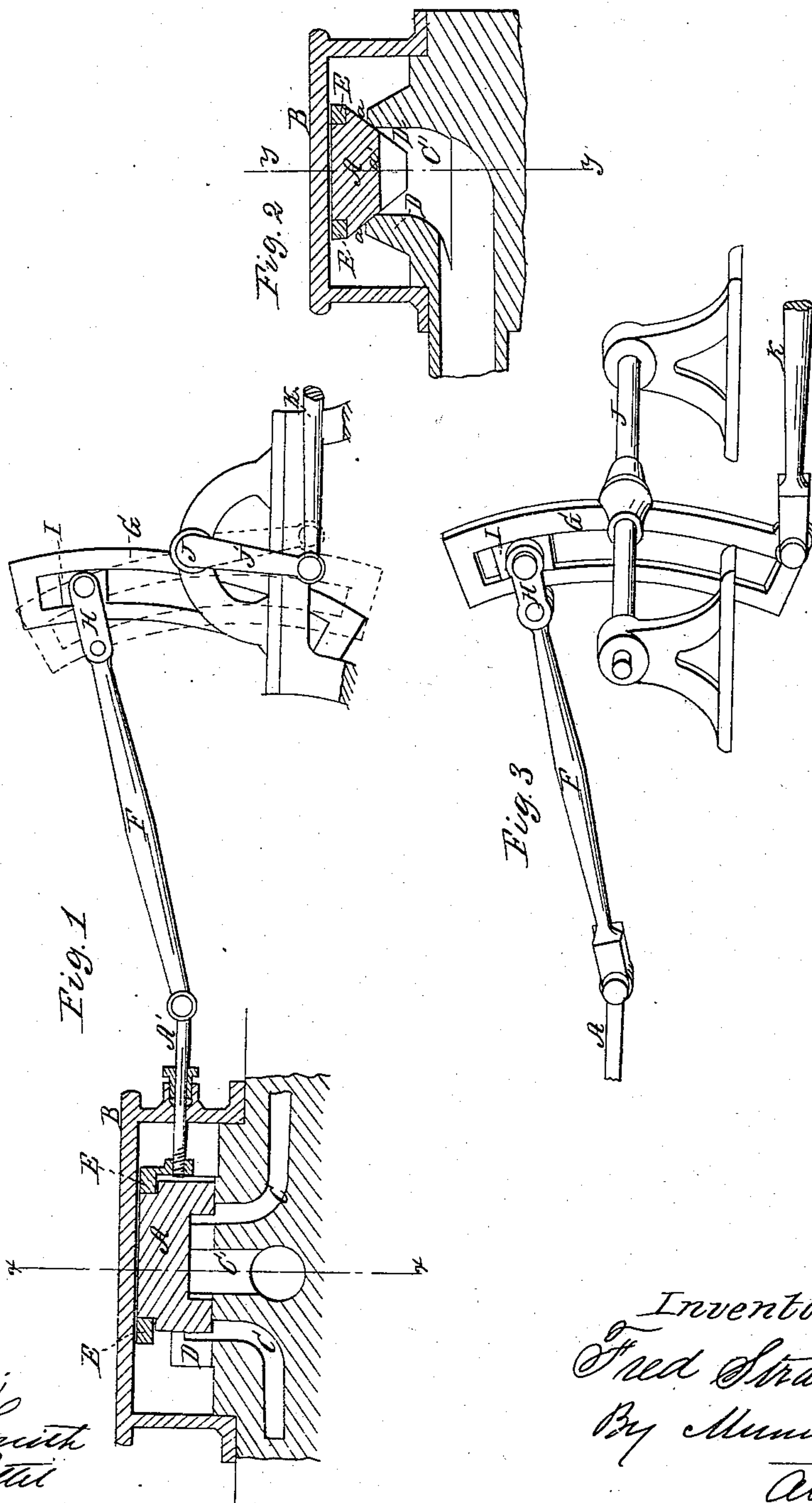


F. STRATNER.  
VALVE GEAR FOR STEAM ENGINES.

No. 61,640.

Patented Jan. 29, 1867.



Witnesses;  
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# United States Patent Office.

FREDRIC STRATNER, OF WILMINGTON, DELAWARE.

*Letters Patent No. 61,640, dated January 29, 1867.*

## IMPROVEMENT IN VALVE GEAR FOR STEAM ENGINES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, FREDRIC STRATNER, of Wilmington, in the county of New Castle, and State of Delaware, have invented a new and useful Improvement in Valves and Valve Gear for Steam Engines; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a sectional elevation of a valve and valve gear illustrating my invention, the plane of section through the valve-chest and steam channels being indicated by the lines *y y*, fig. 2.

Figure 2 is a transverse section on the line *x x*, fig. 1.

Figure 3 illustrates a modification in the method of connecting the pitman to the slotted segment herein-after referred to.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in the arrangement of a slotted segment in connection with the valve-rod and pitman, whereby the engine may be reversed and stopped with the greatest facility, and the speed of the valve regulated more effectually than by other arrangements.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in detail in connection with the accompanying drawings.

A may represent a D-valve, working snugly within the steam-chest B and over the steam-ports C C and exhaust-port C' of the steam cylinder. The form of the valve A in its transverse section is shown in fig. 2. The sides *a a* of the valve converge toward the bottom, *a'*, which is flat. The valve-seat is shaped like the valve; that is to say, the bearing surfaces of the valve-seat converge toward a flat bottom, so as to conform to the working surfaces of the valve A. This valve is intended to be strictly a balance-valve, so that the friction and wear at the bottom, *a'*, shall not exceed that at the sides *a a*. Hence the valve wears equally at all the bearing points, and consequently maintains a true bearing in the seat D. The ordinary flat-bottomed D-valve undergoes the greatest friction and wear at the central part of the bottom, which thus becoming hollow is liable to get out of order and "jump." E is a yoke, embracing the valve A at top, and affording the means of connecting the same with the valve-rod A'. F is a pitman, connecting the valve-rod A' with a slotted segment, G, through the medium of a double link, H, and adjustable block, I, the latter being confined in the slot of the segment G. The segment G vibrates with the rock-shaft J, to which the eccentric-rod K may be attached directly, as shown in fig. 3, or through the medium of a vibrating arm J', as seen in fig. 1. By adjusting the block I to the opposite side of the centre of the slotted segment G, the engine is reversed; by adjusting it toward or away from said centre, the speed of the valve is raised; and by adjusting it at the centre of the segment, the latter may vibrate without communicating motion to block I, and thus the motion of the valve may be readily suspended. In the latter case the valve I serves the purpose of a throttle. These several adjustments may be effected by a suspending rod attached to the link H and adjusted by hand, or connected with and controlled by the governor, as may be preferred.

Having thus described my invention, the following is what I claim as new herein, and desire to secure by Letters Patent:

I claim the described arrangement of the slotted segment G, rock-shaft J, adjustable block I, pitman E, and valve-rod A', whereby the motion of the valve may be accelerated, retarded, or suspended, as set forth.

To the above specification of improvements in valve and valve gears I have signed my hand this sixth day of July, 1866.

FREDRIC STRATNER.

Witnesses:

W. F. HALL,

C. D. SMITH.