(No Model.) 2 Sheets—Sheet 1.

A. J. HOSKINS.

FARM GATE.

No. 394,117. Patented Dec. 4, 1888.

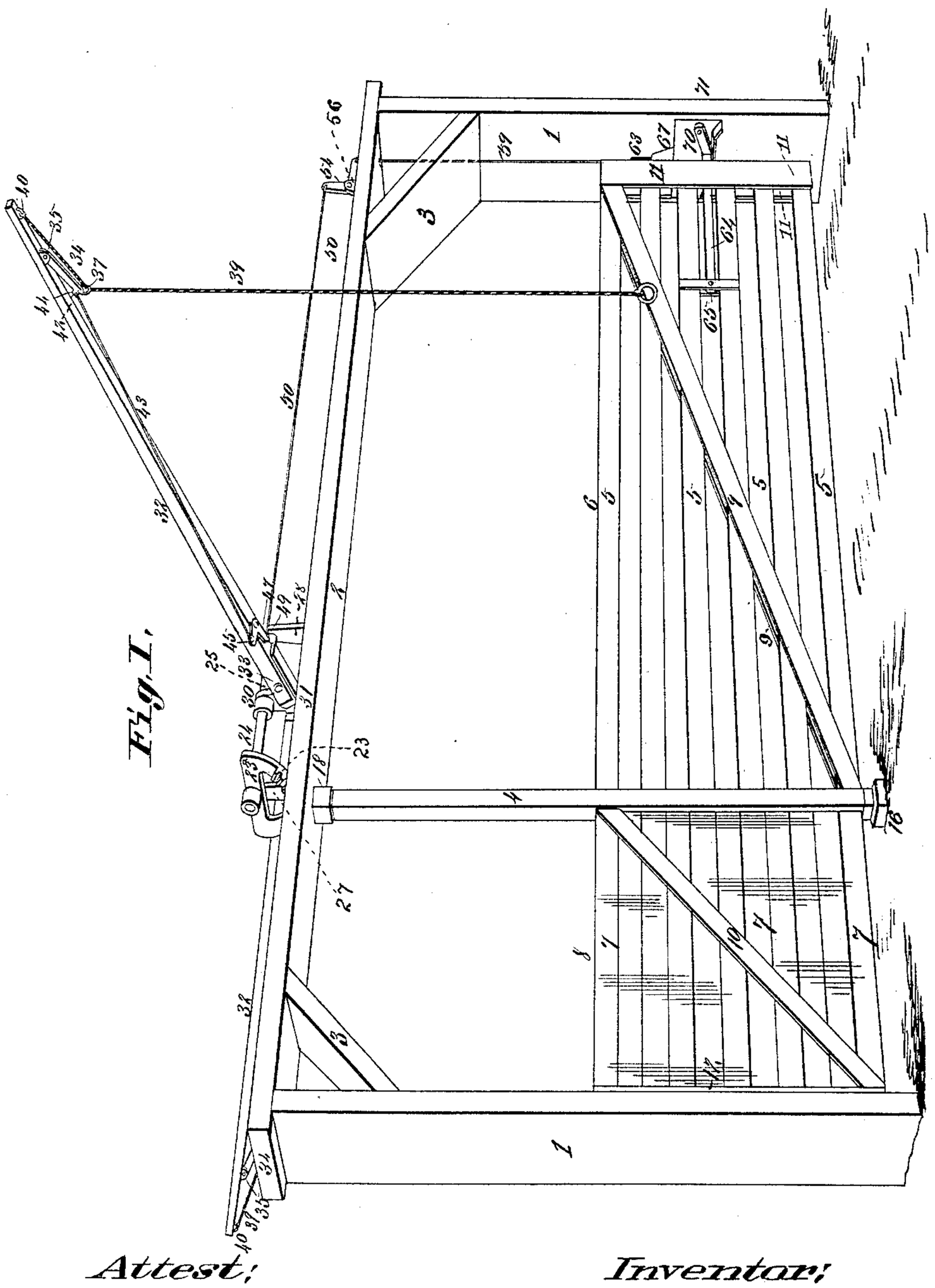

Fig. 1.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. II

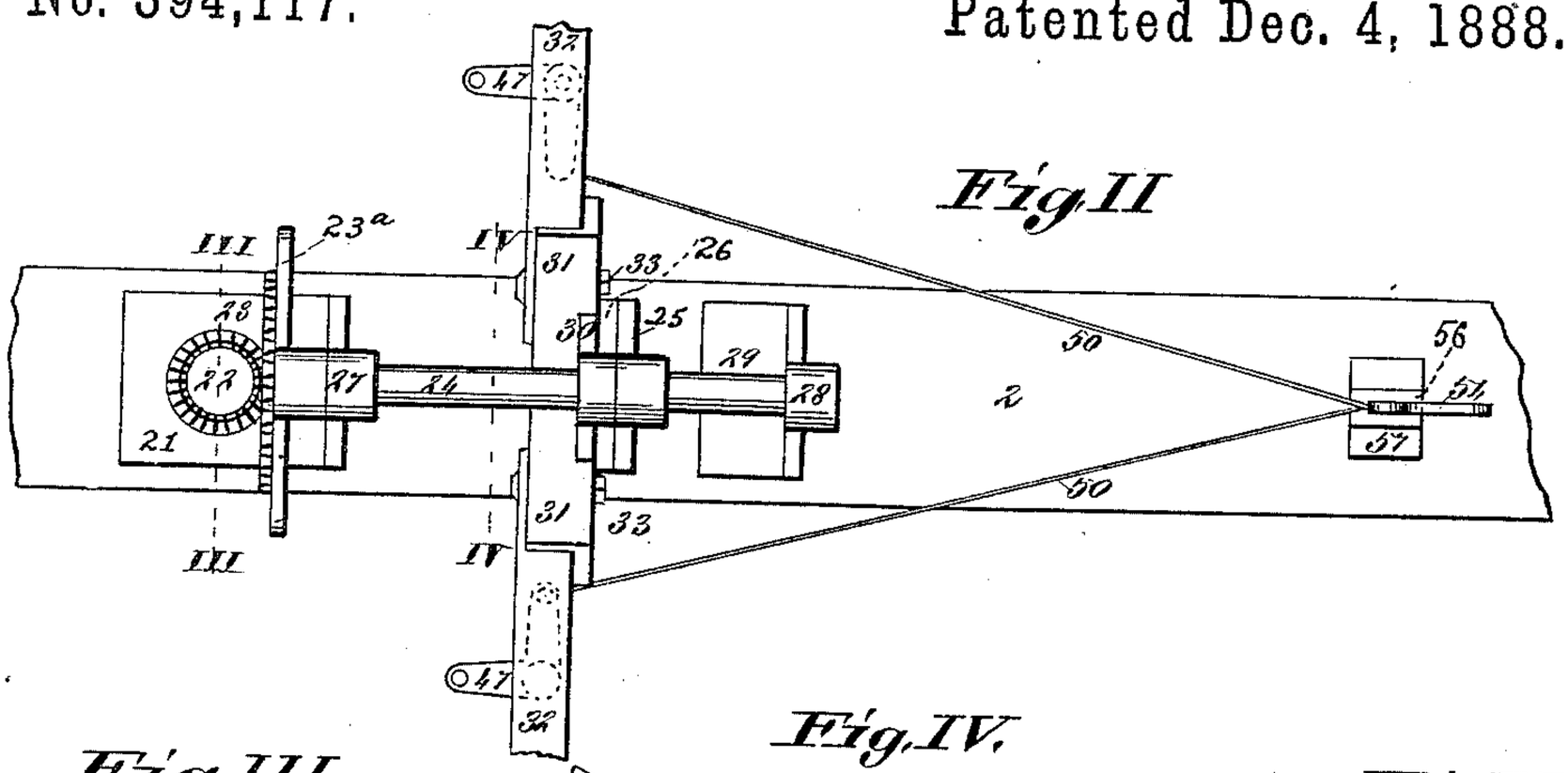


Fig. III.

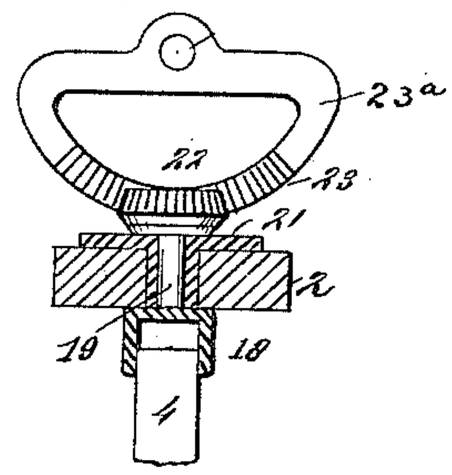


Fig. IV.

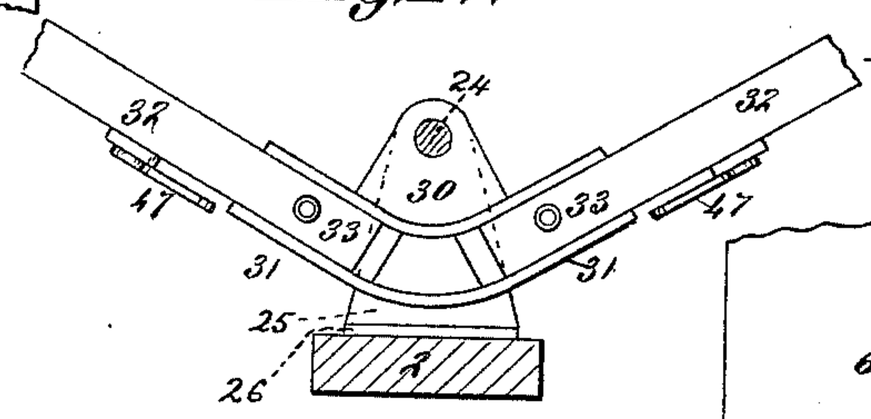


Fig. V.

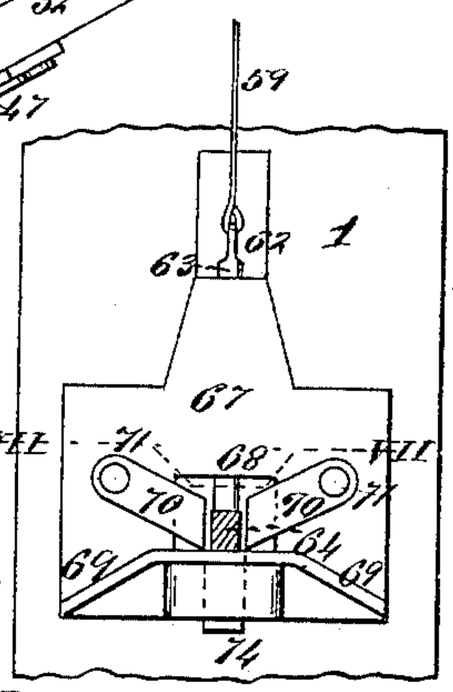


Fig. VII.

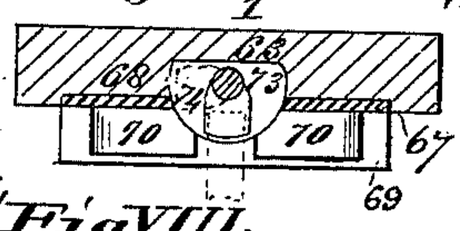


Fig. X.

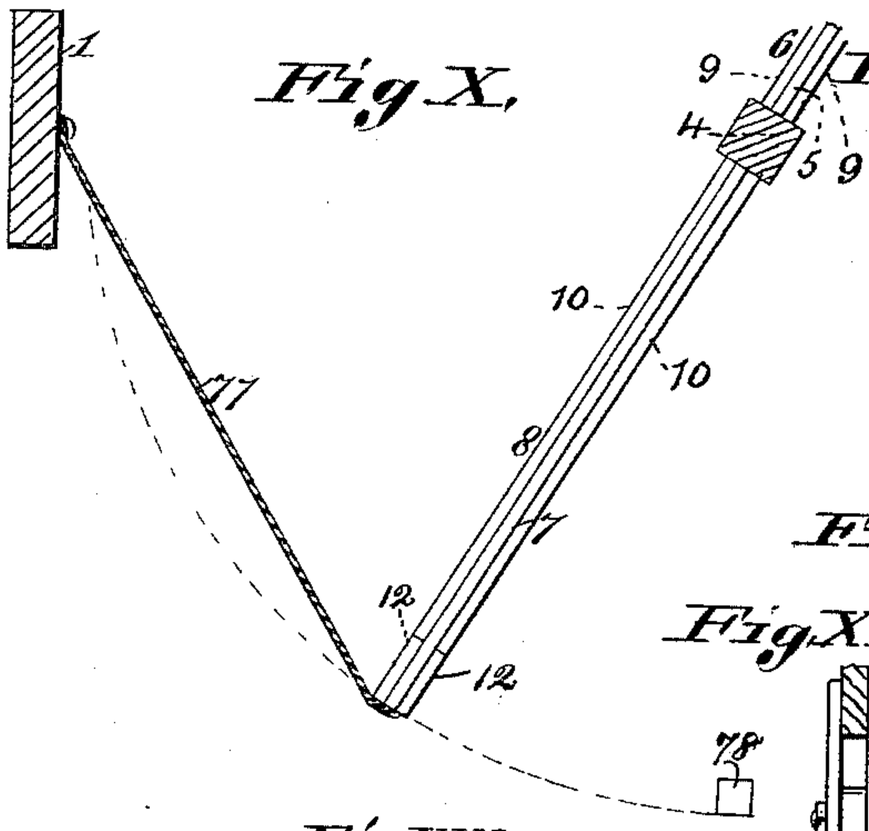


Fig. VIII.

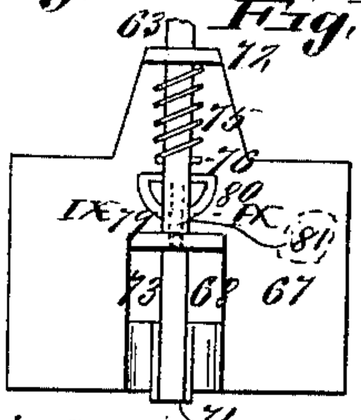


Fig. VI.

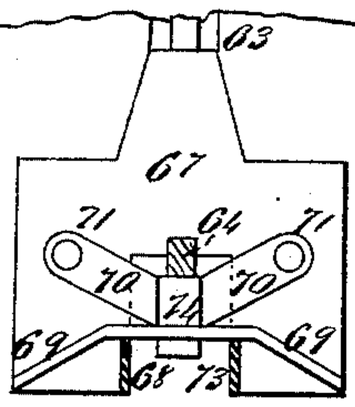


Fig. IX

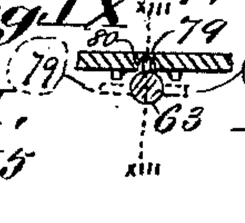


Fig. XI.

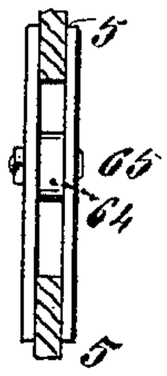


Fig. XII

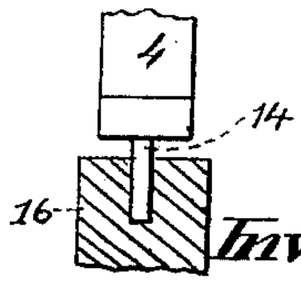
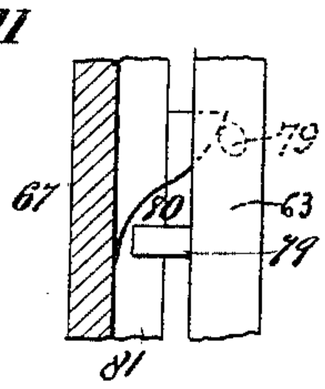


Fig. XIII



Attest:
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Inventor:
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By Knight Bros.
Atty's.

UNITED STATES PATENT OFFICE.

ALVIS J. HOSKINS, OF EDWARDSVILLE, ILLINOIS.

FARM-GATE.

SPECIFICATION forming part of Letters Patent No. 394,117, dated December 4, 1888.

Application filed November 4, 1887. Serial No. 254,297. (No model.)

To all whom it may concern:

Be it known that I, ALVIS J. HOSKINS, of Edwardsville, in the county of Madison and State of Illinois, have invented a certain new and useful Improvement in Swinging Gates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a perspective view of the gate in working order. Fig. II is a detail top view of cross-bar, showing the rack and pinion that work the gate, and the bell-cranks, with their connecting-rods, for operating the latch. Fig. III is a vertical section taken on line III III, Fig. II, showing the operation of the pendent segment-rack and bevel-pinion on the gate-post. Fig. IV is a vertical section taken on line IV IV, Fig. II, showing a detail of the operating-arms in their pivoted pendent seat. Fig. V is a detail elevation of catch with releasing-bar depressed. Fig. VI is a like view with the releasing-bar raised. Fig. VII is a horizontal section taken on line VII VII, Fig. V. Fig. VIII is a rear view of the catch-plate. Fig. IX is a section taken on line IX IX, Fig. VIII. Fig. X is a detail top view of the rear end of gate. Fig. XI is a detail view through the bars of the gate, showing the rear end of the catch. Fig. XII is a detail view of the bottom of the post; and Fig. XIII is a detail section side view of the curvilinear semi-annulus, taken on line XIII XIII, Fig. IX.

This invention relates to automatic devices for opening, closing, and latching gates; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, in which figures of reference indicate like parts in all the views, 1 represents the posts of the frame, (which may be planted in the ground;) 2, the cross-bar of said frame, and 3 the braces between the post and cross-bar, to keep the frame from settling out of true and the cross-bar from sagging down onto the shoulders of the rotating gate-post 4.

5 are the longitudinal bars of the main gate 6, and 7 are like bars of the rear or balance gate, 8.

9 are the braces to the main gate, and 10 the braces to the balance-gate; 11, the toe-bars of the main gate, and 12 the toe-bars of the balance-gate.

The gates are unitedly carried, and simultaneously swung open and shut by the partial rotary movement of their common post, 4. The lower end of said post is bound with a foot-band, and is provided with a foot-pintle, 14, that works in the socket in the foot-post 16, that supports the swinging-gate. The upper end of the gate-post is seated in a square socket within the clutch-collar 18. Integral with said collar and surmounting it is the pintle 19, which works in a bearing-socket in the combined boxing and plate 21, in which said pintle operates. The upper end of the pintle 19, which works in the combined box-bearing and plate 21, that is seated in and on the cross-bar 2, carries a bevel-pinion, 22, that engages in a segment-rack, 23, of a segment, 23^a, which hangs pendent from the rock-bar 24. 25 is a standard on a plate, 26, supporting the central portion of the rock-bar. The journal-pivots of said bar have their rock-bearings in the vertical arm or post 27, that rises from the plate 21 at one end of said bar, and in the corresponding post, 28, that ascends from the plate 29, which is also secured to the top of the cross-bar and located at the right distance from the post 27 for its bearings to accommodate the pivot at the other end of the bar.

A segment-bracket, 30, between the posts 27 and 28, hangs pendent from and is rigidly secured to the rock-bar, and is provided with box-brackets 31, in which the operating-levers 32 are seated, and to which they are secured by the screw-nutted bolts 33. Pendent arms 34 are loosely hinged to lugs 35, that are secured near the outer ends to the under side of the operating-levers. These pendent arms are provided with rings 37, that work loosely in perforations at the lower ends of the arms. Pull cords or chains 39, for operating the automatic latch and swinging device, are fastened to staples 40, that are secured beneath the outer ends of the levers, pass through rings 37 and hang pendent therefrom, and are provided with hand-rings that steady the pendent cord and make a convenient hold in operating the gate.

Hooks 42 on the ends of rods 43 are secured to the perforated lugs 44 above the loose ends of the arms 34, and hooks 45 on the farther

extremity of the rods engage in perforations on one arm of horizontal bell-crank levers 47, that are pivotally secured on the under side near the lower ends of the operating-levers. Hooks 49 on the ends of the rods 50 engage in perforations through the reverse arm of the bell-crank levers 47, and the hooks at the farther extremity of the rods unitedly engage in the perforation in the upper arm of the vertical bell-crank lever 54, which is pivoted in the lugs 56, that rise from the plate 57, secured on the cross-bar near its end immediately above the latching devices. The upper hook of the pendent rod 59 engages in the perforation in the reverse arm of the bell-crank lever 54, and the lower end of the rod connects by its hook with the bail 62 of the co-operative releasing-bar 63 of the latching device. I will now proceed to describe said latching device.

64 represents the latch, which is hinged on the pin 65, secured to battens which are attached to the bars of the gate. The forward end of the latch rises and falls between the vertical toe-bars of the gate.

67 represents the bracket-plate that carries the catch and releasing devices for operating the latch, and is secured to the forward post of the frame within which the gate works. A wide slot, 68, is formed in the plate from near its center downward, and a bridge-plate, 69, with a double incline, projects from its face and forms an elevator carriage-way, that guides the latch to its locking-seat. 70 are pivoted dogs that work on pins 71. The dog on the side the latch approaches is elevated thereby until the latch gains its seat, when it falls and secures it in its locked position.

The vertical releasing-bar 63, heretofore introduced as hanging pendent from the rod 59 of the operating device, descends through the perforated cap-plate and works vertically in a box-chamber, 73, that is recessed into the forward post of the frame. The lower end of the releasing-bar is provided with a projecting lug, 74, and coiled around it, near its upper end, within the box-chamber, is a reactionary spiral spring, 75, that presses against the cap 72 of the bracket-plate above and against the projecting shoulder or pin 76 on the releasing-bar. The said spiral spring returns the releasing-bar to its normal position after having released the latch. A stay cord or chain, 77, limits the opening of the gate to any desired extent, which can be adjusted by lengthening or shortening the cord. The same purpose may be effected by a short foot-post, 78, when the cord may be dispensed with.

79 represents a pin that projects from the releasing-bar, and, under certain contingent circumstances, works, in certain conditions of the operation, in the semi-annular guideway 80 to remove the projecting lug 74 out of the way of the latch, as will be more fully described hereinafter.

The operation of the automatic swinging and latching devices is as follows: When the pull-cord 39 on either side of approach is drawn down and released, the pendent arm 34, turning on its pivot, operates the rods 43, 50, and 59, in conjunction with the bell-crank levers 47 and 54, to elevate the releasing-bar 63, the projecting lug 74 from which lifts the latch from its locking-seat between the pivoted dogs 70. Simultaneously the drawing of the cord lowers the end of the lever 32, in conjunction with which it works, and thereby turns the segment-bracket 30, which operates the rock-bar 24, segment-rack 23, and bevel-pinion 22 to swing the gate open, the latch meantime riding up the inclined way formed by the prostrate dog 70, after which the releasing-bar, having effected its purpose by elevating the latch above the locking-dogs, the spiral spring 75 throws it back out of the way of the returning latch. When the carriage, wagon, or other conveyance has been driven through, the pull-cord pendent from the other lever is drawn down and released, when the operation is reversed by the reversal of the agency. The elevated lever being lowered, the gate is swung to. The latch on its return running on the inclined bridge 69 elevates the pivoted locking-dog on the side of its approach, striking against the end of the other dog, and the one it has just elevated falling behind it, it is against locked in its seat. It is seen that exactly the same action (the drawing of the cord when repeated on the same cord or its duplicate on the other side) reopens the gate again, although the initial draw of the cord does not swing the gate past its lock, but it takes a second duplicate action thereon to obtain the second responsive result.

The short rear or balance gate, as shown, is built solid without open spaces between the bars, so as to nearer balance in weight the long open-barred gate, and also balance the resistance to the wind.

Unless some part of the device should at any time get out of repair, or by accident be arrested in the performance of its work, (a contingency but little likely to occur,) the movement of the co-operating releasing-bar is always vertical; but if through some accident or in course of time some part should get out of repair, so that the projecting lug 74 on the releasing-bar, after lifting the latch, does not vacate the latch-seat as soon as the pull-cord is released, then the action of the advancing latch turns or throws the projecting lug 74 out of its way, the action rotating the releasing-bar, and at the same time causing the pin 79, projecting from said bar, to ascend the curvilinear semi-annulus 80, and thus elevate the releasing-bar, which, after the action of the latch, again drops or is resprung to its normal position, as there is sufficient room within the box-chamber 73 for the projecting lug to turn aside from the latch, again descend and regain its position under the latch, ready, when elevated, to again release the same. When the throw of the latch dislodges said projecting lug from its seat with sufficient force, it may travel

all the way up the incline of the curvilinear annulus 80, and then descend through its accustomed channel through the vertical slot 81, to regain its normal position under the pressure of the return-action spring 75. Otherwise it retraces its steps.

When it is desired to drive through a reaper or other unusually wide load, the whole gate is easily unshipped by lifting it until the upper end of the post 4 enters still farther within the socket 17 of the clutch-collar 18 sufficiently for the pintle at the foot of the post to be lifted from its socket, and the whole double gate can then be easily removed out of the way, throwing the double gangway into one.

Another advantage of this gate is that it can, when required, be used, independent of its operating devices, as a hand-gate, if any part of said devices are temporarily out of repair, for there are no features in it that would at any time obstruct its use as a hand-gate.

I claim as my invention—

1. The combination of the frame, the pivoted post 4, the gate 6, the bevel-pinion 22, clutch-collar 18, connected to the beveled pinion by pintle 19, rack-segment 23, the rock-bar 24, which carries the segment, the segment-bracket on said bar, levers 32, and pull-cords 39, substantially as described.

2. The combination of the gate-frame, the pivoted post, the double gate it carries, having a latch, the bevel-pinion, rack-segment, rock-bar, posts 27 and 28, the segment-bracket 30, the levers 32, the pull-cords attached to the levers, the pendent arms 34, the connecting-rods 43, 50, and 59, the bell-crank levers 47 and 54, the releasing-bar 63, the projecting lug 74, pivoted locking-dogs 70, bracket-plate, and inclined bridge-plate, substantially as described.

3. The combination of the gate-frame, the pivoted post, the double gate having a latch, the pintles 14 and 19, the bevel-pinion rigidly secured to the pintle 19, the rack-segment, the rock-bar, the posts 27 and 28, the segment-bracket 30, levers 32, pull-cords 39, the rods 43, 50, and 59, bell-crank levers 47 and 54, the releasing-bar 63, the pull-cords, the projecting lug 74, the bracket-plate 67, formed with a slot, 68, the pin 79, and the curvilinear semi-annulus 80 and vertical slot 81, substantially as described.

ALVIS J. HOSKINS.

In presence of—

BENJN. A. KNIGHT,

EDWD. S. KNIGHT.