller-shaft, substantially as set forth.

2. A racing-boat composed of a closed tubular shell having a sharply-pointed bow, a longitudinal balancing-keel having openings, a propeller-shaft supported in bearings of the keel, a propeller on said shaft, a crank-wheel

supported on bearings at the top of the shell, and a belt-and-pulley transmission for imparting rotary motion from the crank-wheel to the propeller-shaft, substantially as set  
5 forth.

3. A racing-boat composed of a closed tubular shell having a tapering bow and a longitudinal balancing-keel secured rigidly to the shell at the under side of the same, substantially as set forth.  
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4. A racing-boat composed of a closed tubular shell having a tapering bow, a longitudinal

balancing-keel having openings for the lateral passage of water, and a propeller the shaft of which is supported in bearings of the  
15 keel, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRANZ FRENZEL, JR.

Witnesses:

PAUL GOEPEL,

JOHN A. STRALEY.