

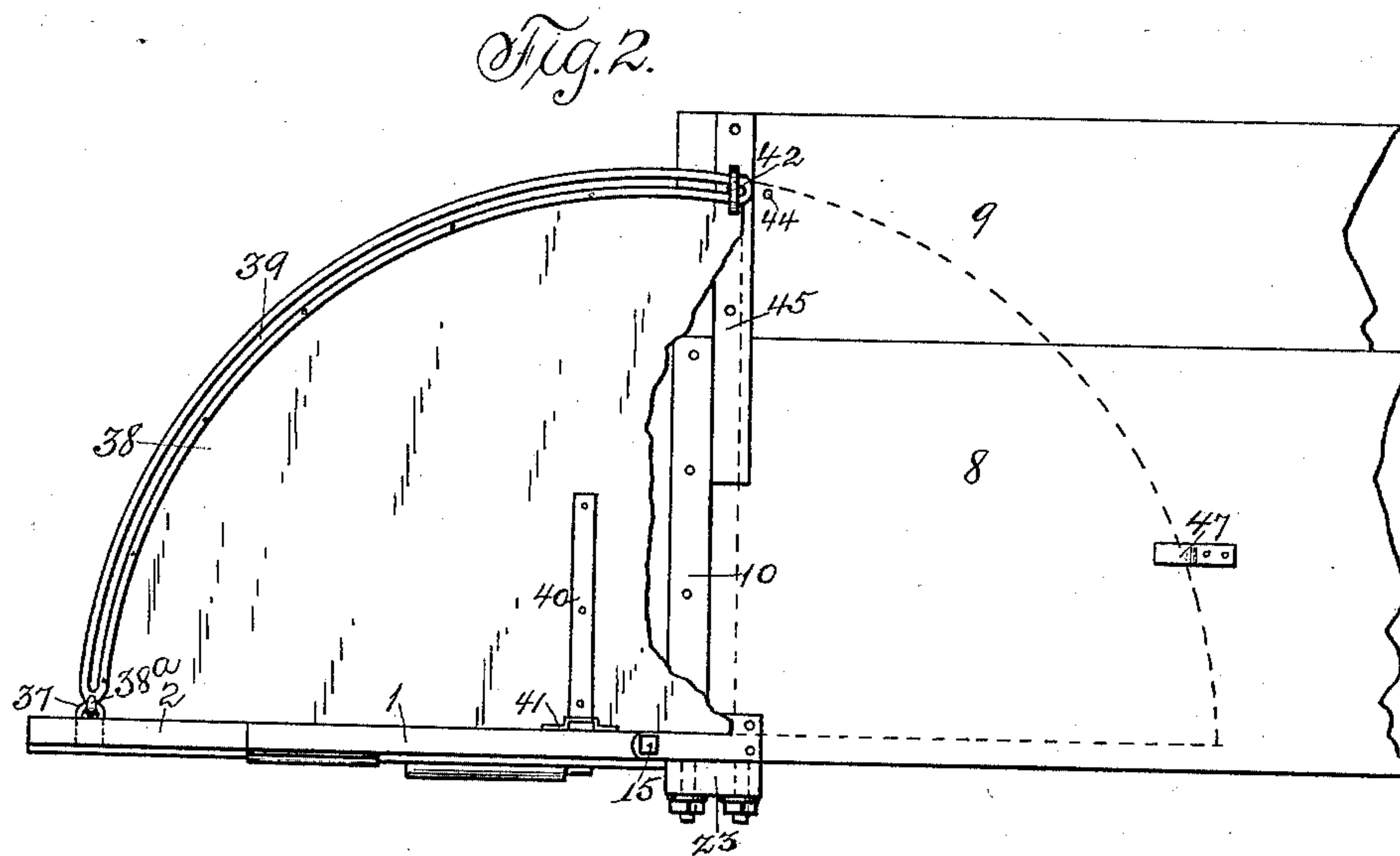
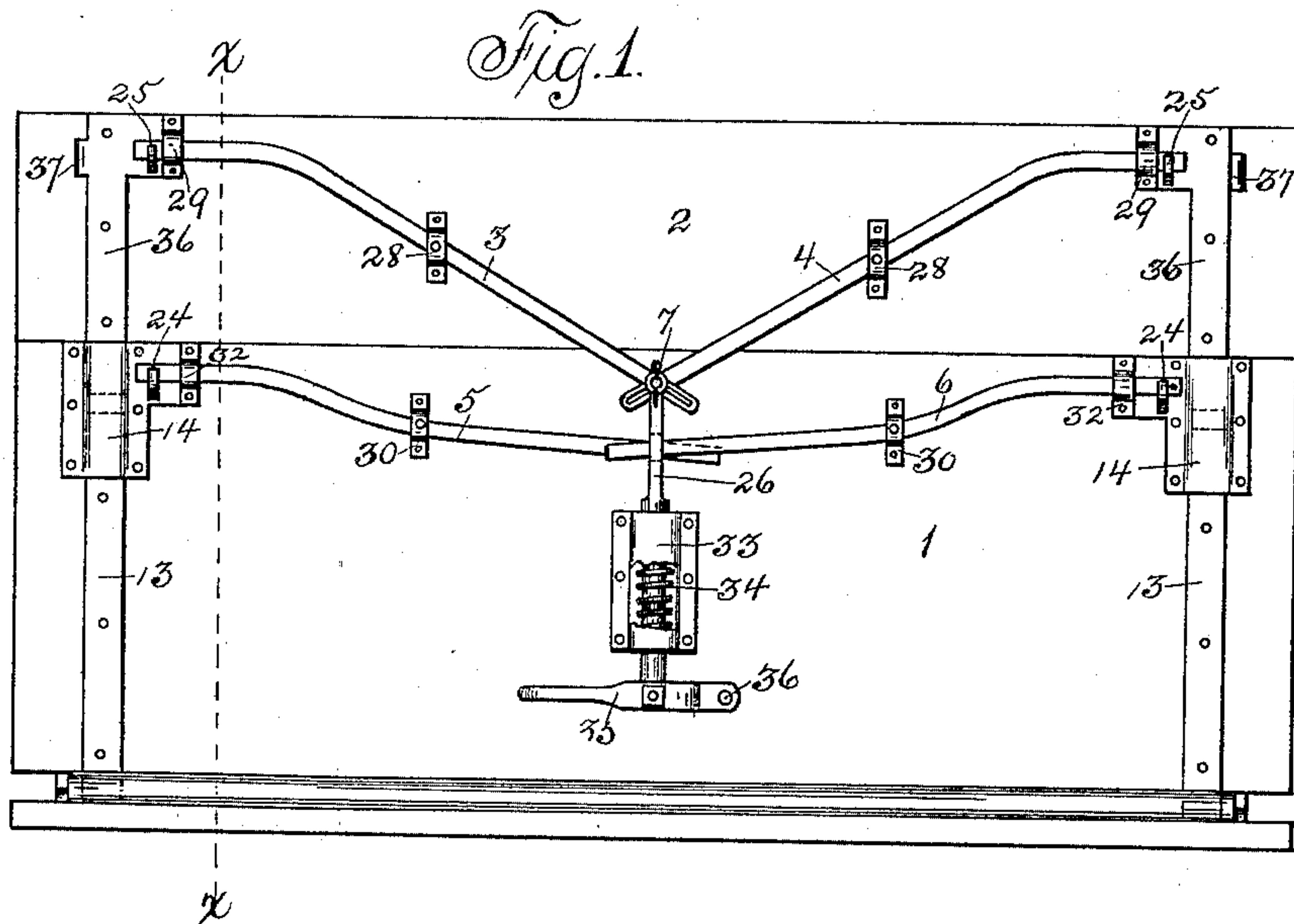
(No Model.)

2 Sheets—Sheet 1.

L. & H. F. BUESING.
WAGON END GATE.

No. 466,885.

Patented Jan. 12, 1892.



Witnessed:
M. Smith. }
C. C. Buckley. }

Inventors: Louis Buesing
and Herman F. Buesing.
By Thomas G. Orwig, Attorney.

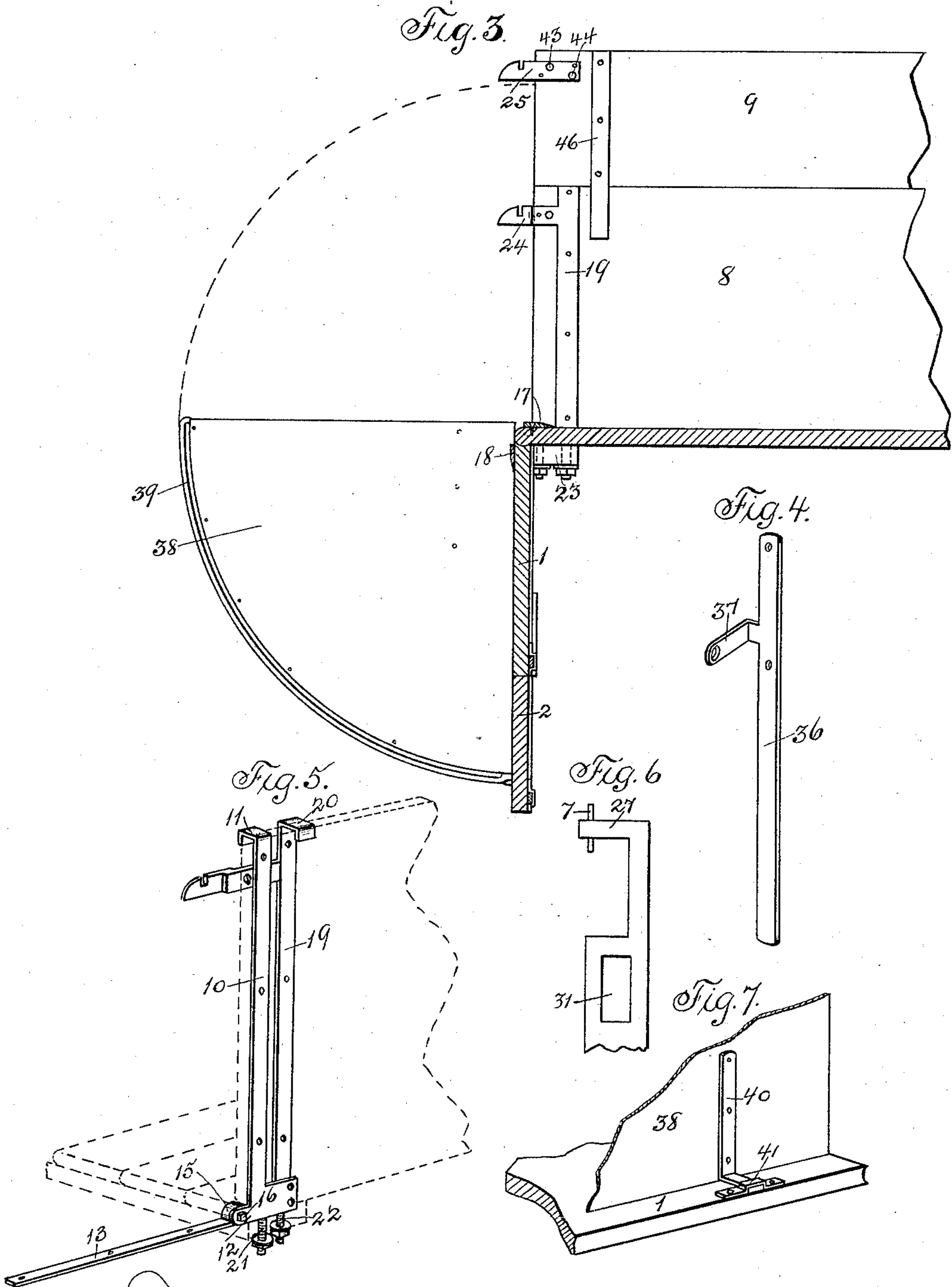
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Witnesses:
W. R. Smith.
C. C. Bulkeley.

Inventors: Louis Buesing
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By Thomas S. Orwig, attorney.

UNITED STATES PATENT OFFICE.

LOUIS BUESING AND HERMAN F. BUESING, OF WAVERLY, IOWA.

WAGON END-GATE.

SPECIFICATION forming part of Letters Patent No. 466,885, dated January 12, 1892.

Application filed January 28, 1891. Serial No. 379,459. (No model.)

To all whom it may concern:

Be it known that we, LOUIS BUESING and HERMAN F. BUESING, of Waverly, county of Bremen, and State of Iowa, have invented a new and useful End-Gate for Wagons, of which the following is a specification.

Our invention relates to that class of attachments for wagons in which the end-gate and shoveling-board may be combined.

Our invention has for its object the provision of means by which a tight joint between the end-gate and the transverse rear end of the bottom of the wagon is effected, by which the appliances necessary to employ the end-gate as a shoveling-board are adjusted in place, by which the end-board is automatically secured in a locked position and released or unlocked from one point by the operator, and in certain other advantages to be hereinafter specifically set forth.

Our invention consists, first, in strap-irons secured to the end-gate on the outer or under side thereof, the free ends of which are bossed and pivoted to angle-irons secured in a vertical position on the outer side of the side of the boards of the wagon in forming the rear transverse edge of the bottom of the wagon convex to fit into and mate with the transverse concave edge of that portion of the end-gate adjacent to the former, said angle-irons and straps being of such construction as that the mating convex and concave edges fit snugly and thus provide a tight joint; secondly, in the hooking-irons secured to the inside of the sides of the wagon-box, and the combination of said hooking-irons with the outer angle-irons and their relative positions and functions on each side of the sides of the wagon-box; thirdly, in the plurality of pivoted locking-levers acted upon by yielding pressure to normally hold the levers in position to automatically engage the hooking-irons and so arranged and combined as to permit the disengagement of all of the locking-levers unitedly from one point of operation; fourthly, in the form of strap-irons having at their upper ends lugs extending angularly therefrom, said lugs having eyes or perforations therein, the former being adapted to pass through slots in the upper or supplemental board of the end-gate to which said irons are secured, together with sleeves or sockets in the lower board adapted

to receive the lower ends of the said irons, which latter serve both to hold in place the upper board and also to aid in securing in place the side pieces or plates, to which reference is about to be made, and, fifthly, in the side pieces or plates adapted to be adjusted in place when the end-gate is to be transformed into a shoveling-board, said side pieces being angular in form and having a segmental slotted rim, together with means for removably and conveniently adjusting the side pieces in place on the end-gate and in holding the same at varying angles in the removal of the wagon load.

Our invention consists, further, in certain details of construction and combinations and arrangements, to be hereinafter more particularly described, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation of our improved end-gate and shoveling-board, showing the locking-levers engaged and holding the end-gate in its closed position. Fig. 2 is a side elevation showing the end-gate transferred into a shoveling-board, the side plates being in position. Fig. 3 is a sectional view on the line *x x*, Fig. 1. Fig. 4 is a detail view of the irons for detachably holding the supplemental end-board in position. Fig. 5 is an enlarged detail perspective view showing the relative positions of the angle-irons and hooking-irons to each other and to the sides of the wagon-box, which latter is indicated by the dotted lines. Fig. 6 is an enlarged detail view of the upper end of the bar to which the hand-lever unlocking the end-gate is attached. Fig. 7 is a detail enlarged view showing the means for detachably holding one end of the side plates or pieces.

1 designates the lower board of the end-gate, and 2 the supplemental board thereof.

3, 4, 5, and 6 are sets of locking-levers, each pair being adapted to lock and secure the end-gate in position automatically in manner to be described, it being obvious, however, that the upper pair 3 and 4 of the levers are removable with the upper or supplemental board 2, by removing the pin 7, Fig. 6, holding the slotted lower ends of the levers 3 and 4 together.

Before proceeding further with the description of the levers and means of operating

same we will first describe the means of joining the end-board to the wagon-box.

The side-board of the wagon-box is shown at 8, above which is the supplemental or top board 9. Upon each of the outersides of the wagon-box and secured vertically at the rear ends of the lower side-boards 8 are the angle-irons 10, which latter have their upper ends formed with lugs 11, adapted to engage over the upper edge of the lower side-boards 8 of the wagon-box, Fig. 5. The lower ends of said angle-irons have formed therewith lugs 12, having eyes or perforations. The strap-irons 13 are secured to the under and outer side of the end-board 1, the said irons terminating within the sockets or clips 14, as indicated by the dotted lines in Fig. 1. The remaining ends of said strap-irons 13, located at the inner and lower edge of the end-board 1, are bossed into a semicircular form 15, Fig. 5, the adjustment being such that the edge of the wagon-bottom, formed convex, as shown in Fig. 3, conforms to the circularity of said bossed portions 15 of the strap-irons 13, thus at all times maintaining a tight joint between the lower inner edge of the end-gate, which is formed concave, and the rear convex edge of the bottom of the wagon. A bolt 16 is provided, which screws into the bossed portions 15 and forms the pivotal connection between the angle-irons 10 and the said bossed end 15 of the straps 13.

We provide two reinforcing strap-irons 17 and 18, Fig. 3, secured, respectively, upon the end-board and the bottom of the wagon; these strap-irons 17 and 18 extending transversely of the end-board and wagon-bottom.

Secured vertically upon the inner side of the side-boards 8 are the hooking-irons 19, which also have the lugs 20, Fig. 5, engaging over the upper edge of the side-boards 8, being located slightly in the rear of the angle-irons 10, both the angle-irons and the hooking-irons having the bolts 21 22, which extend through the transverse cleat 23, located on the under side of the wagon-bottom, being secured by nuts in this manner at their lower extremities. At the upper portion of the hooking-irons 19 are the notched hooking-bars 24, extending at right angles from the former and adapted to pass through and beyond coinciding perforations in the end-gate 1 when the latter is closed.

When the supplemental boards 9 are used, additional hooking-bars 25, secured to said boards, extend and pass through and beyond coinciding perforations in the end-board 2 when the end-gate is closed.

Referring to Fig. 1, the upper end portions of the pairs of levers 3, 4, 5, and 6 are respectively bent near their upper extremities, the lower extremities of levers 3 and 4 being slotted and held on the upper end of the vertical bar 26 by means of the hooked end 27 of the upper portion of the vertical bar 26, Fig. 6, extending through the said slots of the levers 3 and 4, and held in place by means of

pin 7, the said lower end of the levers thus having a slight play on the end of the bar 26. The levers 3 and 4 are pivoted in the clips 28 on the end-board 2, and their upper ends passed through the clips 29. The levers 5 and 6 are bent somewhat differently than levers 3 and 4 and are pivoted in the clips 30, their ends being extended, as shown, through a slot 31, Fig. 6, in the bar 26, so as to give a slight play thereof, their upper ends extending through the clips 32. A socket 33 is provided through which the bar 26 passes, said socket being secured to the end-board 1, and having disposed within its interior the spring 34, coiled about the bar 26, the said spring 34 bearing at its lower end against the lower end of the socket 33 and at its upper end against the bar 26. Secured to the lower end of the bar 26 is a hand-lever 35, pivoted at 36 on the board 1.

The supplemental end-board 2 is detachably secured to the lower end-board 1 by means of sockets 14 and the irons 36, (shown in detail in Fig. 4,) having lugs 37, formed therewith, perforated at their outer ends, said irons 36 being secured to the end-board 2 and their lugs 37 passing through and held within perforations in the said end-board 2.

The side plates or pieces 38 (shown in position in Figs. 2 and 3) are of angular form, their outer perimeters describing a quadrant of a circle and having a slotted rim 39, the said side pieces 38 being detachably fastened in place on the end-gate by means of hooks 38^a, engaging the eyes or perforation in the lugs 37 of the irons 36 and the angle-irons 40, Fig. 7, secured to the side plates 38, the bent ends of the said angle-irons, 40 engaging clips 41, secured to the lower board 1 of the end-gate. A reinforcing-strap that has a hook at its lower end projecting outward is fixed to the end of the sheet-metal plate to prevent it from bending, and by means of the hook on its end to aid in detachably securing the metal plate to the end-gate to facilitate the adjustment of the end-gate and to aid in supporting the end-gate in a horizontal position and also in fastening it securely in a closed position.

The upper rim of the side plates 38 is adjustably held on the sides of the wagon-box by means of the thumb-screws 42, Fig. 2, engaging screw-threaded perforations 43 44, Figs. 2 and 3, the one 43 passing through the bar 45, which latter, secured to upper board 9, is employed in conjunction with the bar 46, secured to the said side-board 9 on the inner side thereof to hold the board 9 on the lower board 8, the inner end of the thumb-screws 42 engaging the hooking-bar 25. The perforation 44 passes through side-board 8 into and through the said hooking-bar 25.

47 are plate-pieces so formed as to normally press against the side-boards 8 and bind the plate-pieces 38 against the said side-boards when the end-gate is nearly or entirely closed.

The operation of our improved devices is

as follows: Referring to Fig. 1, the spring 34, tending to distend vertically, normally presses upwardly upon the bar 26. This causes the levers 3, 4, 5, and 6 to assume the position shown in said figure. In closing, the hooking-bars 24 and 25, Figs. 3 and 5, pass through the coinciding slots in the upper and lower end-boards 1 and 2, their beveled ends engaging, respectively, under the edges of the levers 3, 4, 5, and 6, which latter ride over said bevels, compressing the spring until the notches in the hooking-bars are reached, when said levers drop into the notches by the action of the spring and lock the end-gate in position, holding the same together closed and free from rattling. In order to unlock and open the end-gate, the operator pulls downwardly upon the lever 35, attached to the bar 26, thus actuating the levers, 3, 4, 5, and 6 upon their pivots 28 and 30, causing their ends to describe a vertical arc and disengaging them from the notches in the hooking-bars 24 and 25 and at the same time compressing the spring 34. It is thus apparent that the end-gate is automatically and securely locked in its closed position and unlocked to be opened from one point of operation. The top or supplemental board 2 of the end-gate may be separated by disconnecting the lower ends of the levers 3 and 4 from the end of the vertical bar 26 and withdrawing the irons 36 from the sockets 14, secured to the lower end-board 1.

It will be observed by reference to Fig. 3 that a tight joint is at all times preserved, whatever may be the relative position of the end-gate to the rear bottom edge of the wagon by virtue of the form of the pivotal connections between the strap-irons 13 and the angle-irons 10 and the convexity of the edge of the wagon-bottom and the concavity of the lower and inner edge of the end-gate.

The perforated lugs 39 of the connecting-irons 36, protruding beyond the inner and upper face of the end-board, provide eyes to receive hooks on the side plates 38, and, together with strap-irons 40, the lower bent portions of which engage the clips 38, serve to detachably hold the side pieces on the end-gate.

When the end-gate is in the position shown in Fig. 2, we prefer to adjustably hold the side pieces 38 to the side-boards 8 and 9 by the thumb-screw 42, passed through the slotted rim 39 and engaged in the screw-threaded hole 42; but when the end-gate and shoveling-board are adjusted at any other angle we engage the thumb-screws in the hole 44, and by simply loosening said screws 42 adjust the side pieces 38 at varying angles, the screws remaining in the same position. When the side pieces 38 engage the plate-pieces 48, they are caused to hug the sides 8 of the wagon-box, and thus keep from rattling.

The angle-irons 10 and the hooking-irons 19 serve to hold the side-boards 8 perpendicularly between them.

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

1. A wagon end-gate having a concave groove in its lower edge, and irons fixed to the end-gate, having eyes in concentric position with said concave groove, in combination with a wagon-box having the rear edge of its bottom convex and irons fixed to the sides of the box and provided with perforated ears pivoted to the eyes projecting from the end-gate to concentrically connect the grooved edge of the end-gate with the convex edge of the rear end of the box and to maintain a tight joint when the end-gate is closed and also when it is open and in a horizontal position.

2. The combination of a metal strap having a lateral projection at its lower end adapted to pivot an end-gate thereto, a screw-threaded lower end, and a hook at its top end, said strap being fixed to the outside face of the side-board of a wagon-box and its hook extending inward to engage the top of the side-board, a corresponding metal strap having a lateral projection at its top portion adapted to engage a latch carried by an end-gate fixed to the inside face of the same board and the hook at its top end extended outward to engage the top edge of the side-board, and a cross-bar fixed to the bottom of the box and the screw-threaded ends of the two metal straps extended through bores in said cross-bar and detachably fastened thereto by means of nuts, and an end-gate carrying a latch and pivoted to the lateral extension of the metal strap fixed to the outside of the side-board, to operate in the manner set forth, for the purposes stated.

3. A metal strap having a perforated ear at its lower end adapted for hinging an end-gate thereto, said strap being fixed to the outside face of the side-board of a wagon-box, a corresponding metal strap fixed to the inside face of the same board and having a hook projected at right angles therefrom, an end-gate having openings to admit said hooks, hinged to the perforated ear of the strap on the outside of the box, and a latch on the outside of the end-gate to engage said hook, arranged and combined to operate in the manner set forth, for the purposes stated.

4. The combination, in a wagon end-gate, of a plurality of levers pivoted on the outer side of the end-gate, a vertical bar connected detachably to said levers, and a spring acting upon the said bar to normally cause the said levers to engage hooking-bars on the wagon-box, together with a hand-lever for unlocking said levers from one point of operation, as set forth.

5. A supplemental end-board having levers or latches pivoted to its outside and irons having openings at their top portions adapted to admit the ends of the latches fixed to the end portions of the board to project downward, in combination with an end-gate having sockets

to admit the downward projections of said fixed irons, to operate in the manner set forth, for the purposes stated.

6. A wagon end-gate hinged to the rear end
5 and bottom of a wagon-box and having perforated irons projecting inward from its inside face and end portion, sheet-metal plates, each having two straight edges and a curved edge and a slot extending along the curved
10 edge, a reinforcing metal strap fixed to the curved edge, hooks projecting outward from one of the straight edges and adapted to enter the perforations in the irons fixed to the

inside faces of the end-gate, irons fixed to the outsides of the side-boards of the box to
15 overlap the curved edge of the metal plates when the gate is closed, and screws extending through the slots in the plates into screw-seats fixed to the side-boards of the box, arranged and combined to operate in the man-
20 ner set forth, for the purposes stated.

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