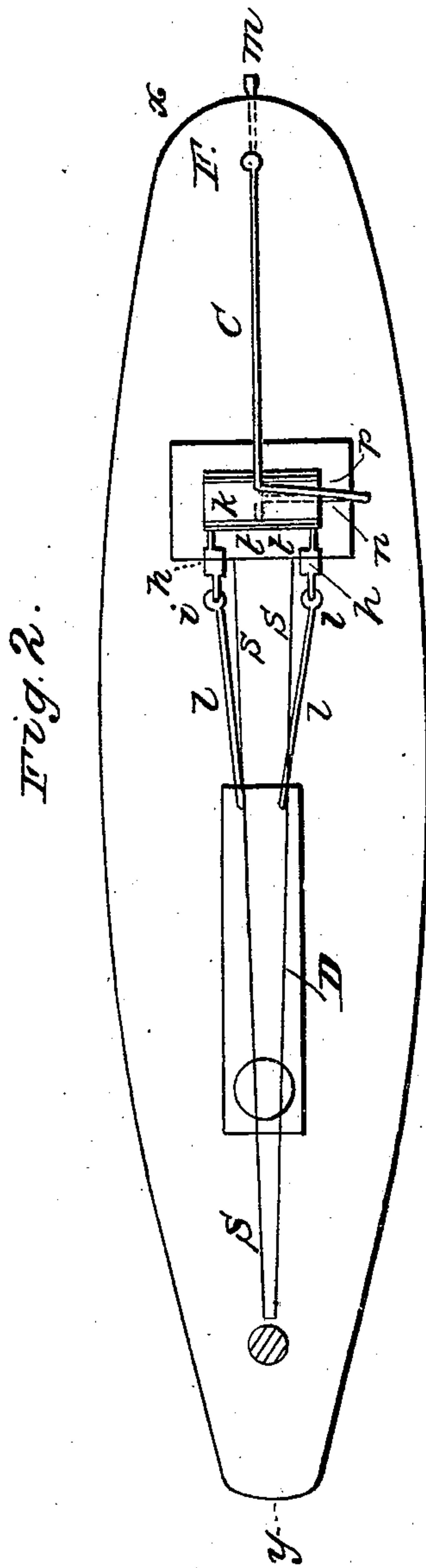
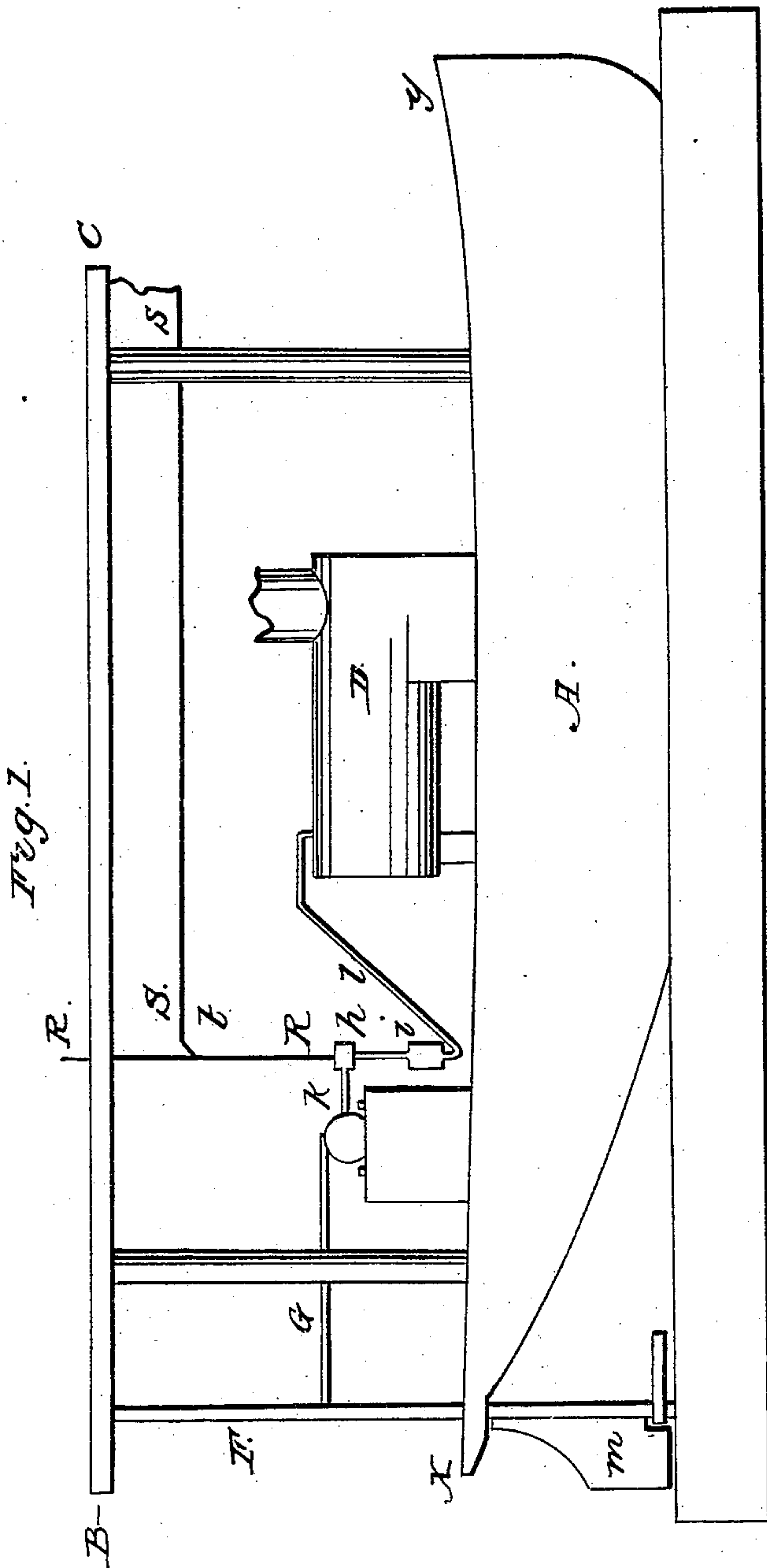


H. F. HICKS.
Steering Apparatus.

No. 103,458.

Patented May 24, 1870.



Witnesses
H. C. Hicks
Thomas J. Robinson

Inventor
Horatio F. Hicks.

United States Patent Office.

HORATIO F. HICKS, OF GRAND VIEW, INDIANA.

Letters Patent No. 103,458, dated May 24, 1870.

IMPROVEMENT IN STEAM-STEERING APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

I, HORATIO F. HICKS, of Grand View, in the county of Spencer, and State of Indiana, have invented certain Improvements in Steam-Steering Apparatus, of which the following is a specification.

Figure 1 represents a side view, and Figure 2 a top view.

A represents the hull of a steamboat, with a boiler-deck, *x y*, boiler D, upper-deck B C, and rudder M.

From the steam-boiler D steam is conducted through the pipes *l l* to the check-valves *i i*, through which it passes to the steam-chests *h h*, and thence to each end of the steam-cylinder *k*.

Attached to the piston *n*, working in the cylinder *k*, is the bar P, connected to the lever G by a joint. G is fastened substantially to the rudder-post F, by which means the rudder *m* is moved when the piston is operated by the steam in cylinder *k*.

The check-valves *i i* are of any approved construction, and are designed to admit steam from the boiler D, through the pipes *l l*, to the steam-chests *h h*, and, at the same time, to prevent its being forced back into the boiler by the violent concussion of waves against the rudder, or by the heavy pressure of the water against it when the vessel takes a sheer on the pilot, and he will thus be enabled to hold the rudder with steadiness in any required position, or move it at will by exhausting the steam from either end of the cylinder, through the steam-chests *h h*, which are of any approved construction, and are connected substan-

tially with the cylinder *k* by any approved method. Thus it will be seen that the object sought is to hold the rudder substantially in any required position by opening or closing valves in the steam-chests *h h*, while the check-valves *i i* serve to prevent the steam from being forced back into the boiler under any circumstances.

From the steam-chests *h h* the rods R R extend upward to the pilot-house, whereby the pilot is enabled to operate the valves properly in the steam-chests, thus giving him control of the rudder substantially as hereinbefore set forth and described.

The rods *s s s s* are attached to the upright rods R R by the elbow-levers *t t*, and extend to the bow of the boat, to be used in the event that the pilot is driven from the pilot-house by fire.

Having thus fully described my invention,

What I claim, and desire to secure by Letters Patent, is—

The arrangement of the check-valves *i i*, substantially as and for the purposes specified and herein set forth.

In witness whereof I have hereunto set my hand and seal this 20th day of September, 1869.

HORATIO F. HICKS. [L. S.]

Witnesses:

H. C. HICKS,

THOMAS J. ROBINSON.