

SAMUEL VAN EMON.
Improvement in Steam Engines.
 No. 120,221. Patented Oct. 24, 1871.

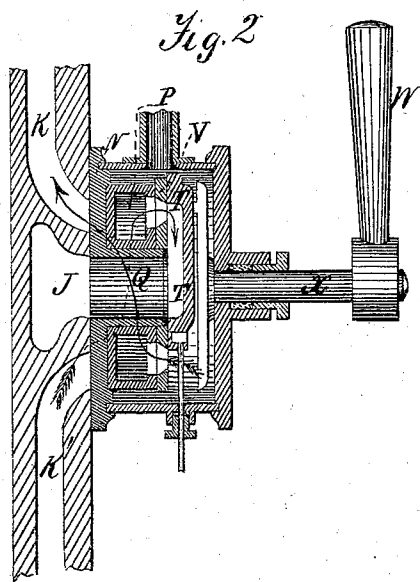
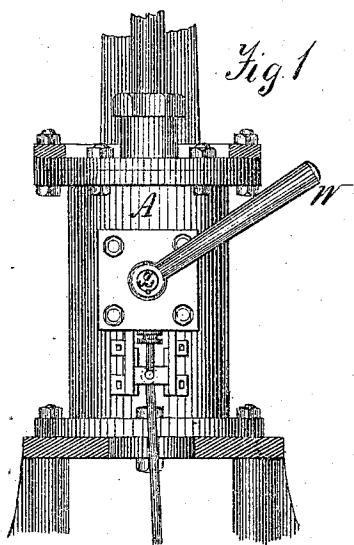


Fig. 3.

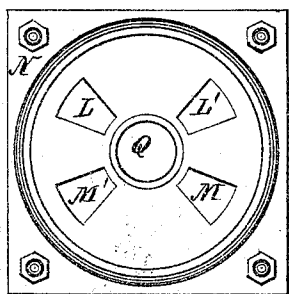


Fig. 5.

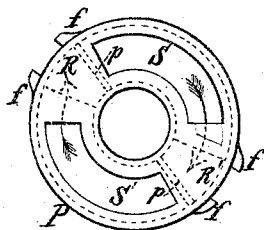
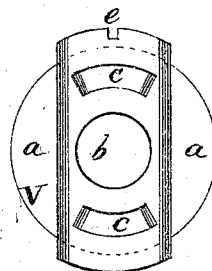


Fig. 4.



Attest
C. C. C. C. C.
A. Ruppert.

S. Van Emon
Inventor
D. P. Holloway & Co
Atty

UNITED STATES PATENT OFFICE.

SAMUEL VAN EMON, OF COVINGTON, KENTUCKY.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 120,221, dated October 24, 1871.

To all whom it may concern:

Be it known that I, SAMUEL VAN EMON, of Covington, Kenton county, State of Kentucky, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification:

My invention consists in a peculiarly-constructed and operating valve for the cylinder of the engine, by which the engine can be reversed.

Figure 1 is a side elevation of a steam-engine embodying my invention. Fig. 2 is a section through the valve-mechanism of the cylinder. Figs. 3, 4, and 5 represent detached views of the valve mechanism.

A is the cylinder of the engine. J is the exhaust-port of the cylinder-casting, and K K' the side pipes or passages of the same. The pipe or passage K communicates with the steam-supply through ports L L' separately. The pipe or passage K' communicates with the steam-supply through ports M M' separately. The seat N containing the ports L L' M M' may be either cast with the cylinder or bolted to it. The reversing-valve P is made to rotate against the face of seat N, turning upon the hollow exhaust projection Q. The side of the reversing-valve which fits against the cylinder-ports is constructed with two ports, R R', shown in dotted lines in Fig. 5, the ports R R', when the valve is turned in one direction, matching the ports L M, and in the other direction matching the ports L' M'. The change of valve P from one to the other position reverses the engine, the valve having partitions *p* shown in dotted lines, and long curved ports S S' upon the opposite face of the valve to the face having ports R R'. Port S communicates with port R' and port S' with the port R. With this construction of valve P, steam which

enters the port S may either enter the lower end of the cylinder through port M or the upper end through port L', depending upon the position of the valve. In a like manner steam which enters at port S' may pass through port L or M'. T represents an ordinary slide-valve operated in the usual way by an eccentric. Its exhaust cavity communicates with the exhaust-opening J. Between the valve T and the reversing-valve P I interpose a stationary seat, V, which is the principal distinguishing feature of my invention. This seat has a circular disk, *a*, to fit over the ports S S', a central opening, *b*, for the exhaust and two steam-ports, *c*. It is kept stationary by the valve T, assisted, if necessary, by a projection from the steam-chest fitting into notch *e*. The provision of the intermediate seat V gives a seat for the valve T, which is always stationary, and therefore better than a rotating one, and also permits the use of an ordinary sized slide-valve, T. The reversing-valve is operated by the lever W and shaft X, the latter being forked to fit over the valve P and between the lugs *f*, and it is stopped in either direction when it has arrived at the proper point of adjustment by the forks of the shaft striking the ends of seat V.

I claim—

The combination of valve-face N L L' M M' Q, reversing-valve P *p* S S' R R', slide-valve T, and intermediate valve-seat V *a b c*, operating substantially in the manner and for the purpose described.

In testimony of which invention I hereunto set my hand.

SAMUEL VAN EMON.

Witnesses:

E. F. LAYMAN,
I. L. WARTMANN.

(150)