W. A. Robinson.

Steam Throttle Valve,

No. 84,710. Patented Dec. 8, 1868.

Fig. 3.

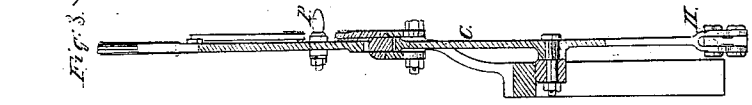

Fig. 4.

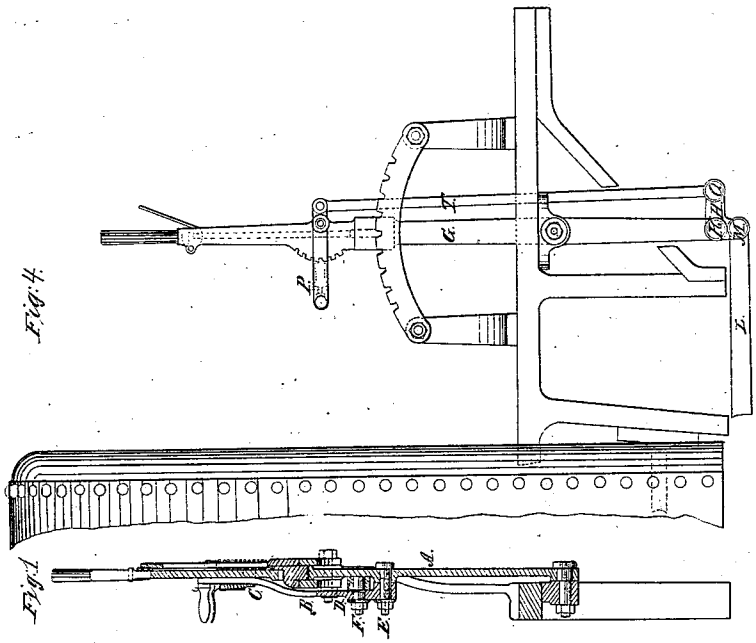

Fig. 1.

Fig. 2.

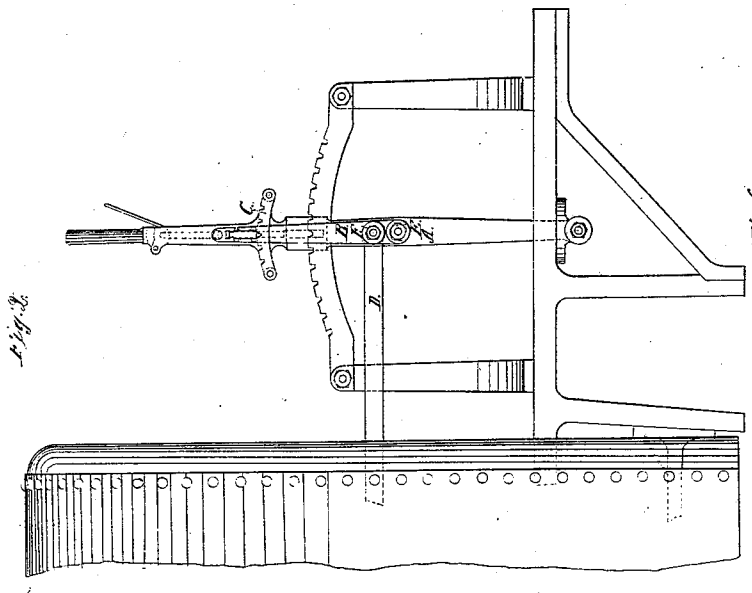

Fig. 6.

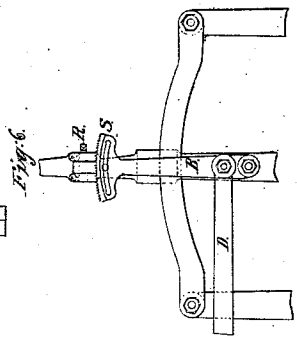

Fig. 5.

Witnesses:
J. Thain
W. H. Ward.

Inventor:
Wm. Robinson.

United States Patent Office.

WILLIAM ASPLEY ROBINSON, OF AUBURN, NEW YORK.

Letters Patent No. 84,710, *dated December* 8, 1868.

IMPROVEMENT IN STEAM-GRADUATOR.

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, WILLIAM ASPLEY ROBINSON, of Birmingham, England, but now in the city of Auburn, in the county of Cayuga, and State of New York, have invented a new and useful Improvement for Locomotive and other Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, forming part of this specification, in which—

Figure 1 represents a transverse section of Figure 2; and

Figure 3 represents a transverse section of Figure 4; and

Figure 5 represents a transverse section of Figure 6.

To the lever A, figs. 1 and 2, called the reversing-lever, is attached an additional lever, B, which is termed a graduator, and is supplied with a graduating-quadrant, C, and connected in such a manner with the reversing-lever A at joint E, and its connecting-rod D at joint F, that the smallest movement of the rod D, by means of the reversing-lever A, can be subdivided into a lesser movement to any required degree, by means of the said graduator B.

The applications of this gaaduator are various, as will be seen at figs. 3 and 4, when compared with figs. 1 and 2. For example, the connecting-rod L, fig. 4, may be connected to the reversing-lever G, by means of an elbow-lever, H, working on pivot K, which is also termed a graduator, and is affixed to the lower end of the reversing-lever G, and operated upon by means of the connecting-rod T, from handle P, through the connecting-joints O and M.

The same result may be obtained by different modifications of the same invention, one of which is shown in figs. 5 and 6, where a similar description of graduator B, to that shown in figs. 1 and 2, is made to move by means of a worm-screw, R, and toothed quadrant S, formed upon the upper portion of the graduator B, giving corresponding results, as in the heretofore-described arrangements.

In the application of the graduator to old engines, the quadrant C may be so made as to be separate, or affixed to the reversing-levers, at pleasure.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent, is—

The arrangement of the graduating-lever B with the reversing-lever A, quadrant C, and joint E, as shown and described.

W. A. ROBINSON.

Witnesses:
N. STARIN,
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