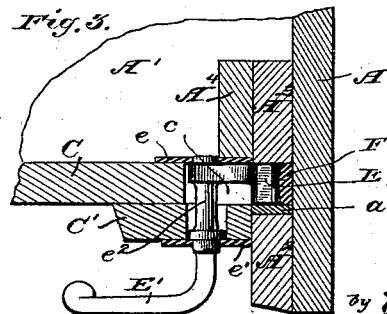
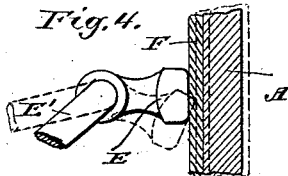
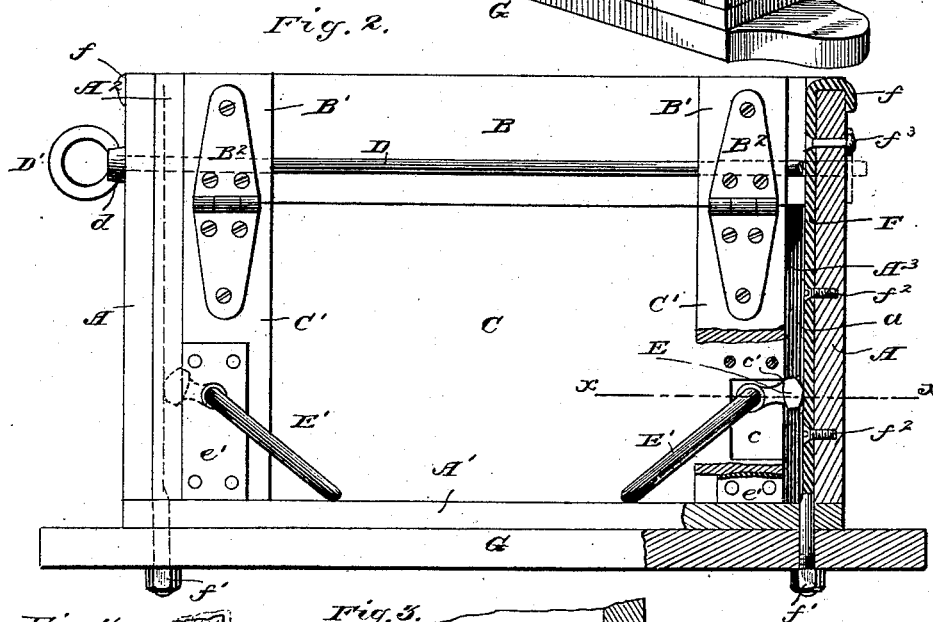
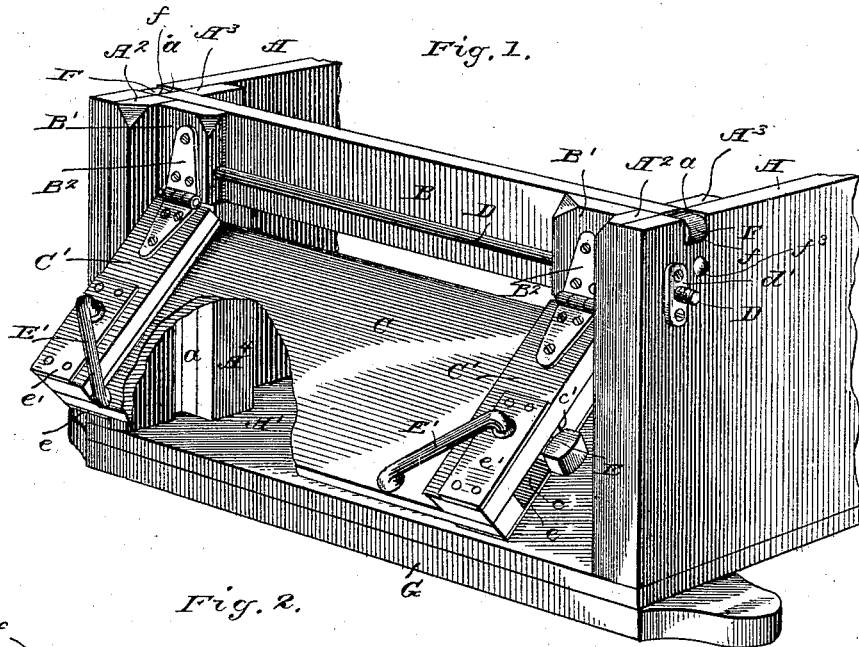


(No Model.)

C. HOTZ.
END GATE FOR WAGONS.

No. 304,933.

Patented Sept. 9, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHRISTOPH HOTZ, OF CHICAGO, ILLINOIS.

END-GATE FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 304,933, dated September 9, 1884.

Application filed March 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPH HOTZ, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in End-Gates for Wagons; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to locking devices for wagon end-gates, and also embraces improved features of construction in parts of the wagon-body adjacent to the end-gate; and it consists in the matters hereinafter described, and pointed out in the claims.

The end-gate described in connection with this invention consists, preferably, of an upper stationary part removably secured to the sides of the wagon-body and a lower swinging part hinged to the stationary part and provided with locking devices, constructed as hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of the rear end of a wagon-body, showing an end-gate constructed in accordance with my invention. Fig. 2 is a rear elevation of the same, showing parts of the wagon-body and the end-gate broken away to expose the interior construction thereof. Fig. 3 is a fragmentary detail section taken upon line *x x* of Fig. 2. Fig. 4 is a detail view hereinafter described.

A A are the side-boards of the wagon-body, and A' is the bottom thereof.

Upon the inner face of the side-boards A, near the rear ends of the latter, are formed vertical guide-grooves *a*, which are constructed to receive the ends of the end-gate, and which may be constructed in any desired or preferred manner. As herein shown, such grooves are formed by means of re-enforcing pieces or cleats A² A³, secured upon the inner faces of the side-boards A with their adjacent vertical edges at the necessary distance apart to form grooves of the desired width.

The end-gate, which is supported in the grooves *a*, consists of an upper stationary part, B, and a lower swinging part, C. The upper part, B, is constructed to fit at its ends in the

grooves *a*, and may be held detachably therein in any desired manner, the device herein shown for such purpose consisting of a horizontal rod, D, inserted through suitable apertures in the side-boards A, and through guide-blocks B', secured upon the faces of the part B near its ends. The rod D, as herein shown, is provided with a collar, *d*, at one end, to which is attached a ring or handle, D', by which it may be grasped in inserting or removing it, and its opposite end, as shown more clearly in Fig. 1, is screw-threaded and inserted through a threaded aperture in a plate, *d'*, secured to the outer face of the side board A. The collar *d* is constructed to rest against the outer face of the side-board A, and operates in connection with the threaded plate *d'* to hold the upper portions of the side-boards from spreading apart laterally in a well-known manner. The lower or swinging part, C, of the end-gate is made of slightly less length than the distance between the vertical faces of the side-boards A, which faces, as herein shown, are formed by the re-enforcing pieces A², so that its ends may swing freely past the said faces, and the said part C is connected with the part B by a suitable pivotal connection constructed to permit its lower edge to swing outwardly, ordinary hinges, B², being herein shown as connecting the said parts B and C. Suitable stops are provided to limit the inward movement of the said part C, so as to prevent said part from being thrown inwardly past the grooves *a* in the operation of closing it, such stops, as herein shown, being formed by means of strips or blocks A⁴, secured to the inner faces of the pieces A², before mentioned.

For the purpose of retaining the swinging part C of the end-gate in its closed position, said part is provided at either end near its lower margin with pivoted locking-lugs E, which are arranged in the same plane with the body of said part and with the stationary part B, and are constructed to project outwardly beyond the ends of the said movable part, so as to engage the grooves *a*, the projecting parts of the said lugs being preferably made of the same width as the groove, so as to fit closely therein. The said lugs are also provided with levers or handles E', by which they may be

turned, to cause their engagement with and disengagement from the grooves, said levers being arranged upon the outer face of the part C, and serving also as a hold for the hands in opening and closing the swinging part of the end-gate.

The lugs E are preferably located in recesses *c*, constructed by cutting away portions of the ends of the part C, suitable bearings being afforded for said lugs by means of plates *e* and *e'*, secured to the inner and outer faces, respectively, of the said part C over the recesses *c*, the plates *e'*, as herein shown, being secured to vertical re-enforcing pieces or cleats *C'*, attached to the rear or outer faces of the part C, adjacent to its ends, through which pieces the recesses *c* are also extended. The pieces *C'* are preferably located adjacent to the ends of the part C, and end to end with the pieces *B'* and *C'*, as shown.

It will be observed from the construction described that the grooves *a* may be used to receive and hold an ordinary plain tail-board, as well as the end-gate provided with a swinging portion and locking-lugs, as herein described, and the said locking-lugs being constructed to enter grooves of ordinary size and construction, the end-gate herein shown may be used in connection with the usual side grooves without the necessity of any change therein to adapt them for use with said end-gate.

The locking-lugs E are pivotally supported, as herein shown, by means of shaft *e²*, having bearings in the plates *e* and *e'*, the said lugs preferably being cast integral with said shafts *e²* and the handles or levers *E'* connected therewith. The shaft *e²* is, as shown, desirably made of sufficient length to extend through the part C and the re-enforcing-piece *C'*, through both of which pieces the recesses *c* are extended, as before mentioned, whereby the bearings in the plates *e* and *e'* are located at a considerable distance apart, and the liability of injurious strains upon the bearings of said shafts thereby lessened.

The locking-lugs E are preferably so disposed with reference to the grooves *a* that when their ends are swung outwardly in engagement with the grooves they come in contact with the bottom of the grooves, so as to prevent rattling or shaking of the end-board, the grooves preferably being provided with metal strips F, secured to the side-boards A, and against which the lugs rest. The lugs are preferably made slightly longer from their pivotal points to their end faces than the distance between the said pivotal points and the inner faces of the grooves, and are so arranged that their outer ends may be thrown upwardly to a point above a horizontal line passing through their pivotal axes when they are locked, as shown in Fig. 2, this movement being permitted by a slight lateral movement of the side-boards, which return to their normal position when the lugs are placed in the posi-

tion last described, and thereby hold the lugs securely from displacement by the shaking movement of the wagon or other causes. The upward movement of the lugs mentioned is desirably limited by suitable stops located in position to be encountered either by the lugs or the levers *E'*, such stops, as herein shown, being formed by the upper walls of the recesses *c*, as indicated at *c'*.

As a preferable construction in the strips F, said strips are extended downwardly at their lower ends through the bottom *A'* of the wagon-body and through the ends of a bar, G, arranged transversely beneath the end thereof, the said strips being secured at their lower ends by means of nuts *f'*, placed upon the rounded lower portions thereof. The strips F are by this construction held from lateral movement at their lower ends by the bar G and at their upper ends by the tie-rod D, which joins the side-boards A, as before described, and such strips being made sufficiently flexible to allow the lugs to be readily thrown in the position indicated in Fig. 2 and released therefrom.

Important advantages of this construction are that the surfaces which the ends of the lugs engage are thereby always held in the same relative position with each other and with the lugs, and outward movement or yielding is prevented in the sides of the wagon under pressure of the load or otherwise, which movement, if permitted, would obviously interfere with the proper engagement of the lugs with the sides. The metal strips F are, as herein shown, bent outwardly at their upper ends over and around the upper edges of the side-boards A so that by forcing the nut *f'* against the lower surface of the cross-piece the strips F may be drawn forcibly downward and the side boards, A, firmly clamped between the upper ends of the said strips F and the said cross-pieces. The strips F, when used, may be additionally secured to the boards A by screws *f²*, inserted through the strips and into the boards, or, preferably, by rivets inserted through the strips and boards, as indicated at *f³* in Figs. 1 and 2. The strips F, besides serving to hold the rear ends of the boards A in their proper relative position, obviously afford a lining to prevent wear in the grooves *a*. The said grooves may be additionally protected from wear by means of vertical metal strips *a'*, as indicated in Fig. 3, which may be placed at one or both sides of said grooves and may extend the entire length thereof or through their portions adjacent to the locking-lugs E only.

Instead of constructing the lugs operating in connection with the yielding sides in the manner above described, said lugs may, as illustrated in Fig. 4, be provided with square end faces constructed to rest against the strip F when the end-gate is locked, as shown in full lines in said figure, the lugs being constructed in such manner as to press the yield-

ing sides of the grooves slightly downward while being turned, as indicated in dotted lines in said figure, so that when placed in a locked position they will be firmly held by the pressure of the yielding sides of the wagon or the strips F, and cannot therefore be accidentally moved or jolted out of place.

I claim as my invention—

1. The combination, with the side-boards of a wagon-body provided with grooves *a*, of an end-gate provided with pivoted locking-lugs E, having bearing-faces adapted to engage the bottoms of the grooves *a*, and levers E', connected with the said lugs, substantially as and for the purposes set forth.

2. The combination, with the side-boards of a wagon-body provided with grooves *a*, of an end-gate having recesses in its ends, and locking-lugs E, pivoted in said recesses in the same plane with the gate, and provided with bearing-faces of equal width with the grooves, substantially as and for the purposes set forth.

3. The combination, with the sides of a wagon-body provided with grooves *a*, of an end-gate provided with recesses in its ends, locking-lugs E, pivoted in said recesses and constructed to engage the grooves *a*, and stops upon the gate adapted to limit the movement of the lugs in one direction, substantially as described.

4. The combination, with the sides of a wagon-body provided with grooves *a* and constructed to yield laterally in their portions adjacent to the grooves, of an end-gate provided

with recesses in its ends, and locking-lugs E, pivoted in said recesses, and provided with bearing-faces constructed to engage the bottoms of the grooves *a*, substantially as and for the purposes set forth.

5. The combination, with the sides of a wagon-body provided with vertical grooves *a*, of an end-gate comprising a part, B, and a part, C, hinged thereto having recesses formed in its ends, locking-lugs E, pivoted within said recesses and provided with lever-extensions E', plates *e e'*, secured to the said part C at either side of the recesses and constructed to afford bearings for the locking-lugs, and stops upon the part C, constructed to limit the movement of the lugs in one direction, substantially as described.

6. The combination, with the sides of a wagon-body provided with grooves *a*, of an end-gate provided with recesses in its ends, locking-lugs E, pivoted within said recesses and constructed to engage the bottoms of the grooves *a*, a transverse bar, G, located beneath the rear end of the wagon-body, and metal strips attached to the sides within the grooves *a* and secured at their lower ends in said bar, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

CHRISTOPH HOTZ.

Witnesses:

MARTIN CONRAD,
LOUIS SCHIFFLIN.