

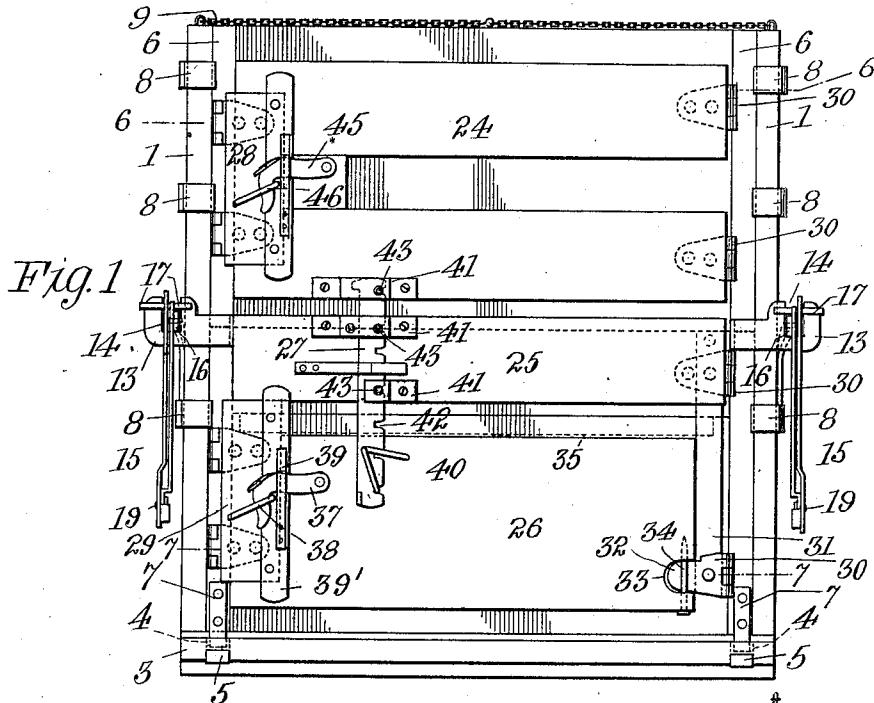
H. A. BECKER.  
END GATE.

APPLICATION FILED MAY 20, 1911.

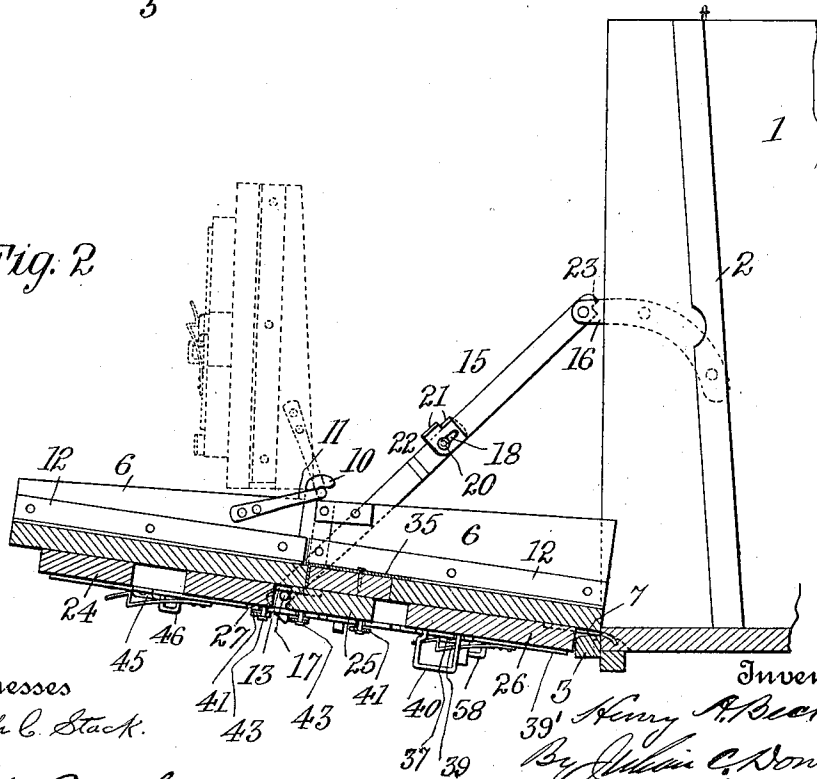
1,036,062.

Patented Aug. 20, 1912.

3 SHEETS—SHEET 1.



*Fig. 2*



Witnesses  
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*Henry A. Becker*  
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Fig. 3

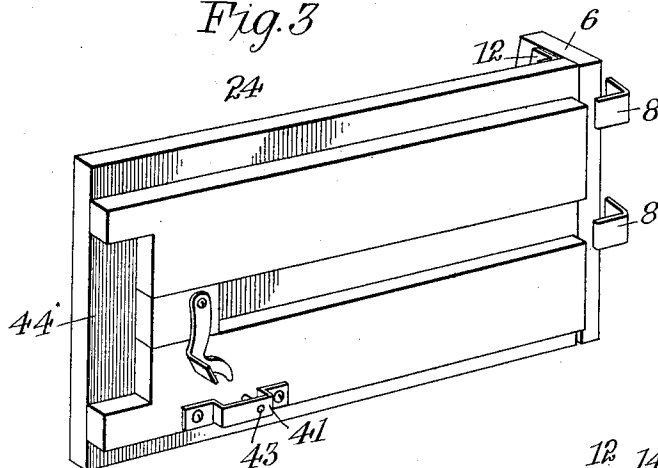


Fig. 4

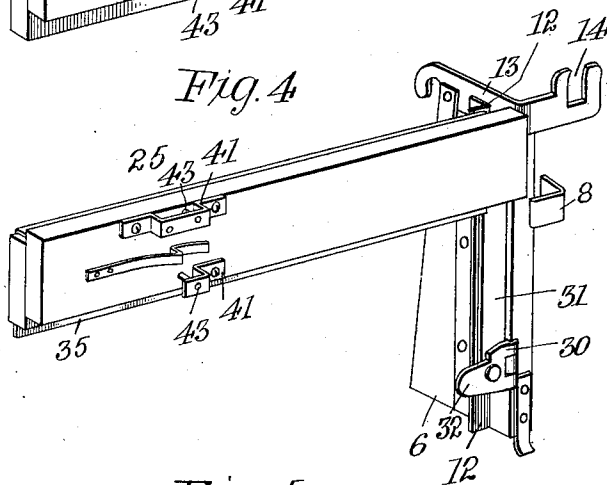
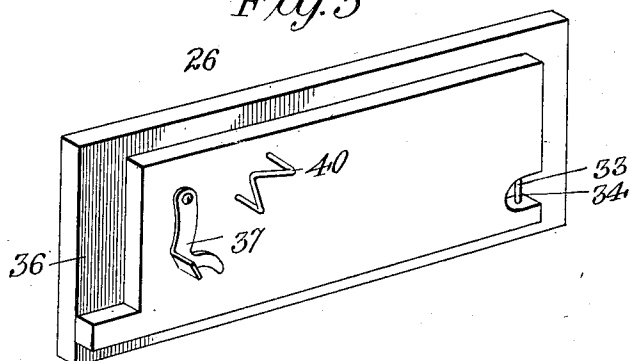


Fig. 5



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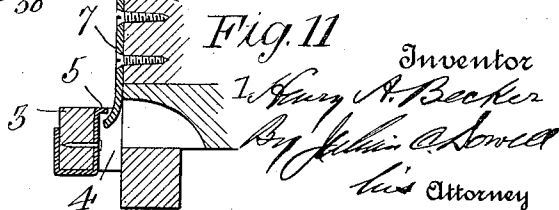
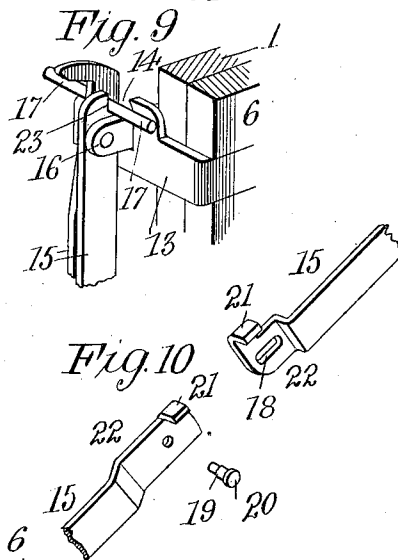
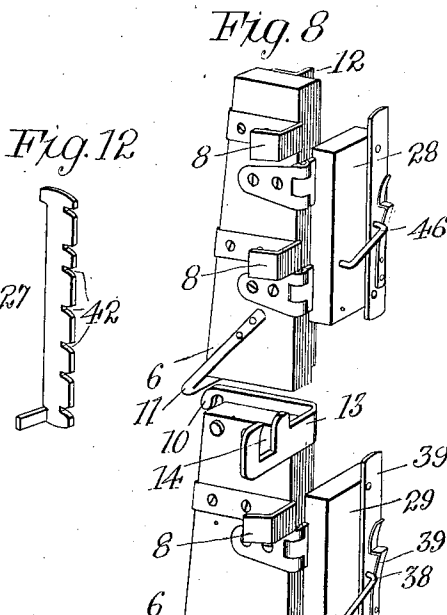
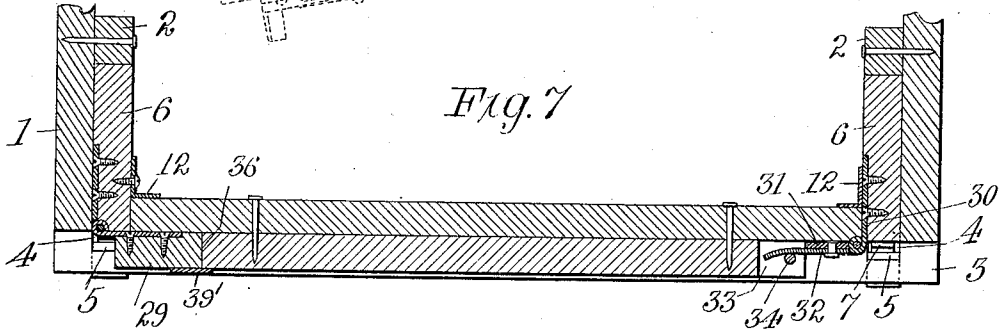
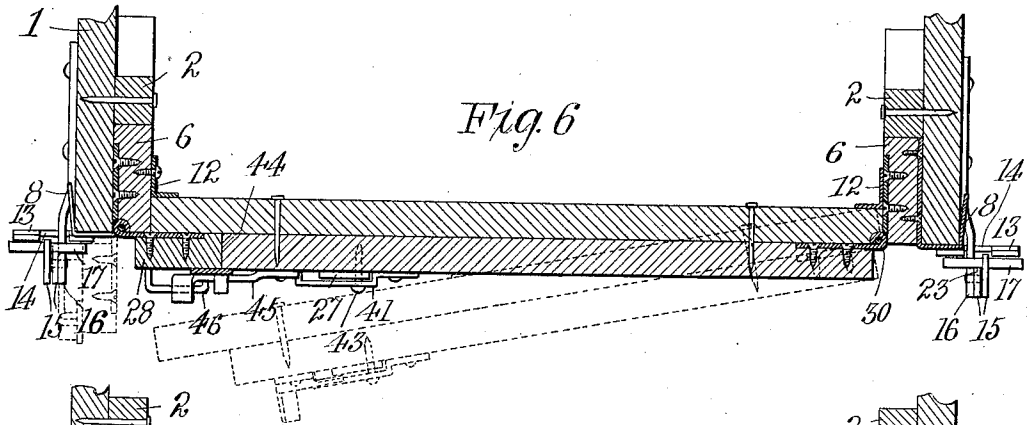
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3 SHEETS—SHEET 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY A. BECKER, OF ADRIAN, MINNESOTA.

END-GATE.

1,036,062.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed May 20, 1911. Serial No. 628,515.

*To all whom it may concern:*

Be it known that I, HENRY A. BECKER, a citizen of the United States, residing at Adrian, in the county of Nobles and State of Minnesota, have invented certain new and useful Improvements in End-Gates, of which the following is a specification.

This invention relates to improvements in end-gates and consists in certain novel features which will be first hereinafter fully described and then more particularly pointed out in the appended claims.

The object of the invention is to provide an end-gate which may be used as a shovel board or arranged as a dump-gate to permit the contents of a wagon to be discharged through the lower portion of the gate, or may be swung bodily to one side in a horizontal plane so as to facilitate the loading or unloading of the wagon.

A further object of the invention is to provide an end-gate which may be raised and lowered or swung to either side as an entirety or in sections, and a further object of the invention is to provide novel means for supporting the gate in its several positions and for connecting the several sections of the gate.

In the accompanying drawings which illustrate an end-gate embodying my present improvements, Figure 1 is an elevation of the gate fully closed, Fig. 2 is a longitudinal vertical section, showing the gate lowered and indicating by dotted lines the manner of separating the upper section from the lower sections. Figs. 3 and 4 are perspective views of the upper and intermediate sections respectively, Fig. 5 is a perspective view of the dump board or lowest section. Fig. 6 is a horizontal section on the line 6-6 of Fig. 1. Fig. 7 is a similar view on the line 7-7 of Fig. 1. Fig. 8 is a detail perspective view of one of the wings. Fig. 9 is a detail perspective view showing the manner in which the supporting arms hold the end-gate in its raised position. Fig. 10 is a detail perspective view showing the meeting ends of the members of the supporting arms. Fig. 11 is a detail section showing the removable mounting of the wing. Fig. 12 is a detail of the slidable latch by which the sections are fastened together.

The wagon body 1 may be of any desired

size and form and is provided near its rear end, on the inner faces of its sides, with cleats or standards 2 against which the end-gate is adapted to rest. At the extreme rear end of the bottom of the wagon body is a sill or cross-bar 3 provided near its ends with openings or sockets 4 which are preferably lined with metallic wear plates 5, as shown.

The end-gate comprises wings 6 which are provided at their lower rear corners with tongues or hooks 7 adapted to engage the openings 4 in the cross-bar or sill 3 and thereby form a hinged connection between the end-gate and the wagon body. It will also be readily understood that in order to detach the end-gate from the wagon body it is necessary merely to swing the end-gate into a partly lowered position and then lift the same so that the said hooks or tongues will be removed from the said sockets or openings 4. The wings are of such size and form that when they are in their upper or closed position their front edges will bear against the rear edges of the cleats or standards 2, while their rear edges will be approximately flush with the rear edges of the sides of the wagon body. In order to hold the wings to the sides of the body and also aid in preventing spreading of the said sides, the wings are equipped with laterally extending angular clips or brackets 8 which engage around the rear edges of the sides of the wagon body and have their outer arms preferably converging toward the rear so that as the wings are swung upwardly and the said clips or brackets engage the wagon body sides, the said sides will be forced inwardly slightly, as will be understood. Spreading of the sides of the wagon body may be further prevented by a chain or other well-known connection between the upper edges of the sides, as indicated at 9. The wings 6 are constructed in upper and lower members, the upper member resting upon the lower member, as shown, and the lower member being provided at its upper inner or front corner with a hook 10 which is engaged by an eye 11 on the lower front corner of the upper member so that the upper member may be readily detached from the lower member when so desired. On the inner faces of the wings I provide flanges or angle-irons 12 which project in-

wardly from the wings and are adapted to bear against the front face of the end-gate so as to form closures for the joints between the wings and the end-gate and thereby prevent loss of material through leakage.

The hooks 10 are preferably formed at the ends of bars 13 which cover the seam between the two sections of the wing and are provided with slots or notches 14 beyond the sides of the wagon body. Supporting arms 15 are pivoted at their upper end to brackets 16 on the sides of the wagon body and are engaged by the guides presented by the laterally projecting notched ends of the bars 13 as the end-gate is swung forwardly or downwardly, being provided at their free ends with lateral stops 17 which will arrest the downward movement of the end-gate by contact with the said guides 13 and will thereby support the end-gate in its lowered position. These supporting arms are formed in pivotal sections or members, the upper member, or that member which is pivoted to the wagon body, being provided at its outer end with a longitudinal slot 18 which is engaged by a pivot pin 19 secured in the end of the lower member and provided with a head 20 adapted to engage over the walls of the said slot 18 and thereby prevent lateral separation of the two members. The upper edges of the members of the supporting arms are provided at their meeting ends with inwardly turned projections or shoulders 21 which are adapted to engage when the members are extended so as to prevent separation of the members and relieve the pivot pin of the weight of the end-gate. In order that the members may be readily folded each member is off-set laterally as indicated at 22 adjacent the pivotal connections of the members so that by sliding the lower member upwardly to the extent permitted by the slot 18 the shoulder of the said lower member may swing in front of the off-set on the upper member so that the members may be brought into folded relation. As will be seen from Fig. 2, when the members are extended the inwardly turned projections or shoulders interlock so that the arms will be rigid and releasing of the end-gate can not occur. When the end-gate is in its raised position the members of the supporting arms are swung into the folded position and the lateral stops 17 at the free ends of the arms are made to engage between the guides 13 and shoulders 23 on the upper ends of the supporting arms, thereby locking the end-gate in its raised position. The slot will permit the relative longitudinal movement of the members necessary to carry the lateral stops 17 over the shoulders 23 and also to lift the said stops out of engagement with the said shoulders when it is desired to lower the said end-gate.

Between the wings I provide a connecting

portion which is hinged to one wing and adapted to be locked to the other wing. This connecting portion is preferably constructed in a plurality of sections 24, 25 and 26, which are arranged to be detachably connected by a slidable latch 27 and detachably held to one wing by means of bars 28 and 29 hinged to said wing. The hinges 30 connect this main body or connecting portion of the end-gate to one of the wings, preferably the right hand wing, and said hinges are secured directly to the members 24 and 25 and indirectly to the dump-board or member 26 through a bar or plate 31 depending from the section or member 25. This bar or plate 31 constitutes a keeper behind which one end of the member 26 may be fitted, and a lug or pin 32 projects from the said keeper to engage a slot or notch 33 in the member 26 so as to prevent the end of the said member from dropping. To retain the pin in engagement with the said slot or notch a guard 34 may be provided in the said notch, as shown. While the pin 32 is shown in the drawings in the form of an extension from the lowermost hinge 30, it will be readily understood that such construction is not essential and that the pin may project from any point of the pendent bar or keeper 31, the slot or notch in the member 26 being located properly to engage the said pin. This lowermost member or dump-board 26 will fit against an abutment 35 depending from the inner face of the intermediate section 25 and forming a cover or closure for the seam between the two sections so as to prevent leakage of small grain therethrough, and the outer face of the dump-board is offset from the main body so as to permit the formation of the slot or notch 33 as well as a recess 36 at the opposite end of the member. The bar 29, hinged to the left hand wing, is adapted to swing over the end of the said member or section 26 and fit in the said recess 36 and thereby aid in holding the said member in place. To prevent the hinged bar 29 from prematurely swinging out of engagement with the dump-board 26, a latch 37 is pivoted on the said member and adapted to engage a hasp or keeper 38 on the said hinged bar, being held in engagement with the said keeper by a spring finger 39 adapted to engage over the upper edge of the latch when the same is thrown to its locking position. The spring 39 is preferably mounted on a plate or flange 39' at the edge of the hinged bar and arranged to cover the seam between the bar and the wall of the recess engaged by it, thereby preventing the wearing away of the meeting edges by the movement of the latch as well as imparting a neat finish to the end-gate.

It will be readily seen from the description thus far given that the member 26

forms a closure for the dump-opening provided in the end-gate proper, and that this closure is removable so as to permit the contents of the wagon to be discharged through the opening, or it may be secured in position to close the opening and then may be swung horizontally to one side, or upwardly and downwardly as a part of the end-gate body. This dump-board or closure is provided with a handle 40 in the form of a bail, or its equivalent, and is adapted to be engaged by the sliding latch 27 which consists of a bar fitted in keepers 41, secured on the outer faces of the end-gate members 24 and 25, and provided with notches 42 in its edge adapted to engage pins 43 in the keepers as well as to engage the bail or handle 40. When this latch is arranged to extend across all three members or sections of the end-gate and engage the bail 40 as well as the pins 43, the several sections or members of the end-gate will be held together so that they may be swung as an entirety upwardly and downwardly or to one side. When it is desired to uncover the dump opening the latch 27 is disengaged from the bail 40 and is raised so as to clear the closure 26 after which the latch 37 is released from the hasp 38 permitting the hinged bar 29 to be swung outward and the closure then removed endwise from its engagement with the pendant bar 31 and the pin 32 projecting therefrom.

The intermediate end-gate section or member 25 is secured directly to the right hand wing by one of the hinges 30 and its opposite end rests upon the hinged bar 29 when the end-gate is in its closed position so as to be prevented from dropping. It will also be observed that the upper rabbeted edge of this intermediate end-gate member or section is disposed approximately in the horizontal plane of the meeting ends of the wings, and the upper end-gate member or section 24 rests on said rabbeted edge and is hinged directly to the right hand wing while at its opposite end it is provided with a recess 44 adapted to be engaged by the upper hinged bar 28 which overlaps the free end of the member or section to fit in the said recess, as clearly shown. This hinged bar 28 aids in supporting the free end of the uppermost section or member 24 and is held thereto by a latch 45 and keeper 46 similar to the latch 37 and keeper 38.

As hereinbefore stated, the entire end-gate may be swung downwardly upon the hinged or pivotal connection between the wings and wagon body and will be supported in the lowered position by the supporting arms 15 and the entire end-gate may be removed from the wagon body by disengaging the tongues or hooks 7 from the sockets 4. When the device is in its lowered position it may be used as a shovel-board for discharging grain or other material from the

wagon body and in this position the side wings will serve as guards to prevent the grain or other commodity from flowing over the sides of the shovel-board and being thereby lost. Should the nature of the load be such that a short dump board is desirable, the latch 27 is disengaged from the pin 43 on the uppermost section of the end-gate and is then moved downwardly so as to be clear of the said uppermost section and operably engage only the intermediate section and the lower section or dump board. The device being then swung into its lowered position, the uppermost member of the end-gate with the upper members of the wings may be swung upwardly and inwardly so as to disengage the eyes 11 from the hooks 10 and thereby remove the upper portion of the end-gate from the lower portion which will then serve as a short dump-board.

The device may be used as a loading gate by bringing the latch 27 into position extending across all the members or sections of the end-gate and engaging the same, as will be readily understood. If both the hinged bars 28 and 29 be then released from the members respectively engaged by them and swung outwardly to the left the end-gate may then be swung to the right as a door. It will also be understood that if the latch 27 be adjusted to connect the intermediate section and the lower section, the said sections may then be swung horizontally independently of the upper section.

It is thought that the manifold advantages of my improved end-gate will be readily understood and appreciated from the foregoing description taken in connection with the drawings.

The device is composed of few parts which are not liable to get out of order and is capable of such variety of adjustment as to efficiently answer the requirements arising under differing circumstances.

It will also be appreciated that I have provided in a single device means for rapidly loading and unloading a wagon without any loss of material.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. The combination with a wagon body, of an end-gate hinged thereto to swing downwardly, and supporting arms pivoted to the wagon body laterally beyond the side edges of the end-gate and having a sliding engagement with the end-gate between their ends, said arms being foldable in planes parallel with the sides of the wagon body and provided at their free extremities with fixed lateral stops adapted to bear against the rear face of the end-gate in either the raised or lowered position of the same.

2. An end-gate formed with a dump-opening, a removable closure for said open-

- ing constituting a dump-board, and means for removably supporting the dump-board from the end-gate comprising a plate carried by and depending from the end-gate in front of which the dump-board is inserted and with which it has a pin and slot engagement, a hinged bar supported by the end-gate and adapted to be turned against the dump-board when in place, and means for locking the hinged bar against the dump-board whereby the latter may be moved with the end-gate.
3. An end-gate having opposite sides or wings, a member hinged to one wing and extending to the other wing and adapted to be detachably locked or secured to said other wing, and flanges carried by the wings and forming closures for the joints formed by the meeting of the wings and the hinged member.
4. An end-gate formed with a dump-opening, a removable closure or dump-board for said opening, and means for removably supporting said dump-board from the end-gate comprising a plate secured to and depending from the rear of the end-gate, a hinged bar also secured to said end gate, and interengaging means on the depending plate and contiguous end of the dump-board, the hinged bar and depending plate overlying the opposite ends of the dump-board when in place whereby said dump-board may be moved with the end-gate.
5. The combination with a wagon body, of wings mounted thereon to swing downwardly, a gate hinged to one of the wings to swing transversely thereof and extending to the other wing and adapted to be detachably fastened thereto to make a door-like closure between the wings, said end-gate having a dump-opening, and a removable closure for the dump-opening, said closure when in place being adapted to swing downwardly or transversely with the end-gate.
6. An end-gate comprising wings, a plurality of detachably connected sections hinged to one of the wings and extending to the opposite wing, means for locking the sections to the last-mentioned wing, and flanges on the wings forming closures for the joints between the wings and the ends of the said sections.
7. An end-gate comprising wings, a plurality of sections hinged to one of the wings, means for locking some of the sections to the opposite wing, and connections whereby some or all the sections may be made to swing together.
8. An end-gate comprising wings, sections hinged to one of the wings and extending to the opposite wing and detachably connected to said opposite wing, a dump-board detachably suspended from the lower section, and a fastening device mounted on said lower section and adapted to connect the same with the upper section, or with the dump-board, or with both the upper section and the dump-board.
9. An end-gate comprising wings, sections hinged to one of the wings and extending to the opposite wing and detachably connected to said opposite wing, a dump-board detachably suspended from the lower section, projections on said sections and the dump-board, and a bar slidably mounted on the lower section and having notches in its edge to engage said projections.
10. An end gate consisting of wings adapted to swing in vertical planes, a member hinged at one end to one of the wings and extending to the opposite wing, a bar hinged to said opposite wing and adapted to overlap the free end of the member, and means for fastening the bar in its overlapping relation to the member.
11. An end-gate comprising wings consisting of detachably connected members, end-gate sections hinged to one of the wings and detachably connected to the opposite wing, the lower section having a dump-opening, a removable closure for the dump-opening, and means for connecting the end-gate sections whereby said sections may swing upon their hinged connections with a wing either together or independently.
12. The combination with a wagon body, of an end-gate pivotally mounted thereon, slotted lugs projecting laterally from the end-gate, and foldable supporting arms pivoted to the wagon body and passing through said slotted lugs, said supporting arms having lateral stops at their free ends adapted to extend across said slotted lugs and thereby support the end-gate in its raised or lowered position.
13. The combination with a wagon body, of an end-gate mounted thereon to swing downwardly, guides projecting laterally from the end-gate, and supporting arms pivotally attached to the wagon body and consisting of slidably and pivotally connected members, the upper member being provided at its upper end with a shoulder which stands in rear of the guides when the end-gate is raised, and the lower member being provided at its free end with lateral stops adapted to engage between the said shoulder and the guide to lock the end-gate in its raised position, said stops also adapted to be engaged by the guides and thereby support the end-gate in its lowered position.
14. The combination with a wagon-body, of an end-gate mounted thereon to swing downwardly, and supporting arms pivoted to the wagon body and provided at their free ends with stops adapted to support the end-gate in its lowered position, said arms consisting of slidably and pivotally connected members provided at their point of

connection with interlocking shoulders whereby the members will be locked in their extended position.

15. The combination with a wagon-body, of an end-gate mounted thereon to swing downwardly, and supporting arms pivoted to the wagon body and provided at their free ends with stops adapted to support the end-gate in its lowered position, said arms consisting of slidably and pivotably connected members provided with offset portions around their point of connection and interlocking shoulders on said offset portions.

16. An end-gate formed with a dump-opening, a removable closure or dump-board for said opening, an abutment on the front face of the end gate engaged by the upper edge of the dump board, and means for removably supporting the dump-board from the end-gate comprising a plate secured to and depending from the rear of the end-gate, a hinged bar, and interengaging means on the depending plate and contiguous end of the dump-board, the hinged bar and depending plate overlying the opposite ends of the dump-board when in place.

17. An end gate comprising wings adapted to be detachably mounted on a wagon body to swing downwardly, a plurality of superposed end-gate sections hinged to one of the wings and extending normally toward the other wing, the lowest section having a dump opening, a removable dump board closing the dump opening, bars hinged to

the wing toward which the end-gate sections normally extend and adapted to overlie the free ends of the dump-board and the end-gate sections, means for locking the end-gate sections and the dump board to said hinged bars, and means for locking the dump board and the end-gate sections together.

18. An end gate comprising wings adapted to be detachably mounted on a wagon body to swing downwardly and comprising detachably connected superposed members, a plurality of superposed end-gate sections hinged to one of the wings and extending normally toward the other wing, the lowest section having a dump opening and the meeting line between two of said sections approximately coinciding with the meeting line between the members of the wings, a removable dump board closing the dump opening, bars hinged to the wing toward which the end-gate sections normally extend and adapted to overlie the free ends of the dump-board and the end-gate sections, means for locking the end-gate sections and the dump board to said hinged bars, and means for locking the dump board and the end-gate sections together.

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

HENRY A. BECKER.

Witnesses:

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W. M. EVANS.