J. E. GOLDSWORTHY.

AUTOMATIC GATE.

No. 190,715. Patented May 15, 1877.

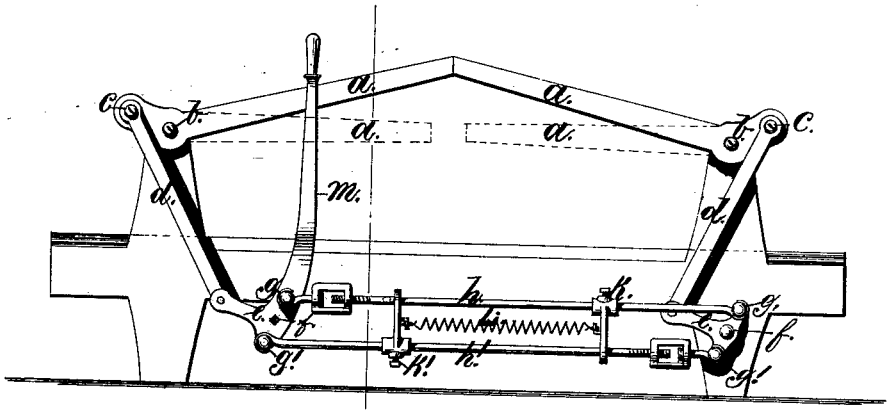

Fig. 1.

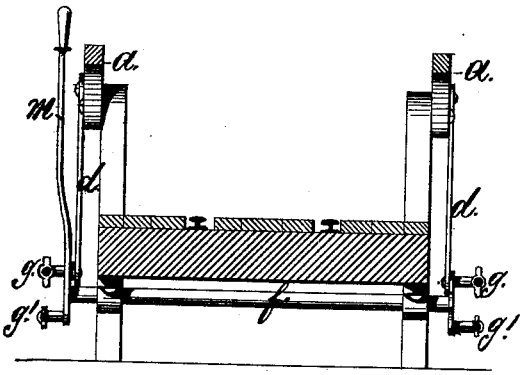

Fig. 2.

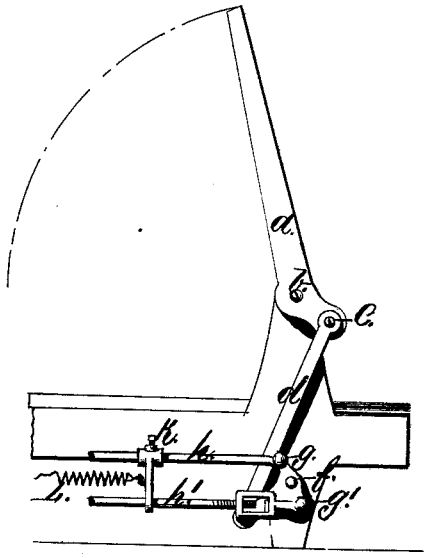

Fig. 3.

WITNESSES.

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JOHN E. GOLDSWORTHY, OF CENTRAL FALLS, RHODE ISLAND.

IMPROVEMENT IN AUTOMATIC GATES.

Specification forming part of Letters Patent No. **190,715**, dated May 15, 1877; application filed February 11, 1876.

To all whom it may concern:

Be it known that I, JOHN E. GOLDSWORTHY, of Central Falls, in the county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Gates; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a longitudinal elevation, showing the gate and the connecting mechanism in view. Fig. 2 is a cross-section, showing two gates, one on each side of a common road or railroad, which is crossed by another road, and also the shaft connecting the two gates, so that the same may be opened or closed simultaneously. Fig. 3 is a view of the mechanism, showing the position of the parts when the gate-bars are raised.

Similar letters of reference indicate corresponding parts.

This invention relates to that kind of gates in which two vertically-swinging gate-bars, supported on standards on each side of the road, form the gate, the gate-bars being connected by suitable mechanism, so as to open and close simultaneously.

The nature of the invention consists in the peculiar and novel arrangement of the parts by which the two bars of one gate are operated simultaneously, and also in the novel arrangement by which two or more gates may be opened and closed simultaneously by means of levers located at any desired point.

In the drawings, *a a* are the vertically-swinging gate-bars. These bars may be made so as to bear against each other at the point of meeting in the center of the road, such point being above the center or axis on which they swing, the bars being sufficiently longer than the space between the standards, so that the ends will meet and form a truss before they reach a point on a line with their supporting-centers. By this arrangement gates over wide avenues can be arranged without central supports for the gate-bars. This arrangement is shown in Fig. 1 in solid lines.

For ordinary roads and streets crossing a railroad-track, I prefer to make the gate-bars so that they will not meet in the center, but are, when closed, an inch or more apart, as is shown in Fig. 1 in broken lines. When so arranged the bars are not liable to bind at the point of meeting in the center, and, as this point is at considerable distance from the axis, the leverage is very great, and it becomes difficult to promptly open the gate.

When the gate-arms are not too long, and a proper support is arranged at the standards, the same will be firmly held without interlocking at the center, and the gate can be operated with little power.

b is the center or shaft on which the gate-bars swing. *c* is a pin or stud, secured to a projection on the rear end of the gate-bars *a*. *d* is a connecting-rod. *e* is a compound lever, secured either to a transverse shaft connecting two gates or a fixed stud secured to the lower part of the standard. The compound lever *e* is provided with one long and two short arms, the long arm of which is connected, by the connecting-rod *d*, with the end of the gate-arm back of the supporting center or axis *b* at *c*. The two short arms of the compound levers *e*, at *g* and *g'*, are provided with studs, and the two rods *h* and *h'*, so that any motion of one gate-bar is transmitted at once, through the connecting-rods *d d* and *h h'*, to the other, and both move simultaneously, and without any lost motion, such as is incidental to the use of gears, pulleys, chains, or wire rope, which have heretofore been used in connecting vertically-swinging gate-bars.

By securing one or both of the compound levers to the shafts *f f*, the motions of the gate-arms of one gate are transmitted to the gate-arms of the opposite gate, and both gates are operated simultaneously, and, if one or both shafts are extended to an indefined number of gates, all may be operated by any one of the gate-arms of any gate so connected.

The lever *m* is shown in Fig. 1 as forming part of one of the compound levers, and used for operating the gates. This lever *m* may be secured to an extension of the shaft *f*, and placed in a gate-house, or any place most convenient for the person operating one or more gates; and if it is desirable to open and close the gates, one after the other, the shaft *f* of each gate may be extended to the gate-house, and a lever, *m*, secured to each shaft, so that any one or all the gates may be operated from

one point, either simultaneously or successively.

The gate-bars *a a* are not balanced; but the weight of the same is counteracted by the tension of the spring L, which, as shown in Fig. 1, is secured to the brackets *k* and *k'*, which brackets are secured one to each of the rods *h* and *h'* by set-screws, so that the tension of the spring L may be adjusted. By this arrangement the spring may be adjusted to open the gate as soon as the gate-bars are released, or a less tension of the spring may be used, and the gate-bars allowed to rest when down, and to be raised by the gate-keeper. In either case the gate is operated with little power, and prompt in its actions.

In double gates, instead of the two connecting-bars *h* and *h'*, only one may be used on each side, and one end of the spring L may be permanently secured while the tension can be regulated by the adjustment of the bracket on the rod.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, substantially as specified, of the two vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, one or more rods, *h h*, and the spring L, arranged to operate substantially as and for the purpose set forth.

2. In combination, substantially as specified, with the vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, the adjustable rods *h* and *h'*, and spring L, arranged to operate substantially as and for the purpose set forth.

3. In combination, substantially as specified, with the vertically-swinging gate-bars *a a*, the connecting-rods *d d*, bell-crank levers *e e*, and rods *h* and *h'*, the shaft or shafts connecting the bell-crank levers *e e*, so that, when power is applied to open or close either gate, uniformity of action will be observed in all the gates so connected.

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