

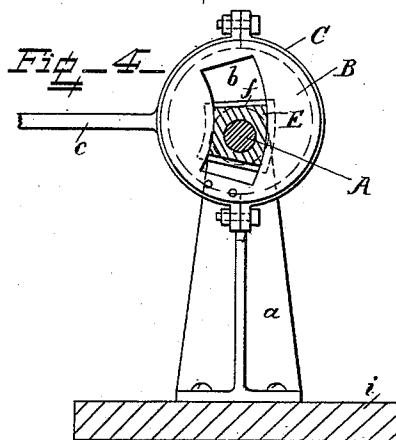
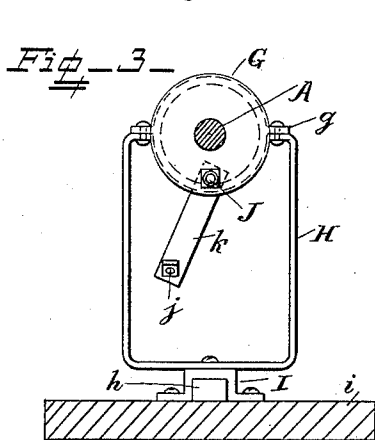
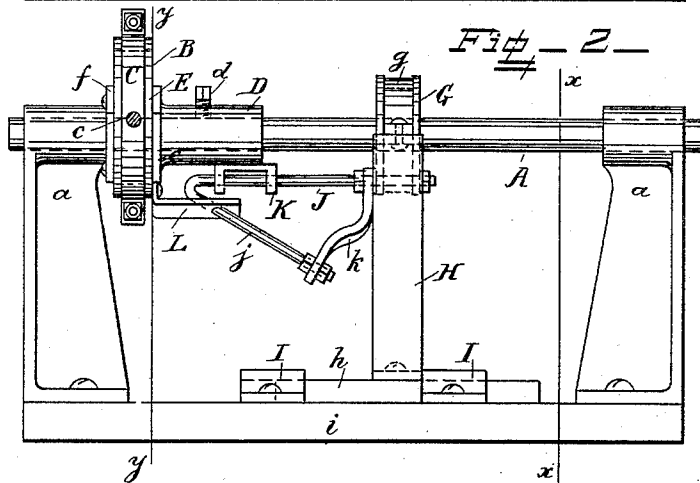
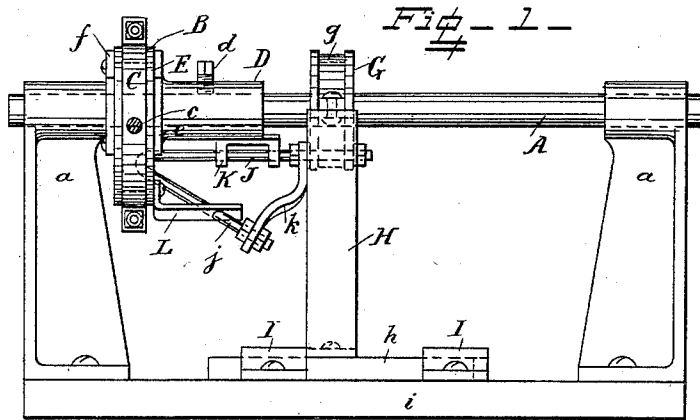
(No Model.)

E. S. VAN HORN & L. D. ALLABACH.

VALVE GEAR FOR STEAM ENGINES.

No. 461,992.

Patented Oct. 27, 1891.



WITNESSES

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UNITED STATES PATENT OFFICE.

EDWIN S. VAN HORN AND LAZARUS D. ALLABACH, OF WILKES-BARRÉ,
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VALVE-GEAR FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 461,992, dated October 27, 1891.

Application filed March 21, 1891. Serial No. 385,875. (No model.)

To all whom it may concern:

Be it known that we, EDWIN S. VAN HORN and LAZARUS D. ALLABACH, citizens of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Reversing-Gear for Steam-Engines; 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.

This invention relates to devices for reversing the position of the eccentric which works the slide-valve of a steam-engine; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the reversing-gear, showing the eccentric in one extreme position. Fig. 2 is a similar front view, but shows the gear moved so as to place the eccentric in the other extreme position. Fig. 3 is a cross-section taken on the line *x x* in Fig. 2. Fig. 4 is a cross-section taken on the line *yy* in Fig. 2.

A is the crank-shaft of a steam-engine, and *a* are the bearings in which the crank-shaft revolves.

B is the eccentric provided with a curved slot *b* and having an eccentric-strap C and an eccentric-rod *c* for working the slide-valve in the ordinary manner.

D is a sleeve secured on the shaft A by the screw *d*, and E is a curved block secured to the end of the said sleeve and provided with the flange *e*. The eccentric is adapted to slide back and forth on the curved block against the flange *e*, and *f* is a flange secured to the opposite side of the block for bearing against the opposite side of the eccentric.

G is a grooved disk mounted on the shaft A and adapted to slide longitudinally. A strap *g* rests in the groove of the disk and is secured at each side to the bow-shaped bracket H.

I are guides secured to the base-plate *i*, which also supports the bearings *a*, and *h* is a bar secured to the bottom of the bracket H and adapted to be slid back and forth in the said guides I.

J is a bar secured to the disk G parallel with the crank-shaft and passing through holes in the guide-bracket K, secured to the sleeve D. The end of the bar J is bent around and forms an inclined bar *j*. A bracket *k* is secured to the bar J close to the sleeve and to the end of the inclined bar *j*, so that the said inclined bar is held rigidly in position.

L is a guide secured to one side of the eccentric at one end of the slot *b*. This guide is provided with a hole, with which the inclined rod *j* engages.

The operation of the reversing-gear is as follows: When the parts are in the position shown in Fig. 1, the eccentric moves the slide-valve so as to cause the engine to revolve the crank-shaft in one direction. If now the bracket H is moved by hand or by other means to the position shown in Fig. 2, it carries with the bars J and *j*, and the said bar *j* moves the eccentric upon the block E across the shaft A until the block rests against the other end of the curved slot. This change in the relative position of the eccentric places it in a position which causes it to move the slide-valve in the reverse direction, thereby admitting steam to the opposite end of the cylinder and causing the engine to revolve the crank-shaft in the reverse direction. The curvature of the slot *b* preserves the lead of the slide-valve and enables the valve to be placed on the center with the block in a middle position in the slot. In this middle position the eccentric is concentric with the shaft, and as the slide-valve is not moved in either direction the engine remains stationary.

The various parts of the engine which are not shown in the drawings may be of any approved construction.

What we claim is—

1. In a reversing-gear, the combination, with an eccentric provided with a curved slot, of a curved block secured to the crank-shaft, an inclined rod supported by guides and adapted to be slid in line with the axis of the crank-shaft and a guide secured to the eccentric and engaging with the said rod, whereby the eccentric may be slid across the crank-shaft upon the said block, substantially as and for the purpose set forth.

2. In a reversing-gear, the combination,

with the eccentric provided with a slot, of the sleeve and the block secured to the crank-shaft, the guides secured to the said eccentric, a sliding disk mounted on the crank-shaft, a rod secured to the said disk parallel 5 with the crank-shaft and sliding in a guide secured to the said sleeve, and an inclined rod sliding with the aforesaid rod and engaging with the said guide, whereby the eccentric may be slid across the crank-shaft 10 upon the said block, substantially as and for the purpose set forth.

3. In a reversing-gear, the combination, with the eccentric provided with a slot, of the 15 block secured to the crank-shaft, a grooved sliding disk mounted on the crank-shaft, the guides I, the bar sliding in the said guides, the strap in the groove of the disk, the bracket secured to the said bar and strap, the rod J and inclined rod *j*, secured to the said disk, 20 and the guide L, secured to the eccentric and engaging with the bar *j*, whereby the eccentric may be slid across the crank-shaft upon the said block, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures 25 in presence of two witnesses.

EDWIN S. VAN HORN.
LAZARUS D. ALLABACH.

Witnesses:
THEO. REINEFELD,
EDWARD O'BRIEN.