

UNITED STATES PATENT OFFICE.

ABRAM F. COOPER, OF TUSCOLA, ILLINOIS.

STEAM-WHEEL.

SPECIFICATION forming part of Letters Patent No. 260,944, dated July 11, 1882.

Application filed April 19, 1882. (Model.)

To all whom it may concern:

Be it known that I, ABRAM F. COOPER, of Tuscola, in the county of Douglas and State of Illinois, have invented a new and Improved Steam-Wheel, of which the following is a full, clear, and exact description.

My invention consists of a rotary wheel with cups in the face covered by a steam-plate where the wheel takes the steam and therefrom to the exhaust, said steam-plate being fitted in grooves in flanges of the steam-wheel projecting beyond the face, and also having set-screws bearing against it from an outer case to keep it steam-tight on the face of the wheel, the said wheel being constructed for being impelled by the percussion or impact of the steam, all as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my improved wheel, the section being taken transversely to the shaft. Fig. 2 is a face view of the wheel and section of the outer jacket; and Fig. 3 is a detail, partly in section and partly in elevation, showing the grooves in the flanges of the wheel to hold the steam-plate.

A represents a wheel or disk mounted on a shaft, B, which is to be fixed in suitable bearings for the rotation of the disk.

C represents cups in the face of the disk for reception of a jet of steam from a pipe, D, arranged tangentially to the wheel, and discharging into said cups through a steam-plate, E, fitted steam-tight on the face of the disk and secured by its edges in the grooves F of the flanges G of the wheel, also by set-screws H screwing through the rim I of another casing, J, against its outer face, or by any other approved means. The sides J of the case fit around the shaft B, and will in practice be made steam-tight thereon. The steam-plate extends along the face of the wheel to cover two or more cups, and terminates at or about the exhaust-port N, where the exhaust-pipe K

is attached; and below the exhaust-pipe, and preferably under the bottom of the wheel, a waste-pipe, L, is attached to the face I of the outer casing, for the escape of water.

M represents a governor to be applied in any approved way for controlling the engine by the throttle-valve, as in other engines.

In this example I have represented a wheel having two series of cups, C, side by side, but alternating in the order of arrangement, so that the cups of one series take steam when the others are cut off, thus avoiding the dead-points that a wheel of only one series of cups would be subjected to. I also propose in practice to construct wheels with cups and steam-ports, arranged for reversing the wheel and working it either way, with which suitable reversing-valves will be employed. The alternative arrangement of the cups of the wheels herein shown and described is represented in the face views of Figs. 2 and 3, partly by dotted lines and partly by full lines, and in Fig. 1 it is shown by the solid lines for one series and dotted lines for the other series. The wheels will be provided with any preferred number of cups, according to size of wheel and the desired dimensions of the cups. The cups do not open their whole length to the steam, but pass half or more of their length before opening to the steam, and thereby I expect to realize in this form of steam-wheel the benefit of working steam expansively.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The steam-plate E, fitted in grooves F of flanges G of the steam-wheel, and also secured by set-screws H, or equivalent means, substantially as specified.

2. The combination of an inclosing jacket, I J, with the steam-wheel A and steam-plate E, substantially as described.

ABRAM F. COOPER.

Witnesses:

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