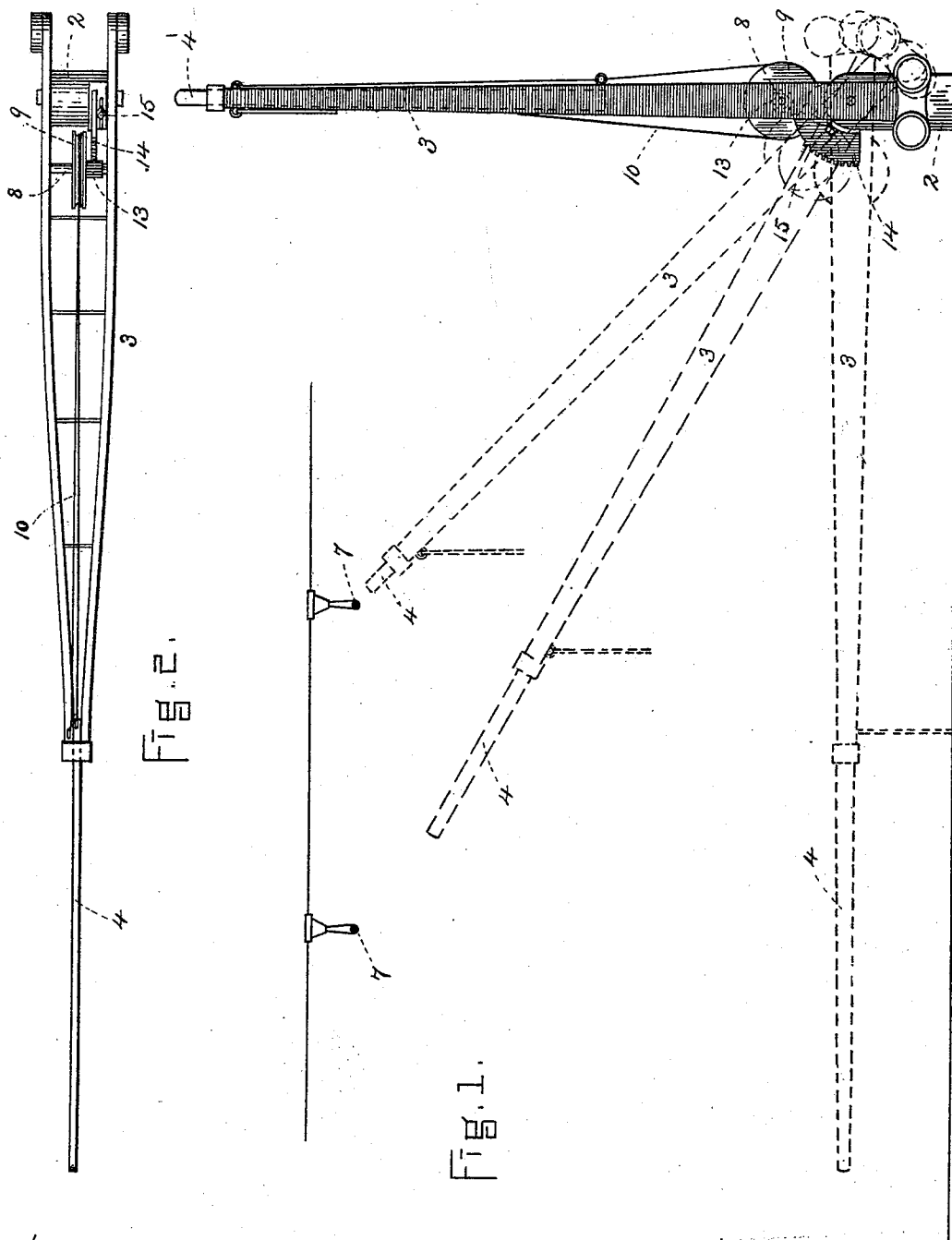


(No Model.)

H. A. SMITH.
GATE.

No. 494,390.

Patented Mar. 28, 1893.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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GATE.

SPECIFICATION forming part of Letters Patent No. 494,390, dated March 28, 1893.

Application filed March 3, 1890. Serial No. 342,389. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. SMITH, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Gates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in gates, particularly that class, which swing in vertical planes, and are designed to guard railway crossings at grade.

The purpose of my invention is to produce a single gate, which shall cover a wide space and thereby avoid the use of two separate gates; to this end I propose to equip a gate of the class above premised with a supplemental gate or extension; moreover such extension or end section is to be adapted to advance or retreat longitudinally with respect to the main arm in the act of swinging the latter. Thus the gate-keeper has merely his usual duty to perform, but when the main arm is swung down to guard a crossing the end section is run out or advanced to make the space covered perhaps twice that of the main arm in length, while subsequently in the act of raising the arm, said end-section retreats and is telescoped within or upon the main arm.

My invention consists in the connection with the automatic telescoping extension operated automatically by the swinging of the main arm of mechanism by which such act of advance or retreat is controlled and caused to take place at certain predetermined points, or when the gate has reached a certain desired position in its act of swinging. Further peculiarities will be hereinafter fully described and explained, but I may add here that a gate embodying my invention is especially adapted where certain obstructions are placed in the path of movement of the gate. For instance there are many places, where the overhead electric railway system is compelled to cross steam railways at grade, in such event the gate, when the trolley wire ex-

tends continuously across the road, cannot be operated if of a length suitable to guard the crossing. In my gate the length can be made such that the main portion can swing past the trolley; when this has been done the extension is run out and the full length of the gate obtained to guard the crossing. Conversely as the gate is returned to its inactive position the extension telescopes within it, and when the trolley wire is reached the arm is sufficiently short to swing easily past it.

The drawings represent in Figure 1 a side elevation with the gate inactive. Fig. 2 is a plan of the same in an extended position. The gate in the act of swinging down just before passing a trolley wire, likewise in its position just after passing such obstruction, and finally in its active position fully extended is shown in dotted lines, in Fig. 1.

In the accompanying drawings 2 represents a post or standard upon which is pivoted a self-balanced gate of the class which swing in vertical planes. The gate comprises a swinging arm 3 of the usual construction, which is operated by a handle outside of the post; this gate proper is provided with an extension or end section 4 of any suitable length, and adapted to telescope, moving longitudinally upon the main arm. A transverse rotary shaft 8 is arranged near the base of the main arm 3. Upon this is mounted a grooved pulley or disk 9. Passing about this pulley is an endless band 10, which runs through an eye or pulley at the opposite extremity of the arm 3, the two ends of said band being finally made fast to the rear end of the telescoping end section 4. To operate this disk 9 automatically by the swinging of the gate, I have furnished shaft 8 with a pinion 13, which is adapted to engage and mesh with a toothed segmental plate 14. The latter is adjustably mounted in the standard 2 by the bolt 15; thus it is evident from the arrangement of the several instrumentalities that the movement of the extension or end section is coincident with the engagement of said pinion and segment. By making the position of the latter adjustable the time at which the end section advances or retreats is predetermined and readily controlled. The length of the segment may be varied for different lengths of the piece 4; or the size of the pinion or diameter

of the disk may likewise be changed to suit circumstances. In lieu of a toothed segment and pinion a friction device may be used with equally good results.

- 5 The advantages of my improved gate are illustrated in the dotted lines Fig. 1. The trolley wires 7, 7 are directly in the path of an ordinary gate and the crossing cannot be guarded beneath the wires by such an one.
- 10 By my arrangement the segment is so set that the arm 3 is allowed to swing and the length of the gate to remain the same, until said arm has passed the nearest trolley wire. At this time the pinion engages its segment, and the
- 15 end section advances, the swinging action of the arm effecting the proper travel of said section 4 to its farthest extent. Return of the gate to its upright position compels the end section 4 to retreat till the gate is in a fit
- 20 condition and of a length adapted to pass beneath the trolley wire. By such mechanism a gate can be used to protect a space equal to that it could guard were it made in one piece and the trolley wire removed.
- 25 It is evident that my improvements although in the present instance applied to gates which swing in vertical planes are equally adapted for such as swing in horizontal planes.
- What I claim is—
- 30 1. A radially moving railway gate, comprising a swinging arm, and a telescopic end section; positive means in engagement with said arm for swinging the same, and connecting devices attached to the telescopic end section,
- 35 whereby in the downward movement of the arm, the end section is simultaneously projected, substantially as specified.
2. A railway gate comprising a radially moving arm provided with a telescopic end section,
- 40 and positive means in engagement with said arm for swinging the same and simultaneously projecting or retracting the end section according as the arm is moving from a vertical to a

horizontal position or vice-versa, substantially as specified and set forth.

3. A radially moving railway gate, comprising a swinging arm, a telescopic end section therein, and a band connection between mechanism at the base of said arm and the telescopic end section, whereby the arm and end section are operated simultaneously, substantially as stated and described.

4. A fixed support, an arm pivotally connected thereto at one end, and a telescopic end section in the free end of said arm, in combination with a segment on said post, a shaft carried by the swinging arm, a pinion on said shaft adapted to engage said segment, and an operating band between said shaft and said end section, substantially as set forth.

5. A gate comprising a swinging arm having vertical movement, and a telescopic end section in the free end of the arm, combined with a rotary pulley carried by said arm, a cord or band which connects said end section with said pulley, and gearing connected with said pulley and actuated by the pivotal motion of the swinging arm, substantially as stated.

6. In a railway gate the combination with a swinging arm, a movable tip section and an operating non-revoluble toothed segment concentric with the main pivot and adjustably mounted on the gate post a wheel turned by said segment, a band connection from said wheel to the tip section, and intermediate mechanism between the said wheel and the segment, whereby in the operation of the gate the times of movement of the tip section may be controlled, substantially as stated.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. SMITH.

Witnesses:

H. E. LODGE,
GEO. F. WOOD.