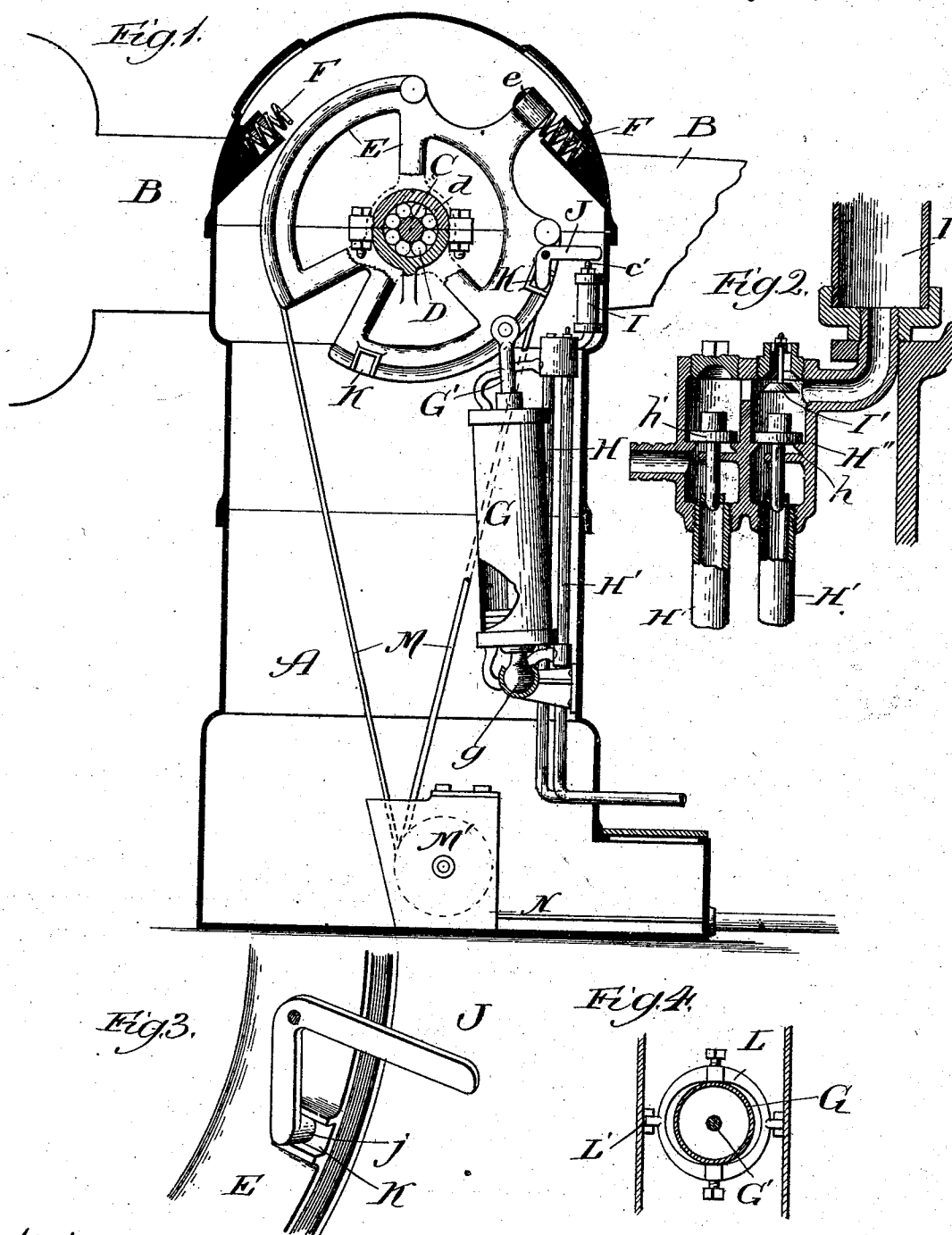


(No Model.)

R. C. DOUGLASS.
RAILROAD GATE.

No. 501,926.

Patented July 25, 1893.



Witnesses:
Chas. E. Gaylord,
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UNITED STATES PATENT OFFICE.

ROBERT C. DOUGLASS, OF CHICAGO, ILLINOIS, ASSIGNOR TO A. B. MCCHESENEY,
OF SAME PLACE.

RAILROAD-GATE.

SPECIFICATION forming part of Letters Patent No. 501,926, dated July 25, 1893.

Application filed April 20, 1891. Serial No. 389,645. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. DOUGLASS, a citizen of the Kingdom of Great Britain, residing at Chicago, Cook county, Illinois, have
5 invented a new and useful Improvement in Railroad-Gates, of which the following is a specification.

The object of my invention is to improve and simplify in various particulars the construction of railroad gates heretofore used, and the invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a vertical cross
15 section of a gate post embodying my improvements; Figs. 2 and 3 detail views on an enlarged scale of portions of Fig. 1, and Fig. 4 a cross section illustrating a modification.

It should be understood that the post shown
20 in Fig. 1 is but one of a pair, there being a similar post on the opposite side of the road way, the devices in the two posts being connected together as hereinafter described. This post A is made preferably in the form
25 shown, and of suitable size and dimensions to contain the respective parts. The gate arm B, which is preferably bifurcated, is constructed in the usual manner, and mounted upon a shaft C journaled in the post A. Friction rolls D are provided and held in a case
30 d, which is attached to the sides of the post at each end of the shaft, the rolls being intended to facilitate the movement of the gate arm.

Rigidly mounted upon the shaft C, and secured thereto, is a sector E, preferably of the form shown in the drawings, wherein it is provided with a head or bumper e adapted to strike as the sector moves in one direction or
40 the other against coiled springs F supported in sockets attached to or made integral with the side of the post. A cylinder G is then constructed, which is mounted in such manner as to move freely in all directions, being
45 preferably supported by a ball and socket joint g, as shown in Fig. 1. By means of this method of supporting the cylinder, I am enabled to connect the piston rod G' directly to the sector, dispensing with the intermediate
50 connections, guides, &c., heretofore in use, and thereby greatly simplifying the construc-

tion of the gate and lessening its cost. The air or other fluid used to operate the gate is admitted to the cylinder by means of pipes H—H' connected as shown, with their respective ends of the cylinder by means of
55 flexible tubes. These pipes are also connected with a valve chamber H'', which in turn is connected by a pipe with the auxiliary cylinder I. This cylinder has a piston rod i, engaging with the lock, as hereinafter described. When it is desired to rock the gate-arm in one direction, air is admitted through the pipe H' into the bottom of the cylinder G,
60 raising the piston therein and rocking the sector toward the left. The air at the same time raises the valve h, and passing into the cylinder I, raises the piston therein to operate the lock. When the air-pressure is shut off, the valve I' falls, allowing the air to escape from the cylinder I with great rapidity,
65 so that the piston in this cylinder immediately falls to allow the lock to act. When the gate is to be moved in the other direction the air is admitted to the pipe H, enters
70 the upper end of the cylinder, and raising the valve h', passes into the cylinder I to raise the piston therein and unlock the sector. When the air is passing into the cylinder I, the valve I' will be closed, but when the air
75 supply is shut off this valve will open to allow the air that is in the cylinder I to escape.

The lock consists of a bell crank lever J, shown more particularly in Fig. 3, pivoted to the side of the case in such a position that
80 one of its arms shall rest in a position to be engaged by the piston rod i as it moves upward. The other arm of the lever is provided with a lug j, adapted to engage with notches or recesses K formed upon the face of the sector, whereby the sector and the gate arm,
85 which, as above stated, are rigidly connected, may be locked in any desired position. When the air is admitted to the cylinder, for the purpose of operating the gate, it will at the same time be admitted as already described
90 to the cylinder I, and raise the piston i, which will engage with the locking lever, rock the same upon its pivot, and disengage the lug j from the notch with which it is engaged.
95 When the piston rod i falls again, the weight of the lever will rock it until the lug j bears

against the edge of the sector; and when the sector is revolved, to an extent sufficient to bring one of its notches opposite the lug *j*, this lug will fall therein and lock the gate.

5 In Fig. 4, I have shown a modified means of suspending the cylinder. In this form, the cylinder is supported by means of trunnions or set screws in a ring *L*, in such manner as to be able to rock therein; and this ring is in
10 like manner supported by means of trunnions in a case or frame *L'*, which is attached to or placed inside of the post. From this construction it will be obvious that the cylinder can rock in one direction inside the ring *L*, and
15 that this ring together with the cylinder, can rock at right angles to the first direction, thereby permitting the same form of direct connection as is permitted when the cylinder is supported by a ball and socket joint.

20 The sector *E* is connected, as shown, by means of ropes or cables *M* with a similar sector in another post upon the opposite side of the road way, so that the sectors, and consequently the gate arms connected therewith,
25 will operate simultaneously. These ropes pass over a double pulley or sheave *M'*, which is journaled in a case *N*, preferably of the form shown in the drawings; this case being preferably made separate from the post, in-
30 serted therein, and fastened in place in any suitable manner. After passing over this double pulley, these cables run through tubes *N'* beneath the road way, in the ordinary manner.

35 With the parts in the position shown in Fig. 1, the gate arm is supposed to be down, barring the road way. When it is desired to raise this arm, air, steam, or other fluid is admitted through the pipe *H* to the lower end of
40 the cylinder, and forcing up the piston and rod will rock the sector toward the left, the lock *J* having been previously disarranged, as already described. The sector will rock toward the left until the notch *K*, shown near
45 the bottom of the sector in Fig. 1 comes opposite the lug *j*, when this lug will engage with

the sector, and hold it until it is desired to hold the gate.

I have shown two means of supporting the cylinder, as being forms adapted to my invention, but do not intend to limit myself to either
50 of such forms, since any other means of supporting the cylinder, which will allow it to move so freely in all directions as to allow its piston rod to be connected directly to the sec-
55 tor, will fall within this part of my invention. Similarly I do not intend to limit myself to other details or forms of construction, since I contemplate using equivalents, wherever the same may be advantageous. 60

I am aware of the patent to Lidback, No. 349,597, issued September 21, 1886, wherein there is a pivoted cylinder, but my device differs from the one shown in that patent in that
65 it is adapted to move in all directions, whereas the cylinder of the patent referred to can only rock always in the same plane. Now it frequently happens, owing to the adjustment of the parts, their wearing in use, or defect
70 in the castings, that the sector does not rock back and forth constantly in the same plane, but has a little sidewise movement, and if the cylinder were not so supported as to yield
75 in all directions it would be difficult to work the gate. I overcome this defect, and support my cylinder as already described, that it is free to rock, not only back and forth in the same plane, but sidewise, or to move in all directions. 80

I claim—

In a railway gate, the combination of a post, a shaft journaled therein, a sector secured to such shaft and provided with a head or bumper, and spiral springs supported in sockets, whereby as the sector rocks in one direc-
85 tion or the other the head will strike against one or the other of such springs, substantially as described.

ROBERT C. DOUGLASS.

Witnesses:

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