J. B. KINGAN & H. F. RIPKEN.

DEVICE FOR VALVE GEAR.

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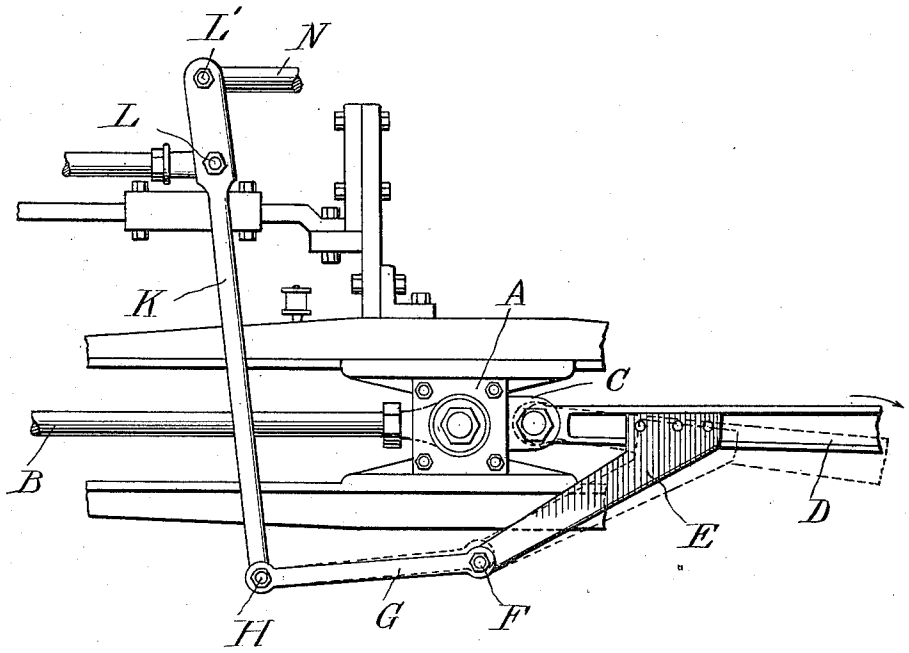
1,023,520. Patented Apr. 16, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES B. KINGAN AND HUGO F. RIPKEN, OF MINNEAPOLIS, MINNESOTA.

DEVICE FOR VALVE-GEAR.

1,023,520. Specification of Letters Patent. Patented Apr. 16, 1912.

Application filed November 2, 1911. Serial No. 658,258. REISSUED.

To all whom it may concern:

Be it known that we, JAMES B. KINGAN and HUGO F. RIPKEN, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Devices for Valve-Gear; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in valve gear driven apparatus for locomotive engines, etc., and comprises a simple and efficient device of this nature whereby the action of the valve controlling the flow of steam to the cylinders may be such as to afford a more powerful distribution of the steam at such moments as it may be needed.

Our invention comprises various details of construction and combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawing and then specifically defined in the appended claim.

We illustrate our invention in the accompanying drawing in which we have shown a plan view of our valve actuating mechanism.

Reference now being had to the details of the drawing by letter, A designates the usual cross-head to which the piston rod B is pivoted, said cross-head having a lug C projecting therefrom and to which the pitman D is pivoted. An arm E is fastened to said pitman, preferably at an inclination, and is pivotally connected at F to a link G which in turn is pivotally connected at H to a lever K. Said lever K is pivotally connected upon a pivot L and is pivotally connected at L′ with the radius bar N which controls the valves of the steam chest, not shown.

In operation, it will be noted that, when the piston and cross-head are at the beginning of their stroke and the connecting rod in a horizontal position, the arm E will have a swinging or oscillating movement at its forward or bottom end, which will be produced by the oscillatory movement of the connecting rod or pitman D. This movement causes the lower end of the lever K to be held in a stationary position for a moment, just as the piston begins its stroke, thus allowing the radius rod N to open the steam port substantially 15% greater than would have been the case if the pivotal connections between the radius rod and lever K had been with the cross-head. By this movement, a much more powerful distribution of the steam is effected at such time when it is needed the most.

By the provision of an apparatus as shown and described, the tendency is to delay the operation, which is commonly known to mechanics as pre-admission, thus reducing the compression to a minimum when the engine is working at full stroke and at the same time allow for increased port opening at all points cut off.

What we claim to be new is:—

A valve gear regulating apparatus for locomotives, etc., comprising, in combination with a cross head, a frame in which the same reciprocates, a piston pivoted to the cross head, a lug projecting from the latter, a pitman pivotally connected to said lug, a plate fastened to the pitman and having a forwardly inclined integral arm projecting over one end of the cross head and frame, a lever, a radius rod to which one end is connected, pivotal link connections between the opposite end of the lever and said arm, and a rod pivotally connected to the lever intermediate its ends, as set forth.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

JAMES B. KINGAN.
HUGO F. RIPKEN.

Witnesses:
F. H. PALMES,
D. G. CAMPBELL.

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