

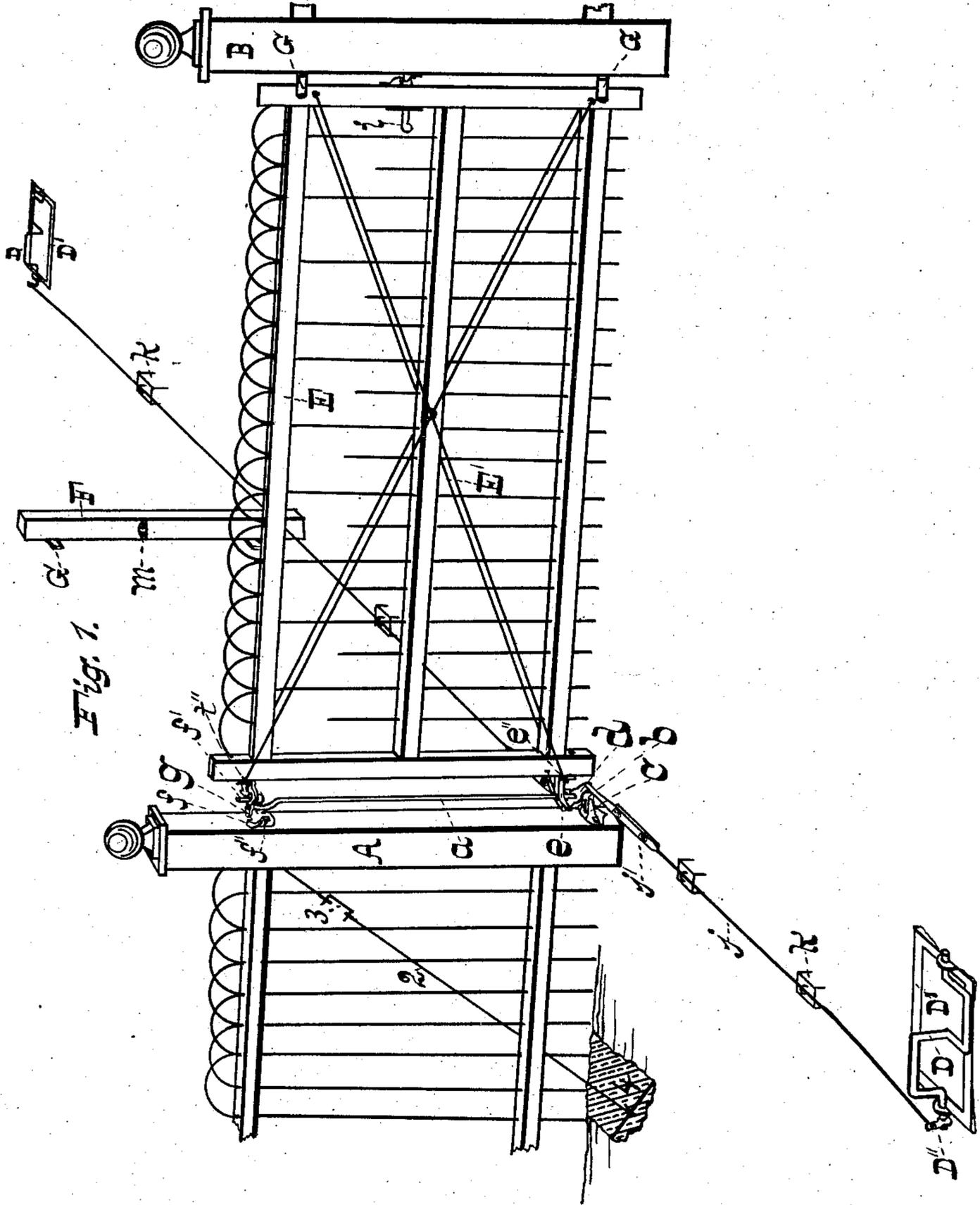
(No Model.)

4 Sheets—Sheet 1.

N. H. LONG.
AUTOMATIC GATE.

No. 259,027.

Patented June 6, 1882.



WITNESSES:

L. A. Adamson

G. G. Adamson

N. H. Long,
INVENTOR.

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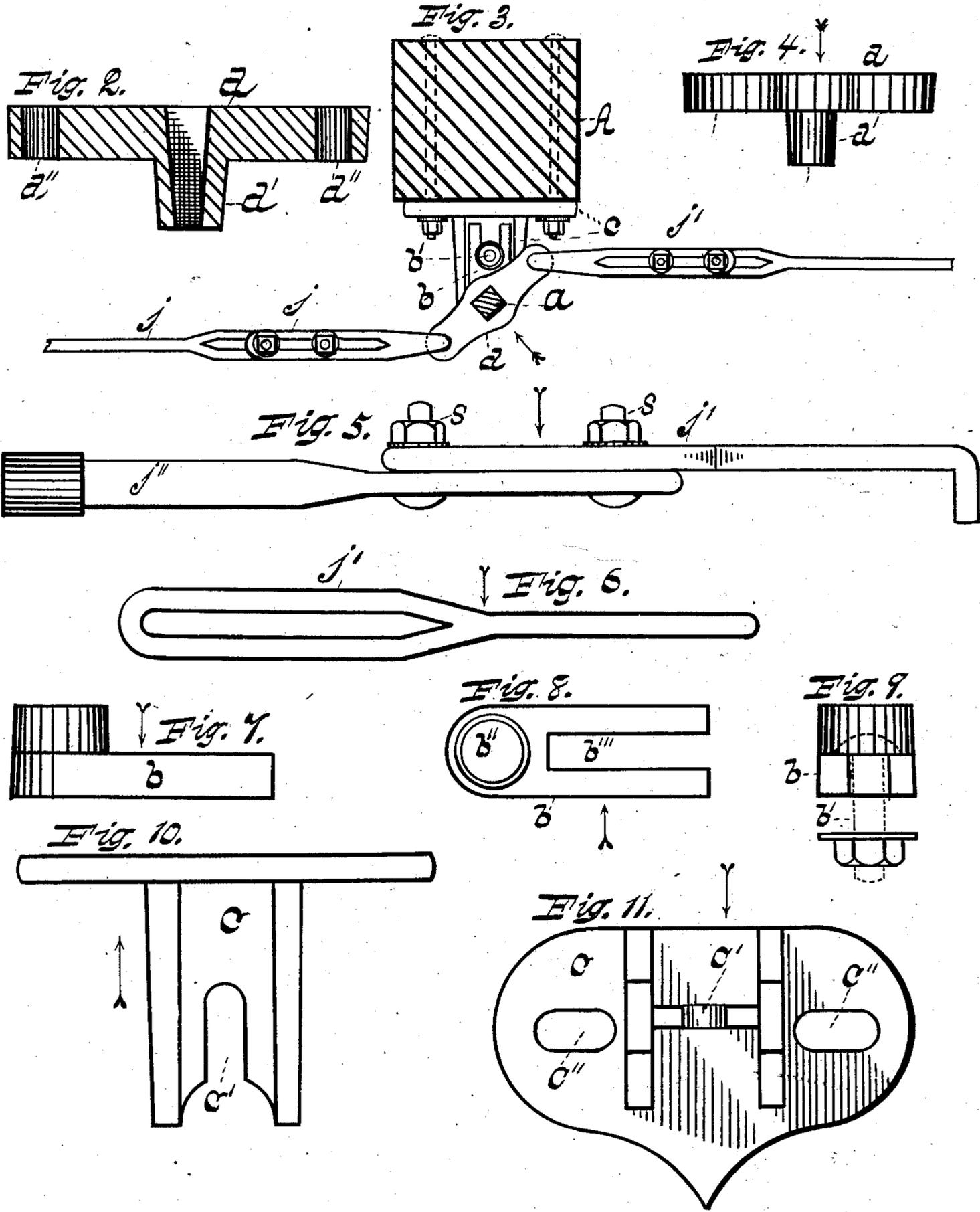
(No Model.)

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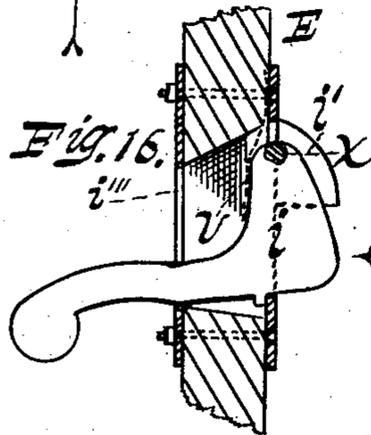
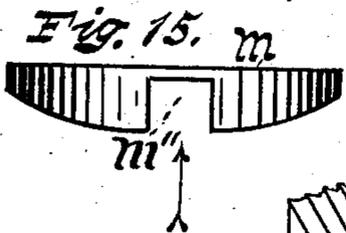
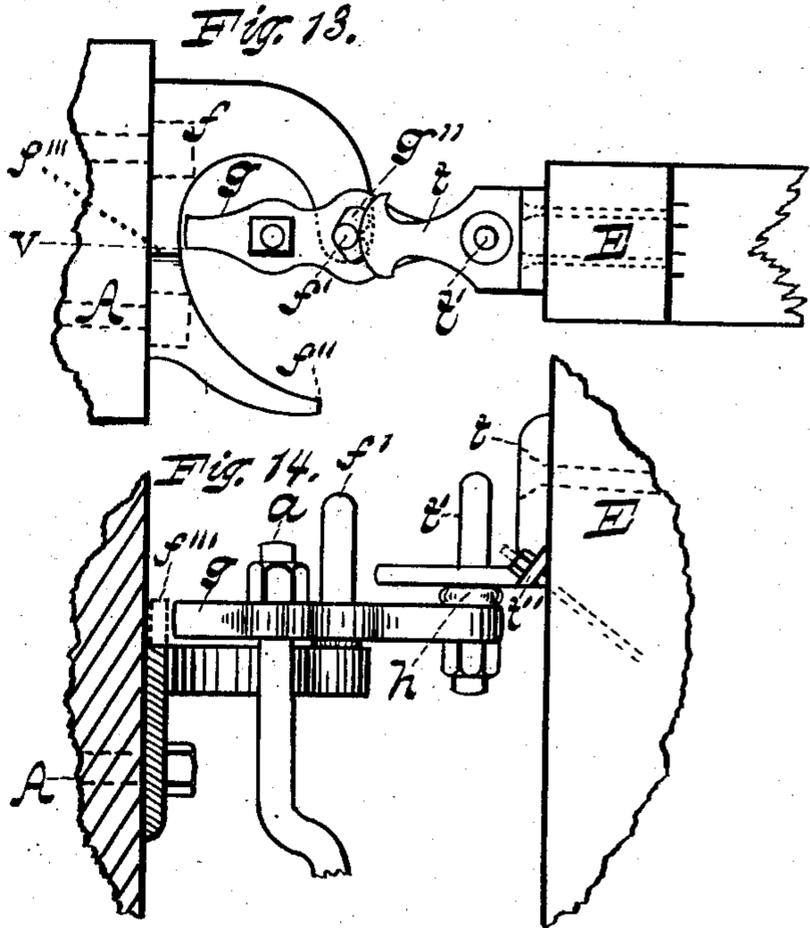
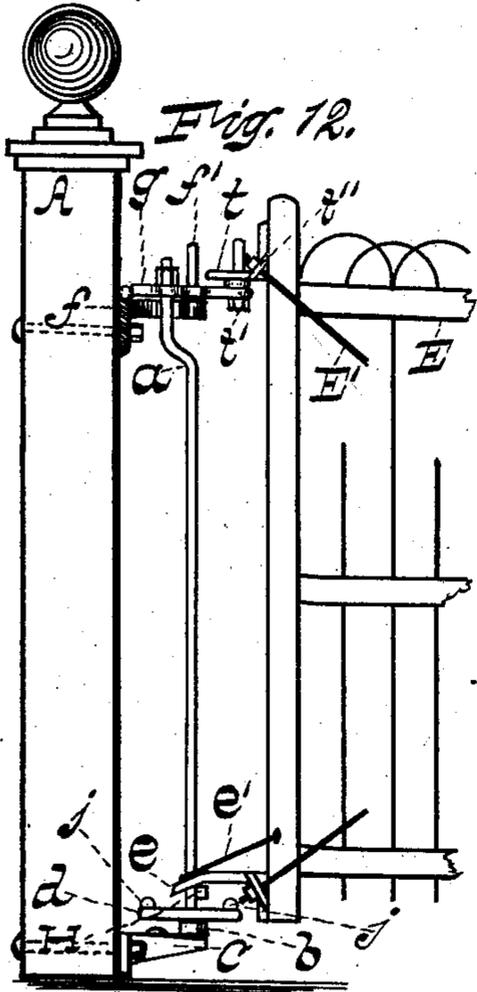
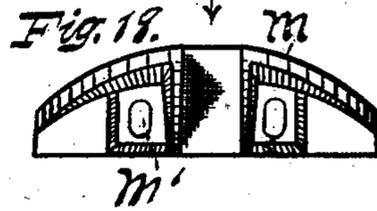
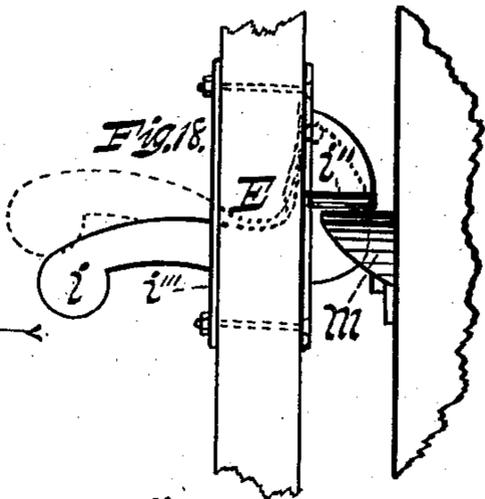
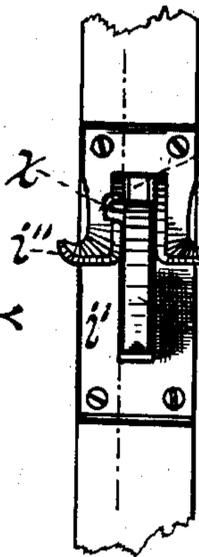


Fig. 17.



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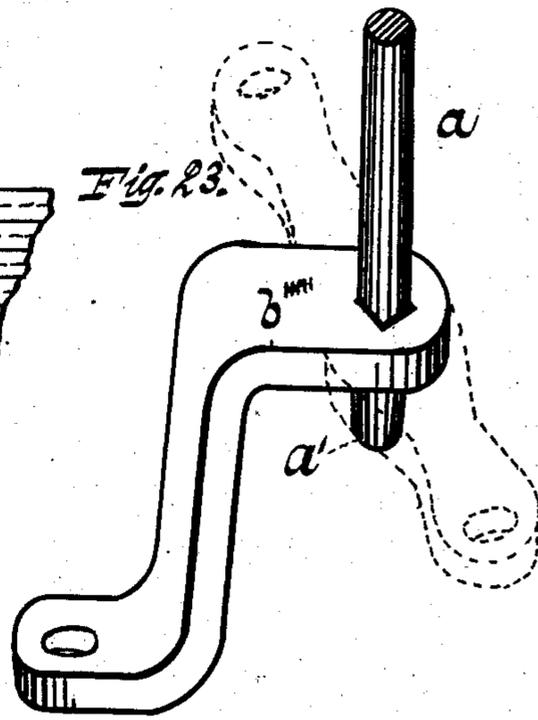
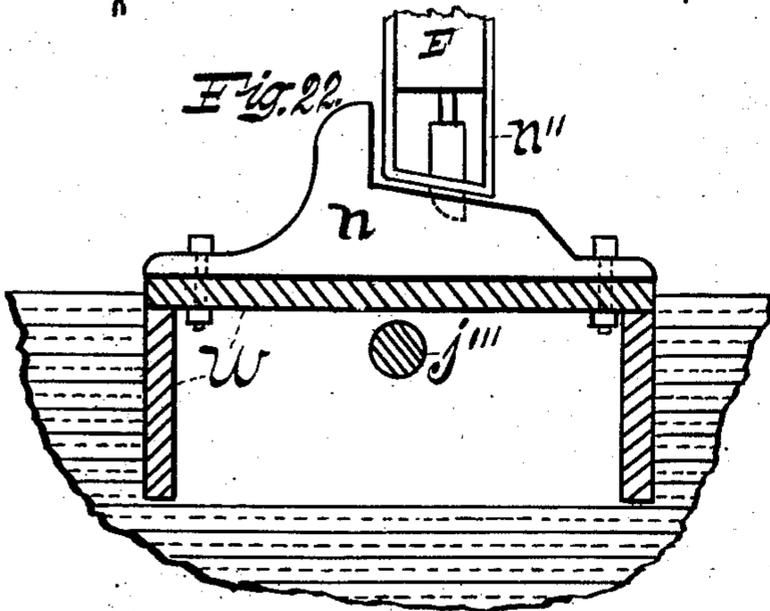
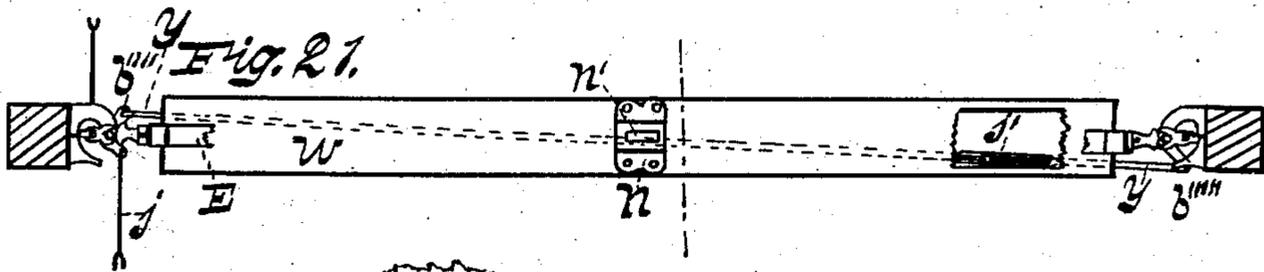
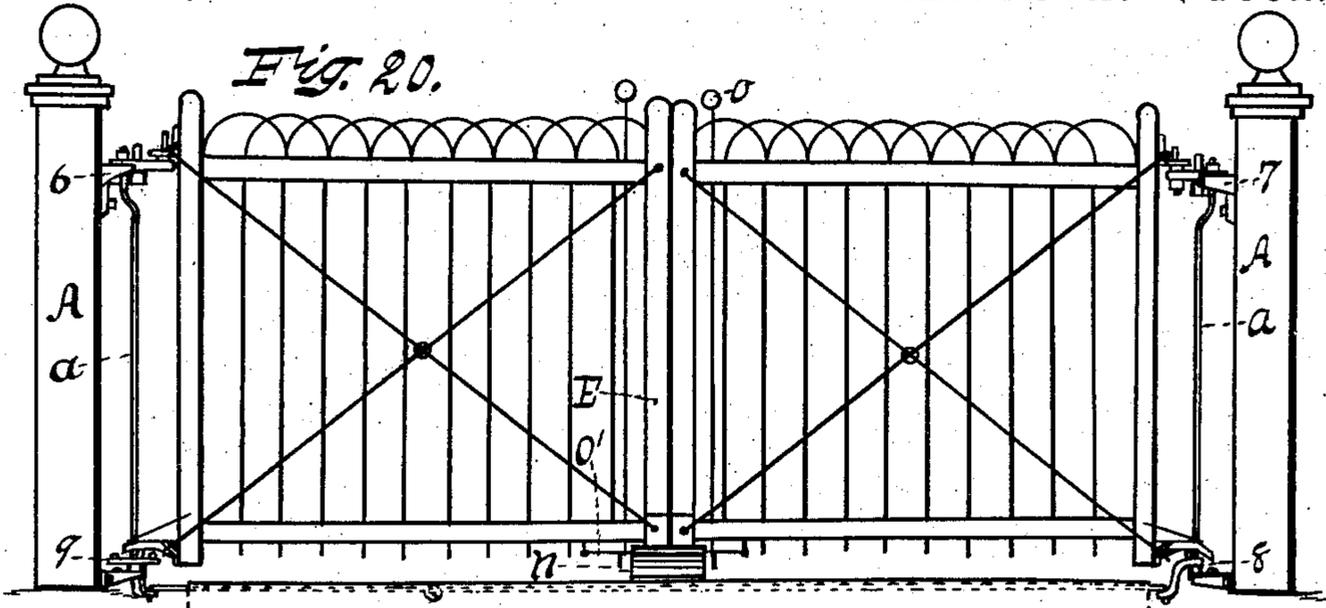
(No Model.)

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N. H. LONG.
AUTOMATIC GATE.

No. 259,027.

Patented June 6, 1882.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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AUTOMATIC GATE.

SPECIFICATION forming part of Letters Patent No. 259,027, dated June 6, 1882.

Application filed March 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, NATHAN H. LONG, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented certain new and useful Improvements in Automatic Gates, of which the following is a specification.

The object of my present invention relates to improvements in automatic gates, or that class of gates which are opened and closed by a tilting mechanism, and by the vehicle-wheels passing over trip-rods; and it consists, for most part, of improvements upon that for which Letters Patent No. 228,823 were granted to me June 15, 1880, whereby the said invention is rendered more exact and certain in its operation, stronger and more durable in its construction, and may be used in combination with any other automatic gate operated by means of wheel-irons.

My improvement consists in a T-lever connected by adjustable horizontal rods, said T-lever working in a socket-eye of an adjustable lower hinge-bracket, the said hinge parts held in place by the weight of the gate; and in order to secure the most perfect operation of my gate, controlled by the tilting mechanism and its pivoted bearings, it is necessary that when closed the gate should stand horizontally and vertically true. This feature renders necessary my peculiarly constructed latching device.

To provide means whereby these various objects of my invention may be obtained, I construct my gate and attachments as represented in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved gate, showing all of the parts in their proper places. Fig. 2 is a sectional view of the T-lever. Fig. 3 is a perspective view of the lower hinge-bracket and connections. Fig. 4 is a longitudinal view of the T-lever, showing its pivot. Fig. 5 is a side view of one end of my adjustable horizontal rod. Fig. 6 is a view of a part of the same. Figs. 7, 8, 9, 10, and 11 are detail views of the lower hinge. Fig. 12 is an elevated view of the upper and lower hinges, showing the manner of attaching them to the posts. Figs. 13 and 14 are detail views of my improved upper hinge. Figs. 15, 16, 17, 18, and 19 are detail views of my improved latch. Fig.

20 is a view showing my improved mechanism as attached to a double gate. Fig. 21 is a view looking down on the same. Fig. 22 is a cross-section of the box placed across the carriage-way for protecting the transverse rod, also showing the latch-block; and Fig. 23 is an enlarged view of my improved T-lever for connecting the hinge parts of a double gate.

Similar letters refer to similar parts throughout the several views.

In the perspective view, Fig. 1, the horizontal rods are shown elevated above the ground and placed on short posts for convenience, but may be reversed and placed below the surface of the ground in a gas-pipe or a wood box for protection.

A, B, and F represent the posts, which are set in the ground in the usual manner. A is the hinge-post, to which are attached the upper and lower hinge-brackets by bolts passing through the post. B is the post for the gate to latch and shut on, and F is the post for the gate to latch open on.

a is the vertical hinge-rod forming the hinge-pintles for the gate, and, in connection with the other hinge mechanism, constitutes the immediate means by which the gate is opened and closed. The lower end of the vertical rod *a* is tapered to fit the hole in the T-lever *d*.

c is the lower hinge-bracket, which carries the socket *b*, (most clearly shown in Figs. 3 and 12,) and is adjustably secured thereto by the bolt *b'* passing through the slot *c'* in the bracket and slot *b'* in the socket. This allows the socket *b* to be moved to or from the post A in regulating the swinging of the gate. The T-lever revolves in the socket-eye *b''* by means of the gudgeon *d'*. At the ends of the T-lever are eye-holes *d''*, in which the horizontal rods *j j* are connected. The ends of the horizontal rods are made adjustable by the overlapping loops *j' j''*, held together by bolts *s s*. (See Figs. 3 and 5.) The horizontal rods *j* are connected to the trip-rods D, with which vehicle-wheels come in contact, and thus impart power to the gate-operating mechanism.

Attached to the rear upright of the gate E are two hinge parts, *t* and *e*, and attached to the post A are the hinge parts *f* and *c*. Interposed between the two upper hinge parts, *t* and

f, is a bar, *g*, having a heart-shaped opening, *g''*, centrally located therein. The bar *g* is rigidly attached to the upper end of the vertical hinge-rod *a*, and a stud, *f'*, on the hinge part *f* passes vertically through the heart-shaped orifice and serves as a pivot for said bar. It will readily be understood by this arrangement that the vertical rod and bar tip slightly as the stud *f'* changes its position in the orifice. On the rear upright of the gate, at the upper end, the hinge part *t* is apertured to receive the stud *t'* of the bar *g*. The lower hinge part, *e*, rests on the horizontal stud *H*, formed on the hinge-rod *a*, and is prevented from being lifted off of the stud by the U-shaped loop *e'*. Said loop is attached to the gate-upright by screw-eyes screwed therein, thereby attaching the gate *E* to the vertical hinge-rod and other hinge mechanism. (Most clearly shown in Fig. 12.)

Fig. 18 is a perspective view of my automatic gate-latch as it is attached to the front upright of the gate. On each side of the latch *i* are lugs *x*, cast and made to fit in recesses cast in the plate *i''*, so that when the plate *i'* is clamped to the front upright of the gate by bolts the latch is held in its proper place. The latch is actuated by gravity and a flat spring, *u*. The front plate, *i'*, has two lips, *i'''*, one on each side of the mortise in which the latch is actuated. These lips are curved upward and outward, so that when they strike the curved portion of the latch-block *m* they will have a tendency to ride over it. The latch *m* is curved outward and downward (see Figs. 15 and 19) from the notch *m''*. As the gate swings open or shut the latch will strike the outward curved portion of the latch-block, and is passed backward, as shown in dotted lines, Fig. 19, until it reaches the opening *m''*, when it is quickly forced forward in said opening by gravity and the spring *u* when the gate is securely held either opened or closed. By means of the lips *i'''* resting on the top of the latch-block the gate is prevented from sagging, and rendered more certain of opening and closing automatically. The latch is readily lifted out of the block *m* by the tilting mechanism of the gate, or by hand.

The operation of my improved gate is as follows: The vehicle-wheels operate through the trip-rods *D*, connecting-rods *j*, and T-lever *d* to turn the vertical hinge-rod *a* one-quarter revolution, changing the hinge-pivots. It is well understood by those familiar with such devices that the vehicle-wheels force the trip-rod entirely down almost instantaneously, and retain it there only momentarily, and therefore that there is no active pressure, except for a limited space of time, (in which it is impossible for the gate to swing entirely open or shut.) The result has been that such gates would often remain partially open by reason of a reaction of the mechanism after the wheel had left the trip-rod. By means of the bar *g*, having the heart-shaped orifice *g''*, and the catches *f'' f'''* on the hinge-bracket *f*, I am enabled to avoid this difficulty. As before indicated, the lower hinge parts, *c*, *b*, and *d*, are held together by

the weight of the gate bearing down on the vertical rod *a*. Heretofore the T-lever has been attached to the lower end of the vertical rod, similar to that shown in Fig. 1 of Patent No. 228,823. By the continual jerking the T-lever receives by the passage of vehicles over the trip-rods it is liable to work loose and drop down, rendering the gate inoperative. By tapering the lower end of the vertical rod, and by placing the gudgeon on the T-lever in the socket-eye *b''* of the hinge part *b* and placing the vertical rod in the tapering hole in the center of the T-lever, I am enabled to avoid this difficulty, and thereby render the gate certain to operate and less liable to get out of order.

The adjustment of the horizontal rods by means of the overlapping loops, in connection with the lower hinge mechanism of automatic gates, is of special importance, in combination with adjustable hinges, since a very slight variation in the length of the rod or adjustment of the hinges will prevent a proper action of the parts.

In Fig. 1 the hinge parts *e* and *t* on the rear upright of the gate *E* are more securely held in place by the double brace-rods *E'*. These rods are secured at one end to the ears *t''* and *e''*, which are cast on each side of the said hinge parts, as shown in Figs. 1 and 12. On the latch-posts *B* and *F* bumping-blocks *G* are secured, as shown, to receive the stroke of the gate as it swings open or shut at the same time it latches.

Attached to the rear post, *A*, is a brace-rod, 2, turn-buckle 3, and anchor 4. Said anchor is placed in the ground at the rear of and in line with the said post, so that the rod 2 will be at an angle of about forty-five degrees. It can readily be seen that by turning the buckle 3 it will have a tendency to draw the top of the post rearwardly and lift the front end of the gate, should it be inclined to sag.

A double gate is formed on my plan, as shown in Figs. 20 and 21, by adding the short curved bar *b''''* to the T-lever of the gate and connecting the automatic mechanism of the other gate by a transverse rod, with this difference: The gudgeon *a'* is cast to the curved bar, as shown in Fig. 23. Said curved bar is held in the socket-eye of the lower hinge-bracket by the same means as heretofore described. Curving the bar *b''''* allows the T-lever and adjustable hinge parts to be more elevated, thereby rendering them more easily adjusted and repaired. One end of the transverse rod is attached to the curved bar *b''''* and the other end to the other curved bar, *b''''*, and made adjustable by the same means used in adjusting the horizontal rods. The transverse rod *j'''* is protected across the roadway by the covered trench *w*. (Clearly shown in Fig. 22.)

The latch-block *n* is secured in the center of the roadway to the top of the cover *w*, so that both gates may strike against and latch to it. The gates are held to the block *n* by the catch *o'* dropping in the slot *n'* as the gate strikes the block. The gate can be opened by hand

by raising the rod *o*, which is connected to the catch *o'*, automatically closing itself.

It will therefore be seen from the foregoing specification that my improvements are adapted to open and close single and double gates automatically.

Having thus described my invention, I claim—

1. In an automatic gate-hinge mechanism, the combination of the T-lever *d*, held in the socket of bracket *c* by the weight of the gate on the hinge-rod *a*, said rod tapered to fit in the tapering hole in the T-lever, as and for the purpose set forth.

2. In combination with the mechanism of an

automatic gate, the T-lever *d*, gudgeon *d'*, and socket *b''*, adjustably secured to the bracket *c* by the bolt *b'*, for the purpose set forth.

3. In a double gate, the hinge mechanism, in combination with the curved bars *b''''* and *b'''''*, for the purpose set forth.

4. The latch *i*, in combination with the parts *i' i'' x* and spring *u*, as shown, and for the purpose set forth.

5. In combination with the hinge-rod *a* and hinge part *e*, the U-shaped loop *e''*, gate *E*, and stud *H*, for the purpose set forth.

Witnesses: NATHAN H. LONG.

CALVIN HAINES,

AL. L. WRIGHT.