

N^o 54,428.

Patented May 1, 1866.

Fig. 1.

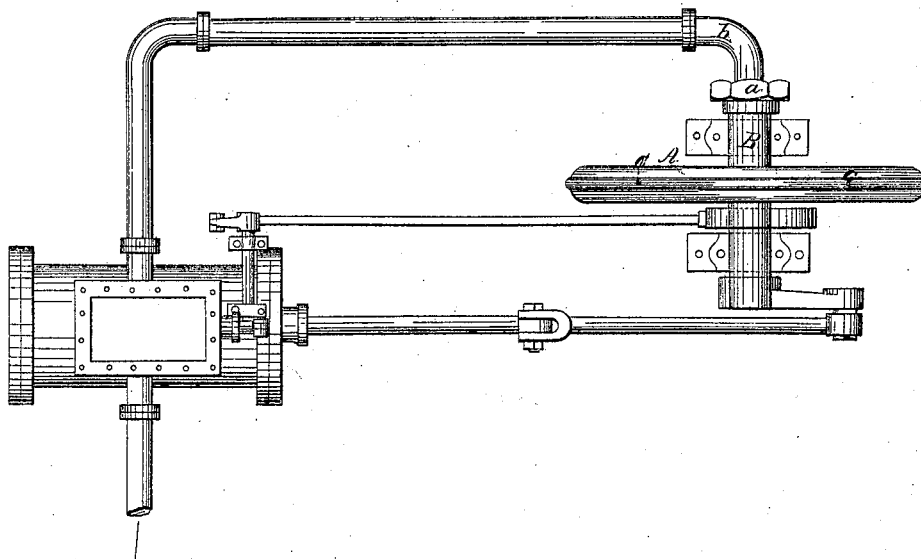


Fig 2.

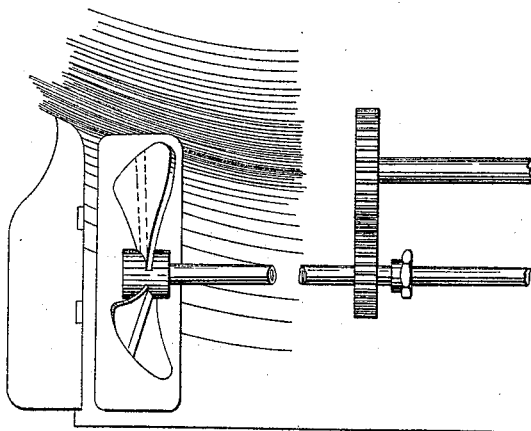
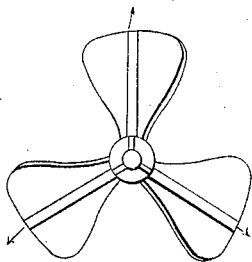


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES F. SPENCE, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN REVOLVING CONDENSERS.

Specification forming part of Letters Patent No. 54,428, dated May 1, 1866.

To all whom it may concern:

Be it known that I, JAMES F. SPENCE, of Williamsburg, in the county of Kings and State of New York, have invented a new and Improved Revolving Condenser; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of this invention as applied to a common fly-wheel. Fig. 2 is a side elevation of the same as applied to a propeller. Fig. 3 is an end view of the propeller with the condensing attachments.

Similar letters of reference indicate corresponding parts.

This invention consists in the use of a condenser, in combination with a steam-engine, said condenser taking the place of the fly-wheel of the propeller, and the piston of the engine is relieved from all, or nearly all, back-pressure.

A represents the fly-wheel of a steam-engine, which is mounted on a shaft, B, to which a revolving motion is imparted by the action of a steam-engine, the piston-rod of which connects with a crank secured to the end of a shaft, B, as shown in red outlines in Fig. 1, or in any other suitable manner. The rim of the fly-wheel and its arms are hollow, and the shaft B is also hollow and provided with a stuffing-box, *a*, calculated to receive the end of the exhaust-pipe *b*, which emanates from the steam-cylinder. By this arrangement the steam exhausts into the fly-wheel, the rim of which is provided with a series of small openings, *c*, which may or may not be closed by suitable valves opening outward, and by the centrifugal force imparted to the steam by the revolving motion of the fly-wheel a partial vacuum is formed in hollow space of the fly-wheel, and the piston is relieved of a large percentage of the back-pressure.

Instead of passing the exhaust steam into the hollow rim of a fly-wheel, it may be passed into pipes attached to the wings of a propeller, or said wings themselves may be cast hollow, with small apertures in their outer edges, so that the exhaust-steam passed into them is free to exhaust.

The arrangement of parts in this case will be such as shown in Figs. 2 and 3 of the drawings. The propeller-shaft will be made hollow and the exhaust-pipe passed into a suitable stuffing-box at the end; or, if desired, the exhaust-pipe might be secured to a suitable box or sleeve applied to said shaft, which in this case would be provided with holes passing through its sides to its central channel, so as to admit the exhaust-steam to the propeller. On reaching the blades of the propeller the steam will immediately condense, and by the action of the centrifugal force it will be thrown out, thus forming a partial vacuum, whereby the piston will be relieved of a large percentage of the back-pressure.

It is obvious that, instead of using the fly-wheel or propeller as the chamber for receiving the exhaust-steam, a separate drum might be used, said drum being secured to a suitable hollow shaft which receives a revolving motion from the steam-engine; and I do not wish to confine myself to any particular form of my revolving condenser; neither do I wish to be restricted to any particular place for putting the same up.

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

A revolving condenser constructed and applied, in combination with a steam-cylinder, substantially in the manner herein described, for the purpose specified.

The above specification of my invention signed by me this 11th day of October, 1865.

JAMES F. SPENCE.

Witnesses:

M. M. LIVINGSTON,
C. L. TOPLIFF.