

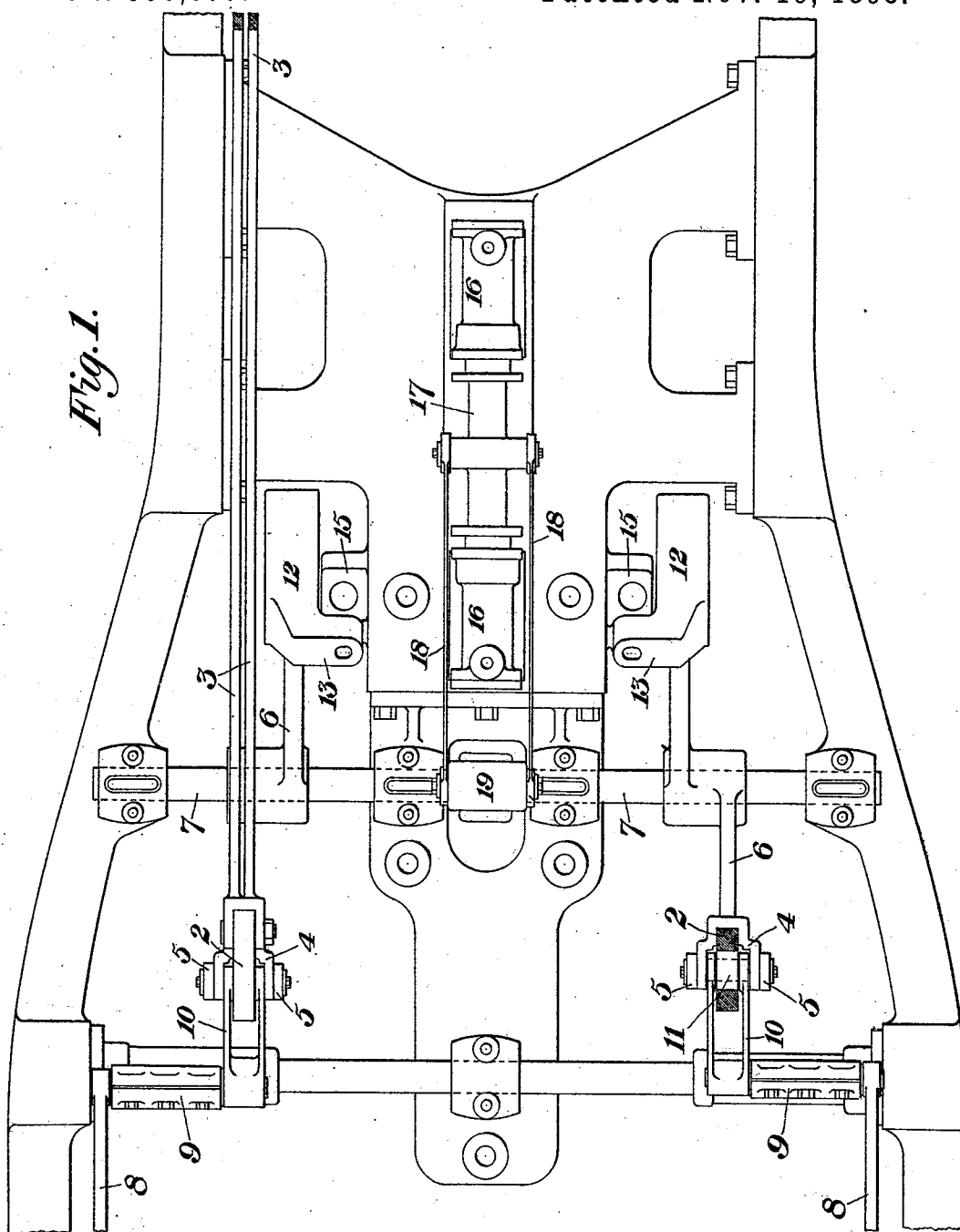
(No Model.)

2 Sheets—Sheet 1.

J. KENNEDY.
REVERSING GEAR.

No. 550,077.

Patented Nov. 19, 1895.



WITNESSES

A. M. Corbin
C. E. Myers

INVENTOR

Julian Kennedy
by F. B. Bakerwell, Attor.
his Attorneys

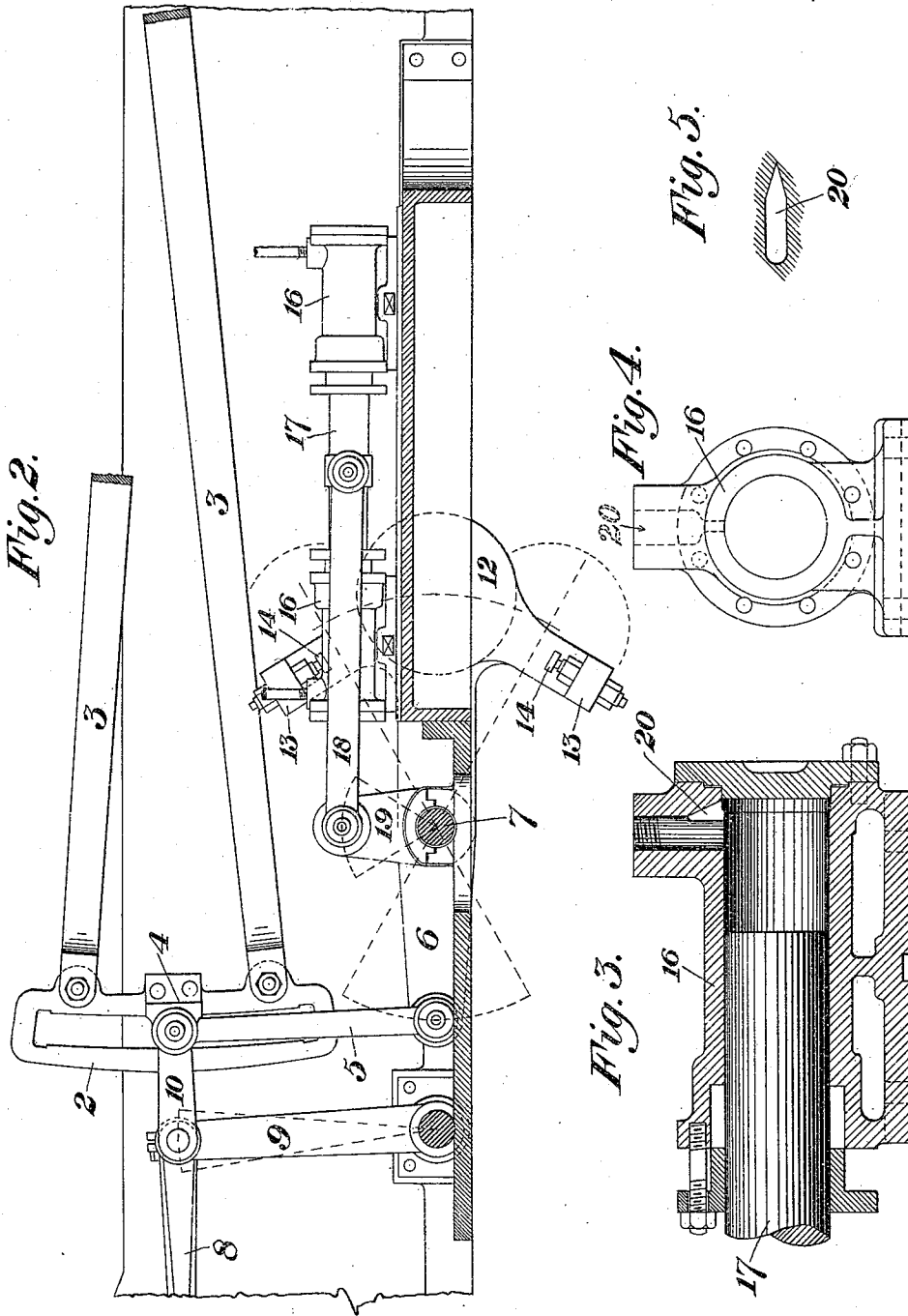
(No Model.)

J. KENNEDY.
REVERSING GEAR.

2 Sheets—Sheet 2.

No. 550,077.

Patented Nov. 19, 1895.



WITNESSES

H. M. Doremus
C. Dymes.

INVENTOR

Julian Kennedy
by N. Bakerwell & Sons
his Attorneys

UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF PITTSBURG, PENNSYLVANIA.

REVERSING-GEAR.

SPECIFICATION forming part of Letters Patent No. 550,077, dated November 19, 1895.

Application filed February 14, 1895. Serial No. 538,366. (No model.)

To all whom it may concern:

Be it known that I, JULIAN KENNEDY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Reversing-Gears, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a double engine provided with my improved reversing-gear. Fig. 2 is a side elevation of the reversing-gear. Fig. 3 is a sectional view of one of the operating-cylinders. Fig. 4 is an end view of the same, and Fig. 5 is a detail plan view of the port of said cylinder.

My invention relates to the reversing apparatus of engines wherein a motor is employed for operating the reversing-gear, and is designed to prevent the lost motion which now occurs in gears of this class and to hold the reversing-link securely in position when at either end of its stroke.

In the drawings, 2 2 represent the usual slotted links, and 3 3 the eccentric-rods. Each link 2 is supported by a yoke 4, bolted or otherwise secured to the central portion of the link and pivoted to links 5, which at their lower ends are pivotally connected with a lever 6, fulcrumed on a shaft 7. The valve-rods 8 are secured to rock-arms 9, to which are secured forked arms 10, extending between the yoke-arms and the slotted link and secured to the blocks 11 therein. The levers 6 terminate in counter-weights 12, and are provided with oppositely-extending contact-arms 13, which are bent inwardly at their ends and are provided with adjustable contact-blocks 14, which are arranged to strike upon contact-plates 15 on the frame of the engine, these contact-plates being preferably faced with rawhide.

The fulcrum-shaft 7 is rocked in either direction by two motive cylinders 16, having a common plunger 17, connected by links 18 to a rock-arm 19 upon this shaft. Each of these cylinders is provided with a port 20, which is tapered toward its end, as shown in Fig. 5, so as to throttle down the escaping fluid gradu-

ally and prevent pounding of the contact-blocks and also cushion the same. The cylinders 16 and contact-blocks are so arranged that the blocks will strike before the plunger reaches the end of its stroke, so that there is a constant force exerted in one direction upon the connections to the slotted link, thus preventing lost motion therein.

The action is apparent. Motive fluid being admitted to one of the cylinders 16, the slotted link is moved to bring the block to one end thereof, and one of the contact-blocks upon each lever-arm striking the frame provides a fixed abutment against which the motive cylinder acts, exerting a constant pull thereon. The block is thereby prevented from changing its position in the slotted link, and the lost motion in the joints of the connections as well as that due to the torsional elasticity of the shaft 7 is taken up, as a direct force is applied to the links which support the slotted reversing-link.

Variations in the form, construction, and arrangement of the parts may be made by the skilled mechanic without departure from my invention, since

What I claim is—

1. The combination with a reversing gear, of a movable contact block connected therewith and adapted to engage a stop, and a motive cylinder arranged to actuate the gear and the contact block, said block being arranged to engage its stop before the piston of the motive cylinder reaches the end of its stroke so that a constant pressure is exerted upon the block; substantially as described.

2. The combination with a reversing gear, of a rocking-lever having contact blocks arranged to engage fixed abutments, and a motive cylinder arranged to force one of the contact blocks continuously against the abutment, whereby lost motion is prevented, substantially as described.

3. In a reversing gear, a slotted link supported upon a link, a rocking-lever pivotally connected to the link and having contact blocks arranged to engage fixed abutments, and a motive cylinder arranged to force one of the contact blocks continuously against

the abutment, whereby lost motion is prevented; substantially as described.

4. The combination with a reversing gear, of a rocking-lever having contact blocks arranged to engage fixed abutments, and a motive cylinder arranged to force one of the contact blocks continuously against the abutment, said cylinder having a tapered port ar-

ranged to throttle the steam; substantially as described.

In testimony whereof I have hereunto set my hand.

JULIAN KENNEDY.

Witnesses:

W. B. CORWIN,
H. M. CORWIN.