

No. 613,235.

Patented Nov. 1, 1898.

E. D. BRADFORD.
GATE.

(Application filed Apr. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

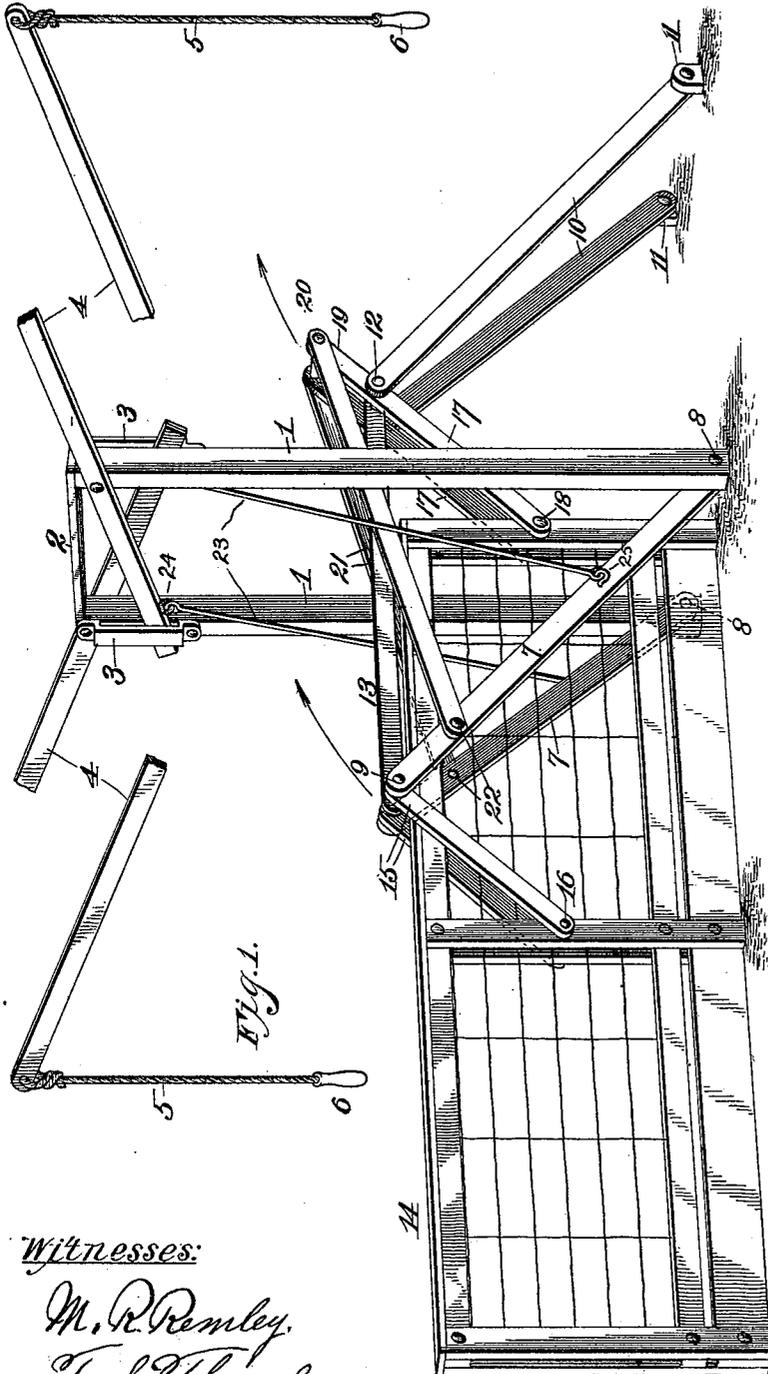


Fig. 1.

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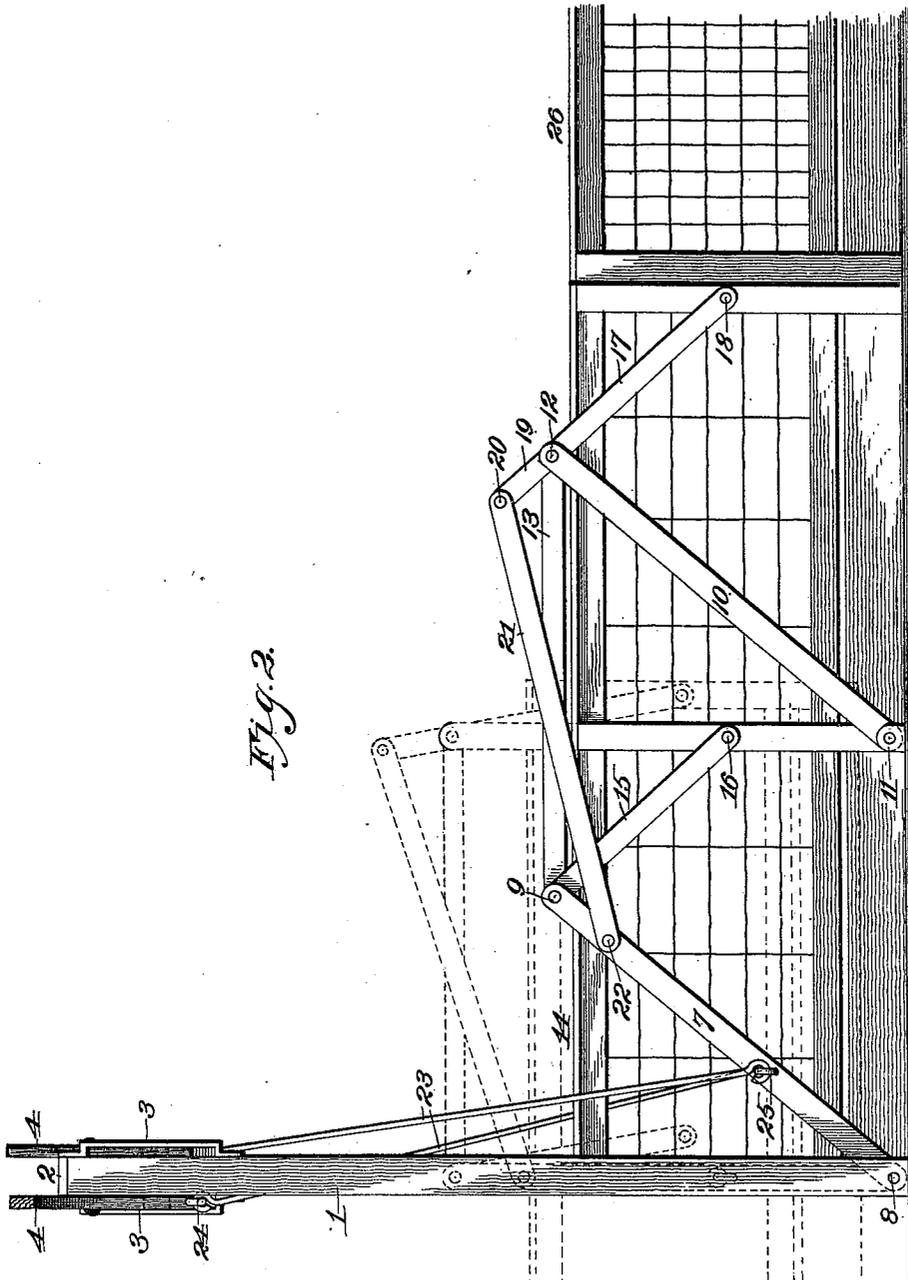
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

EDWARD D. BRADFORD, OF McLOUTH, KANSAS, ASSIGNOR OF ONE-HALF
TO ABRAHAM BOWMAN, OF SAME PLACE.

GATE.

SPECIFICATION forming part of Letters Patent No. 613,235, dated November 1, 1898.

Application filed April 30, 1898. Serial No. 679,292. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. BRADFORD, of McLouth, Jefferson county, Kansas, have invented certain new and useful Improvements in Gates, of which the following is a specification.

My invention relates to gates, and more particularly to that type of gate which may be opened or closed from either side by a person afoot, on horseback, or in a conveyance; and my object is to produce a gate of this character which is caused to assume its opened or closed position by a very short movement of the actuating-levers and which embodies simplicity, strength, durability, and cheapness of manufacture.

With this object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that it may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a perspective view of a gate in its closed position embodying my invention. Fig. 2 represents a side view of the same in its opened position.

In the said drawings, 1 designates a pair of posts or standards arranged at a suitable distance apart and at one side of a roadway, and said posts are connected at their upper ends by a cross-bar 2.

3 designates brackets which are bolted or otherwise secured to opposite sides of said posts, so as to provide vertical guide-slots, wherein the inner ends of the angle levers or sweeps 4 operate, said levers or sweeps being mounted upon said posts, as shown in Fig. 1. The sweeps or levers extend in opposite directions parallel to the road, and attached to their outer ends are pendent cords 5, provided with handles or grips 6 within easy reach of a person riding along the road.

7 designates a pair of arms which are pivoted, as at 8, to the lower ends of posts 1 and are connected at their upper ends by the cross-bolt 9.

10 designates a second pair of swinging arms, and they are mounted pivotally at their lower ends upon uprights 11 and at their upper ends are connected by a cross-bolt 12.

Said companion swinging arms extend parallel with the swinging arms 7 and are pivotally connected thereto by a tie-rod 13, mounted at its opposite ends upon the cross-bolts 9 and 12.

14 designates a gate of any suitable or preferred construction and about twice as long as the distance between the pivotal points 8 and 11.

15 designates a pair of links which are pivotally mounted at their upper ends upon cross-bolt 9 and at their lower ends upon cross-bolt 16, carried by the gate.

17 designates a second or companion pair of links, which extend parallel with links 15 and are mounted pivotally at their lower ends upon cross-bolt 18, carried by the gate in the same horizontal plane as pivot-bolt 16 and the same distance from it as intervenes between the pivotal points 8 and 11. The links 17 are also mounted pivotally upon the cross-bolt 12 of arms 10, but unlike links 15 extend upwardly therefrom, as shown at 19, and are connected by a cross-bolt 20.

21 designates a pair of links which push or pull accordingly as the gate is opening or closing, as hereinafter explained, and said links are pivotally mounted at their upper ends upon cross-bolt 20 and at their lower ends upon pivot-bolts 22, carried by swinging arms 17, the distance between bolts 9 and 22 being in practice equal to the distance between bolts 12 and 20.

23 designates a pair of pull-rods which are pivotally connected, as at 24, to the levers or sweeps 4 at their inner ends, and at their opposite or lower ends said pull-rods are pivotally connected, as at 25, to the swinging arms 7. By this arrangement it is obvious that the depression or downward movement of the outer end of either lever or sweep will cause the swinging arms 7, and consequently the swinging arms 10, to swing in the direction indicated by the arrows, Fig. 1, until they ultimately assume the positions shown in full lines, Fig. 2, at which time the gate is completely opened.

Owing to the fact that the links 15 and 17 diverge downwardly with reference to the swinging arms 7 and 10, respectively, it would appear that the gate by force of gravity would

drag along the ground until its swinging arms had approached sufficiently near a vertical position to lift the gate clear of the ground. This result, however, is avoided by extending the links 17 above the pivot-bolt 12 and connecting their upper ends by means of a rigid link or links 21 to the swinging arms 7, as shown. By this arrangement the gate is compelled to rise the moment it starts on its opening or closing journey, because the rigid links 21 by pushing rearwardly against the upper ends of the links 17 actually push forwardly on the gate, and consequently permit the links 15 and 17 to approach the angle of the swinging arms at a speed proportionate to the movement of the gate, with the result that a full-sized gate is lifted only a slight distance from the ground.

In practice when the gate is half-way open, as shown in dotted lines, Fig. 2, it has assumed its most elevated position, and as the opening movement continues the gate descends gradually, the longitudinal and descending movement terminating at the instant the gate is completely opened, such descending movement commencing as the links 15 and 17 swing rearwardly past their respective swinging arms 7 and 10. It will be noticed in the last half of the movement of the gate that the links 21 instead of pushing forwardly against the gate have reversed their operation and pull forwardly upon the upper ends or extensions of links 17, with the result that they actually pull the gate rearwardly, because said links have a rocking movement on the bolt 12. This operation takes place as soon as the lower ends of the links 15 and 17 have reached a plane rearward of their upper ends, as shown in dotted lines, Fig. 2, as hereinbefore suggested, and this rearward pull upon the gate compels it to move longitudinally the requisite distance—viz., the distance it must travel to complete its opening movement.

In closing the gate the links 21 at first pull rearwardly upon the upper ends of extensions 19 of links 17, and consequently compel the gate to rise at the same instant that it begins to move forward, and it will also be apparent that immediately after said links 15 and 17 swing forwardly past arms 7 and 10 the action of said links 21 is reversed—that is to say, said links begin their pushing function—and the gate is pushed forward the requisite distance—viz., until it completely closes the roadway—such movement terminating at the instant the gate touches the ground. If it is desirable that the gate should not rest upon the ground or should be held at any desired point of elevation, it can be accomplished by varying the length of link 13 or links 21. Thus it will be understood that in the first half of the opening movement of the gate and the last half of the closing movement of the gate the links 21 perform their pushing function and that in the last half of the opening movement of the gate and in the first half of its

closing movement said links perform their pulling function.

Owing to the fact that the gate is raised such a slight distance in operation, a person can grasp the same and easily push it endwise sufficiently far for him to step through the gate-opening, the gate by force of gravity resuming its original or closed position. With the customary gates of this type a positive lifting movement must be applied to open the gate, and it is practically impossible for a person to pass through the gate-opening without first manipulating the levers or sweeps.

From the above description it is obvious that the gate can be operated more quickly and easily than a gate of the same type which must be elevated several feet in each opening or closing operation, this small elevation of the gate being of course accompanied by a correspondingly slight movement of the levers or sweeps 4, and, furthermore, it needs no lock to prevent a hog from opening it, because it is impossible to raise it. It responds only to power as applied by the rods or to an end pressure or pull. It is to be understood, of course, that changes in the form, proportion, detail construction, or arrangement of parts may be made without departing from the spirit and scope or sacrificing any of the advantages of the invention.

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

1. A pair of swinging arms, a link connecting the same at their upper ends, a gate, a link pivoted directly to one swinging arm and to said gate, a link pivoted directly to the other swinging arm and to the gate and provided with an extension, and a link pivotally connecting the extended end of the last-named link above its pivot with the arm to which the first-named link is pivoted, substantially as described.

2. A pair of swinging arms, a link connecting the same at their upper ends, a gate, a link pivoted directly to one swinging arm and to said gate, a link pivoted directly to the other swinging arm and to said gate and provided with an extension, and a link pivotally connecting the extended end of the last-named link above its pivot with the arm to which the first-named link is pivoted; such connection being below the point of connection of said arm with the last-named link, substantially as described.

3. A pair of swinging arms, a link connecting the same at their upper ends, a gate, a link pivoted directly to one swinging arm and to said gate, a link pivoted directly to the other swinging arm and to the gate and provided with an extension, a link pivotally connecting the extended end of the last-named link, above its pivot, with the arm to which the first-named link is pivoted, and oppositely-extending levers or sweeps for operating said swinging arms, substantially as described.

4. A pair of swinging arms 7, a companion

pair of swinging arms 10, a link 13 pivotally
connecting one pair of swinging arms to the
other at their upper ends, a gate between said
swinging arms, a pair of links 15 pivoted at
5 their upper ends to the arms 7, and at their
lower ends to said gate, a companion pair of
links 17 pivoted near their upper ends to the
arms 10 and at their lower ends to said gate,
and a pair of links 21 pivotally connected at
10 their upper ends to the upper ends of the
links 17, and at their lower ends to the arms 7
below their upper ends, posts or standards at
the opposite sides of the gate, and levers or
sweeps linked to a pair of swinging arms 7,
15 substantially as described.

5. A pair of swinging arms 7, a companion
pair of swinging arms 10, a link 13 pivotally
connecting swinging arms 7 and 10 at their
upper ends, a gate between said swinging
20 arms, a pair of links 15 pivoted at their up-
per ends to the arms 7 and at their lower ends
to said gate, a companion pair of links 17 piv-

oted near their upper ends to the arms 10 and
at their lower ends to said gate, and a pair
of links 21 pivotally connected at their upper 25
ends to the upper ends of links 17, and at their
lower ends to the arms 7, below their upper
ends, posts or standards at opposite sides of
the gate provided with vertical guide-slots;
the slot of one post being at its front side and 30
the slot of the other at its rear side, levers or
sweeps pivoted to said posts at the sides op-
posite said slots and having their inner ends
guided in the slots of the opposite posts and
linked to arms 7, and cables depending from 35
the outer ends of said levers or sweeps and
provided with handles at their lower ends,
substantially as described.

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

EDWARD D. BRADFORD.

Witnesses:

R. B. JONES,
R. M. FRY.