(No Model.)

A. J. McDONALD.

RAILWAY GATE.

No. 383,969. Patented June 5, 1888.

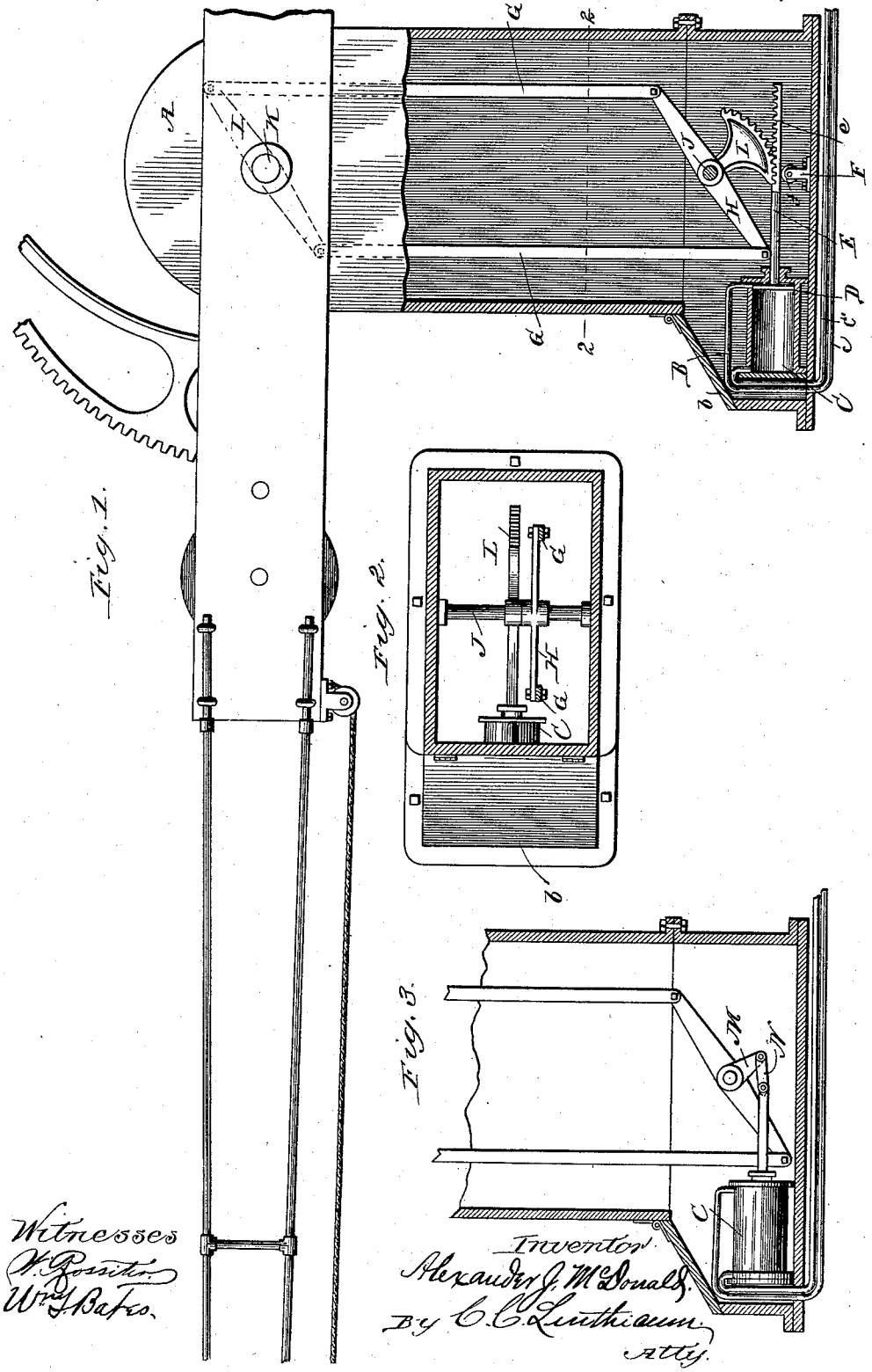

Fig. 1.

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ALEXANDER J. McDONALD, OF CHICAGO, ILLINOIS.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 383,969, dated June 5, 1888.

Application filed December 6, 1887. Serial No. 257,094. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER J. McDONALD, of Chicago, Illinois, have invented certain new and useful Improvements in Railway-Gates, of which the following is a specification.

The object of my invention is to secure increased efficiency in the operation of said gates; and my improvements and inventions consist in the means whereby this object is attained, as hereinafter pointed out and claimed.

The principal feature of my present improvement relates to the connections between the piston-rod of the engine usually employed in these gates and the gate-arms.

In the drawings, Figure 1 is a side elevation of a gate-arm and its supporting-post, the latter being partly in section, and containing the cylinder (also in section) with its piston, piston-rod, and connections between the piston-rod and arm. Fig. 2 is a section taken on line 2 2 of Fig. 1; and Fig. 3 is a transverse vertical section through the lower part of the post, showing the cylinder, its air-supply pipes, its piston-rod, and a modified construction of the connections of said rod.

The stationary supporting post or case A is preferably made of iron. It is hollow and contains the moving parts. It has an extension, B, on its front side to receive the cylinder, and such extension has a hinged cap or cover, *b*, which can be thrown back to permit access to the cylinder.

C is the cylinder. It has the compressed air-supply pipes *c c'*, communicating with its interior near each end, respectively. A piston, D, is fitted to the cylinder and reciprocates therein under the pressure of the compressed air supplied by pipes *c c'*.

E is the piston-rod, which may have rack-teeth *e* formed on its outer end. It is supported by an anti-friction roller, *f*, carried by a standard, F, or other suitable guide or support. The connecting means between the gate-arm and the piston-rod comprise two links, G G, pivoted at their lower ends to a cross-bar, H, and at their upper ends to a cross-bar, I. The bar H is fixed at its middle to a rock-shaft, J, and the bar I is likewise fixed to the rock-shaft K, upon which the gate-arm is secured. The rock-shaft J carries a toothed sector, L, whose teeth enmesh with the rack-teeth *e* of the piston-rod E. The reciprocation of the piston-rod operates by the above-described means to raise and lower the gate-arms.

A modified construction of the connections between the piston-rod and the rock-shaft J is shown in Fig. 3. In said figure a fixed arm, M, depends from the rock-shaft J, and a link, N, pivoted, respectively, to the end of the piston-rod and said arm, transmits motion to the rock-shaft.

Of course modifications of the construction herein shown and described may be made. The length of the cross-bar I of the links G and the sector L or corresponding connections may be varied. I prefer to make said links rigid, in order that both, when connected to the piston-rod, may be acted upon by the latter, and thereby both made to act upon the pivoted gate-bar.

I claim—

1. The combination, in a railway-gate, of a pivoted gate-bar, a cross-beam secured to and turning with the gate-bar, a power-cylinder located toward the bottom of the gate-post and having a horizontally-reciprocating piston-rod, a rock-shaft having secured thereto a second cross-beam, suitable connecting devices between the piston-rod and said rock-shaft, whereby the latter is rocked, and links connecting said cross-beams on both sides of their centers of oscillation, substantially as described.

2. The combination, in a railway-gate, of a gate-bar pivoted upon a rock-shaft, a cross-beam secured to said rock-shaft, a power-cylinder having a horizontally-reciprocating piston-rod provided with a rack, a segment secured upon a second rock-shaft and adapted to be operated by the piston, a cross-beam secured to said last-named rock-shaft, and links connecting said cross-beams on both sides of their centers of oscillation, substantially as described.

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