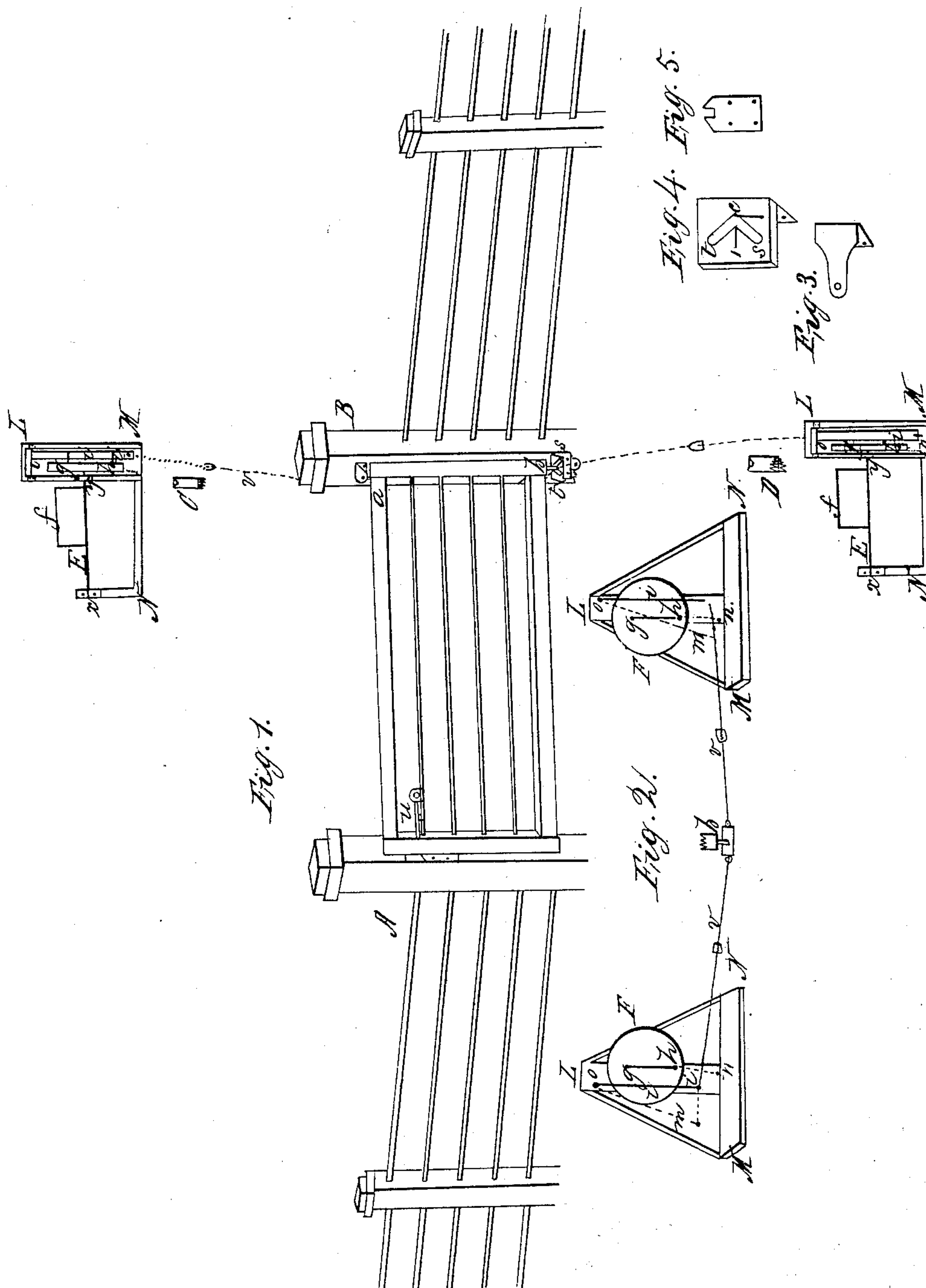


S. G. DUGDALE.
 APPARATUS FOR OPENING AND CLOSING GATES.

No. 10,105.

Patented Oct. 11, 1853.



UNITED STATES PATENT OFFICE.

SAMUEL G. DUGDALE, OF RICHMOND, INDIANA.

OPENING AND CLOSING GATES.

Specification of Letters Patent No. 10,105, dated October 11, 1853.

To all whom it may concern:

Be it known that I, SAMUEL G. DUGDALE, of the city of Richmond, in the county of Wayne and State of Indiana, have invented
5 a new and useful Improvement in Apparatus for Opening and Closing Gates; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings,
10 making a part of this specification, in which—

Figure 1, is a perspective view, Fig. 2, a transverse section, Figs. 3, 4 and 5, sections.

15 Like letters refer to like parts.

The gate is constructed in the usual form, and balanced by two iron pins *a* and *b*, upon which it swings. The pin *a*, works in a plate Fig. 3, which is fastened to the post
20 B, Fig. 1. The pin *b*, works in a V groove *s, t, c*, Fig. 4, and moves in an oblique direction; to and from the post B, Fig. 1, when the gate is shut, rests in the angle next to the post at *c*, when open rests at *t* and *s*.
25 The pin *a*, is placed out obliquely with the pin *b*, Fig. 1, as far as the pin *b*, moves on a parallel line with the gate. Fig. 5, is a representation of the catch on the posts A, C, D Fig. 1, that receives the latch *u*, which
30 may be a spring or falling latch.

L, M, N, Fig. 1, is a perpendicular frame constructed in a suitable manner for the machinery, as described. E, E, are shafts of any length, *x* and *y* the bearings, *f, f*, are
35 vertical levers, formed by bending a bar of iron in the form of a square and attaching the ends, to the shaft far enough from the frame, to clear it in turning.

g, g, and *h, h*, Fig. 2, are arms attached
40 on the opposite ends of the shafts, parallel with the levers *f, f*, the lower arms *h, h*, are twice the length of the upper arms *g, g*.
i, i, are pendulous levers secured to the frame at *o*, any distance above the shafts
45 E E, Fig. 1, and parallel with the arms *g, g*, and *h, h*, Fig. 2, and a distance from them corresponding with the length of the arms *g, g*. The levers *i, i*, and arms *g, g* and *h, h*, have a face of $1\frac{1}{2}$ to 3 inches acting upon
50 each other.

V, V, are rods or chains connecting the bottom of the levers *i, i*, with the pin *b*, Fig. 2, in such a manner as to allow it to turn easily.

55 *n, n*, are springs or weights attached to

the lower arms, for the purpose of keeping the levers *f, f*, perpendicular.

For convenience the wheels F F, Fig. 2, may be used, substituting pins for the ends of the arms *g, g* and *h, h*. 60

Illustration: The length of the groove Fig. 4, varies with the dimensions of the gate. If the length of the groove from *c* to *s*, is the hypotenuse of 3 inches; the pin *b* moves parallel with the gate *c'* three inches; 65 consequently the pin *a*, is set out obliquely with the pin *b*, 3 inches; the pin *b*, also moves parallel with the face of the post B, Fig. 1, 3 inches; and if the ends of the levers *i, i* are equally distant from the
70 shafts E, E, the length of the arms *g, g*, are 3 inches, and the arms *h, h*, 6 inches, and the levers *i, i*, hang 3 inches from them, and in proportion as the levers *i, i* increase, the length of the arms *g, g*, and *h, h*, are di- 75 minished.

The operating machinery is placed a suitable distance from the gate, on a line with the post B, Fig. 1. The shafts E, E, at right angles to, and level with the road, and on
80 approaching the gate, the wheels of the carriage or vehicle pass over the lever *f*, bearing down to the ground, throwing the long arm *h*, Fig. 2, against the lever *i*, bearing it out to the dotted line *m*, drawing the bot- 85 tom of the gate out to *s*, Fig. 4, and at the same time draws the lever *i*, on the opposite side of the gate, in to the dotted line *m*, and against the arm *g*, where it rests, until the vehicle has passed through, and strikes the
90 lever *f*, the arm *g*, then acts upon the lever *i*, in like manner drawing the levers *i, i*, and gate back to their place.

Operation: The gate when to its place hangs perfectly plumb and level with the
95 road, and on shifting the bottom in an oblique direction, I cause the out end to rise, releasing the latch, from the catch and at the same time lean the gate in the direction
100 I wish it to go, and on opening catches on the posts at the side of the road, it then hangs plumb and level as when shut, and on drawing it to its place, it assumes the same position as when opening; and closes, and in
105 like manner whenever the bottom is changed from one bearing to another the same result follows.

Having now given a description of the construction, and operation, of my improvement, I will now show the nature of said im- 110

provement, which consists in hanging the gate in such a manner, that by moving the bottom of the gate in an oblique direction from, and to, the post B, Fig. 1, I cause the
5 gate to open, close and fasten by its own weight, and assume a perfectly plumb, and level position, both when open and closed, and always opening from the horses allowing the vehicle to pass through without stop-
10 ping.

It consists further, in the arrangement of levers in such a manner, that by the vehicle, passing over the vertical lever *f*, causes the gate to open, and at the same time changes
15 the opposite lever *f*, so that the vehicle on passing over it, closes the gate and draws the levers *i*, *i*, to their original position.

It will be noticed also that the gate arranged upon this plan, may be opened and
20 closed the same as any other swinging gate

now in use, without operating the machinery.

What I claim as my invention and wish to secure by Letters Patent, is:

1. Opening, closing, fastening and unfastening the gate, by moving the bottom of the gate in an oblique direction from and to the post, upon which it is hung, as above specified.

2. I also claim the use of the pendulous, and vertical levers *f f*, and *i i* and arms *g g* and *h h* in combination with the hinges of the gate; the whole being operated, and arranged in the manner, and for the purpose as above set forth.

SAMUEL G. DUGDALE.

Witnesses:

S. W. LINDE,
JOHN FINLEY.