(No Model.) 2 Sheets—Sheet 1.

E. LESLIE.

THROTTLE VALVE.

No. 434,796. Patented Aug. 19, 1890.

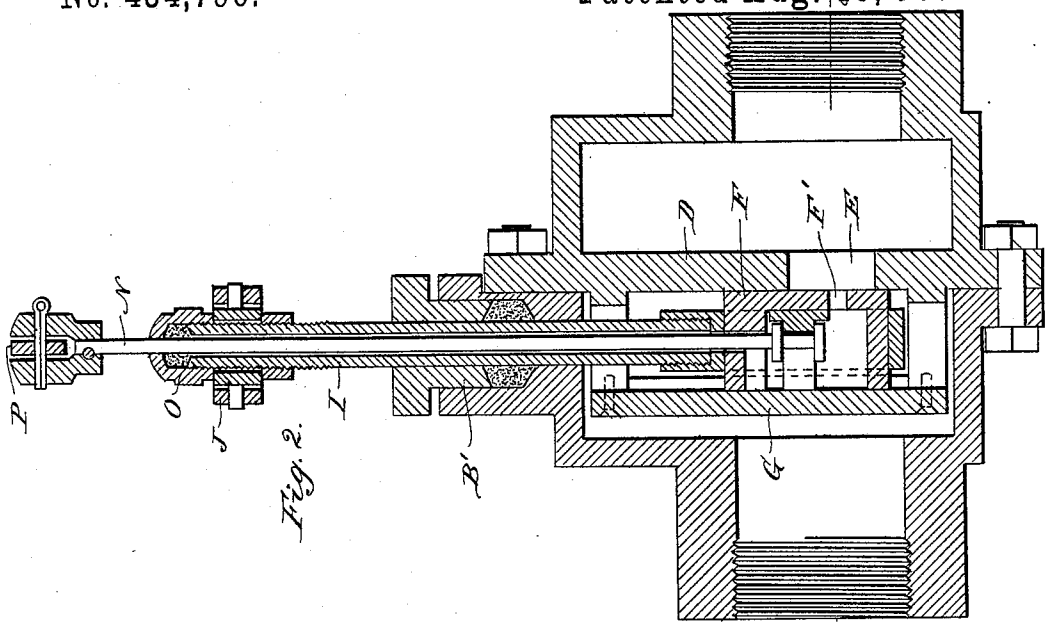


Fig. 2.

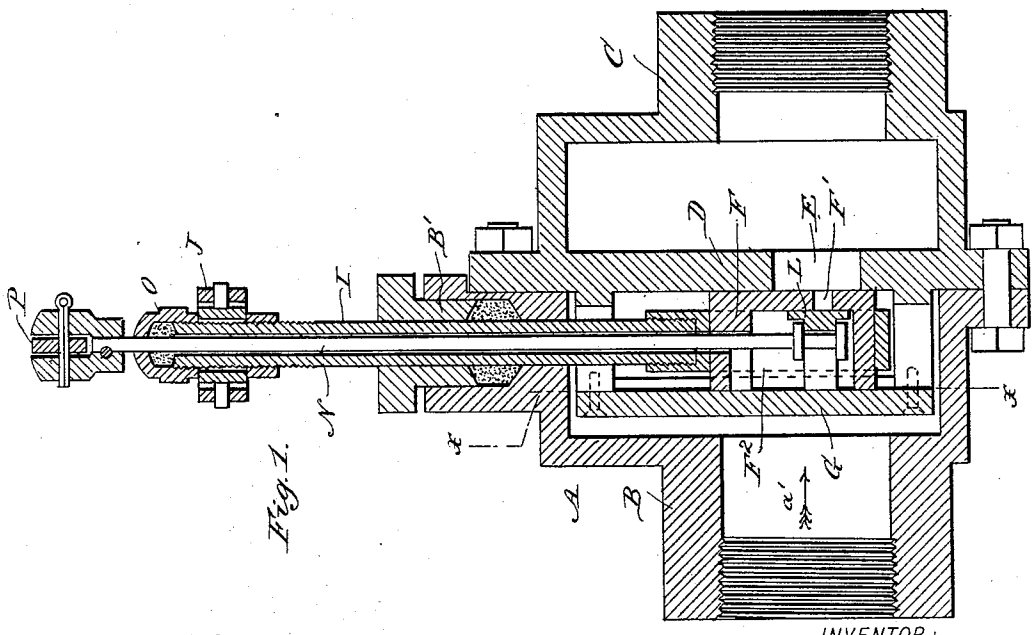


Fig. 1.

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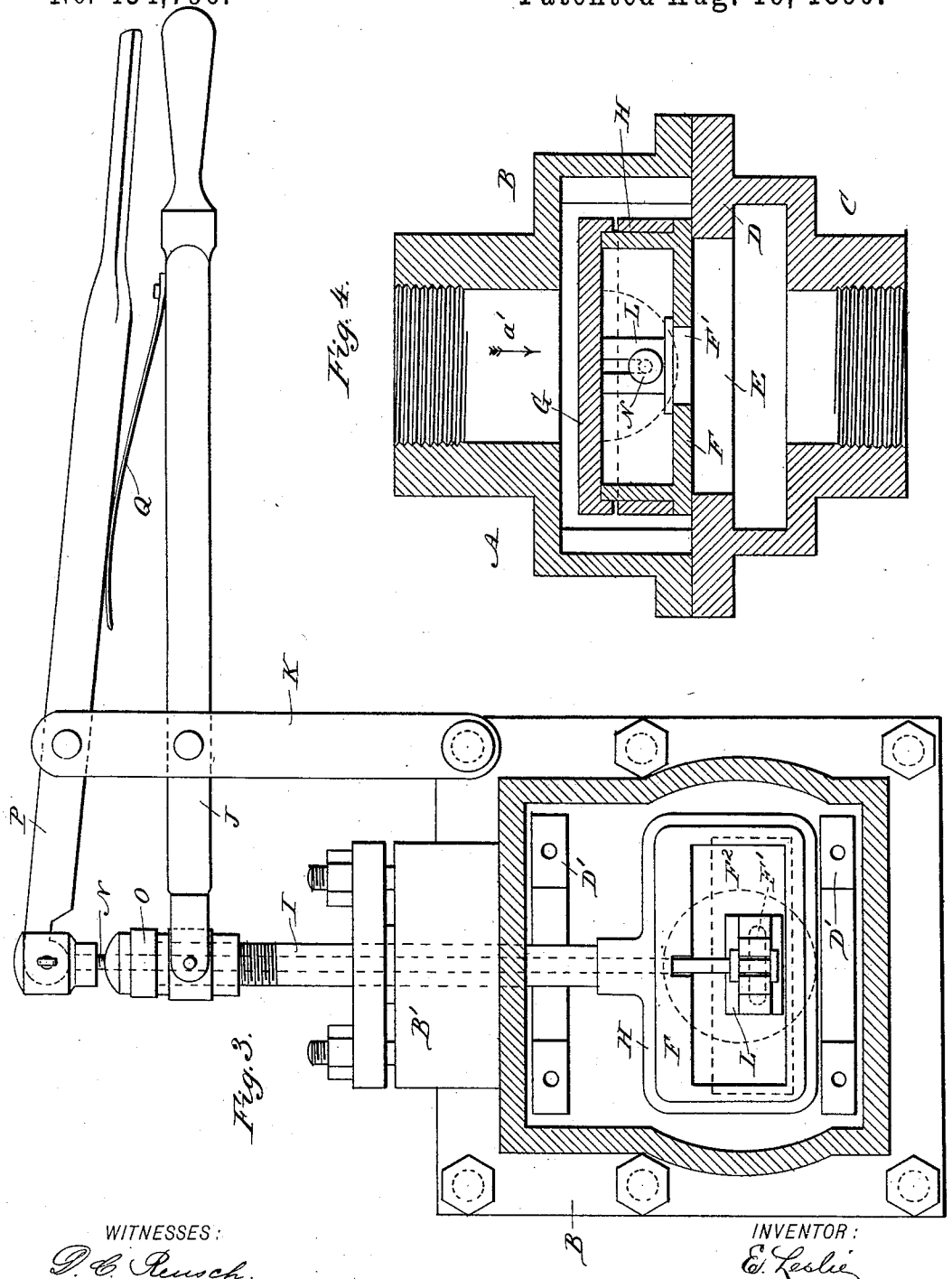
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

E. LESLIE.

THROTTLE VALVE.

No. 434,796. Patented Aug. 19, 1890.



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UNITED STATES PATENT OFFICE.

EDWARD LESLIE, OF ORANGEVILLE, ONTARIO, CANADA, ASSIGNOR TO THE LESLIE BROTHERS MANUFACTURING COMPANY, OF PATERSON, NEW JERSEY.

THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 434,796, dated August 19, 1890.

Application filed August 20, 1889. Serial No. 321,341. (No model.)

To all whom it may concern:

Be it known that I, EDWARD LESLIE, of Orangeville, county of Dufferin, Province of Ontario, Dominion of Canada, have invented a new and Improved Throttle-Valve, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved throttle-valve which is simple and durable in construction and arranged to hold the gate locked on its seat by the full boiler-pressure, and arranged to relieve the gate of full boiler-pressure at the time the operator desires to open the valve.

The invention consists in certain parts and details and combinations of the same, as will be described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement, showing the gate and the auxiliary valve closed. Fig. 2 is a like view of the same, showing the gate closed and the auxiliary valve open. Fig. 3 is a transverse section of the improvement on the line $x\,x$ of Fig. 1, and Fig. 4 is an inverted plan view of the improvement on the line $y\,y$ of Fig. 2.

The improved throttle-valve is provided with a valve-body A, made in two parts B and C, of which the former is connected in the usual manner with the steam-supply, and the latter is provided with a suitable outlet to carry off the steam to its destination. In the part C is arranged a transverse partition D, provided with the usual openings E, adapted to be opened and closed by the gate F, seated on the partition D, and having its open back resting against the plate G, secured on suitable posts D′ projection from the partition D.

The gate F is provided with a yoke H, secured on a hollow stem I, passing through a stuffing-box B′ on the part B and pivotally connected near its outer end with one end of a lever J, provided on its other end with the usual handle adapted to be taken hold of by the operator. The lever J is fulcrumed on a bracket K, pivoted on the valve-body A.

In the gate F is arranged a port F′, adapted to be opened and closed by an auxiliary valve L, held to slide in the cavity F^2 of the said gate F and seated on the said gate, its outer end resting against the plate G. The auxiliary valve L is held on the end of a rod N passing through the hollow stem I and through a stuffing-box O, held on the outer end of the said stem I. The outer end of the rod N is pivotally connected with a lever P, fulcrumed on the bracket K and extending in line with the lever J. A spring Q is fastened on the lever J, its free end pressing against the said lever P, so that the latter holds the rod N down in order to keep the auxiliary valve L over the port F′ until moved by the operator, as hereinafter more fully described.

The operation is as follows: When the gate F closes the opening E, as shown in Fig. 1, the steam coming in the direction of the arrow a' presses against the said gate and holds the same closed and locked by the full boiler-pressure, so that considerable power would be required by the operator to move the lever J in order to open said gate. In order to enable the operator to open the gate easily, he first presses on the lever J, so as to move the rod N outward, thereby drawing the auxiliary valve L from over the port F′, whereby the steam in the cavity F^2 of the gate F can pass through the opening E into the valve-body part C, so that the pressure on the inside of the said gate F is taken off, and consequently the gate F is balanced, the pressure inside of the cavity F^2 and the pressure against that part of the gate exposed through the opening E being equal. When the operator now moves the lever J downward, the gate F is easily drawn upward, so as to uncover the opening E, and steam from the body part B can pass through the opening E to the body part C and to its destination. By the special arrangement of the levers J and P, being placed in line with each other, the operator is enabled to take hold of both levers with one hand, and in commencing the operation the operator closes his hand, so that the lever P moves, while the lever J is held stationary by the gate F being locked in place by the full boiler-pressure. As soon

as the valve L has shifted and the gate F is unlocked, then the operator can move the lever J with his hand, at the same time holding the lever P and moving the latter with it, so that the valve L remains disconnected from the port F′ until the gate is again closed. It is understood that the operator, having hold of the lever J, still holds the lever P close to the said lever, so as to keep the auxiliary valve L off the port F′. When the operator desires to close the opening E, he moves both levers upward, so that the gate F slides downward over the opening E, and by then releasing the two levers the spring Q forces the lever P to its former position, so that the auxiliary valve L closes the port F′. It is understood that the pressure in the cavity F^2 of the gate F is the same as the boiler-pressure, as the steam leaks past the plate G into the said cavity; but when the auxiliary valve L is opened the steam cannot leak quick enough into the said cavity when the latter is emptied, as before described, so that the gate F is balanced and can easily be moved upward to open the opening E. Thus it will be seen that as long as the gate F closes the opening E it is held on its seat over the said opening by the full boiler-pressure, and when the operator desires to open said gate F he first shifts the auxiliary valve L, so as to relieve the inside or cavity F^2 of the gate from the boiler-pressure, whereby the gate becomes balanced and is easily shifted on its seat.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a throttle-valve, the combination, with a movable gate formed with a closed recess and a port adapted to connect the said recess with the steam-inlet, of an auxiliary valve held to slide independently of the said gate in the said recess and adapted to connect and disconnect the interior of the said recess and the steam-inlet, substantially as shown and described.

2. In a throttle-valve, the combination, with a gate provided with a closed recess and a port leading therefrom, of an auxiliary valve seated in the said recess and operating over the said port, a lever for moving the said auxiliary valve, and a second lever for moving the said gate independently of the said auxiliary valve, substantially as shown and described.

3. In a throttle-valve, the combination, with a gate provided with a port, of an auxiliary valve seated on the said gate and operating over the said port, a lever for moving the said auxiliary valve, and a second lever for moving said gate, substantially as shown and described.

4. In a throttle-valve, the combination, with a valve-body provided with an apertured partition, of a gate seated on the said apertured partition and provided with a port, an auxiliary valve seated on the said gate and adapted to open and close said port, and a fixed plate held on the said valve-body and forming a cover for the said gate, substantially as shown and described.

5. In a throttle-valve, the combination, with a valve-body provided with an apertured partition, of a gate seated on the said apertured partition and provided with a port, an auxiliary valve seated on the said gate and adapted to open and close said port, a fixed plate held on the said valve-body and forming a cover for the said gate, a hollow valve-stem connected with the said gate and extending to the outside, and a rod carrying the said auxiliary valve and passing through the said hollow valve-stem, substantially as shown and described.

6. In a throttle-valve, the combination, with a valve-body provided with an apertured partition, of a gate seated on the said apertured partition and provided with a port, an auxiliary valve seated on the said gate and adapted to open and close said port, a fixed plate held on the said valve-body and forming a cover for the said gate extending to the outside, and a rod carrying the said auxiliary valve and passing through the said hollow valve-stem, and levers connected with the said stem and the said rod, substantially as shown and described.

EDWARD LESLIE.

Witnesses:
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