

S. SOLBERG.

GATE.

APPLICATION FILED JULY 15, 1919.

Patented Feb. 10, 1920.

3 SHEETS—SHEET 1.

1,330,146.

Fig. 6

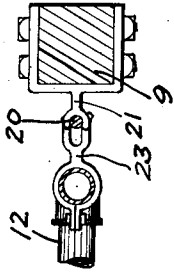


Fig. 5

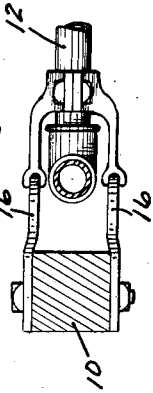
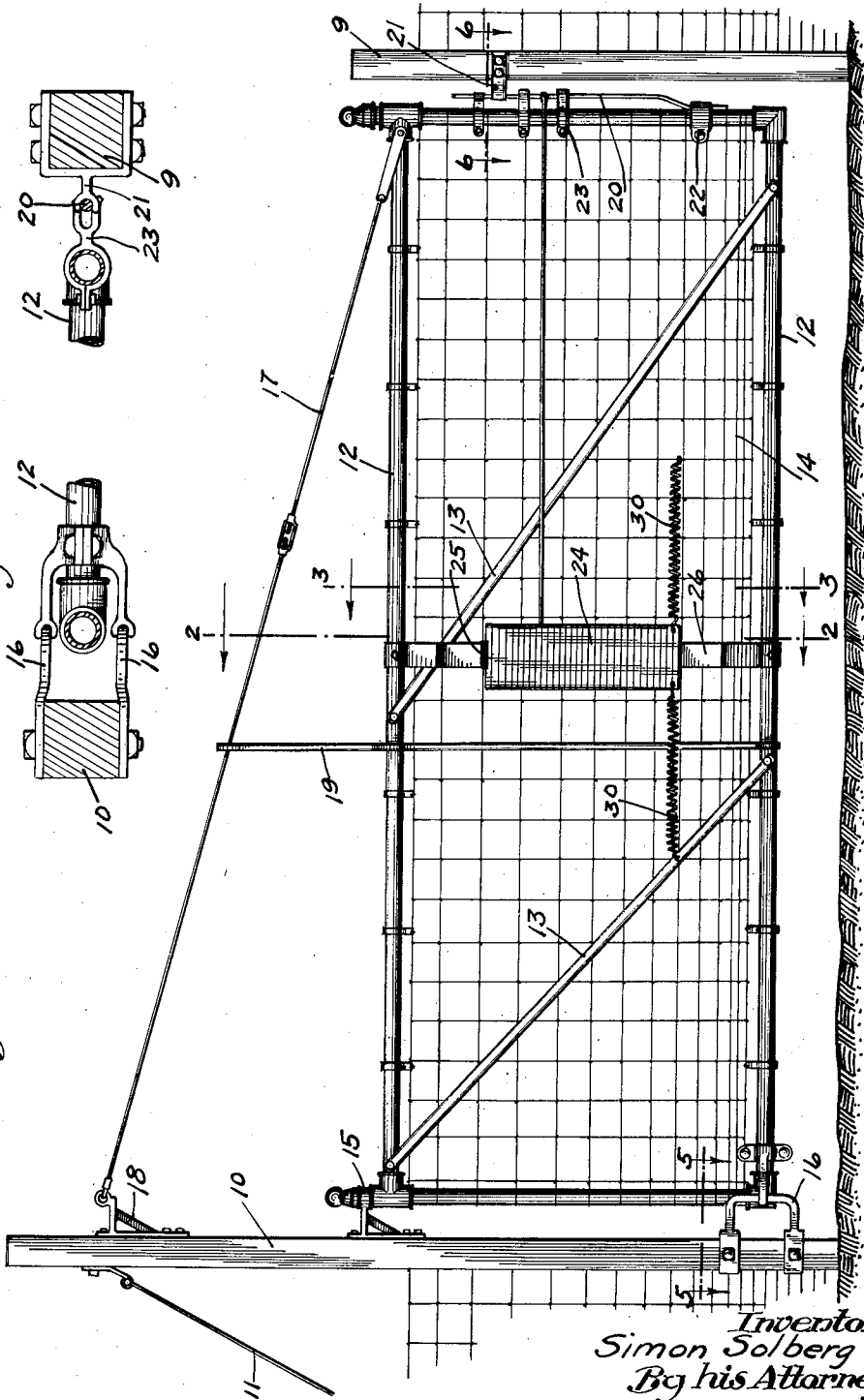


Fig. 1



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3 SHEETS—SHEET 2.

Fig. 4

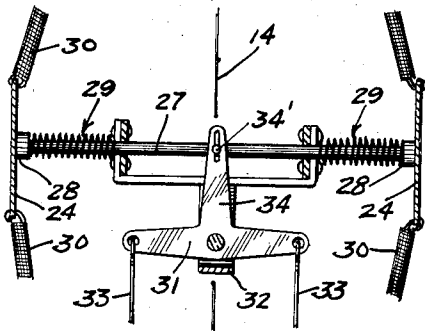


Fig. 3

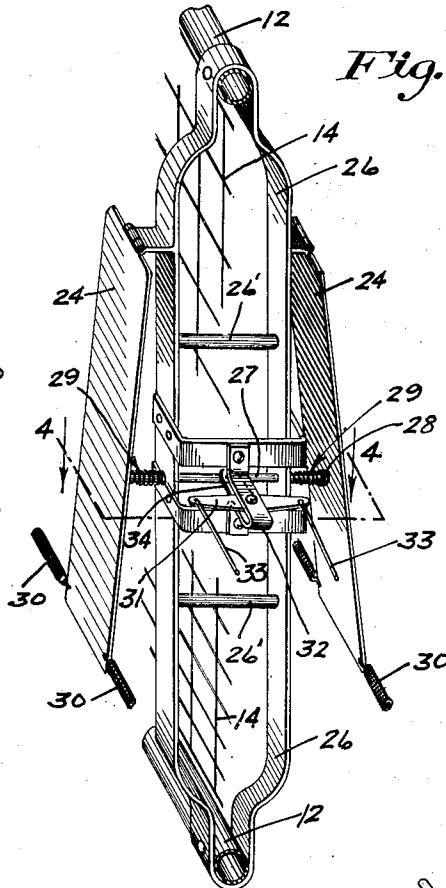
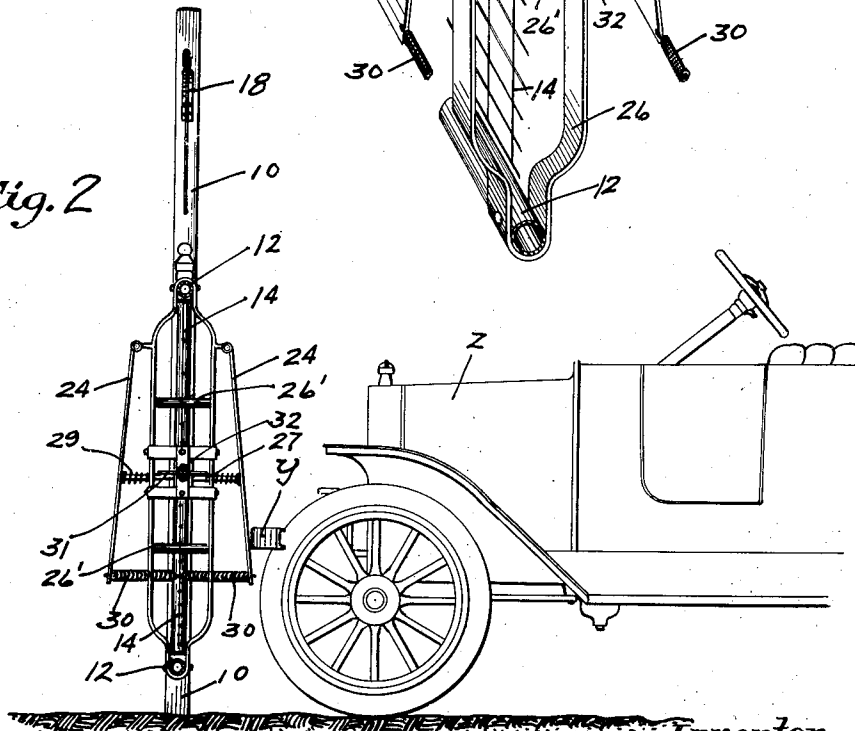


Fig. 2



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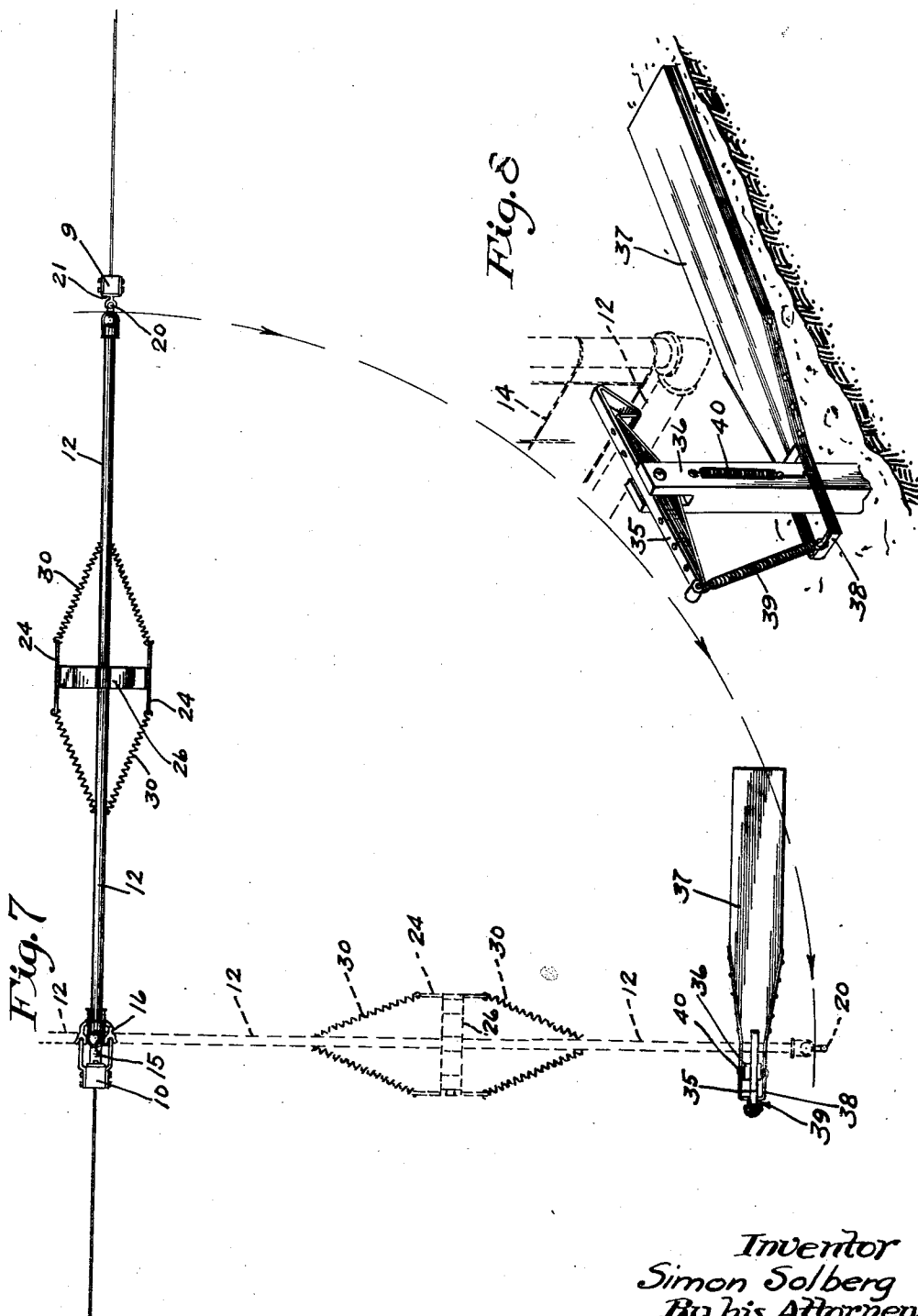
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

SIMON SOLBERG, OF McINTOSH, MINNESOTA.

GATE.

1,330,146.

Specification of Letters Patent.

Patented Feb. 10, 1920.

Application filed July 15, 1919. Serial No. 311,012.

To all whom it may concern:

Be it known that I, SIMON SOLBERG, a citizen of the United States, residing at McIntosh, in the county of Polk and State of Minnesota, 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.

My invention has for its object to provide an improved gate of the type commonly called farm gates; and, to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is an elevation of the improved gate;

Fig. 2 is a view in transverse vertical section taken on the line 2—2 of Fig. 1 and also shows in diagram an automobile in position to release the gate latch and open the gate;

Fig. 3 is a perspective view with some parts sectioned on the line 3—3 of Fig. 1 on an enlarged scale;

Fig. 4 is a detail view in horizontal section taken on the line 4—4 of Fig. 3;

Fig. 5 is a detail view in horizontal section taken on the line 5—5 of Fig. 1;

Fig. 6 is a detail view in horizontal section taken on the line 6—6 of Fig. 1;

Fig. 7 is a plan view showing the gate closed by means of full lines and in an open position by means of broken lines; and

Fig. 8 is a perspective view of the wheel tripping device.

The numerals 9 and 10 indicate, respectively, front and rear gate posts located on opposite sides of a roadway, the latter of which is considerably higher than the former and is held upright by an anchor rod 11 to offset the weight of the gate. The gate, as shown, comprises a rectangular tubular frame 12 suitably braced by front and rear oblique bars 13, and a woven panel 14 secured thereto. Said gate is supported from the gate post 10 by upper and lower hinges 15 and 16, respectively, for double swinging movement. The upper hinge 15 is

in the form of a loose vertical pivot and the lower hinge 16 comprises a pair of laterally spaced vertical pivot rods anchored to said post and a pair of cooperating fulcrum lugs anchored to the lower member of the gate frame 12. The action of the lower gate hinge 16 is such as to gravity center the gate. A longitudinally adjustable rod 17 supports the front end of the gate from the upper end of the gate post 10 to which it is flexibly anchored by a bracket 18. To the upper and lower members of the gate frame 12 is secured a strut 19 which supports the intermediate portion of the rod 17.

The gate is locked in a closed position by a spring latch 20 and cooperating notched lug 21 bolted to the gate post 9. The latch 20 is cammed into the notch of the lug 21 by engaging the sides thereof when swinging in either direction to a closed position. As shown, the latch 20 is in the form of a spring rod having its lower end anchored at 22 to the front upright member of the gate frame 12. The free or upper end of the latch 20 extends through slots in a plurality of vertically spaced brackets 23 clamped to the front upright member of the gate frame 12.

On each side of the gate is a vehicle striking or buffer plate 24, the upper end of which is secured by a hinge 25 to the respective side of a thrust tie bracket 26 for swinging movement transversely of the gate. The bracket 26 is, as shown, in the form of an endless vertically disposed band which completely surrounds the gate frame 12 at its intermediate portion. The sides of the bracket 26 are parallel and rigidly connected by upper and lower tie rods 26' which hold said sides properly spaced. At its upper and lower ends, the bracket 26 is contracted onto the upper and lower members of the gate frame 12 and rigidly secured thereto by rivets.

A plunger 27, as shown in the form of a round rod, is mounted in aligned bores in the sides of the bracket 26 for endwise sliding movement transversely of the gate. On each end of the plunger 27 is an expanded head 28, between which and the respective side of the bracket 26 is compressed a coiled spring 29 that encircles said plunger. The springs 29 yieldingly center the plunger 27 and the depending striking plates 24 rest at their intermediate portions on the plunger heads 28 and are held spread there-

by. The striking plates 24 are yieldingly held against the plunger head 28 by pairs of coiled springs 30. The springs 30 of each pair are anchored to the lower corners of the respective striking plate 24, at one of their ends, extend in opposite directions therefrom and have their other ends anchored, the one to the rear brace rod 13 and the other to the panel 14.

Extending transversely through the gate is a lever 31 intermediately pivoted to a bearing bracket 32 on the bracket 26. Each end of the lever 31 is connected to the upper end portion of the latch 20 by a rod 33.

Formed with the lever 31 in an intermediate arm 34 attached at its outer end to the intermediate portion of the plunger 27 by a slot and pin connection 34'. It may be here stated that the connecting rods 33 have sufficient flexibility to permit one thereof to bend or buckle when the other thereof is moved endwise by the lever 31 to release the latch 20. It will also be noted that the lever 31 and its arm 34 afford a double bell crank.

From the above description it is evident that when one of the buffer plates 24 is struck by the bumper Y of an approaching automobile Z, as shown in Fig. 2, or any other part thereof, or by the pole of a vehicle, the inward movement thereof through the connection 34' will rock the double bell crank 31-34 and thereby draw one of the rods 33 rearward and release the latch 20, and at the same time the other of said rods will be buckled to permit the required releasing movement of said latch. The inward movement of the buffer plate 24 struck by the vehicle will compress the respective spring 29 by moving the plunger 27 endwise in the bracket 26, and this movement of said plunger will swing the other of said buffer plates outward and thereby place the connected springs 30 under strain so that when the latch 20 is released the action of the compressed springs will, together with the momentum of the vehicle, swing the gate away from the approaching vehicle and into an open position.

As previously stated, the gate is hinged to swing closed under the action of gravity and to hold the same open long enough to permit the vehicle to pass through the gate opening and beyond the open gate, there is provided on each side of said gate opening a latch 35 arranged to automatically interlock as shown with the lower member of the gate frame 12 near the front end thereof when said gate is swung into an open position. It is of course understood that the latches 35 may be arranged to engage any other part of the gate. The two latches 35 are located one on each side of the gate post 10 and substantially in alinement therewith so as to permit the gate to swing approximately 90 degrees on each side of its closed position.

As each latch 35 is identical the one with the other together with the means for operating the same, the description of the one will suffice for the other.

Each latch 35 is intermediately pivoted to and between the prongs of the bifurcated upper end of a short post 36 set firmly into the ground. The latch 35 is arranged to be cammed into an inoperative position when engaged by the gate frame to permit the respective part of said frame to pass thereunder. Said latch 35, after the engaged portion of the gate frame 12 has passed thereunder, will drop under action of gravity and thereby interlock the said frame to hold the gate open.

To release the latch 35 and thereby permit the held gate to swing closed, there is provided a tripping board 37 which extends transversely across the adjacent wheel track in respect to the post 36. To the outer end of the tripping board 37 is rigidly secured a yoke-like extension 38 through which the post 36 projects. A tightly coiled spring 39 yieldingly connects the outer end of the latch lever 35 to the transverse portion of the extension 38. A pair of coiled springs 40 have their upper ends anchored to opposite sides of the post 36 and their lower ends are secured to the side members of the extension 38. These springs 40 are arranged to yieldingly hold the connected end of the tripping board 37 raised, as shown in Fig. 8. When the tripping board 37 is raised by the springs 40, the tightly coiled spring 39 acts as a relatively rigid connection and holds the connected end of the latch lever 35 raised, thus making the gravity movement of said latch positive. As the latch 35 is moved into an inoperative position by the gate frame 12 when the gate is swung open, the lifting movement of said latch will force the raised end of the tripping board 37 downward against the tension of the springs 40 through the connection 39. After the gate has been opened by an approaching vehicle, said vehicle, after having passed through the gate, is so guided that its rear wheel nearest the hinged end of the gate will pass over the tripping board 37 and thereby depress the same against the tension of the spring 40 and release the latch 35 through the spring connection 39. If the downward movement of the tripping board 37 is greater than the latch 35, the spring connection 39 will yield to permit the required movement of the tripping board.

What I claim is:—

1. The combination with a self closing swinging gate, of a latch on the gate for holding the same closed, a spring projected plunger, a vehicle striking plate held by the plunger, and tripping connections between the striking plate and the latch.

2. The combination with a self closing double swinging gate, of a latch on the gate for holding the same closed, a spring centered plunger, a vehicle striking plate on
5 each end of said plunger, and tripping connections between the plunger and the latch.

3. The combination with a self closing double swinging gate, of a latch on the gate for holding the same closed, a spring centered plunger, a pair of vehicle striking
10 plates having one of their ends hinged to the gate and their other ends spring connected to the gate, a spring centered plunger interposed between the two striking plates for
15 holding the same spread, and tripping connections between the plunger and the latch.

4. The combination with a self closing swinging gate, of a latch for holding the gate open, a wheel actuated tripping board
20 extending transversely across one of the wheel tracks, yielding means for holding one end of the tripping board raised, and a tripping connection between the latch and raised end of the tripping board.

5. The combination with a self closing 25 swinging gate, of a latch for holding the gate open, a wheel actuated tripping board extending transversely across one of the wheel tracks, yielding means for holding one end of the tripping board raised, and a 30 yielding tripping connection between the latch and raised end of the tripping board.

6. The combination with a self closing swinging gate, of a post, a latch lever intermediately pivoted to the post for holding 35 the gate open, a spring anchored to the post and attached to one end of the tripping board for yieldingly holding the same raised, a yielding connection between the latch lever and the raised end of the trip- 40 ping lever for moving the latch to and from operating position.

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

SIMON SOLBERG.

Witnesses:

C. G. GAINES,
G. D. HOYNE.