(No Model.)

J. W. PHILLIPS.

REVERSING VALVE GEAR.

No. 510,988 Patented Dec. 19, 1893.

Fig. 1.

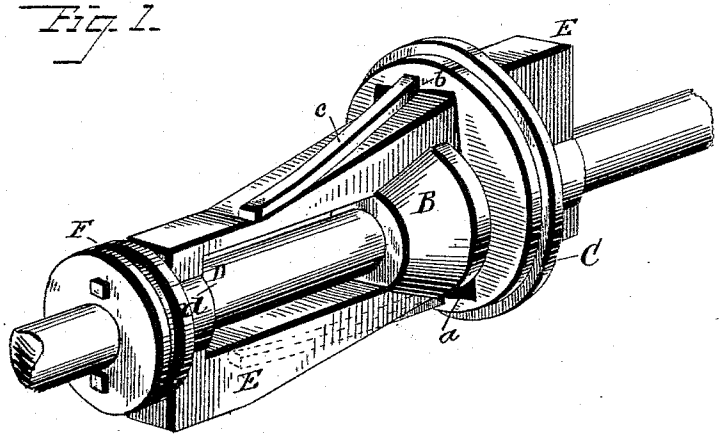


Fig. 2.

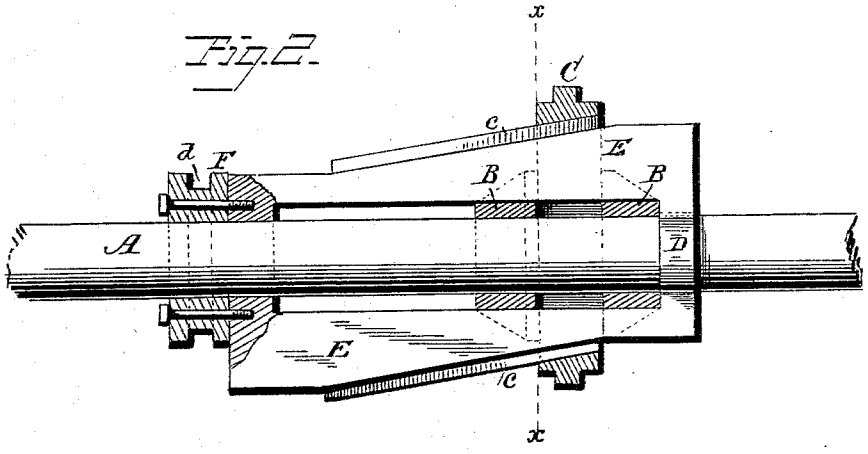
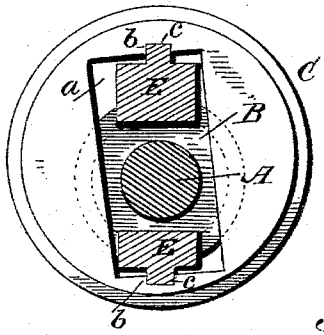


Fig. 3.



Witnesses
C. J. Williamson.
Wm. P. Green

Inventor
Jesse W. Phillips.
per Chas. H. Fowler
Attorney.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JESSE W. PHILLIPS, OF ROSE CREEK, MINNESOTA.

REVERSING VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 510,988, dated December 19, 1893.

Application filed May 17, 1893. Serial No. 474,553. (No model.)

To all whom it may concern:

Be it known that I, JESSE W. PHILLIPS, a citizen of the United States, residing at Rose Creek, in the county of Mower and State of Minnesota, have invented certain new and useful Improvements in Reversing Valve-Gear for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to that class of reversing valve-gear in which an eccentric is "thrown" from one side of the shaft to the other and thereby reverses the engine and causes the main shaft to turn in an opposite direction.

The invention consists in certain novel features of construction substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a perspective view of my improved valve-gear; Fig. 2 a longitudinal section thereof; Fig. 3 a transverse section taken on line *x x* of Fig. 2.

In the accompanying drawings A represents the main shaft of the engine to which are rigidly attached the collars B at such a distance apart as will permit the eccentric C to move freely across the shaft and at the same time prevent any longitudinal movement along the same.

Loose collars D are provided to which are attached or formed suitable wedges E as preferred, the wedges when separate from the collars being attached thereto by bolts or other suitable and well known means. The wedges when in place are diametrically opposite and in the reverse order to each other with relation to the shaft. To one end of the wedges is secured the grooved collar F for operating or moving the wedges through the eccentric through the medium of the usual forked lever, which being a well known device is not shown in the drawings. The eccentric is provided with an opening *a* which extends diametrically across and through which the wedges and the shaft pass, and at each end of the opening is a groove *b* diagonal to the shaft and to each other, and into the grooves slide the feathers *c* which are on the inclined faces of the wedges. The outer faces of the feathers *c*, which are central with the groove of the eccentric, are parallel and consequently are always in contact with the eccentric during any part of their movement. As the wedges are placed loosely upon the shaft, it is necessary that they should turn with it to keep the eccentric in relative position thereto, which is accomplished by causing the wedges to be guided in the slots in the collars D, said collars being rigid with the shaft, and has a groove around its periphery. Rotary motion is conveyed from the shaft to the eccentric by means of the collars D, wedges E, and the diagonal feathers *c*, the latter engaging the groove in the eccentric.

As will be readily understood, the transmission of the rotary movement of the shaft to the eccentric does not interfere with the longitudinal movement of the wedges and the transverse movement of the eccentric.

In the operation of the invention, the eccentric as shown in the drawings, is in position for causing the engine to operate the shaft in one direction, say in a forward direction. Now by applying power to the collar F through the medium of any well known mechanism, the wedges will move along the shaft and their inclination will cause the eccentric to move across the shaft to the opposite side to reverse the engine or to that position where the faces of the wedges are at an equal distance from the center of the shaft, when the eccentric will be eccentric therewith and the engine will stop.

If the wedges alone were used to shift the eccentric, it would have to move straight across the shaft and be set at a right angle to the crank, which would not give lead to the valve. To overcome this defect the diagonal feathers are employed which operate in the diagonal slots of the eccentric as previously described, and upon the eccentric being shifted across the shaft by the wedges, also give an advance movement or lead to the same in either direction in which the eccentric is shifted.

Having now fully described my invention,

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

1. The combination of the movable eccentric with the wedges, the collars for guiding the wedges and the eccentric, and means connected to the wedges to give lead to the eccentric, substantially as and for the purpose set forth.

2. The combination with the movable eccentric, of the wedges provided with the diagonal feathers and engaging with the diagonal grooves in the eccentric, substantially as and for the purpose described.

3. In combination with the movable eccentric, of the wedges provided with the diagonal feathers which engage with diagonal grooves of the eccentric, and the collars for guiding the wedges and eccentric, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JESSE W. PHILLIPS.

Witnesses:
F. G. RAY,
W. S. WILLIS.