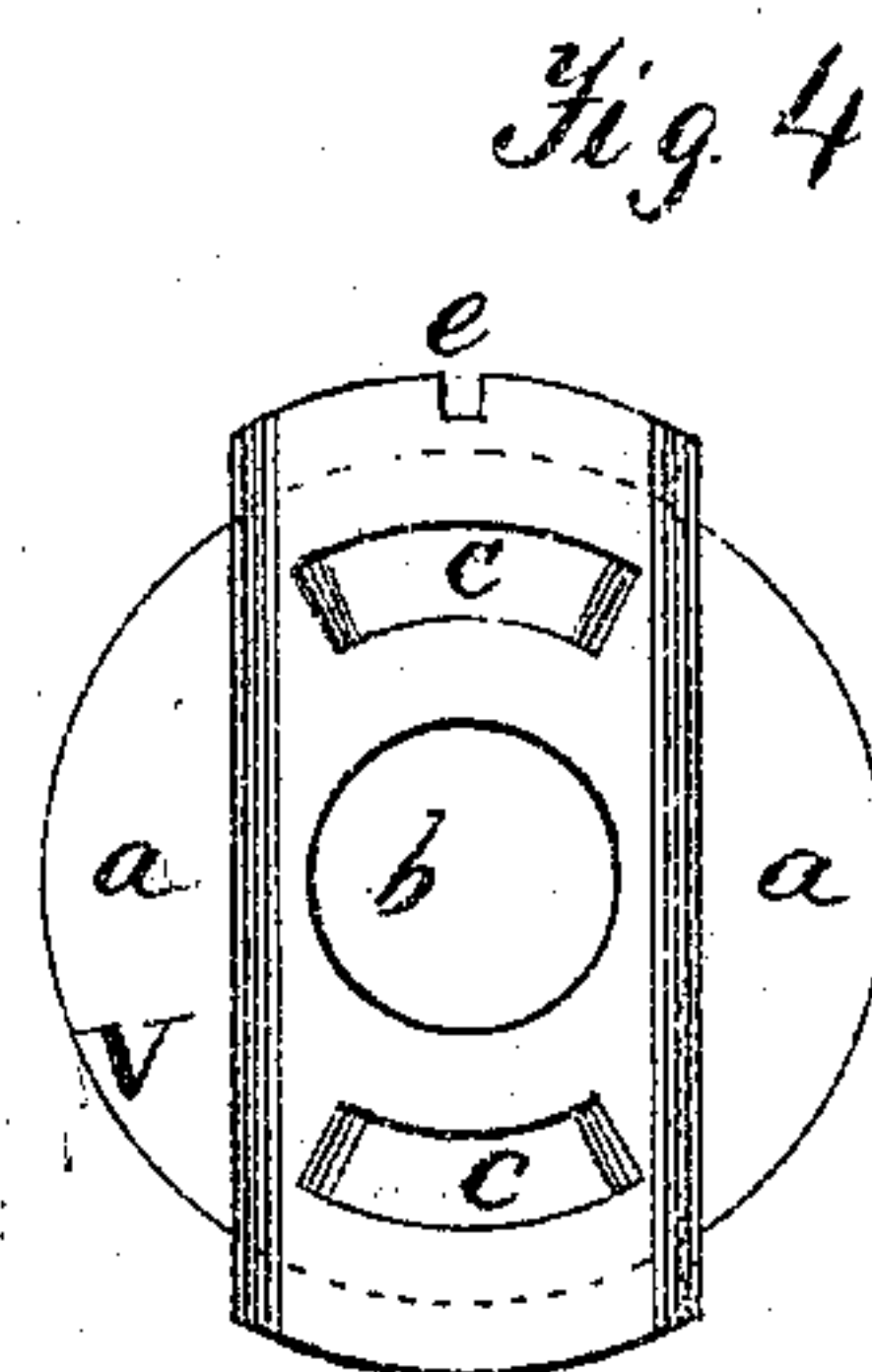
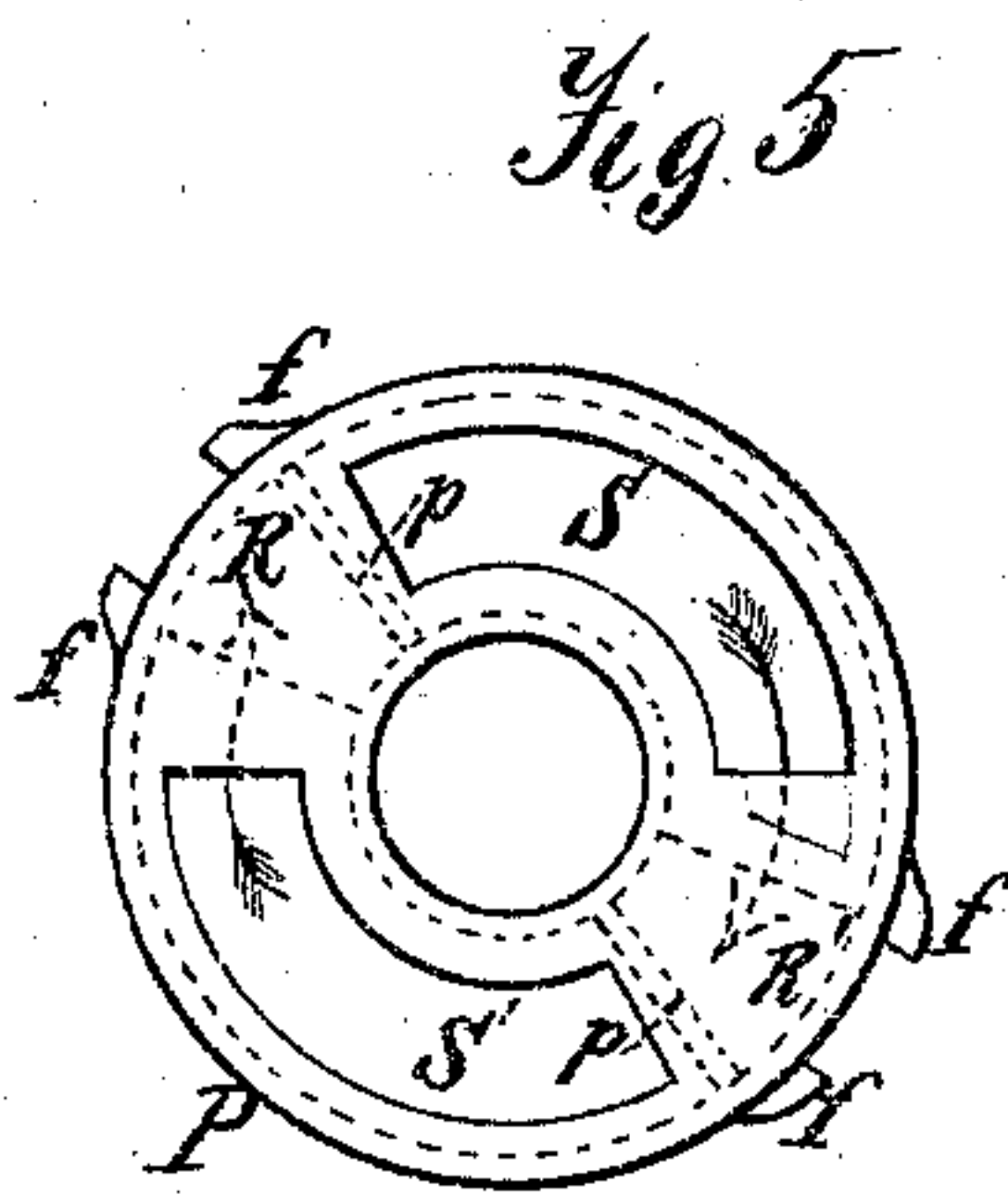
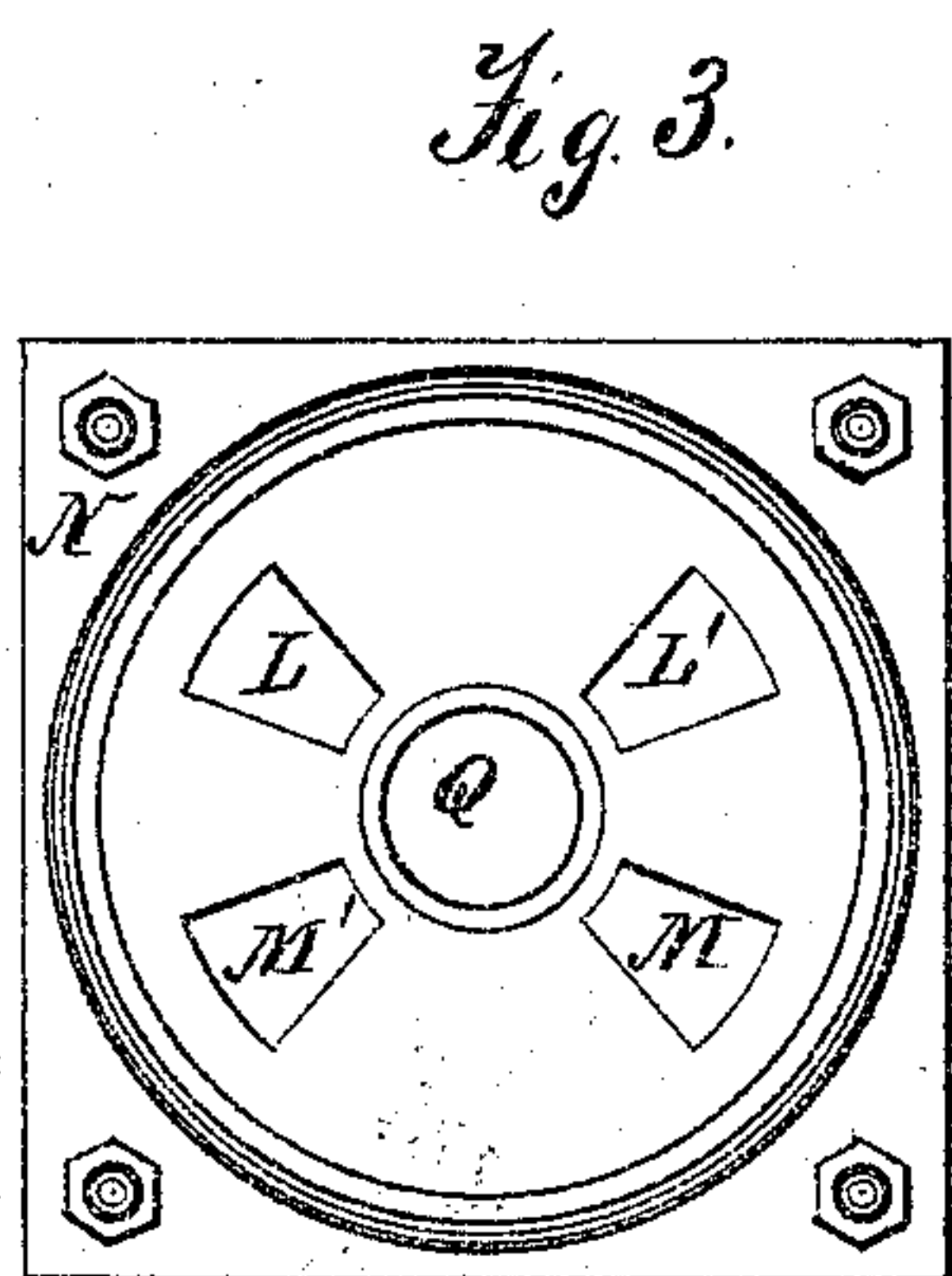
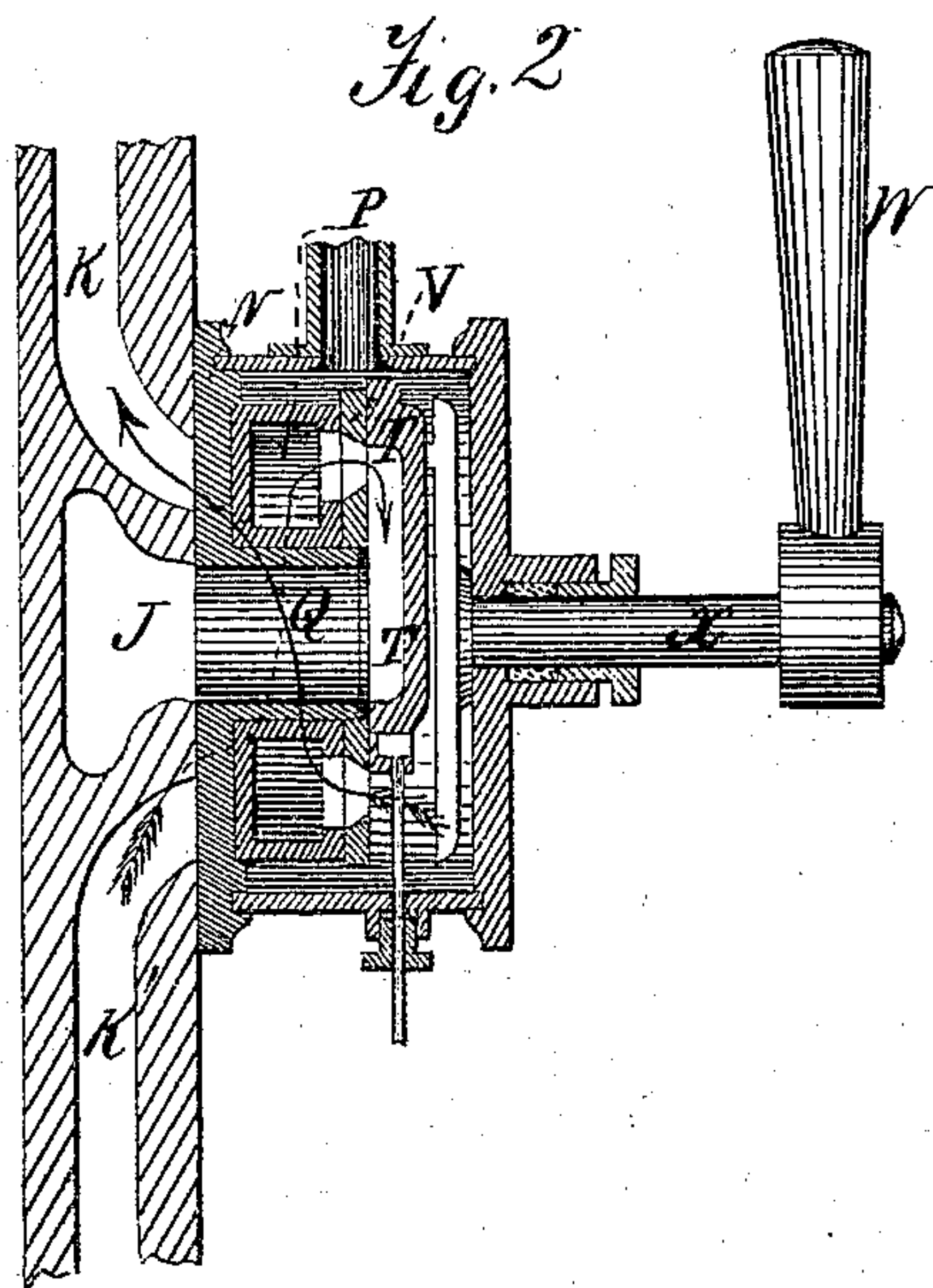
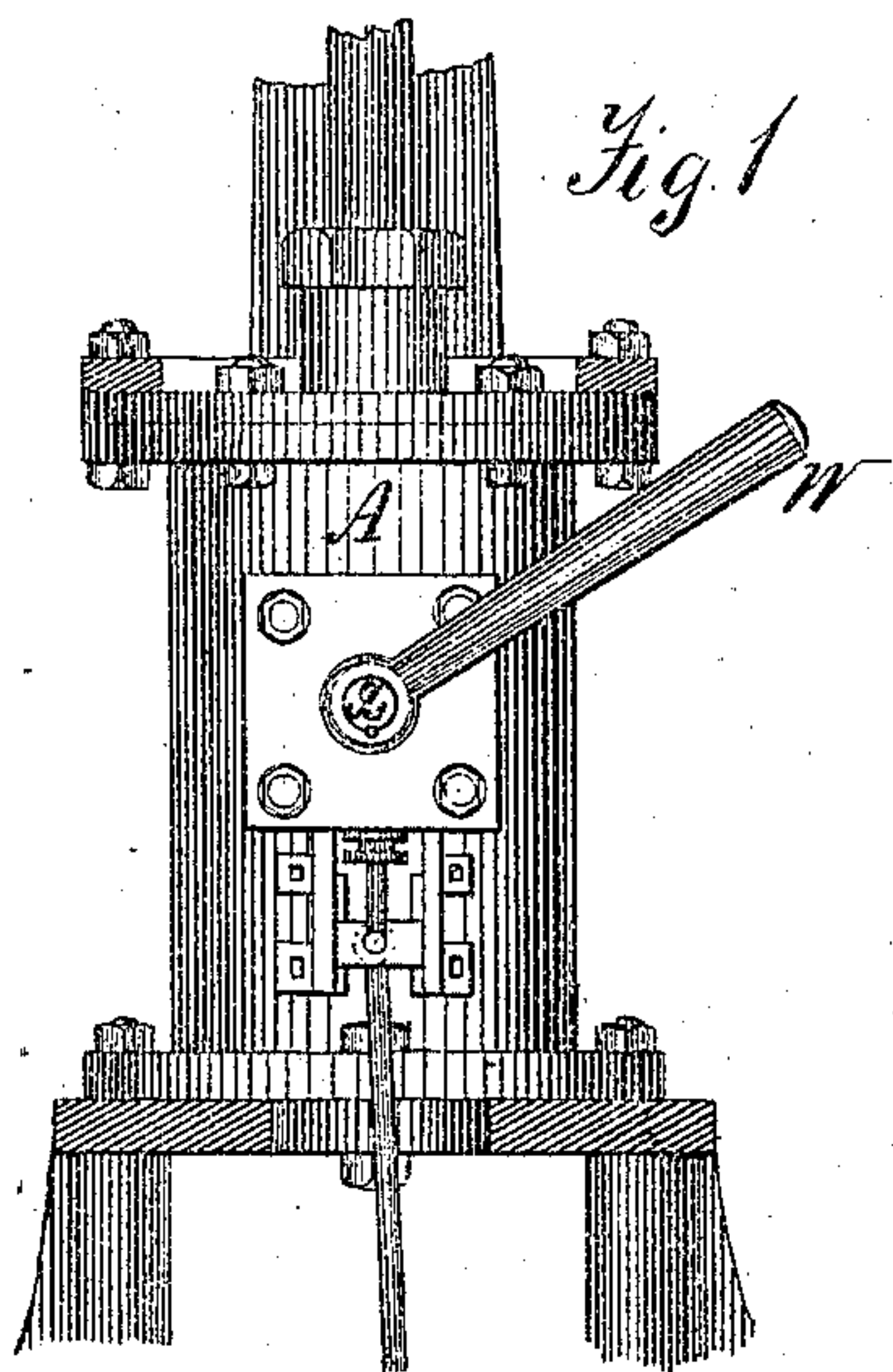


SAMUEL VAN EMON.
Improvement in Steam Engines.
No. 120,221. Patented Oct. 24, 1871.



Attest
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Attys

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)