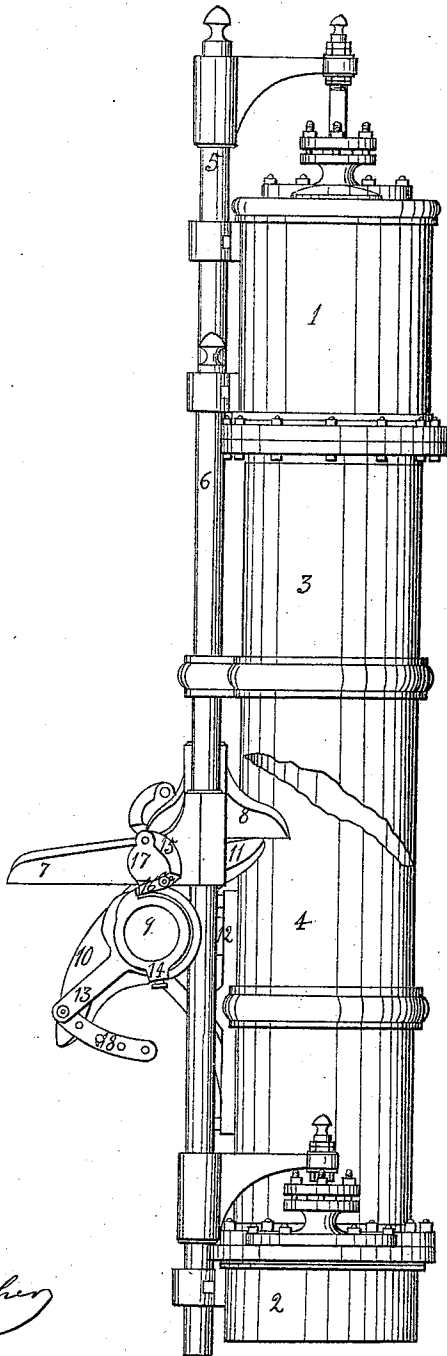


H. J. & T. Hankins,

Steam Cut-Off.

N^o 15,181.

Patented June 24, 1856.



Witnesses:

By Samuel Cain
Charles F. Fisher

Inventor
Henry L. Mumkins
Thos Hawkins.

UNITED STATES PATENT OFFICE.

HENRY J. HAWKINS AND THOMAS HAWKINS, OF MOBILE, ALABAMA.

ADJUSTABLE CUT-OFF FOR STEAM-ENGINES.

Specification of Letters Patent No. 15,181, dated June 24, 1856.

To all whom it may concern:

Be it known that we, HENRY J. HAWKINS and THOMAS HAWKINS, of the city and county of Mobile, in the State of Alabama, have invented a new and useful Improvement in Steam-Engines for Cutting Off the Steam at any Moment and at any Given Point on Either Motion of the Piston. The advantages of this are many and result entirely from the instantaneous applicability of this cut-off. By this means steam can be given to the piston whenever and wherever required, for the cut-off is changed in a moment. In seagoing vessels it will graduate the steam to the decreasing burden of the fuel, for less will then produce the required speed and save greatly in wear and tear. While tying-to in heavy weather and cutting off at seven-eighths a low head of steam will suffice for all purposes and avoid the present heavy strain on hull, engine, and boiler. In a war steamer it will apply all the steam she can bear at the particular moment when most required. In shoal water it can be thrown out of operation in a moment and as instantly restored should the vessel drag or strike, when all the engine's power can be at once applied. In sudden change from shoals to deeps it has the same advantages. In crossing shoals steam need not follow the piston more than half the length of the cylinder; but on touching deep water and wanting its power the steam can be cut off at five-eighths, five-eighths and a sixteenth, or at three-quarters, and these various changes can be made in as many seconds. When needed, the steam can be applied to the piston the whole length of the stroke, so as to help over the center without using the expansion. In the sudden shoal, the sharp bend, or swift rapid of a river this instant adjustment of steam power needs but care to be almost proof against

collisions or running on shore, and from this quick control over the quantity of steam to be used it requires only attention to produce a vast economy in fuel. The improved operation of this cut-off therefore is seen in its instant adjustment, according to the depth of water, according to sea-way or state of weather, according to bends or currents, and according to the immersion of the wheels; and we do hereby declare the following to be a full and exact description of the same, reference being made to the accompanying drawings, marked 1, and 2.

1 is the upper steam chest; 2, lower steam chest; 3, exhaust pipe with portion removed to show the back toe and lifter; 4, steam side pipe; 5, upper steam valve-lifting rod with valve open; 6, lower steam valve-lifting rod with valve closed; 7, toe to lift No. 6; 8, toe to lift No. 5; 9, end view of rock-shaft, with bearing bracket removed to show more fully; 10, lifter for Nos. 6 and 7; 11, lifter for Nos. 8 and 5; 12, bearing bracket of the rock shaft attached to steam side pipe; 13, adjustable cam, with its lever; 14, keep collar, for adjustable cam; 15, self inserting toe, with self-acting pawl; 16, self acting pawl; 17, rest block and carrier, for self inserting toe; 18, index rack.

What we claim as our invention is—

The adjustable cam and self inserting toe which, when combined together on any rock shaft motion for working steam valves, can cut off the steam at any given point on either motion of the piston at a moment's notice, as herein set forth.

HENRY J. HAWKINS.
THOS. HAWKINS.

Witnesses:

HY. CHAMBERLAIN,
CHARLES J. B. FISHER.