

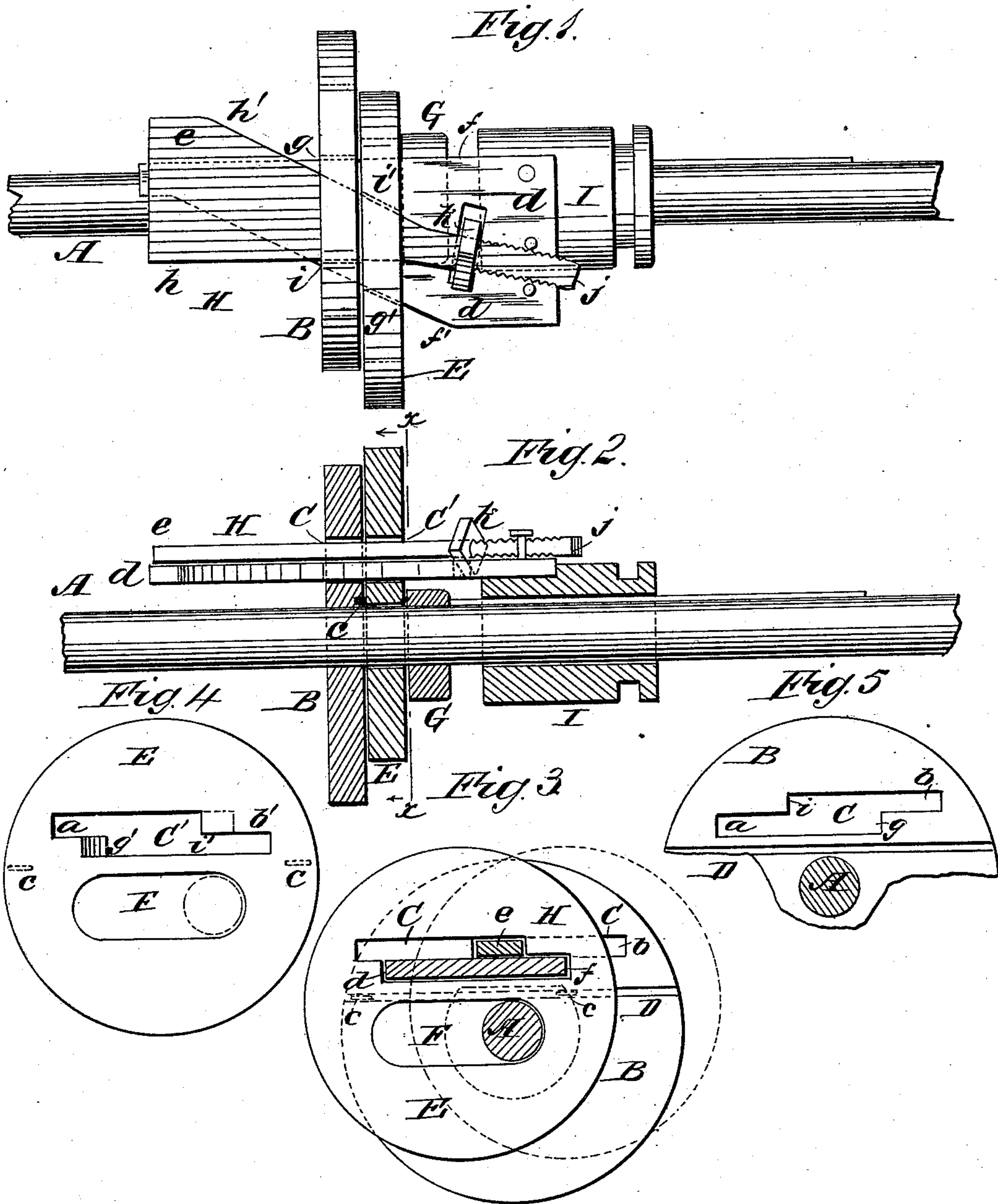
(Model.)

J. RALSTIN.

VALVE GEAR.

No. 304,854.

Patented Sept. 9, 1884.



WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

JOSEPH RALSTIN, OF SAN JACINTO, INDIANA.

## VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 304,854, dated September 9, 1884.

Application filed March 6, 1884. (Model.)

*To all whom it may concern:*

Be it known that I, JOSEPH RALSTIN, of San Jacinto, in the county of Jennings and State of Indiana, have invented a new and Improved Valve-Gear, of which the following is a full, clear, and exact description.

My invention relates to reversing-gear for plain side-valve engines; and it consists of the construction and arrangement of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved reversing-gear. Fig. 2 is a longitudinal section. Fig. 3 is a transverse section on the line *xx* in Fig. 2. Fig. 4 is a detail view of the eccentric, and Fig. 5 is a view of a portion of the disk attached to the main shaft of the engine.

To the main shaft A of the engine is secured a disk, B, having the slot C, which is offset so that its ends *a b* lie in different planes. A groove, D, formed in the face of the disk B, parallel with the slot C, receives splines *c*, projecting from the face of the eccentric E. The eccentric E has a slot, F, for receiving the shaft A, and is placed upon the said shaft between the disk B and a collar, G. A slot, C', corresponding in shape with the slot C in the disk B, is formed in the eccentric E. A double wedge, H, formed of the wedges *d e*, passes through the slots C C' in the disk B and eccentric E. The larger end of the wedge *d* is secured to a sleeve, I, arranged to slide on the main shaft A, but incapable of turning thereon. The wedge *d* is arranged in relation to the shaft A so that one edge, *f*, is parallel therewith and rests against the shoulder *g* in the disk B, while the inclined edge *f'* engages the beveled shoulder *g'* of the eccentric E. The wedge *e* is placed upon the wedge *d* in a reversed position, with its edge *h* parallel with the shaft A and resting against the shoulder *i* of the disk B, with its inclined edge *h'* engaging the beveled shoulder *i'* of the eccentric E. The smaller end of the wedge *e* terminates in a screw-threaded shank, *j*, upon which

is placed a nut, *k*, which projects into a slot in the larger end of the wedge *d*. The sleeve I is grooved circumferentially to receive a lever by which the reversing mechanism is operated. By pushing the sleeve I forward toward the eccentric the inclined edge *f'* of the wedge *d* engages the inclined shoulder *g'* of the eccentric E, its edge *f* resting against the shoulder of the disk B, moving the eccentric at right angles to the main shaft A, which reverses the action of the slide-valve. As the inclined edge *f'* of the wedge *d* moves forward, the inclined edge *h'* of the wedge *e* recedes from the beveled shoulder *i'* of the eccentric E, permitting of the movement of the eccentric. By moving the sleeve I in the opposite direction the inclined edge *h'* of the wedge *e* is brought into engagement with the beveled shoulder *i'*, its edge *h* bearing upon the shoulder *i* of the disk B, and the eccentric is moved in a direction opposite to that just described. Any lost motion between the wedges, disk, and eccentric may be taken up by turning the nut *k* so as to draw the wedge *e* forward and increase the distance between the inclined edges *f' h'* of the wedges. The eccentric is prevented from turning on the shaft by the engagement of the splines *c* with the groove D in the disk B. The slot F in the eccentric is formed at one side of the center thereof, so that the lead of the valve may be preserved when the valve is reversed.

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

1. In valve-reversing gear, the wedge *d*, adjustable wedge *e*, slotted disk B, having shoulders *g* and *i*, and the slotted eccentric E, having beveled shoulders *g'* and *i'*, in combination, as described.

2. In valve-reversing gear, the shaft A, having a disk, B, secured thereto, provided with the shouldered slot C, and the disk E, eccentrically slotted at F, and provided with the shouldered slot C', double wedge H, consisting of the two reversely-inclined plates *d e*, resting against each other and passing through and engaging the shoulders of the slots C C', and a sleeve, I, to which the inclined wedge

or plate *d* is secured, as shown, all combined and arranged substantially as shown and described.

3. In valve-reversing gear, the wedge *d*, adjustable wedge *e*, provided with a screw-threaded extension, *j*, and nut *k*, for taking up lost motion, disk B, provided with shouldered slot C *g i*, and the eccentrically-slotted

disk E, provided with a shouldered slot, C' *g'* *i'*, all combined and arranged substantially as set forth.

JOSEPH RALSTIN.

Witnesses:

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