

(No Model.)

2 Sheets—Sheet 1.

W. L. MILLER.
Reversing and Cut-off Mechanism.
No. 237,199. Patented Feb. 1, 1881.

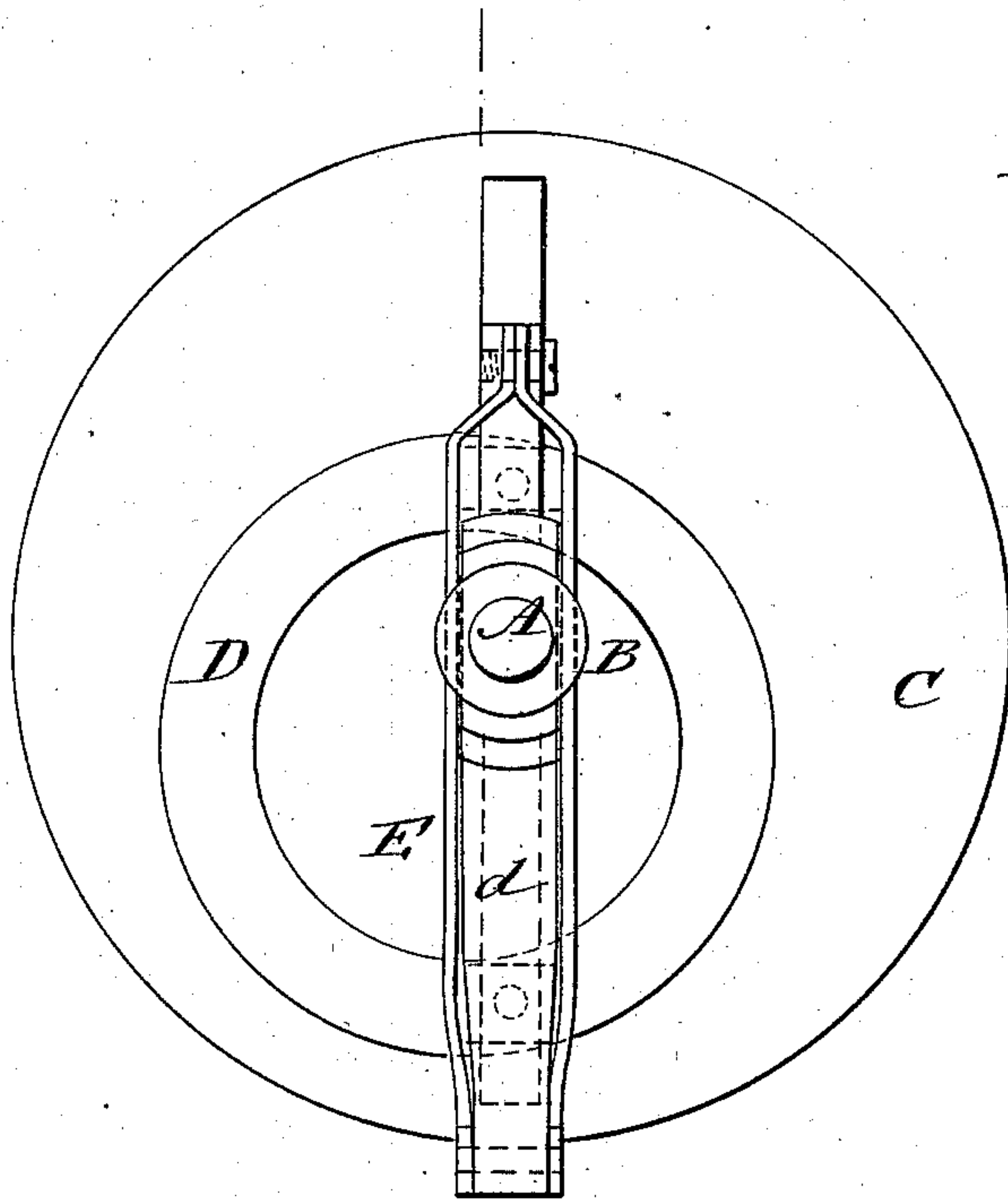


Fig. 1

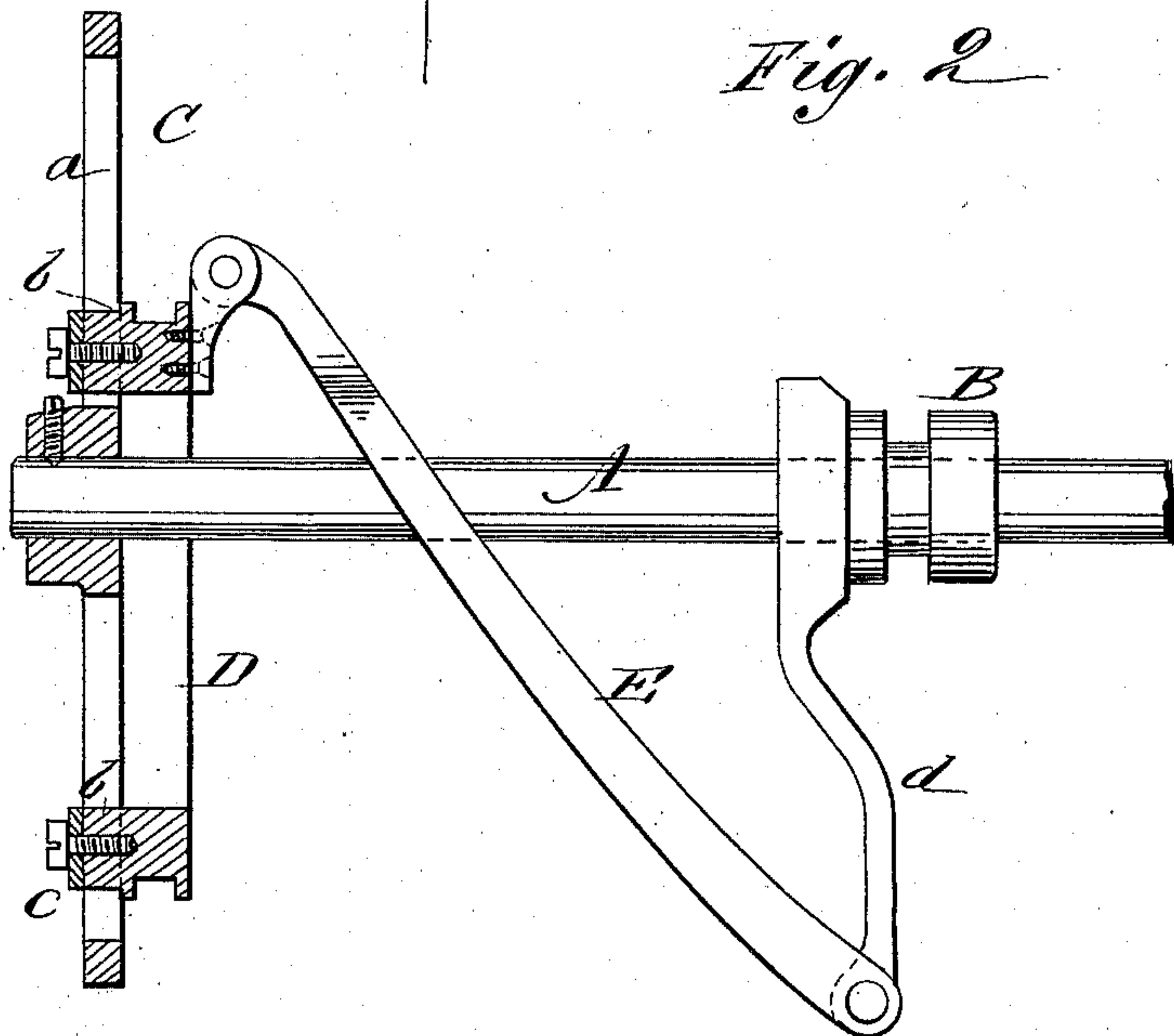


Fig. 2

WITNESSES:

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INVENTOR:

W. L. Miller

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ATTORNEYS.

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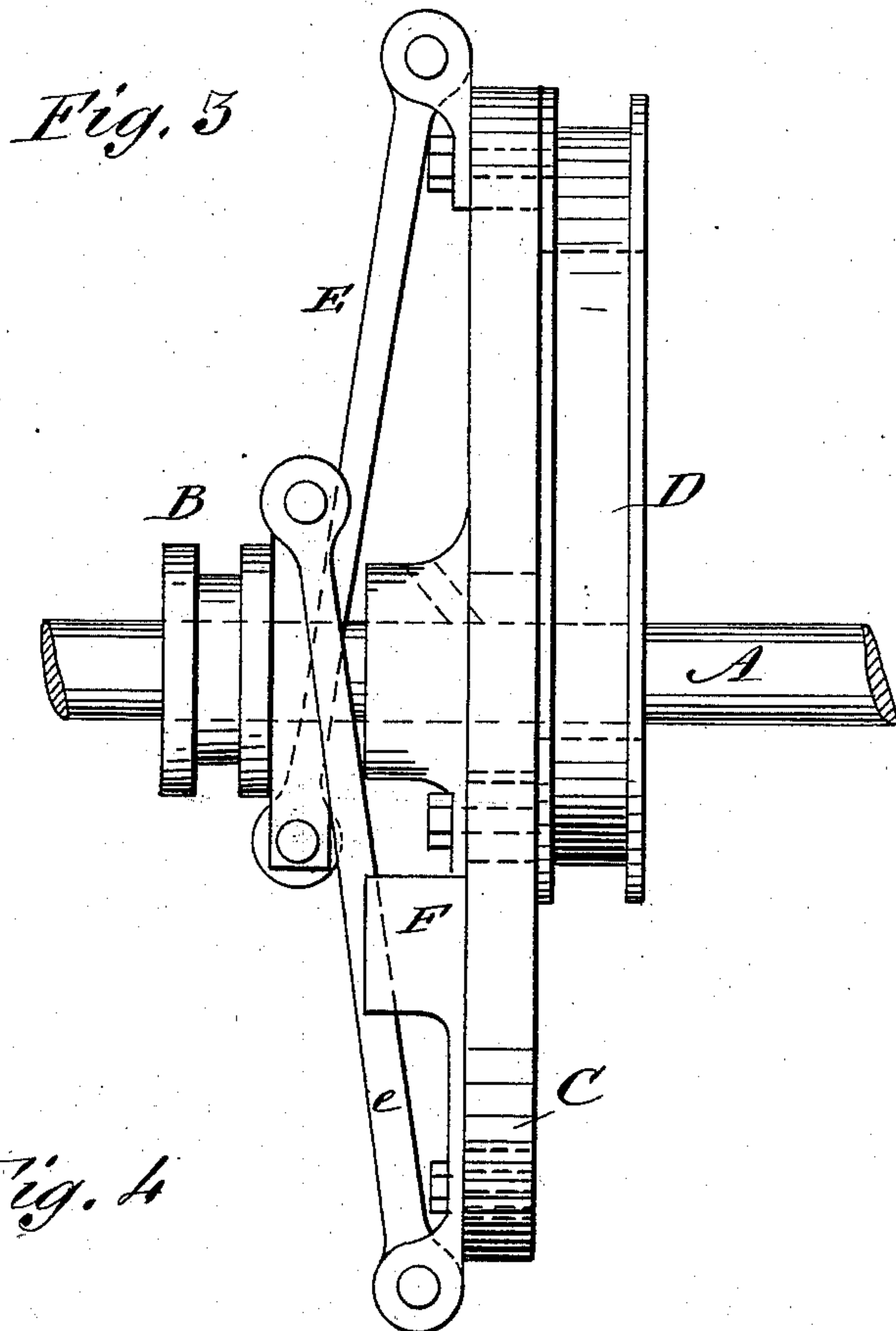
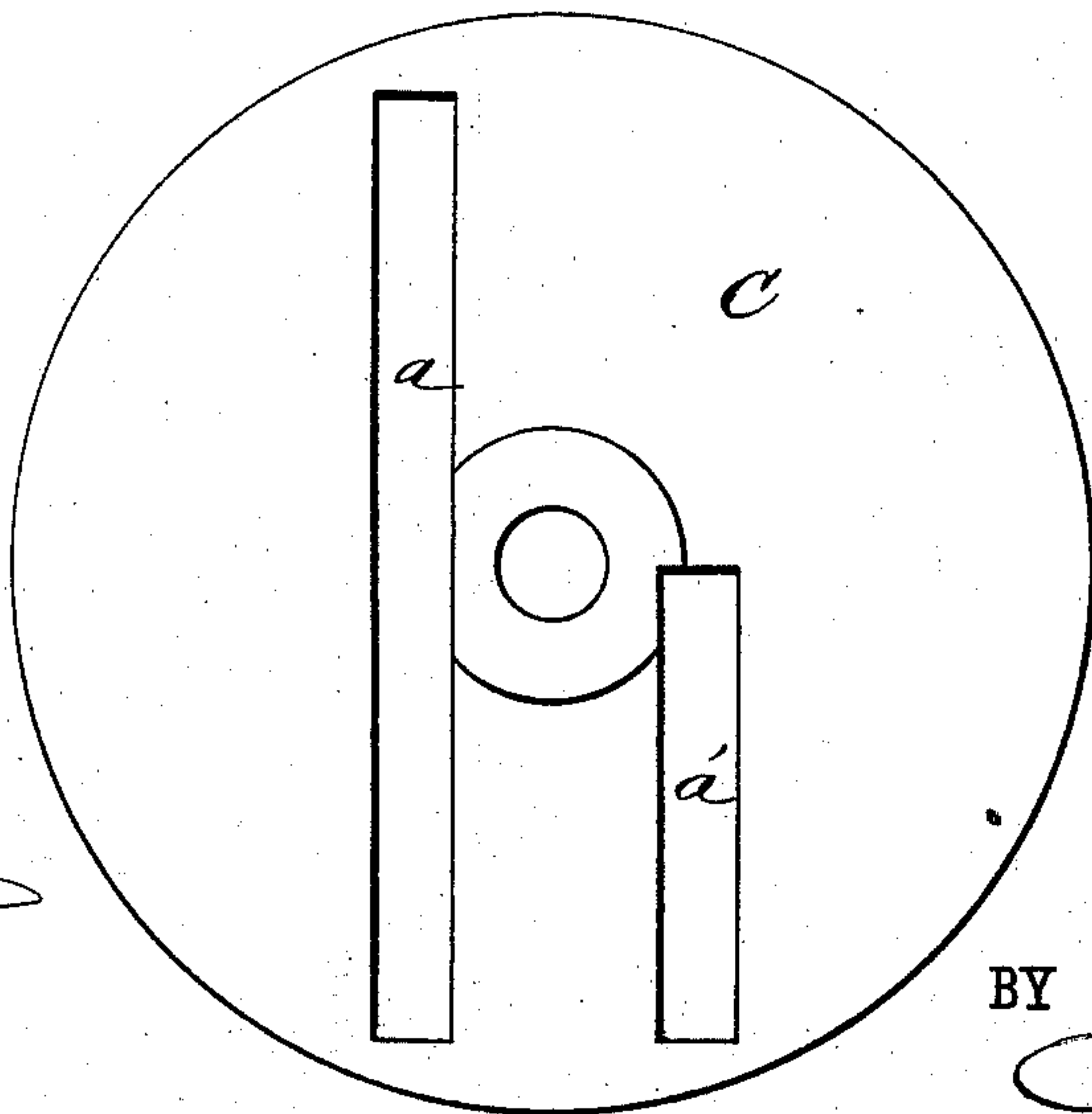


Fig. 4



WITNESSES:

C. Neveu
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UNITED STATES PATENT OFFICE.

WILLIAM L. MILLER, OF PITTSBURG, PENNSYLVANIA.

REVERSING AND CUT-OFF MECHANISM.

SPECIFICATION forming part of Letters Patent No. 237,199, dated February 1, 1881.

Application filed October 12, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MILLER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Reversing and Cut-Off Mechanism for Engines, of which the following is a specification.

The object of my invention is to dispense with the usual link-motion used for reversing the valves of engines and substitute therefor more simple and easily-working devices.

My present invention is an improvement upon the reversing mechanism shown in Letters Patent granted to me August 31, 1880, wherein the eccentric was shown as fitted for movement to and from the center of a disk carried by the operating-shaft of the valves, the movement of the disk being accomplished by a sliding collar on the shaft connected with the disk by racks and pinions.

In the accompanying drawings, Figure 1 is a front elevation of the mechanism. Fig. 2 is a sectional side view. Fig. 3 is a side view showing the mechanism as fitted with a counter-balance, and Fig. 4 is a face view of the supporting-disk.

Similar letters of reference indicate corresponding parts.

A is the shaft of the reversing or valve-operating mechanism, which shaft is to be revolved by connections to the engine in any suitable manner. B is a collar or sleeve loose on shaft A, which collar is to be fitted for movement endwise of the shaft with a lever by hand; or, when the mechanism is combined with a governor, the collar will be fitted for movement by the governor.

C is a disk of suitable diameter fixed on shaft A, and formed with two radial slots, *a*, at opposite sides of the shaft.

D is the eccentric, which is shown as a ring having a grooved periphery; but it may be a circular disk slotted for the shaft A to pass. The ring D is formed with lugs *b b* extending into the slots *a*, and fitted with caps *c*, whereby the ring is held to the disk C, and can be slid at right angles to shaft A, for varying the

eccentricity of the ring. The eccentric is to be connected to the valves by a strap and rod, as usual.

E is a link pivoted by one end to a lug on ring D, and extending across shaft A to an arm, *d*, that extends from collar B, to which collar the link is pivoted.

In operation the movement of collar B endwise of the shaft shifts the eccentric D on disk C to or from the center, according to the direction the collar is moved. The eccentric can thus be moved from one side of the center to the other. A small amount of force applied to the collar is sufficient to move the eccentric; but no amount of power put on the eccentric is likely to shift it from its position without breaking some of the parts.

To prevent strain on the collar the eccentric is balanced on the disk C by a U-shaped piece, F, fitted to slide in one slot, *a*, of disk C, and connected by a link, *e*, with the collar B, so that as the eccentric is moved in or out by the collar the counter-balance F is also moved. The piece F is formed with a lug that enters slot *a*; or a separate slot, as shown at *a'* in Fig. 4, may be provided for the lug of the counter-balance.

In place of the link E, the collar B may be fitted with an inclined cam-plate extending through a slot in the eccentric-disk, in which the cam fits snugly, so that the eccentric will be moved by the cam. The cam-plate in that case will have a slot for engagement with a guide or plate.

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

In reversing and cut-off mechanism, the combination, with the disk C and movable eccentric D, of the counter-balance F, fitted for movement on disk C by collar B simultaneously with the eccentric, substantially as shown and described.

WILLIAM L. MILLER.

Witnesses:

MICHAEL BREEN,
JOHN C. BOYLE.