

J. Howe Jr,

Steam Condenser.

No. 88714.

Patented Apr. 6. 1869.

Fig. 1.

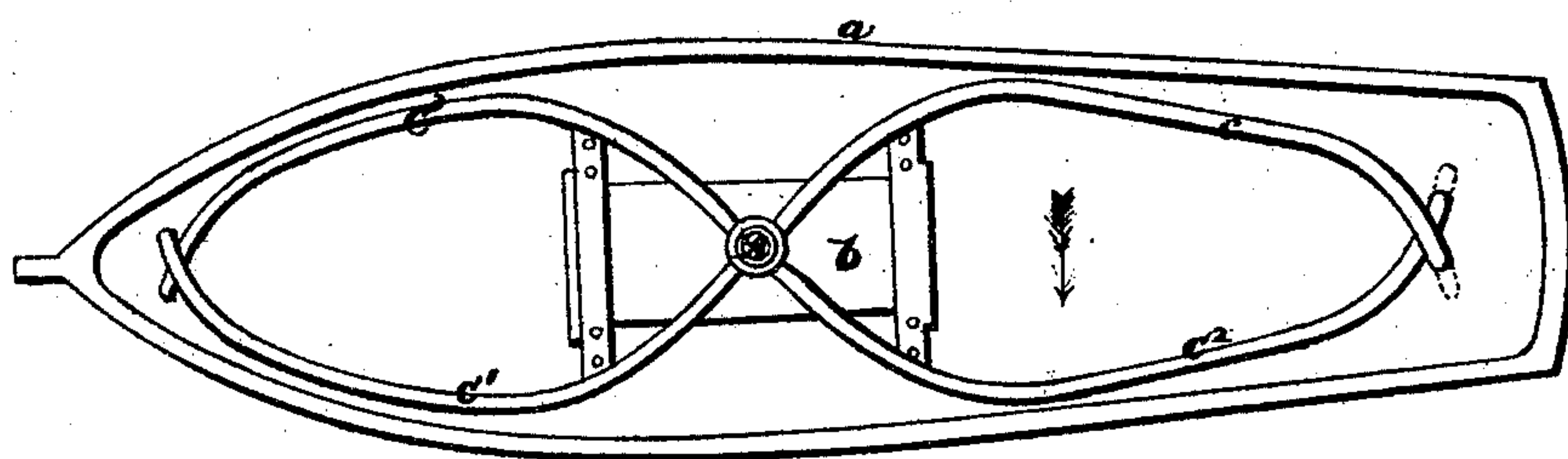
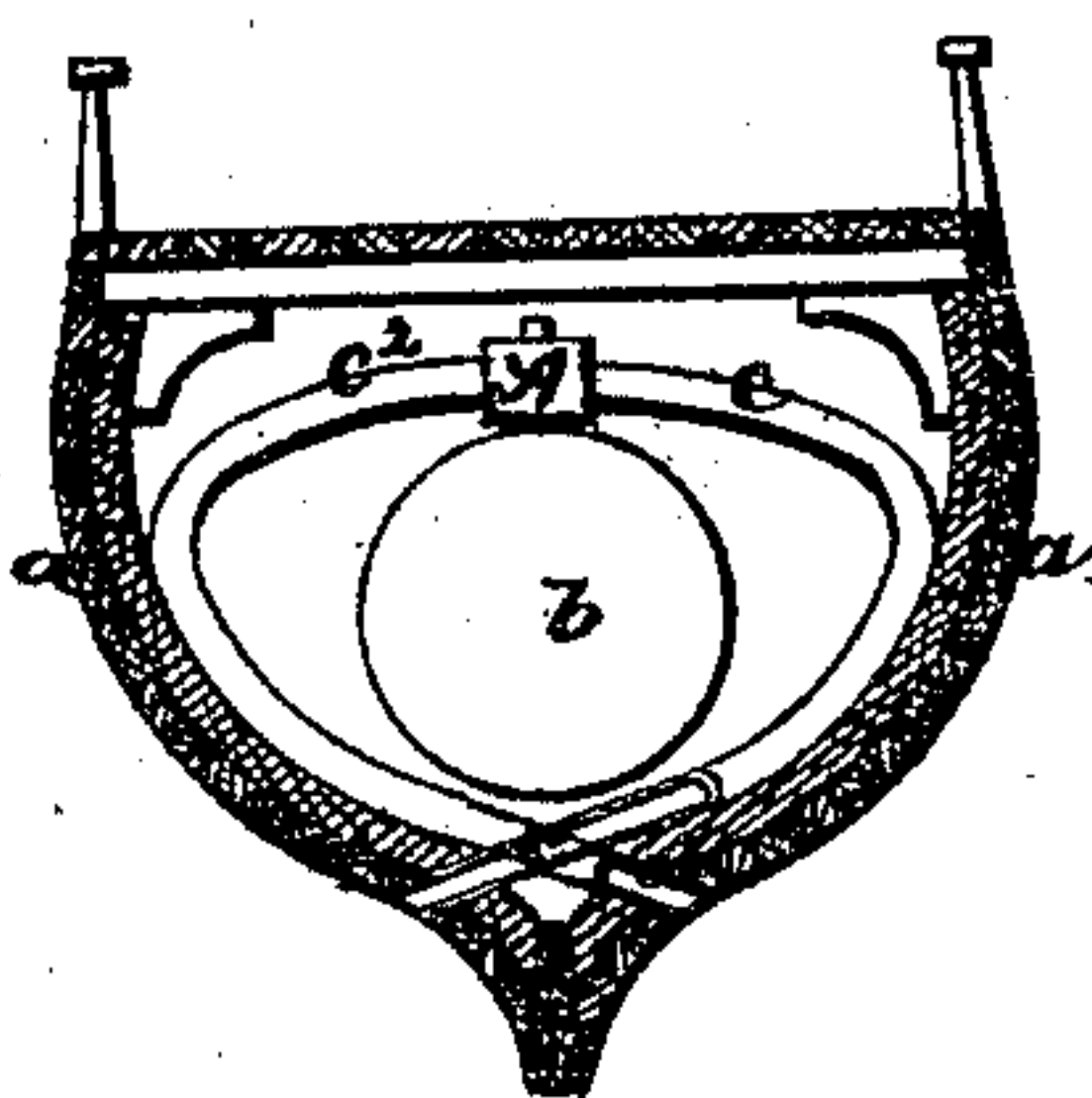


Fig. 2.



Witnesses

*A. L. Fletcher
A. S. Miller,*

Inventor

John Howe, Jr

by

Frank Fuller

attor Counsel.

UNITED STATES PATENT OFFICE.

JOHN HOWE, JR., OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STEAM-ENGINEERY FOR STEAM-VESSELS.

Specification forming part of Letters Patent No. 88,714, dated April 6, 1869.

To all to whom these presents shall come:

Be it known that I, JOHN HOWE, Jr., of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have made an invention of certain Improvements in Steam-Enginery; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a plan, and Fig. 2 a transverse section, of the hull of a navigable vessel containing my invention.

The object of my present invention is to regulate and control the position and movements of a navigable vessel when approaching a wharf or landing, and when it is not possible or practicable to put her under sufficient headway to obey her helm, or when from any cause she may have become helpless or unmanageable, either by derangement of her ordinary propelling or her steering machinery, the employment of my invention enabling me not only to propel or turn the vessel in any direction, but to steer her course accurately without a rudder.

The invention in question consists of an arrangement of one or more pipes or steam-conduits arranged within the body of the hull of the vessel, at any convenient or suitable part thereof, and communicating with the steam generator or boilers of such vessel, the outer extremity of such steam-conduits extending through the sides of the hull below the water-line, and at the stem and stern thereof, in such manner and at such an angle to her keel as to enable steam, when admitted to the conduit, to strike against the body of water with such force and in such a direction as to force the vessel through the water in the desired direction, the admission of steam to either or any of the conduits being regulated by a cock or cocks suitably applied.

In the drawings above mentioned as illustrating my invention, *a* denotes the hull of a navigable vessel, in the interior of which a steam generator or boiler, *b*, of any suitable construction, is located. Connected with the steam-space of this boiler through a suitable dome, and radiating therefrom, are four steam

conduits or pipes, *c c¹ c² c³*, these pipes being carried to the stem and stern of the vessel, and through opposite sides of its hull below its water-line.

The dome *A*, before alluded to, or that portion of the steam-boiler with which the steam-conduits are connected, is to be provided with a suitable valve or valves for permitting admission of steam to one or more of the conduits, as occasion may require, and the valve or valves may be supplied with a suitable pointer or indicator, to enable the proper person to regulate the passage of steam.

If steam be admitted to the two conduits *c² c³* together, or to either of them singly, the steam, acting upon the volume of water in which the vessel is, will turn her nearly or about upon her center in the direction of the red arrow thereon.

If steam be admitted to either or both of the conduits *c c¹*, the vessel will be turned in like manner in the opposite direction; or the vessel may be propelled broadside on in either direction by admitting steam simultaneously to either of the pipes *c c³* or *c¹ c²*.

By admitting steam through either of the pipes *c c²* or *c¹ c³* the vessel may be propelled stem or stern first, and it will be obvious that by increasing or diminishing the amount of steam projected through these pipes while propelling a vessel, her course may be accurately steered without the aid of a rudder.

I do not, of course, intend to limit myself to the number of the steam-conduits as herein shown and described, as my invention is intended to embrace novel mechanical devices for propelling and steering a navigable vessel by means of steam pressing against the volume of water in which such vessel floats.

The want of some efficient and powerful means of moving and guiding a vessel when approaching a wharf or landing, and when comparatively helpless and unmanageable after stopping the revolutions of her engine, has long been known and appreciated by nautical men, as it is a matter frequently of considerable time, and always of more or less difficulty, to bring a vessel up to her berth.

By the employment of my invention a vessel may be propelled backward and forward

broadside on, or backward and forward in a direct line with or diagonally to her keel, or be turned in a circle upon her own center, as the case may be, without the aid of her ordinary propelling or steering machinery, thus enabling a vessel provided with my invention to make good headway, which would otherwise be unmanageable or crippled, and be brought directly and with certainty and ease to her berth.

As the steam to be employed for the purpose is used when her engines are stopped, and the

steam would otherwise be "blowing off" and wasted, no loss of steam occurs.

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

The disposition and arrangement of the steam-conduits c c^1 c^2 c^3 , with respect to the hull of the vessel and the steam-generator, substantially as before explained.

JOHN HOWE, JR.

Witnesses:

FRED. CURTIS,
EDWARD GRIFFITH.