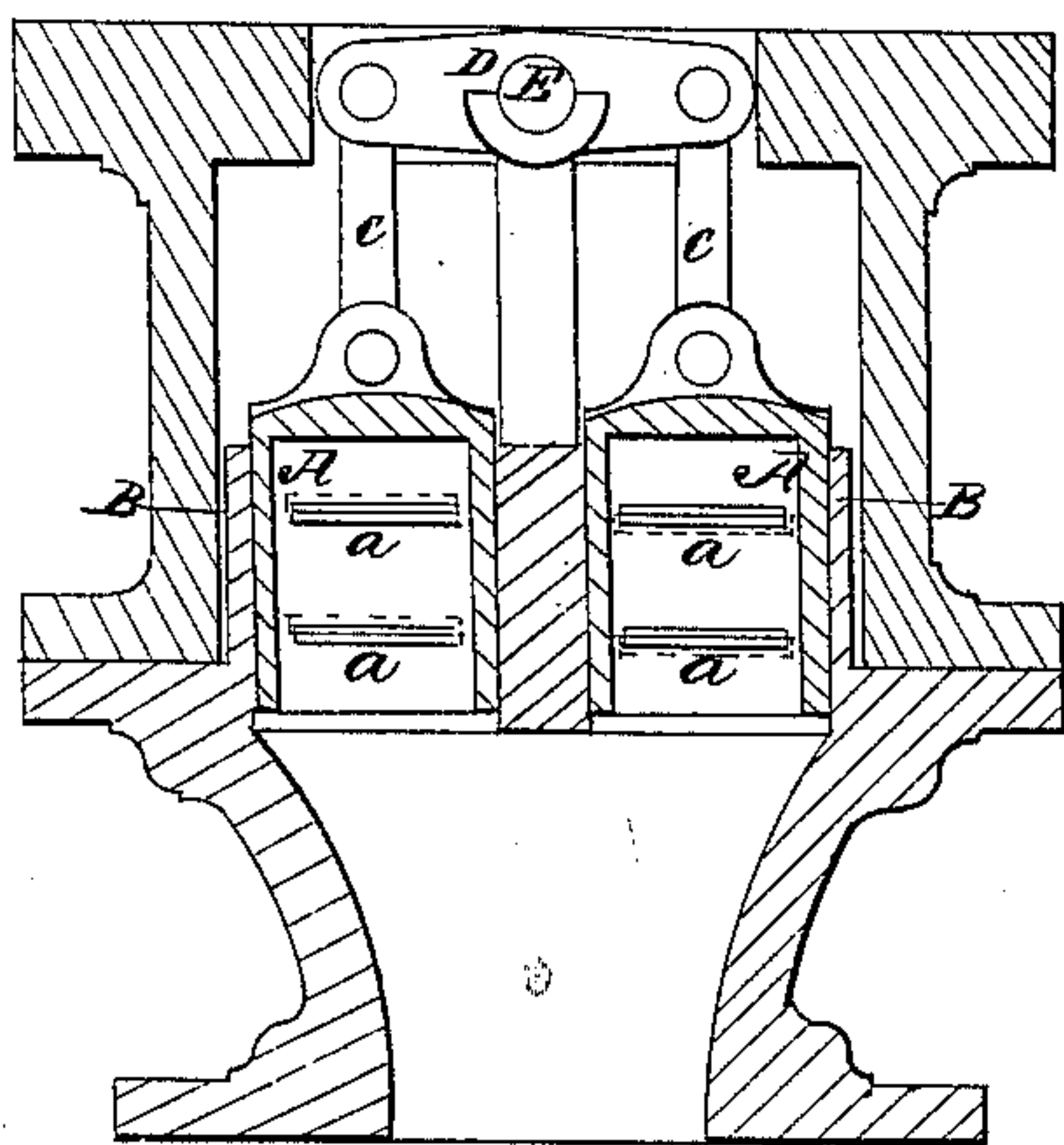
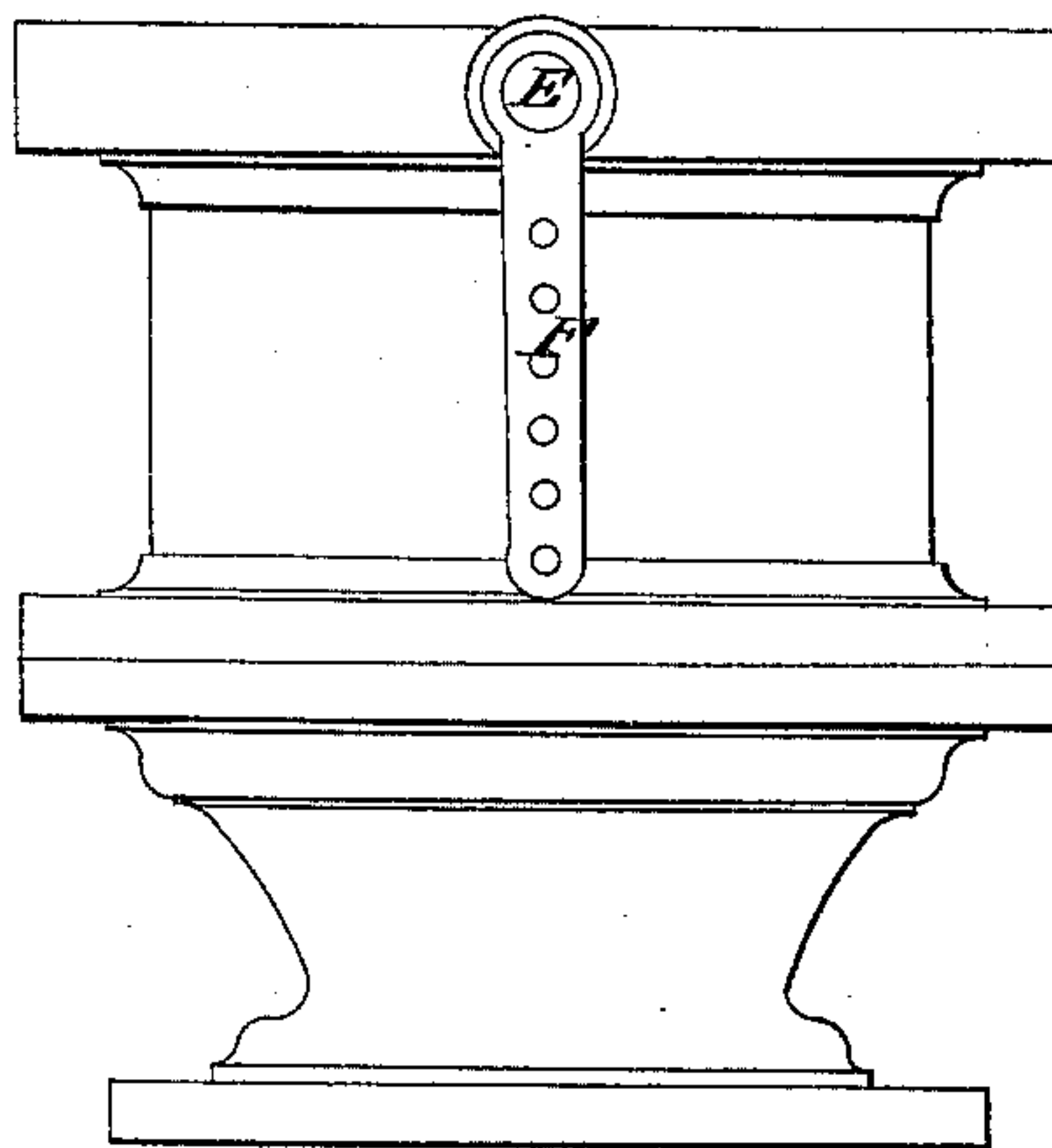


*J. E. Anderson,*  
*Steam Throttle Valve.*  
*No 10,083.* *Patented Oct. 4, 1853.*

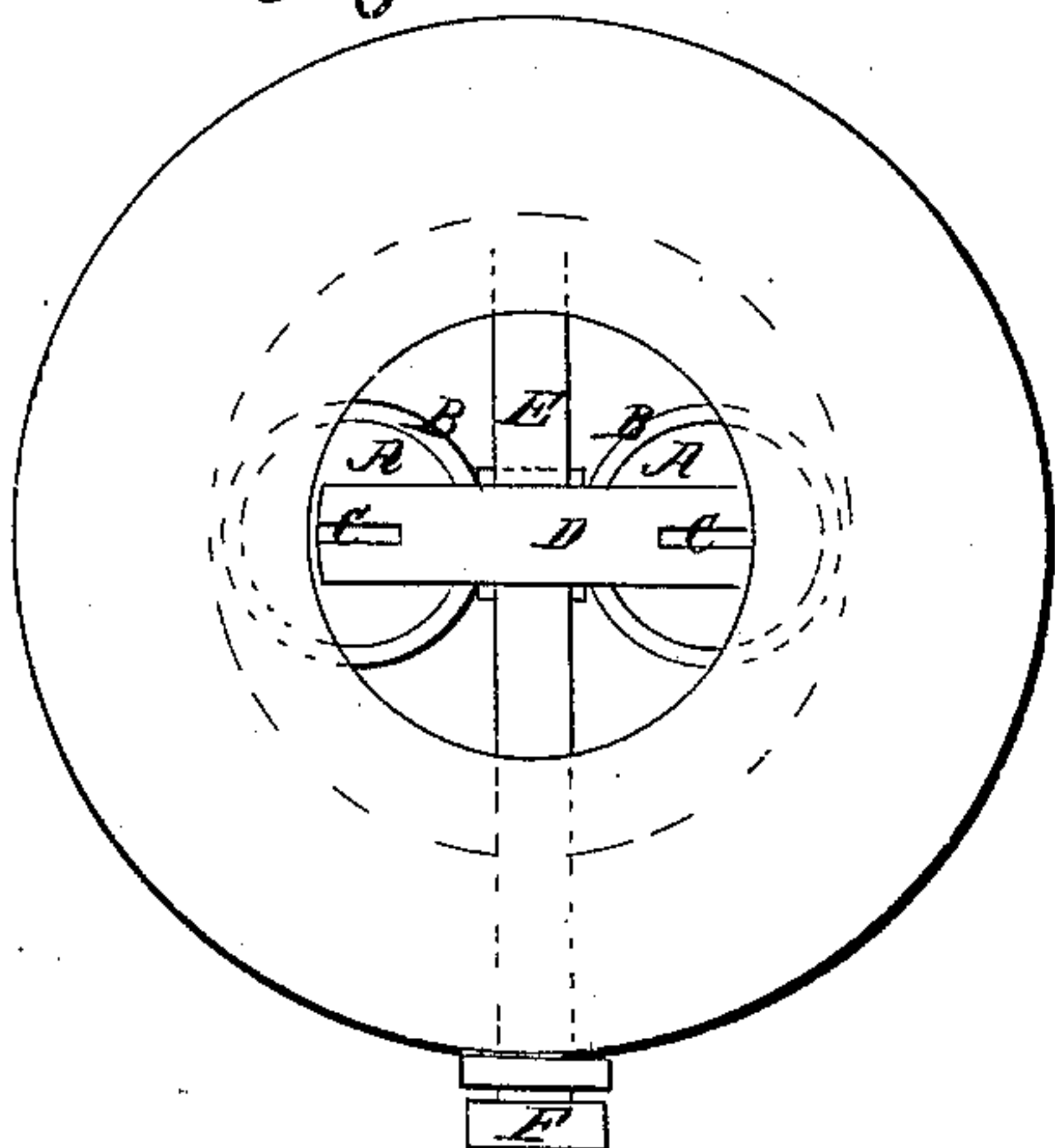
*Fig: 1.*



*Fig: 3.*



*Fig: 2.*



# UNITED STATES PATENT OFFICE.

JOHN E. ANDERSON, OF NEW YORK, N. Y.

## THROTTLE-VALVE ARRANGEMENT.

Specification of Letters Patent No. 10,083, dated October 4, 1853.

*To all whom it may concern:*

Be it known that I, JOHN E. ANDERSON, of the city, county, and State of New York, have invented certain new and useful Improvements in Balance Throttle or Regulator Valves for Steam-Engines and other Engines of a Similar Nature; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a section of the box, or part of the steam-pipe, which contains the valves, showing the valves as in operation. Fig. 2, is a top view of the same. Fig. 3, is an outside view of the same, showing the valve spindle, and the lever through which the governor acts upon the valves.

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

The nature of this invention consists in the employment, as a throttle or regulator, in connection with a governor, of two cylindrical valves, constructed, arranged, and operating, in such a manner, as hereinafter described, that they will at all times balance each other perfectly, and that their effect upon the engine will be varied by an extremely slight movement.

The object of the invention is, to produce a valve which will work with very little friction, which will wear correctly for a long time, and which will be very sensitive to the slightest changes in the operation of the governor.

The valves, A, A, are in the form of hollow cylinders, closed at one end, and open at the other; they are of equal size, and are placed side by side in two open cylinders, B, B, in which they are fitted to work easily; the said cylinders being placed longitudinally in the steam-pipe, and the space all around them closed up. The valves are connected by links, C, C, to opposite ends of a short lever, D, whose fulcrum is a spindle, E, which passes transversely through the steam-pipe, and carries, outside the said steam-pipe, the lever, F, which connects with the governor. The lever, D, is firmly secured to the spindle, E. The connections of the valves are at equal distances from the

fulcrum, so that both must have the same motion. Through the sides of each valve, are made any suitable number of passages, *a, a*, (see Fig. 1,) which are in the form of narrow slots, extending around any portion of the valve; a similar number of slots of similar width being made in the cylinders, B, B, in which the valves are fitted. The slots are so arranged that all those in the valve will be opposite those in the cylinder at the same time; and when such is the case, there is a free communication through the steam-pipe. The area of the opening is contracted, by moving the valve in either direction from this position; and the communication is closed altogether, by bringing the slots in the valve opposite the spaces between the slots in the cylinder. The slots in the two cylinders and valves are severally so arranged that both valves would be wide open, or quite closed, at the same time; and that both would present the same area of opening at all times. The governor operates upon the lever, F, in a similar manner to that in which it acts upon the lever of any other valve; and the movement of the said lever varies the openings of the valves, or closes them entirely. By connecting the governor at a proper distance from the fulcrum, E, or valve-spindle, a proper movement may be given to the valves, to produce the required variation in the openings.

The simplest way of constructing the valve-seat is to cast the cylinders, B, B, with a short length of pipe, which will constitute a valve-box. The only fitting-up required will then be the boring of the cylinders, and the turning of the valves to fit them. The slots may be made so narrow that they would close and open to their full width with the smallest desired amount of motion. On account of the small amount of motion that is necessary, the wear of the valves will be very slight. If slots, *a, a*, are made on opposite sides of the valves and cylinders, they will be perfectly balanced in all directions; one balancing the other, and the steam acting equally on all sides of each: thus the friction on every part of the wearing surfaces will be the same; and the movement being the same, the wear will be equal.



What I claim as my invention, and desire to secure by Letters-Patent, is,

The combination, to serve the purpose of a throttle valve or regulator, of two hollow  
5 cylindrical valves, A, A, connected with a lever, D, on opposite sides of its fulcrum, and having slotted openings, *a*, *a*, corresponding with similar openings in the cy-

lindrical valve seats, B, B; the several open- 10  
ings being arranged in the manner as substantially set forth.

JOHN E. ANDERSON.

Witnesses:

S. H. WALES,

S. F. COHEN.