(No Model.)

J. COTY.

RAILROAD CROSSING GATE.

No. 294,765. Patented Mar. 11, 1884.

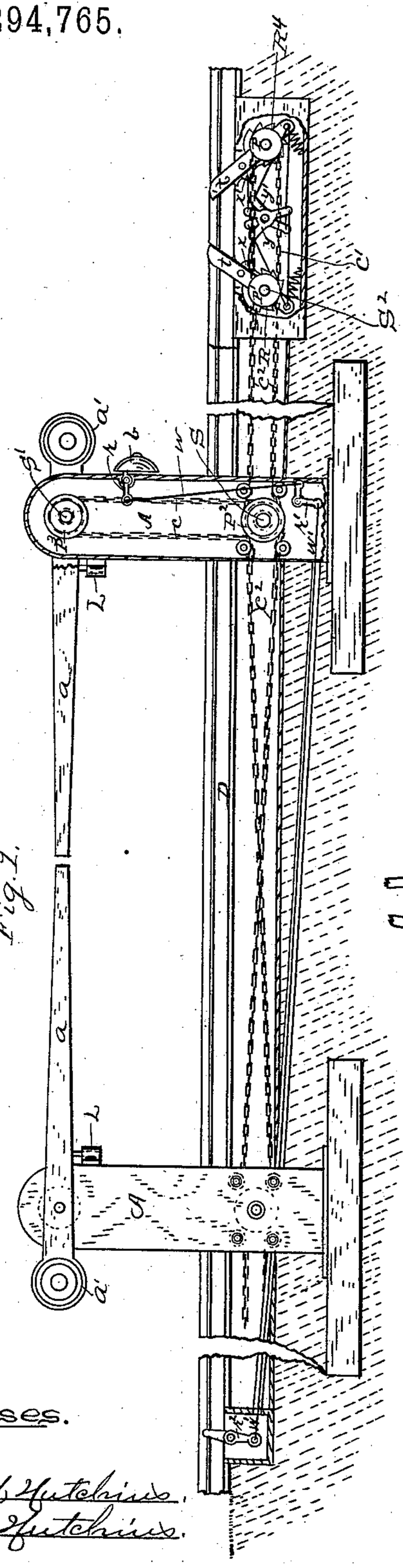

Fig. 1.

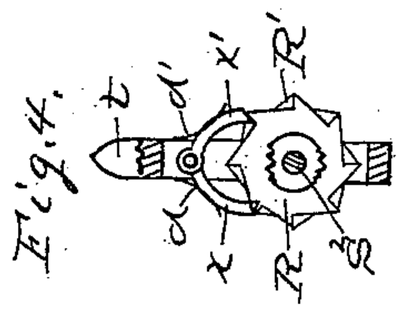

Fig. 4.

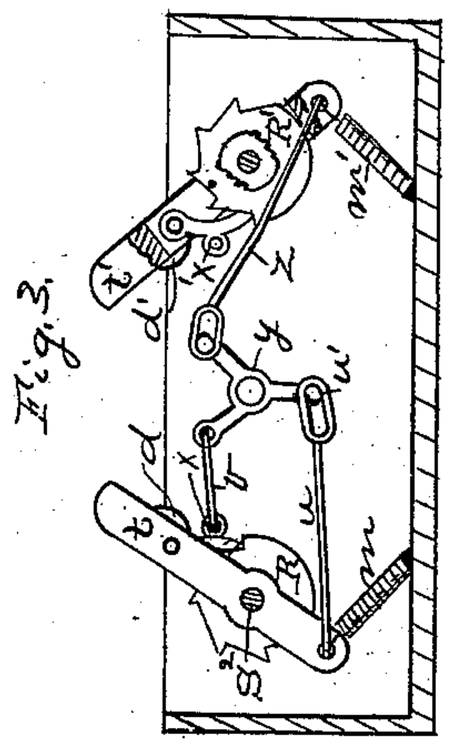

Fig. 3.

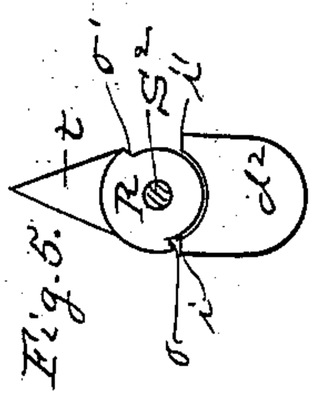

Fig. 5.

Fig. 2.

Witnesses.

Thos. H. Hutchins.

Wm. J. Hutchins.

Inventor.

Joseph Coty.

UNITED STATES PATENT OFFICE.

JOSEPH COTY, OF JOLIET, ILLINOIS.

RAILROAD-CROSSING GATE.

SPECIFICATION forming part of Letters Patent No. 294,765, dated March 11, 1884.

Application filed July 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH COTY, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Railroad-Crossing Gates, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side view; Fig. 2, an end view from a position on the track; Fig. 3, a side elevation of that portion of the device against which the wheels of a passing train engage to operate the gate, and Figs. 4 and 5 detached views of substitute devices for the levers *t t'*.

This device is a gate to be used at railroad-crossings to prevent persons, teams, &c., from crossing the railroad-track when a train is approaching, and is intended to be operated by the passing trains as they pass in either direction, so that the gate will be open when no train is passing and kept closed while the train is passing.

The view Fig. 1 is from a position in the road that crosses the track and represents the gate, consisting of the arms or bars *a a*, as let down to prevent crossing the track. The gate consists of four of these bars, two at either side of the track, as shown in Fig. 2, and pivoted in the posts A A on the rock-shafts S', so the inner ends of the bars *a a* may vibrate up and down, to open and close, when desired. The posts A and bars *a a* on either side of the track being duplicates, it is not necessary to show or describe but one in detail, so the second one is only partially shown by the end view in Fig. 2.

The shafts S' in the top of the posts A A, and to which the bars *a a* attach, are provided with sheave-wheels P^3, which are connected with the sheave-wheels P^8 P^8 on the shaft S. This shaft S extends from post to post across under the track, as shown in Fig. 2, and a sheave-wheel, P^8, is attached thereto near each end. There is to be a pair of posts—such as is shown in Fig. 1—on each side of the track, and, looking at Fig. 1, a similar pair is supposed to be located directly behind them on the other side of the track, and shafts S S extend across under the track to the said opposite posts to operate and support a similar pair of bars in the same manner as those shown in Fig. 1 on the other side of the track. When sheaves P^8 P^8 on shafts S are rotated by means of the chain c^2 from the treadle mechanism, they in turn rotate sheaves P^3 by means of the chains *c*, and thereby cause the bars *a a* to be elevated and lowered.

The parts that engage with the wheels of a passing train to operate the gates are intended to be located along the side of the track—one each way from the gate—at quite a long distance from the gate, so that a coming train will close the gate before the train arrives at the gate, and one of these parts is shown at the right end of Fig. 1 and also in Fig. 3. It is not necessary to show another one at the left end of Fig. 1, as it would be but a duplicate of the one at the right in said figure. This device consists of a pair of oscillating upwardly-projecting levers, *t t'*, pivoted or keyed on the rock-shafts S^2 and R^4. The outer ends of these rock-shafts are provided with sheaves P and P', which are connected by the chain *c'*, to rotate each sheave alike. Also, these rock-shafts are provided with the ratchets R and R' next within the sheaves P and P', as shown in Fig. 3, and firmly keyed thereto. The pawls *x x* on the sides of the levers *t t'* engage with the ratchets to rotate them.

Referring to Fig. 3, it is shown how the levers *t t'* are connected with each other in such manner that they will oscillate to and from each other as one is depressed by the wheels of a passing train. If a train were coming from the right, the wheel would strike the lever *t'* first and depress its upper end. This would cause its lower end to pull on the link *z* and rock the Y-shaped piece *y*, that pivots on the central stud, and pull on the pawl of the lever *t* by means of its being connected thereto by the link *v* to release the pawl from the ratchet R. The slot *w'* in the end of link *w* permits a partial movement of the Y, so the said pawl can be removed before link *w* pushes against the lower end of lever *t* to depress the upper ends of these levers *t t'* toward each other, to be below the wheels of the train.

The treadle device shown in Fig. 3 and at the right in Fig. 1 is connected to the gate by means of the chain c^2, as shown in Fig. 1. Said chain passes over sheave-wheels in said treadle

device, and from thence over the sheaves P^2 in the foot of the posts A, as shown in Fig. 1.

It is obvious from the manner in which these levers *t t'* are connected that they must oscillate to and from each other, the object of which is that when lever *t'* is depressed lever *t* will also turn down out of the way of the wheel and rock the shaft S^2, to which it is journaled, and by means of the long chain c^2, which is shown in Fig. 1, and connects sheaves P' with sheaves P^2 in the foot of the posts A on the rock-shafts S, will partially rotate sheaves P^2, and by that means raise or depress the bars *a a*, according to which one of these levers *t* the wheels strike. If the train were coming from the right in Fig. 1, it would operate by its wheels on levers *t t'* by depressing them, and that would close the bars down, as shown in said figure. After the train passes on past the gate, it will operate a similar set of levers *t t'*, not necessary to be shown, but located to the left of Fig. 1 along the track, and thus elevate the bars *a a* to open the passage-way across the track, so that the gate-bars *a a* are let down when the train approaches the gate, and raised after the train leaves the gate, it being intended to place the devices shown in Fig. 3 far enough apart so the train will not be on both at the same time. The springs *m m'*, attached to the lower ends of the levers *t t'*, will always return them to their primary position after the wheels of the train have passed over them to release them. The levers *t t'* pivot loosely on the shafts S^2 R^4, and only rock them by means of the pawls on the ratchets R R'. It is intended that each passing wheel will operate to rotate the ratchets one notch at a time until each notch has been engaged by a pawl, by which time the gate-bars *a a* are moved to their fullest extent, and any further rotation of said rock shafts is prevented by the plain portion of said ratchets. (Shown in Fig. 3.)

In Fig. 1 two Y-shaped pieces are shown on the same stud. In order to get a reverse motion of these levers *t t'*, a duplicate set of these parts and the links *z v w* are necessary so they will operate in the same manner, no matter from which direction the train approaches.

It is designed that the gate-bars *a a* stand upright, so the way across the track will be closed only while a train is passing, and that the bars will always be let down by the wheels striking the set of levers between the gate and the approaching train, and be opened or lifted up by the set of levers *t t'* beyond the gate as the train is leaving the gate, whereby the gate is automatic and does not require the attention of an operator to open and close it.

A bell attachment is shown in Fig. 1, the bell *b* on the side of the post A having its ringing mechanism connected to the lever r^2 by means of the wires W and W' and bell-crank *r'*. When a train is passing, the wheels will consecutively strike the upper end of lever r^2, causing it to pull on the wires W' W, and thus continuously ring the bell while the train is passing or approaching, as it is intended to locate lever r^2 at some distance along the track away from the gate. The chain c^2 is held closely in contact with sheaves P^2 by means of the smaller sheaves (shown in Fig. 1) at the foot of the posts A A, so the chain c^2 will have sufficient frictional contact with said sheaves to perform the duties required of it. Figs. 4 and 5 show two other forms that might substitute the levers *t t'*, but which I will not further describe.

The whole device forms a cheap, safe, durable, and effective automatic gate for the purpose. These gate-bars *a* may be duplicated to cover a sidewalk as well as the street, and the chains may be substituted by wire cables, ropes, or anything that will answer the purpose.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. The combination of the gate-bars *a*, shaft S', sheaves P^3 P^2 P^3, chains *c* c^2 *c'*, posts A, levers *t t'*, links *z v w*, Y-shaped piece *y*, springs *m m'*, ratchets R R', pawls *x x*, rock-shafts S^2 R^4, and sheaves P P', all arranged to operate substantially as and for the purpose set forth.

2. The combination of the levers *t t'*, pawls *x x*, ratchets R R', links *z v w*, coil-springs *m m'*, sheaves P P', Y-shaped piece *y*, and chains *c' c²*, by means of which successive wheels of the approaching train lower the gate-bars *a a*, or elevate them, gradually, in the manner and for the purpose set forth.

JOSEPH COTY.

Witnesses:
THOS. H. HUTCHINS,
WM. J. HUTCHINS.