

(No Model.)

R. C. DOUGLASS.
RAILWAY GATE.

No. 409,177.

Patented Aug. 20, 1889.

Fig. 1.

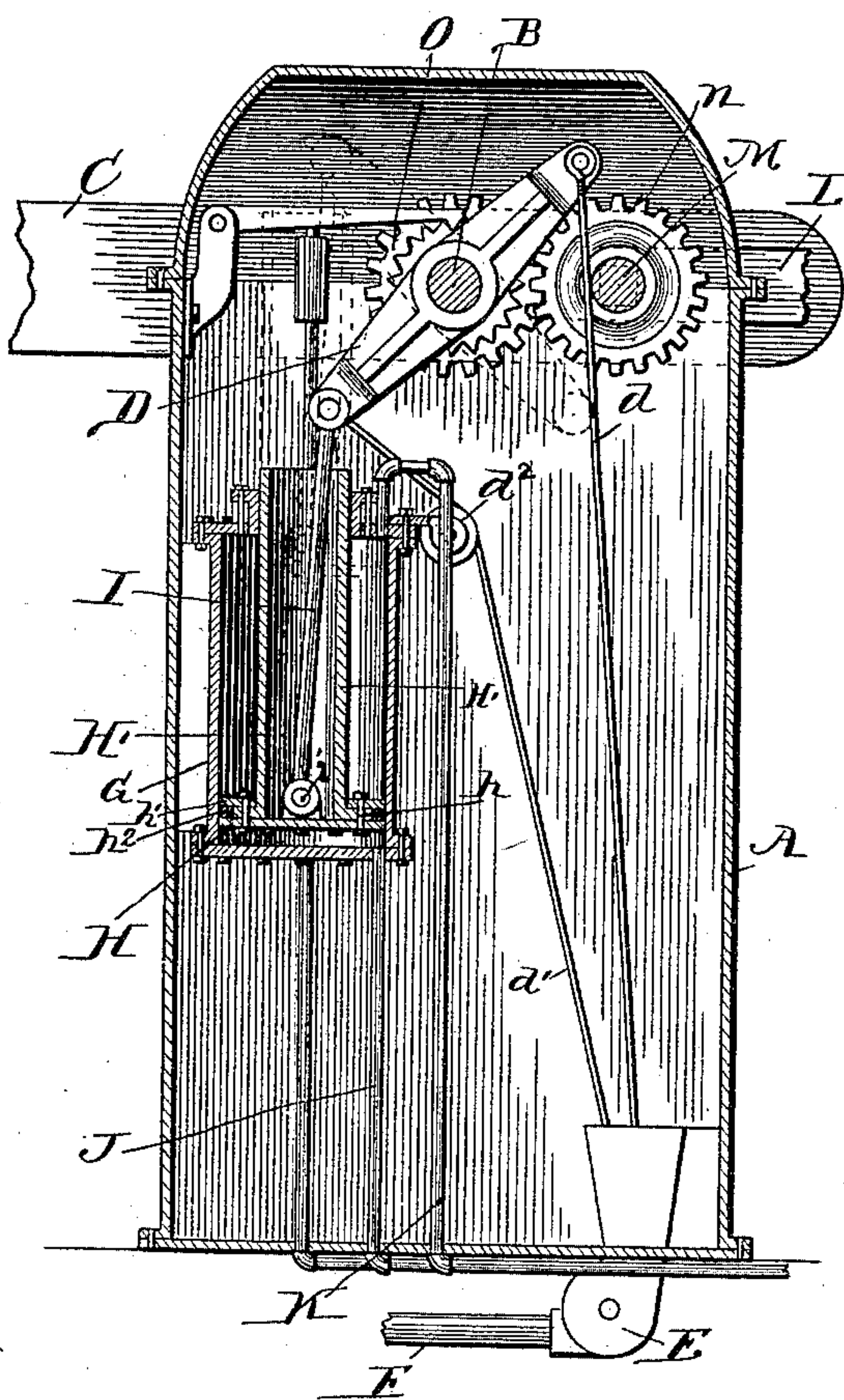
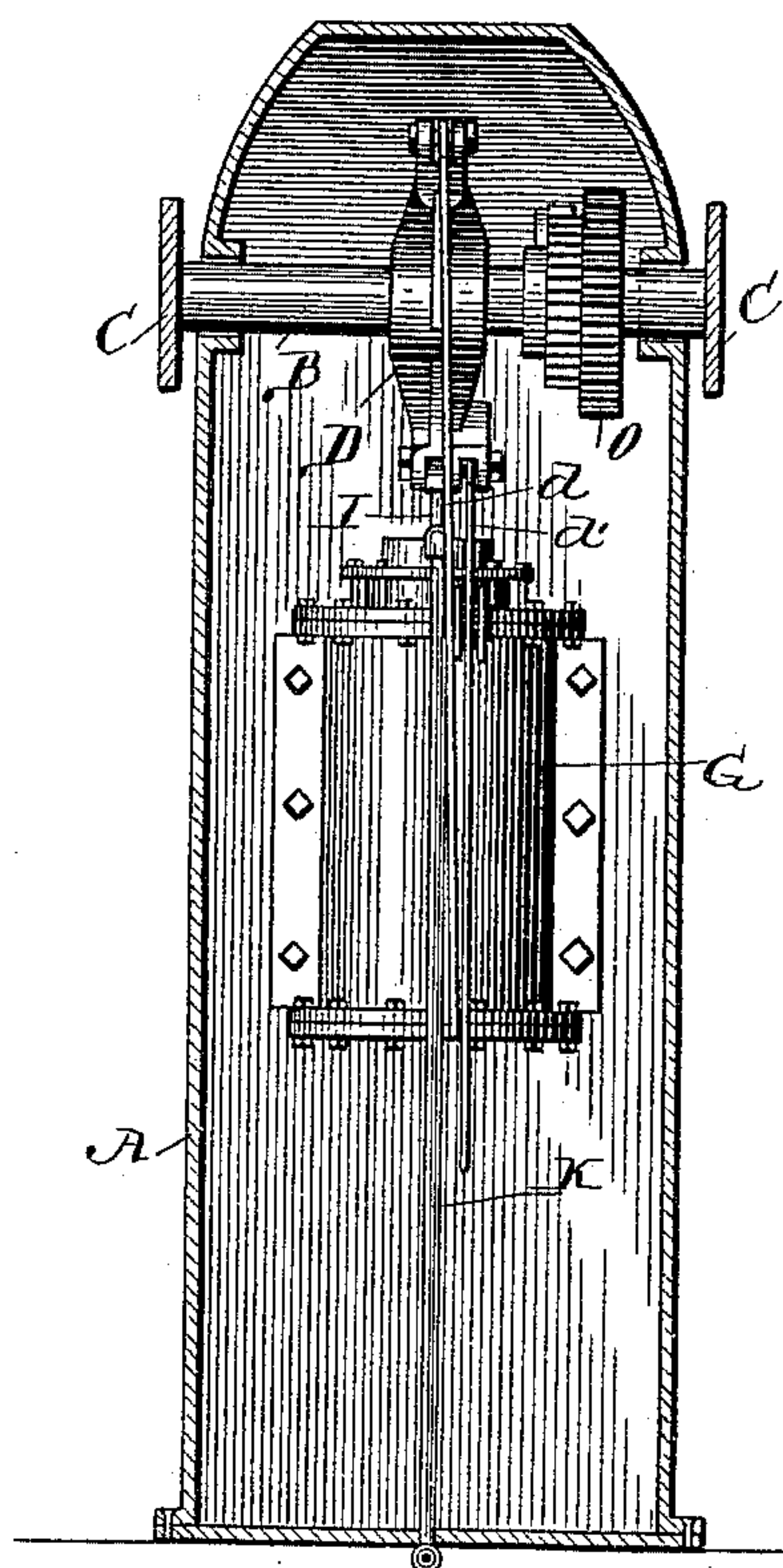


Fig. 2.



Witnesses

W. Foster
J. D. Butler

Inventor

Robert C. Douglass
By C. C. Luthieum
Atty.

UNITED STATES PATENT OFFICE.

ROBERT C. DOUGLASS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PNEUMATIC POWER AND RAILROAD GATE COMPANY, OF SAME PLACE.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 409,177, dated August 20, 1889.

Application filed January 28, 1889. Serial No. 297,842. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. DOUGLASS, a subject of the Queen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Gates, of which the following is a specification.

My invention relates to railway-gates, the swinging bars whereof are operated by means of compressed air; and the principal improvement, hereinafter described, consists in a novel construction of the power-cylinder which is used to operate the gate-arm.

In the accompanying drawings, Figure 1 is a vertical section through the gate-post, power-cylinder, and piston, the gate-arms and some of the piping being shown broken away; and Fig. 2 is a transverse vertical section through the post, showing the power-cylinder in side elevation.

In the drawings, A represents the post; B, the rock-shaft, on which is pivoted the main arm C, the end of which is bifurcated and embraces the upper end of the post in the usual manner.

D is a walking-beam, which is secured to the rock-shaft B, and connected thereto are cables d d' , which are carried over sheaves mounted within a housing E, and thence through a pipe F to a gate-post upon the opposite side of the street, within which they will be connected to a walking-beam corresponding to D, whereby the gate-arms on opposite sides of the street will be moved simultaneously.

G represents the compressed-air cylinder, having a reciprocating piston of peculiar construction. This piston comprises the disk H, on the upper side of which is secured, by means of bolts h and a gasket h' , a hollow stem H' of, say, one-third the diameter of the cylinder. The upper end of said stem is open, and the upper head of the cylinder G will be packed about the stem, while the piston itself may be packed by means of the annular packing-ring h^2 .

I is a connecting-rod, which is projected into the hollow of stem H' and pivotally secured at its lower end, as shown at i . The other end of rod I will be pivoted to the walking-beam D. The power-cylinder will be

bolted securely to the side of the post A, and the necessary play of the connecting-rod I is permitted within the hollow of the stem H', one of its positions being indicated in dotted lines in Fig. 1. The engine is double acting, compressed air being admitted to the lower end of the cylinder through the pipe J and to the upper end by the pipe K, whereby the piston is caused to reciprocate within the cylinder, thus rocking the shaft and lowering and raising the gate-arms. With the construction above described the gate-arm is both raised and lowered by means of a single power-cylinder and without the intervention of any sort of gearing for converting the reciprocating movement of the piston into the curvilinear movement of the walking-beam, which results not only in an economy of power, but in simplicity and economy of mechanical construction as well. The function of the hollow stem is of course to act as a packing about the connecting-rod and to permit play of the latter. This hollow stem is shown as being cylindrical in form; but it may be elliptical or of any other form which will permit sufficient play of the connecting-rod.

The auxiliary or sidewalk arm, which is lettered L in the drawings, is mounted upon rock-shaft M, which bears a spur-gear N, engaged with a similar gear O on the rock-shaft B. By this means it is evident that the auxiliary arm will be moved with the main arm, and the gearing is mounted inside the post, where it is protected from rust and the elements, thereby insuring at all times its perfect working.

In my present construction I have deemed it advisable to conduct both of the cables d and d' through the housing E, within which are mounted two sheaves over which said cables are passed. The cable d' will be deflected somewhat out of its course, and hence I have provided the sheave d^2 , over which it passes, and which may be mounted in a bracket on the cylinder or post.

I claim—

1. In a railway-gate, the combination, with a gate-shaft, of a double-acting power-cylinder whose piston has a hollow stem projected through the end of the cylinder and a connecting-rod pivoted to the piston and to a

walking-beam or crank-arm connected to the gate-shaft and adapted to reciprocate within the hollow of said stem, substantially as described.

- 5 2. In a railway-gate, the combination, with the gate-shaft, of a power-cylinder whose piston has a hollow stem projected through the end wall of the cylinder, a connecting-arm pivoted at one end to the piston and at the

other to a walking-beam or crank on the gate-shaft, and a gate-arm rigidly secured to said shaft, whereby the reciprocation of the piston causes the lowering or raising of the arm, substantially as described. 10

ROBERT C. DOUGLASS.

Witnesses:

C. C. LINTHICUM,
T. D. BUTLER.