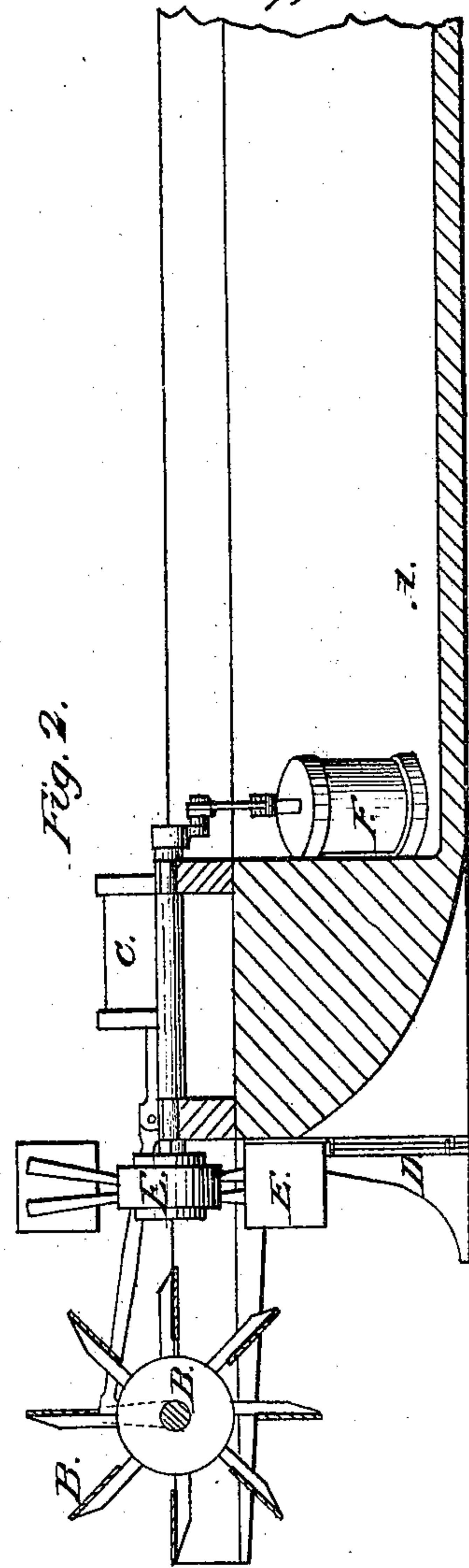
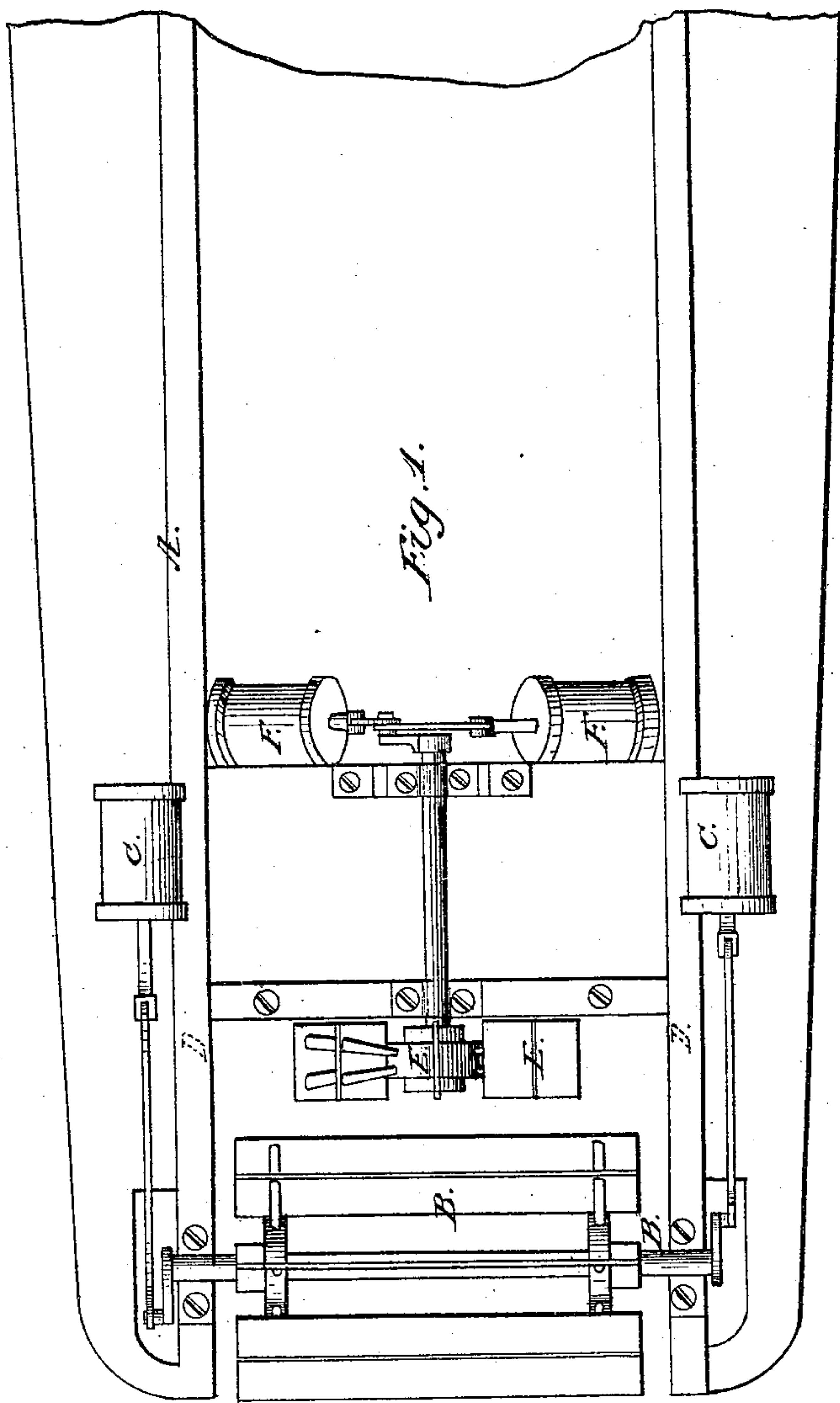


C. S. Morrison.
Steering.

No 37,517.

Patented Jan. 27, 1863.



Witnesses;
Gustave Dierich
Robt W. Newick

Inventor;
C. S. Morrison

UNITED STATES PATENT OFFICE.

CHARLES S. MORRISON, OF KEOKUK, IOWA.

IMPROVED STEAM STEERING APPARATUS.

Specification forming part of Letters Patent No. 37,517, dated January 27, 1863.

To all whom it may concern:

Be it known that I, C. S. MORRISON, of Keokuk, in the county of Lee and State of Iowa, have invented a new and useful Improvement in Steering Attachments for Steamboats and Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of my invention. Fig. 2 is a vertical longitudinal section of the same.

The same letters of reference in the two figures indicate like parts.

The nature of my invention consists in the arrangement of a paddle-wheel on a longitudinal shaft located above the surface of the water, and on the stern of the boat, in combination with the auxiliary reserve steam-engine, and the ordinary propeller-wheels and rudders or steering devices. By this arrangement the boat can be turned by steam-power either out of course or entirely around in the quickest possible time, in an emergency, or whenever necessary. This result can also be accomplished in shallow water, and without any danger of leakage at the point where the longitudinal shaft is boxed in the vessel, the said shaft not being below the water, as in other cases, where attempts have been made to accomplish what I do. My arrangement places the reserve steering device beyond dependence upon the main engine, and thus long belts and inconvenient connections dispensed with, and, what is more than all, a powerful direct action from the small engine upon the steering-wheel is obtained.

To enable others skilled in the art to carry out my invention, I will proceed to describe the same with reference to the drawings.

A represents a boat with a stern paddle-wheel, B. In this instance the paddle-wheel is driven from the large or main engine-cylinders C C, as shown.

D represents one of two ordinary rudders, arranged as usual on the boat, so as to serve for steering the boat under ordinary circumstances. E is the auxiliary paddle-wheel arranged on a shaft set at right angles to the shaft of the main paddle-wheel. This wheel is also on the stern part of the boat, but a short distance forward of the main wheel, as shown. To give motion to this auxiliary

wheel, two small steam cylinders, F F, of an auxiliary engine are connected to the crank of the wheel-shaft, as shown.

It will be evident that if the main propelling paddle-wheel is slackened in its speed, and the auxiliary wheel set in motion, the boat will be turned out of her course or turned round if the motion of the wheel is continued long enough for that purpose. When the desired change in course has been effected, the auxiliary wheel is stopped and the main wheel set in action, and when this is the case the ordinary rudders or steering devices are brought into use. My invention may, therefore, be regarded as a reserve steering device to be used in an emergency, or when a very speedy change in the course of the steamboat or vessel is required.

I contemplate using my rotary stern steering-wheels on boats which are propelled by a "recess" or central wheel, also in connection with boats which have side wheels. I also contemplate using a single-cylinder auxiliary engine, and either upright or horizontal engines. In fact, the construction of the engine and the style of the rotary stern steering device may be modified in many ways without departing from the invention developed herein.

I do not claim, broadly, the mode of steering a vessel by means of a paddle-wheel, or its equivalent, so arranged as to act in a direction perpendicular to the longitudinal axis of such vessel, being aware that contrivances for that purpose have heretofore been described, though they are believed never to have been put in practice; but

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

The above-described arrangement—that is to say, the use of a reserve paddle-wheel acting perpendicularly to the longitudinal axis of a vessel, and having its shaft above the water-line, in combination with ordinary rudders or steerers, ordinary propellers, and auxiliary engines acting directly upon the longitudinal shaft, the whole being arranged substantially in the manner and for the purpose above set forth.

CHARLES S. MORRISON.

Witnesses:

CHAS. MASON,
ROBT. W. FENWICK.