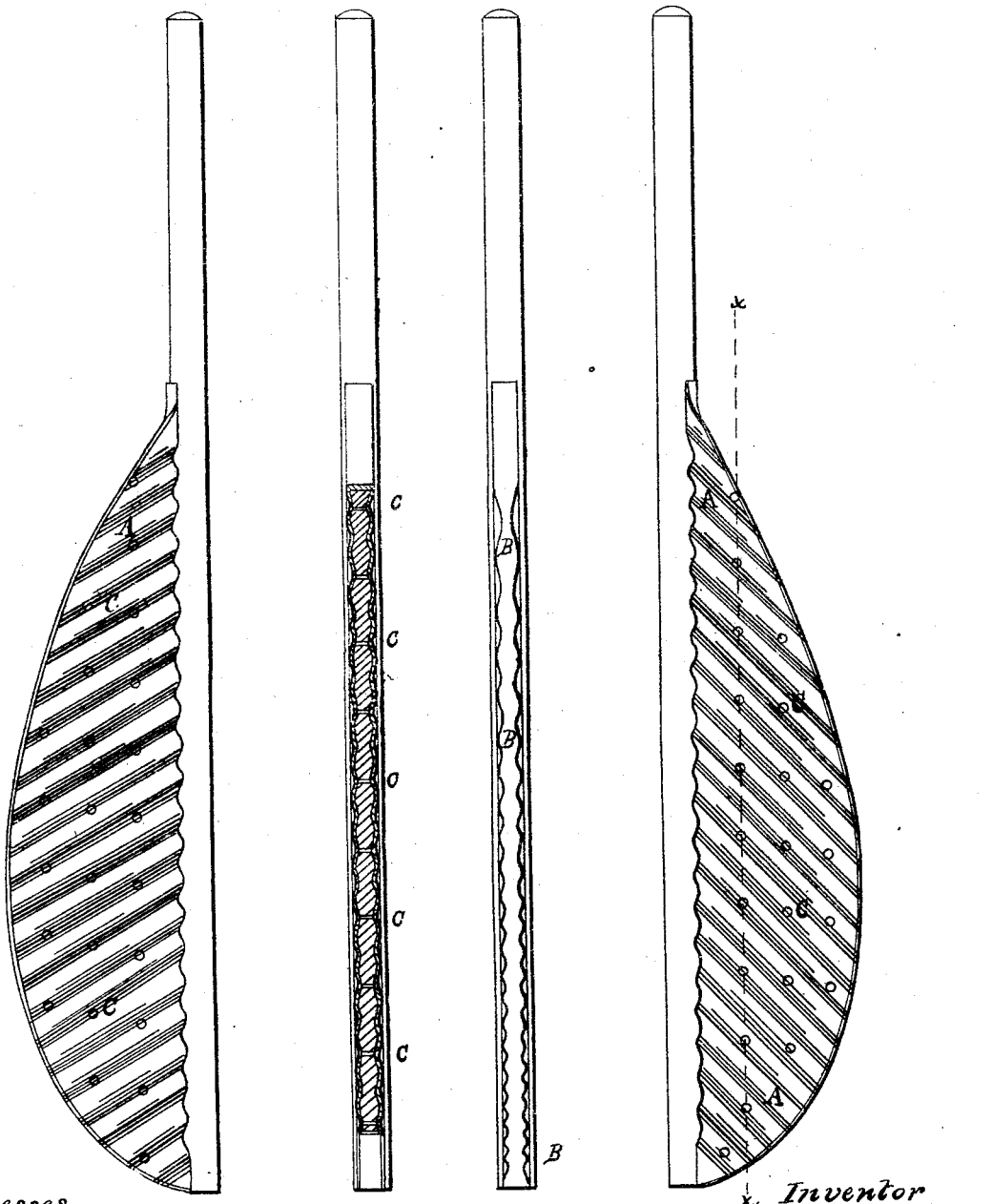
S. J. Seely.

Steering.

No. 46,147. Patented Jan. 31, 1865.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



Witnesses

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SAMUEL J. SEELY, OF NEW YORK, N. Y.

IMPROVED RUDDER WITH CORRUGATED SURFACES.

Specification forming part of Letters Patent No. **46,147**, dated January 31, 1865.

To all whom it may concern:

Be it known that I, SAMUEL J. SEELY, of the city, county, and State of New York, have invented a new and useful Improvement in Rudders; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of a rudder having one modification of my improvement attached. Fig. 2 is a section through the line *x x* of Fig. 4. Fig. 3 is a back view of the rudder, and Fig. 4 is a side view of a rudder with its corrugations at an angle different from those shown in Fig 1.

It is the object of my invention to give to rudders an increased area of surface without increasing their dimensions, and such a form as to secure the greatest resistance within any given area of resisting-surface; and to this end my invention consists in corrugating the sides of the rudder, and in placing these corrugations in any relation to or at any desired angle to the rudder-stock which experience may demonstrate will give the greatest resistance to the varied currents through which ships may navigate.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I build my rudder in any of the approved modes, and usually of wood, the parts being united in the most approved manner to secure the utmost strength of the materials and of any desired form of outline. The sides of the blade are corrugated from the stock to the heel with parallel corrugations A, to increase the area of the bearing-surface against which the water is to exert its pressure, and these corrugations may be placed at any angle desired to the stock of the rudder, although those shown in Figs. 1 and 2 will, it is believed, be found effectual. These corrugations may be made of any size suitable to the proper thickness of the rudder. After the corrugations are formed of the size and in the directions desired on the wooden surfaces of the sides of the blade of the rudder, (care being taken to so form them that their projections and depressions shall truly register, as shown at B, Fig. 3,) the whole surface may be sheathed with any desired sheet metal, and this sheathing may be securely fastened by nails or throughbolts *c*, which will clamp and hold securely in place the metal sheathing and cause it to cover neatly and smoothly in every part all the corrugations over the whole surface of the blade, when the sides of the rudder will have the appearance shown in Figs. 1 and 4. After the sides have received their sheathing the back edge of the rudder may also be covered with copper or other sheet metal, as shown in Fig. 3, and securely fastened by the ordinary sheathing-nails. The rudder-stock may also be similarly sheathed.

My invention, it is obvious, may be applied at little cost to any of the known forms of rudders now in use by forming the corrugations on their sides, either by fastening a series of ribs of the proper curvature thereto in the proper angle and sheathing them properly, or by sinking proper grooves therein at the angle desired and sheathing the parts, as hereinbefore described. It is likewise obvious that the corrugations may be made perpendicularly on the blade or parallel to the rudder-stock, and that rudders entirely of metal may be made in the form desired. For smaller craft a single corrugated sheet may used. When metal alone is used, I prefer to have two sheets to form the blade, and interpose cork or some equivalent buoyant material between them, and secure the blade on a tubular stock likewise filled with buoyant material. The corrugations, moreover, may be made in curved or wave lines on the blade without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

Corrugating the sides of the blade of rudders, substantially in the manner and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

SAML. J. SEELY.

Witnesses:

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EDM. F. BROWN.