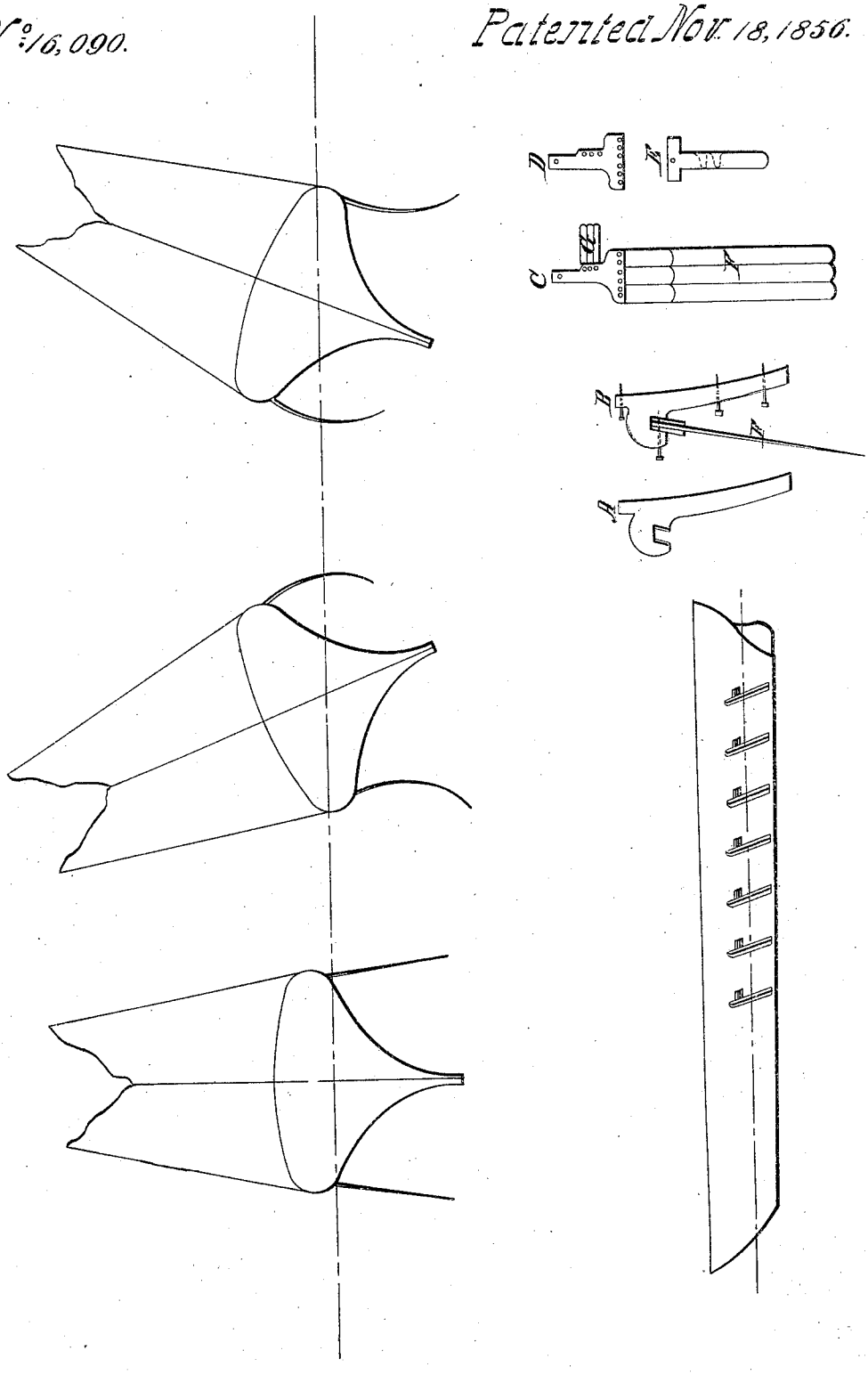
A. Jouan.

Centre Board.

No. 16,090. Patented Nov. 18, 1856.



UNITED STATES PATENT OFFICE.

AUGUSTUS JOUAN, OF SAN FRANCISCO, CALIFORNIA.

LEE-BOARD FOR VESSELS.

Specification of Letters Patent No. 16,090, dated November 18, 1856.

To all whom it may concern:

Be it known that I, AUGUSTUS JOUAN, of the city of San Francisco, State of California, have invented a new and useful Improvement in Lee-Boards for Vessels and Boats, and do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing ships, vessels and boats with elastic plate metal leeboards which I denominate ship fins, to be placed upon the sides thereof to aid in propelling and steadying the same under certain circumstances.

To enable others skilled in the art of constructing and navigating such ships, vessels and boats, to make and use my invention, I will proceed to describe my said invention.

Ship fins, so named, must be constructed of elastic material, but with preference of steel, with one or different series of blades.

This specification refers to different series, but specially it refers to ship fins with two series of elastic steel blades, which should be galvanized and painted to guard against rusting, tempered for the most elasticity, arranged as in drawing (C) and secured with screws or other proper way on a rigid frame (D) or otherwise for which metal is preferred, which frame is secured with a bolt, which is in part a screw, (E) or otherwise, on a stanchion (A) which stanchion must be firmly made to adhere to the side of the vessel, standing at about one foot or more above the water line, according to the construction of the vessel, but it may be otherwise fastened, the whole so combined, that, when the vessel is on even keel, the fin will be at an angle of about ten degrees vertically with the center line lengthwise of the vessel and at about as much obliquely toward the stern, or represented in profile (B) and the part of the profile which inclines toward the head of the vessel will be made as sharp as possible as shown by the drawings.

The width of the part of the fin (F) as a general rule should be eighteen inches for vessels under five hundred tons and two feet for others, divided equally into three blades or other numbers as may be preferred, and the width of the part of the fin (G) as a general rule, should be twelve inches for vessels under five hundred tons and eighteen inches for others, divided as aforesaid, though I prefer to divide it into three blades.

The length of the blades (F) should be in proportion with the water draft of the vessel as four to five, for example if the vessel be of ten feet draft, eight feet blade would be convenient.

The length of the blades (G) for a ten feet draft and under should be eighteen inches; for draft ten feet to twenty, three feet would be sufficient.

The thickness of the blades, from the top to the lower edge, should as a general rule, be diminishing gradually lengthwise so as to procure proper elasticity.

For vessels from ten feet draft and under, the thickness of the top part of blades (F) should be from maximum fifteen gages to twenty minimum.

For vessels from ten to twenty feet draft, the thickness of the upper part of blades (F) should be supported flatwise on both sides by a plate eighteen inches long, of the same material, but inferior in thickness with that of the principal blades and with thickness equally decreasing lengthwise, the length of those plates should be three feet and for higher draft, they should be in that proportion with the principal blades.

As a general rule, the blades of each series should stand close together, though not to touch. These rules and proportions and dimensions are indicated as what I deem best and most suitable, but will admit some variation according to circumstances.

The fins are secured on the stanchion, so that they can be swung toward the stern and brought out of water, to be repaired, repainted or for other cause, and so lying flatwise along side of the vessel, or in case of an accident, the whole fin may be separated from the stanchion and hoisted on deck.

The number of fins may be varied at pleasure. Their proper location is from the main beam to the stern on both sides of the vessel; such blades are durable.

During an experimental trip of more than one hundred miles with my patented steel paddles, they resisted the pressure of fifteen revolutions per minute; no motion at sea, resulting from rolling or pitching or from a sudden squall, can be compared in regard to pressure upon the blades, with that of a steamer wheel, revolving at the rate of fifteen revolutions per minute. This

to my mind settles the point of the durability of these blades.

There is nothing at sea, except what is accidental that can injure steel blades, combined as in the instrument which I have described under the name "ship fins." In many circumstances at sea, great benefit will be acquired from the use of them, the velocity of the vessel, will be increased, the vessel will be more steady and will stand closer to the wind, and great accidents which frequently result from sudden jag, will be avoided.

I feel confident that with the sole action of a complete set of fins, such as I have described, in a calm with a swelling sea, whose action then, becomes a power, a vessel will make headway, sufficiently to be steered and consequently might be saved from great danger.

The application of this new combination is very simple, not expensive, requires no extraordinary attention but in frequently painting for its preservation from the effect of oxid; and it must increase the navigating qualities of a vessel.

The whole apparatus is of a trifling weight; for a vessel two thousand tons, each fin will not exceed two hundred pounds; by the sharpness of their line of profile, their resistance to headway will be trifling and out of water or other way, it will never be an incumbrance to the maneuvers.

What I claim as my invention and desire to secure by Letters Patent is—

The elastic metal blades, lee boards, which I call ship fins, to the sides of ships, vessels, and boats, in a position nearly vertical as herein described and shown and for the purpose above set forth.

Washington, October 27th, 1856.

A. JOUAN.

Witnesses:
R. H. GILLET,
R. ROSE.