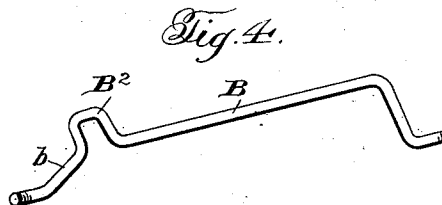
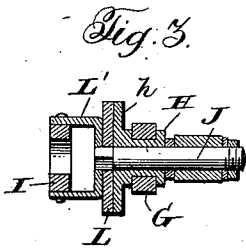
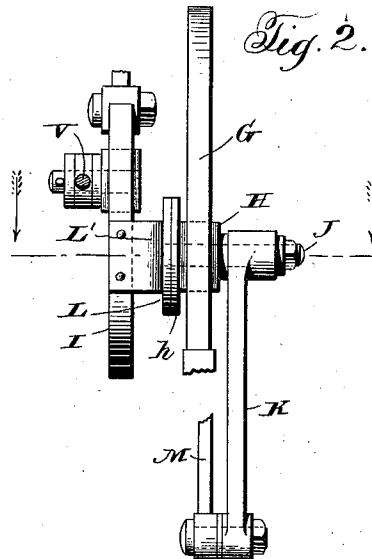
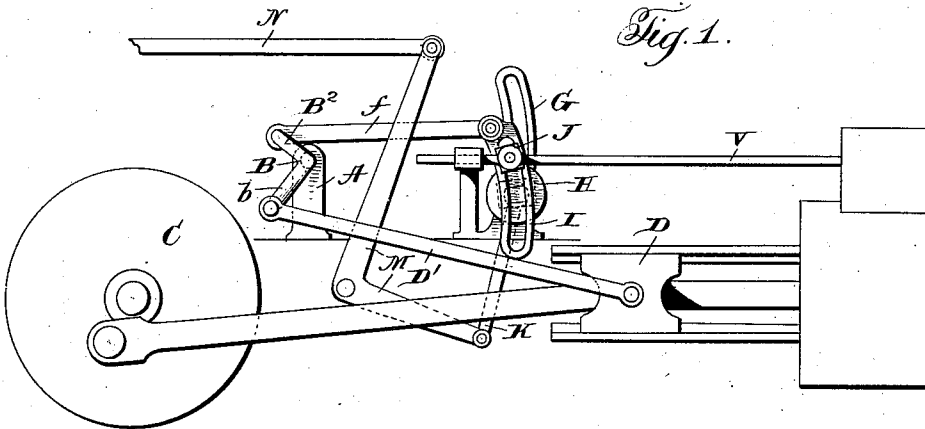


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VALVE GEAR.

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1,012,711.

Patented Dec. 26, 1911.



Witnesses:

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CHARLES B. ROSS, OF GREENLEAF, KANSAS.

VALVE-GEAR.

1,012,711.

Specification of Letters Patent.

Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, CHARLES B. ROSS, a citizen of the United States, residing at Greenleaf, in the county of Washington and State of Kansas, have invented certain new and useful Improvements in Valve-Gears, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in valve gears designed more particularly for use in connection with steam locomotives.

The invention generally speaking comprehends a construction wherein the valve rod is a continuous member, as distinguished from a jointed member.

15 The invention comprehends a construction for effecting an easy, proper and accurate adjustment of the parts with a minimum number of jointed link connections and positive guiding members for effecting the proper adjustment for advance and reverse movement of the engine.

20 In the accompanying drawings I have shown the invention in a preferred form, but desire it understood that many modifications and changes can be made without departing from the nature and principle of the invention.

30 Figure 1 is a side elevation of the gearing, Fig. 2 is an elevation looking from the front, Fig. 3 is a detail section through the link coupling, and Fig. 4 is a detail view of the actuating shaft.

35 Mounted on a suitable part of the frame in bearings A is a crank shaft B. This shaft is rotated in unison with the main driving wheel C of the engine, receiving its motion through the cross head D and link D', which latter link is connected to the arm b of the said crank shaft. Connected with the crank B² of the shaft B is the link f carrying on its outer end a slotted link I of the usual construction.

40 With this link I is engaged a head block J, the same moving in the curved guiding slot of the link. The head block J is pivotally connected with the valve rod V so that the movement of the link causes the reciprocating movement of the valve rod in a well known manner. Mounted on a stationary part of the frame is a stationary guide G having a curved track or way therein in which a head block H is positioned. This head block is of any desired or preferred form and carries on its outer end part a

disk h. Through the head block and its associate disk is passed a shaft J, being rigidly connected at one end to a corresponding or associate disk L, which in turn is fixed to a U-shaped clip L', the opposite arms of which are rigidly connected to the slotted link I at or about the center thereof. To the opposite end of the shaft J is connected the lifting lever link K, which latter is controlled by a bell crank M pivoted in any convenient manner to a fixed part of the frame and having its upper end connected to an actuating bar N, this latter being actuated in turn by the usual reverse lever located in the cab of the engine.

45 In operation the fixed curved guide G serving as a fulcrum point by elevating or depressing the link I is changed to effect the forward or backward movement of the engine by the governing of the valve. The special coupling connection between the adjustable link and the head block of the fixed guide is such that the parts are held properly in their relative positions by permitting an easy and effective adjustment to any points of cut off or to a neutral point. The action of the valve gear is as will be observed, controllable through the movement of the drive wheel and the head block without the necessity of the employment of eccentrics which are now largely resorted to, and it has been ascertained that the arrangement and construction results in a very effective valve gear, one having a relatively few number of parts. As above suggested, the mechanism serves also to permit the use of a single or continuous valve rod, as distinguished from a pivoted or jointed type. The valve is rendered stationary when the gearing is at a central position and it can be quickly shifted from one position to another and owing to the simplicity of the construction the gearing is rendered less liable to breakage or disarrangement, thus reducing shop expense and the liability of accidents.

Having thus described the invention, what is claimed is:—

1. In a valve gearing of the character described, the combination of a stationary guide member, a head block slidably supported thereon, a link member pivotally connected to the head block, a disk member on the head block, a second disk member connected for movement with the link member and bearing against the first named disk

member, a valve rod, a pivotal connection between the same and the link member and means for actuating the link member.

5 2. In a valve gear of the character described, the combination with a stationary guide member, a slide thereon, a U-shaped clip, a pivoted link member fixedly secured within said clip, a pivotal connection between the clip and said slide, a valve rod
10 actuated by the link, and means for actuating the link member.

3. In a locomotive valve gear, the combination of a rotary shaft mounted on the locomotive intermediate its driven axle and
15 power cylinders and above the cross heads, said shaft being provided with a plurality

of cranks, a link connection between one of said cranks and a cross head of the engine, a pivoted link member having a connection with a crank on said shaft, a guide fixedly 20 secured on the engine frame intermediate said shaft and the engine cylinders, a slide on the guide, a pivoted connection between said slide and said last mentioned pivoted link, a valve rod, and a pivotal connection 25 between the rod and the last mentioned link.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES B. ROSS.

Witnesses:

B. H. SHAW,

A. H. TEGILER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."