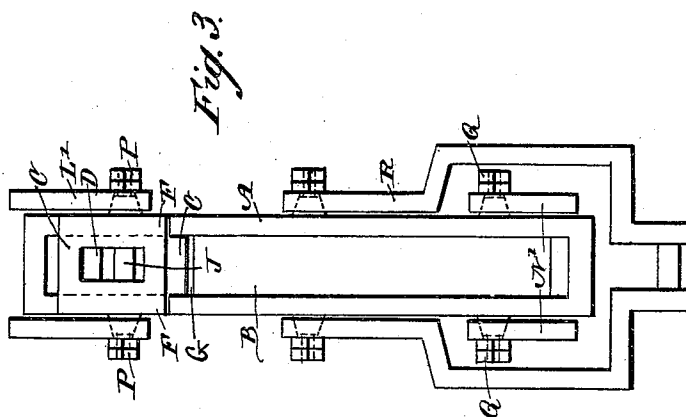
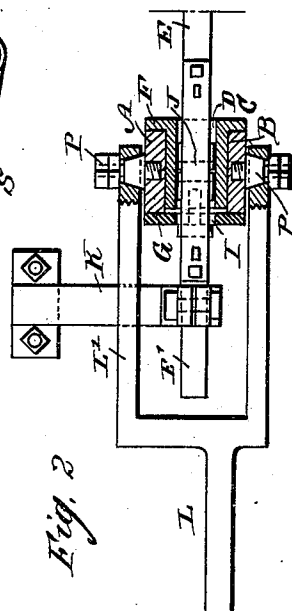
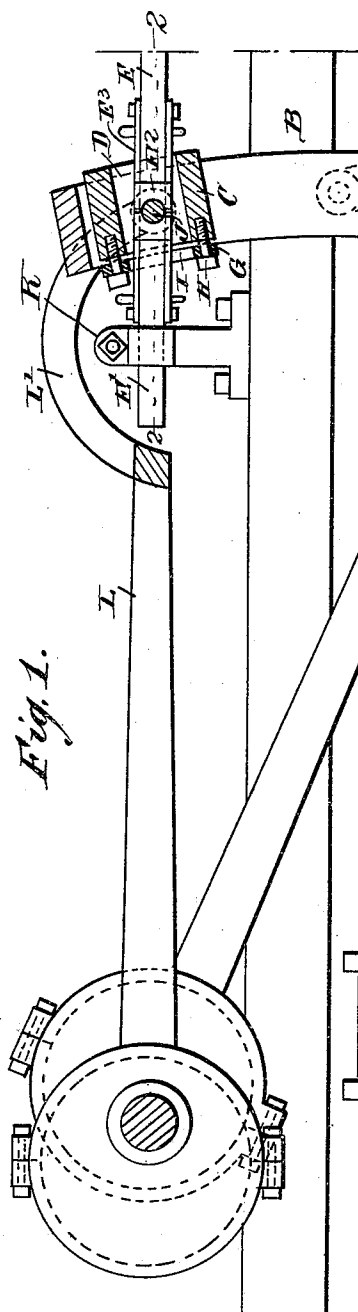


(No Model.)

W. A. WINN.
LINK VALVE GEAR.

No. 473,278.

Patented Apr. 19, 1892.



WITNESSES:

Donn Twitchell
C. Sedgwick

INVENTOR:

W. A. Winn
BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM A. WINN, OF WHITE HALL, ILLINOIS.

LINK VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 473,278, dated April 19, 1892.

Application filed January 13, 1892. Serial No. 417,934. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. WINN, of White Hall, in the county of Greene and State of Illinois, have invented a new and Improved Link Valve-Gear, of which the following is a full, clear, and exact description.

The invention relates to link valve-gears, such as shown and described in the Letters Patent of the United States No. 453,018, granted to me November 10, 1891.

The object of the invention is to provide a new and improved link valve-gear, which permits of a bearing for the outer end of the valve-stem to prevent binding of the block in the link, at the same time permitting the shifting of the link with greater ease.

The invention consists of a block formed with a longitudinal opening for the passage of the valve-stem.

The invention further consists of a valve-stem pivotally connected with the sliding block and extending through the same and a bearing on the outer or projecting end of the valve-stem.

The invention also consists of certain parts and details and combinations of the same, as will be fully 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 side elevation of the improvement with parts in section. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1; and Fig. 3 is an end view of the improvement with the valve-stem omitted.

The improved link valve-gear is provided with a link A, formed with a longitudinally-extending slot B, in which is fitted to slide a block C, formed with a central opening D, through which passes the valve-stem E. On the front end of the block C and on the sides thereof are formed flanges F, engaging the outer curved edges of the link A, and the rear end of the said block supports a cap-plate G, fastened by screws H to the top and bottom of the block C, as is plainly shown in Fig. 1. The cap-plate G is formed with a longitudinal opening I, through which passes the extended end E' of the valve-stem E. The

latter is pivotally connected with a pivot-pin J, extending transversely in the block C, the ends of the said pivot-pin being fastened in the sides of the block, and the pin itself extends about in the middle of the opening D.

In order to attach the valve-stem E on the pivot-pin J, the extension E' is preferably made a separate piece and carries one-half of the box E², made in two pieces and held in place by the usual straps E³, keyed or bolted to the stem E and its extension E', as is plainly shown in the drawings. It will be understood, however, that the extension E' may be integral with the main body of the valve-stem and that but one strap E³ may be employed for connecting the parts of the box E². The extreme outer end of the extension E' is fitted to slide longitudinally in a bearing K, supported from the frame of the locomotive or other machine on which the device is applied. The link A is pivotally connected at its upper or lower end with the forked ends L' and N' of the eccentric-rods L and N, connected in the usual manner with the driving-eccentrics. The pivots P and Q for the forked ends L' and N' are of the same construction as those shown in the patent above referred to and further description is deemed unnecessary. The forked ends L' and N' are, however, curved upward and downward, respectively, as is plainly shown in Fig. 1, so that the forked ends clear the bearing K and the extension E' of the stem E when the link A is shifted in an uppermost or lowermost position. The link A is pivotally connected near its middle by the usual levers R with an arm S, connected with the usual reversing mechanism under the control of the engineer. The engineer by manipulating the usual lever causes a swinging of the arm S, so that the link A is raised or lowered to change the position of the block C above, below, or at the pivots of the link A. It will be seen that by this construction the valve-stem E is free to pass through the sliding block C and the outer end of the said valve-stem is fitted into a bearing to support the valve-stem, thus permitting an easy sliding motion of the stem without binding in its bearings in the stuffing-box and in the steam-chest, and also prevents binding of the block C in the link A.

when the latter is shifted up or down on reversing the engine or moving the block into a position of rest.

It will be seen that the wear of the several parts can be readily taken up, thus preventing lost motion and at the same time reducing friction to a minimum.

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

1. A link valve-gear provided with a sliding block formed with a longitudinal opening for the passage of the valve-stem, substantially as shown and described.

2. A link valve-gear provided with a valve-stem pivotally connected with the sliding block and extending through the same and a bearing on the outer or projecting end of the valve-stem, substantially as shown and described.

3. In a link valve-gear, the combination, with a link having a longitudinal slot, of a block fitted to slide therein and formed with a longitudinally-extending opening for the passage of the valve-stem, substantially as shown and described.

4. In a link valve-gear, the combination, with a link having a longitudinal slot, of a block fitted to slide in the said link and a valve-stem pivotally connected with the said block and passing through its longitudinal opening, substantially as shown and described.

5. In a link valve-gear, the combination, with a link having a longitudinal slot, of a block fitted to slide in the said link, a valve-stem pivotally connected with the said block and passing through its longitudinal opening, and a bearing engaging the outer or projecting end of the said valve-stem, substantially as shown and described.

6. In a link valve-gear, the combination, with a link formed with a longitudinally-extending slot, of a block fitted to slide in the said link and provided with a longitudinally-extending opening and flanges at its front end, and a cap-plate having a longitudinally-extending opening and secured to the said block and its rear end, the sides of the plate engaging the rear edges of the link, substantially as shown and described.

7. In a link valve-gear, the combination, with a sliding block formed with a longitudinal opening and a pivot-pin extending through the said opening and fastened in the sides of the block, of a valve-stem or extension for the said valve-stem, bearing-blocks held in the said extension and stem and engaging the said pin, and a plate for fastening the extension to the stem and holding the bearing-blocks in place, substantially as shown and described.

WM. A. WINN.

Witnesses:

FRANCIS FOWLER,
CHARLES H. BLACK.