No. 789,552. PATENTED MAY 9, 1905.

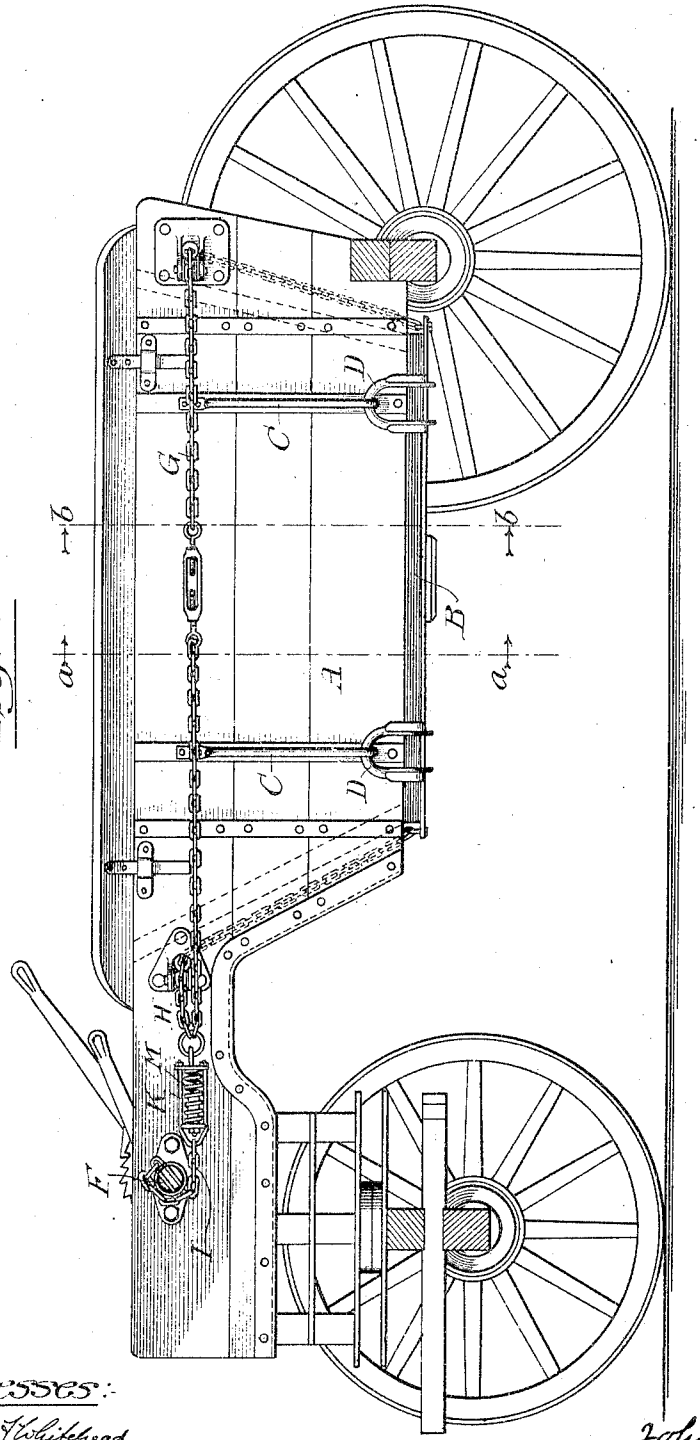
J. O. E. KROHN.

DUMPING WAGON.

APPLICATION FILED MAR. 13, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



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4 SHEETS—SHEET 2.

Fig. 2.

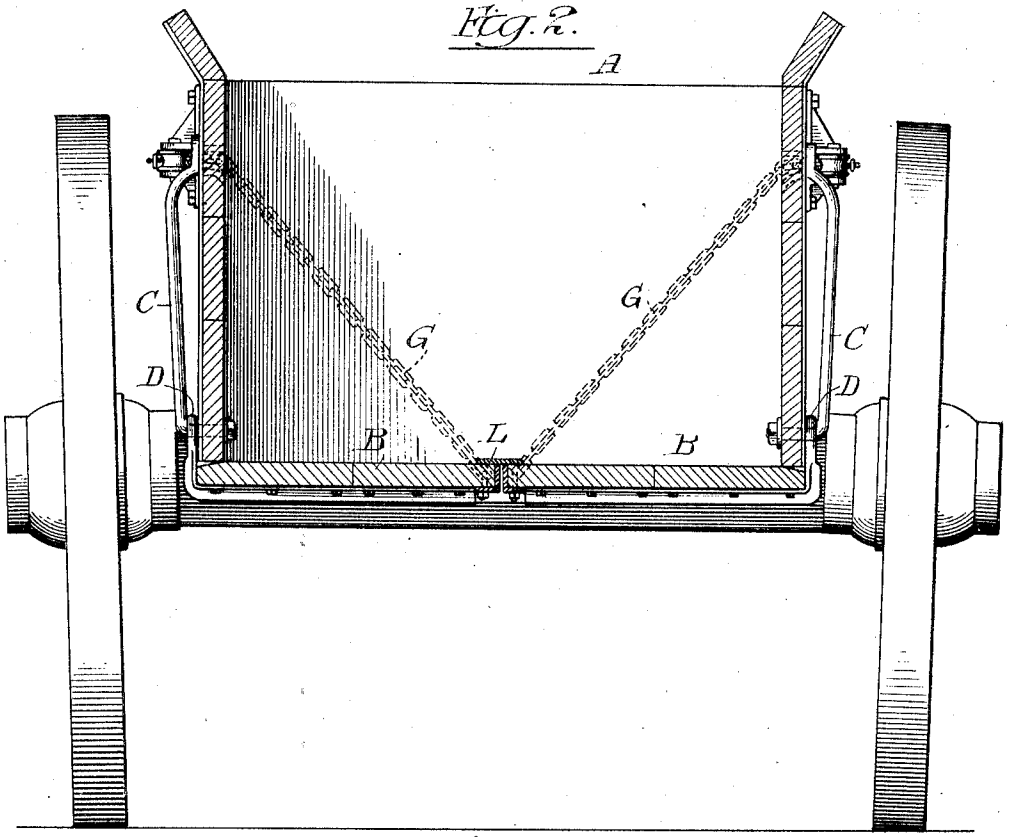
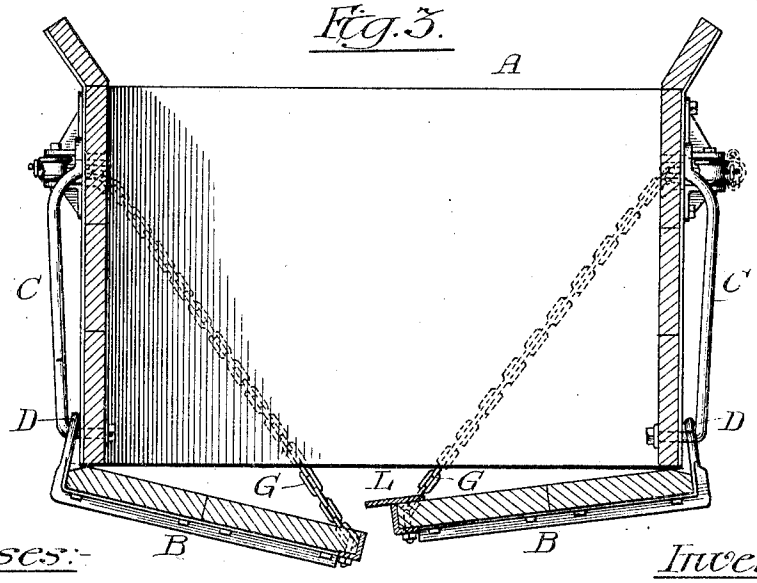


Fig. 3.



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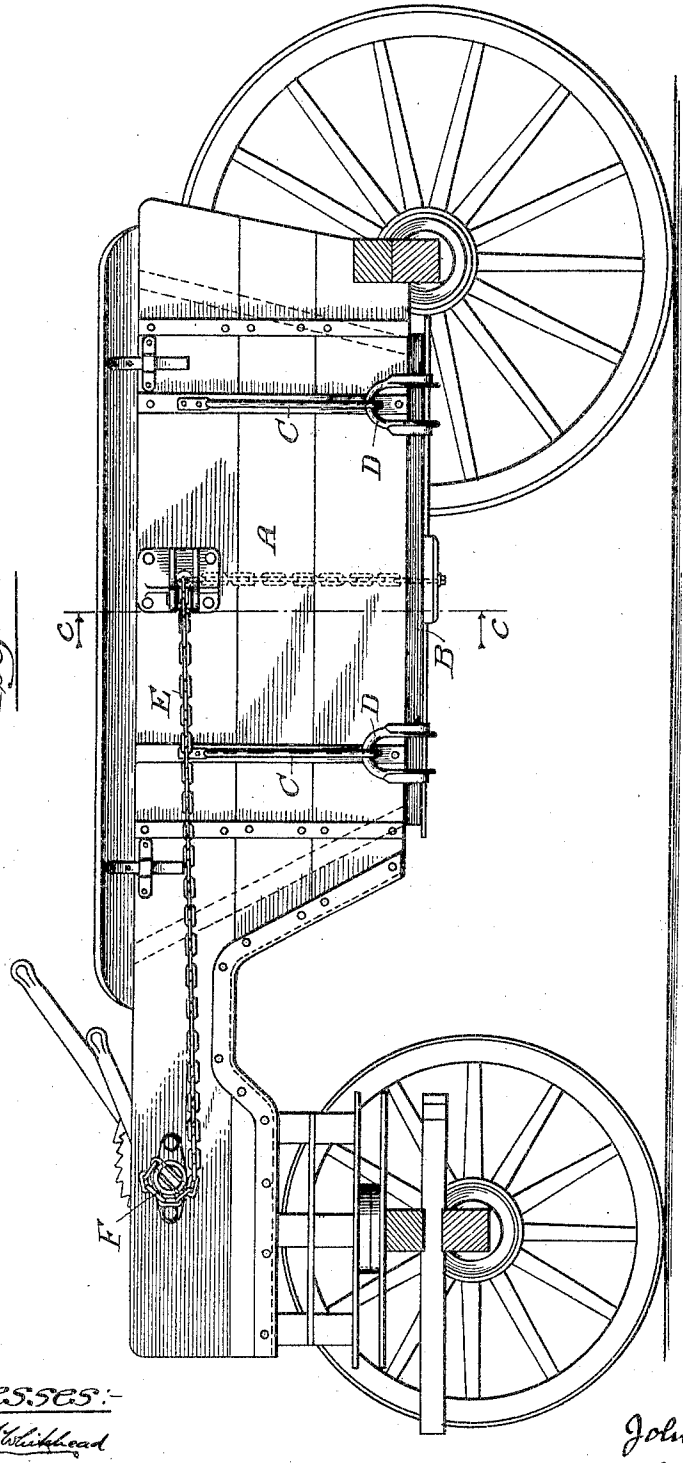
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4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

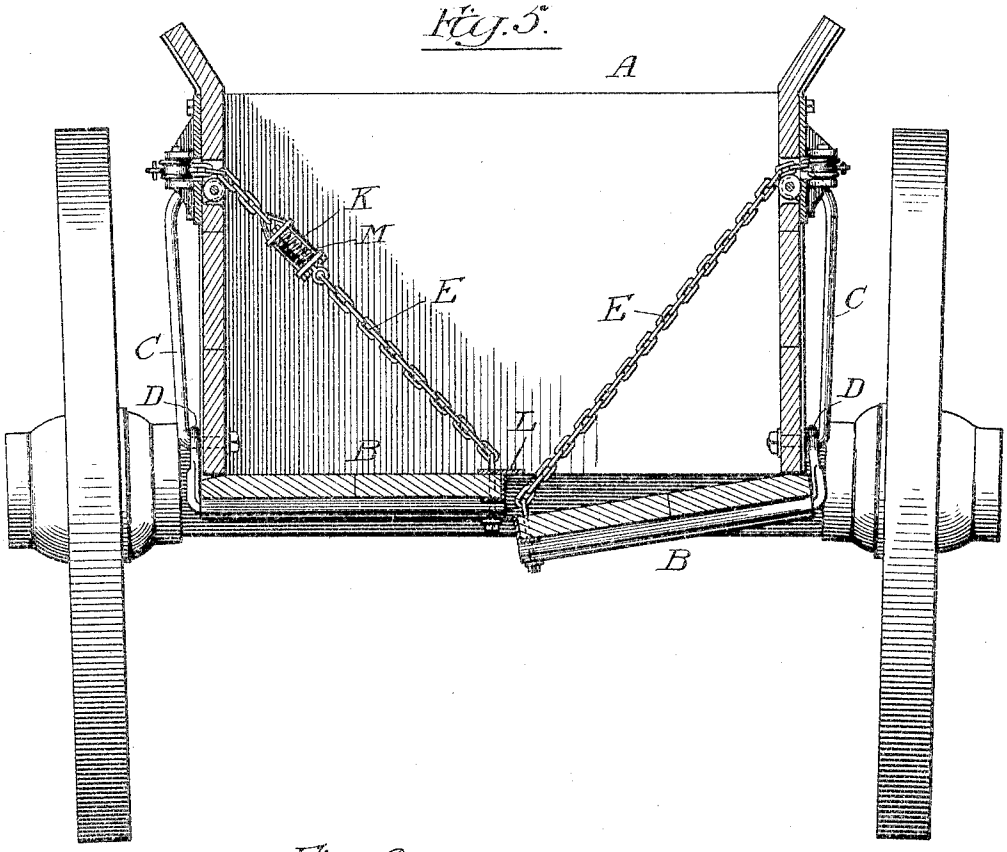


Fig. 6.

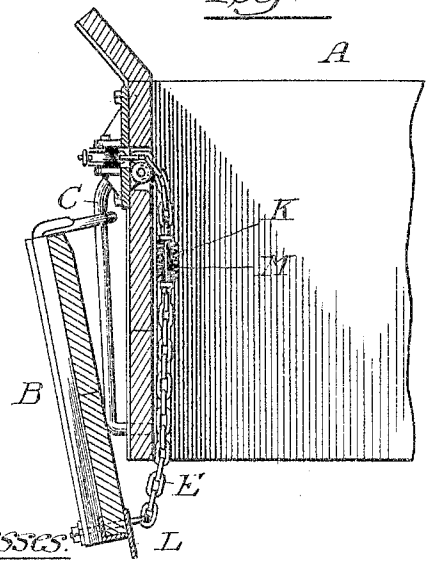
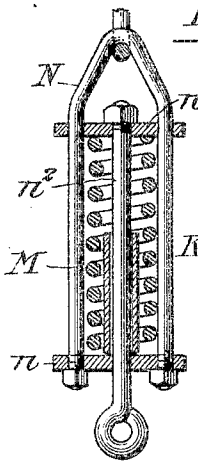


Fig. 7.



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No. 789,552. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

JOHN O. E. KROHN, OF BARBERTON, OHIO, ASSIGNOR TO NATIONAL DRILL AND MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 789,552, dated May 9, 1905.

Application filed March 13, 1905. Serial No. 249,839.

To all whom it may concern:

Be it known that I, JOHN O. E. KROHN, a citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Dumping-Wagons, of which the following is a specification.

My invention relates more particularly to dumping-wagons in which the dumping action is attained by a construction involving the principle of operation described in Letters Patent to Henry S. Hoy, No. 736,260, dated August 11, 1903.

Objects of my invention are to facilitate proper closing of the hinged bottom boards or sections and to avoid the presence of a seam or opening between the opposing inner edges of the bottom boards or sections when the latter are in closed position.

In the accompanying drawings, Figure 1 is a side elevation of a dumping-wagon embodying the principles of my invention. Fig. 2 is a cross-section on line *a a* in Fig. 1. Fig. 3 is a section on line *b b* in Fig. 1 and illustrates the relative positions of the two bottom sections just before closure. Fig. 4 shows the dumping-wagon in side elevation with the raising and lowering chains arranged in a different manner from the arrangement shown in Fig. 1. Fig. 5 is a cross-section through Fig. 4 on line *c c*. Fig. 6 is a detail showing in transverse vertical section a side portion of the wagon and one of the bottom sections in raised position outside the wagon box or body. Fig. 7 is an enlarged view showing one of the spring devices, partly in section and partly in elevation.

The wagon shown is generally similar to that of the said Hoy patent and comprises the box or body A, a pair of longitudinally-extending bottom boards or sections B B, guides C C upon the outer longitudinal sides of the body, and hinge-eyes D, secured to the bottom sections and hung upon the guides C C, substantially as in said Hoy patent. In Figs. 4 and 5 the windlass chains or cables E are arranged as in said patent—that is to say, they extend from a winding shaft or windlass F at the forward portion of the wagon back to and through middle portions of the body sides and thence down to the inner edge portions of the bottom sections, with which they connect at points at or about between the ends of such sections. In Figs. 1, 2, and 3, however, the windlass-chains connect with end portions of the bottom sections in front and at the rear of the box, the general result as to the chains or cables being, however, substantially the same in both cases. In Fig. 1 the long chain or cable G at one side of the wagon passes through an opening in the rear of its near side and connects with the rear end of the near bottom section, while the short chain or cable H passes through an opening in the forward part of the near side of the wagon and connects with the forward end of the near bottom section. These chains G and H are in Fig. 1 both connected with a windlass-chain I by an intervening spring connecting device K. It is understood that at the opposite side of the wagon a like arrangement of chains or cables is present, with the exception that the spring device K is omitted and direct connection made between the chain or cable which corresponds with chain or cable I and chains or cables corresponding with the chains or cables G H.

One of the bottom sections has its inner edge portion provided with a ledge or cleat L, which laps the upper marginal portion of the other bottom section when such two sections are in closed position, as in Fig. 2. When, therefore, the wagon-bottom is closed by bringing the two bottom doors or sections into position, as in Fig. 2, the seam or crack between the opposing inner edges of such section will be covered by a cleat or ledge. This cleat or ledge is shown as part of a T-bar or casting having its web portion bent laterally, so as to

underlap the bottom section to which it is secured, one part of what may be termed its "tread" portion overlapping such section, while the opposite part of such tread portion projects so as to lie or lap over the other bottom section when the two sections are in closed position.

In order to permit the bottom doors or sections to properly close, I provide, in combination with the door or bottom section having the projecting ledge portion, a spring which yields when such door or section is loaded and allowed to open and which at a suitable time during the return movement of the doors hastens the closure of the door with the ledge, so that it will close sufficiently in advance of the other door to prevent interference between the two doors. In Fig. 5 the chain or cable which is attached to the bottom door or section having an offset formed by a cleat or ledge along its inner edge is subject to a spring M within the box or body. In Fig. 1 a spring M is interposed between the chain or cable I and the chains or cables H G, it being understood that the near bottom door or section to which the two chains or cables are attached (shown at the near side of the wagon in Fig. 1) is the bottom door or section having the ledge along its inner longitudinal edge portion and that in both cases the result is that after dumping the load and during the closing action of the doors caused by operating the windlass in a direction to wind up the chains or cables thereon the spring will cause the door having the ledge to close quicker, and therefore in advance of the other door.

The arrangement of spring device is such that, broadly considered, it effects the principle of action described. A convenient spring device shown comprises a yoke N, having a cross-piece n secured to one end and forming a stop or shoulder, a follower n', arranged to slide on the yoke-arm and having a stem n^2, and a spring M between the follower and the stop or piece n. With this arrangement one part of the chain or cable can be attached to one end of the yoke, and the other part of the chain or cable can be attached to the outer end of the stem n^2. This spring device is best shown in Fig. 7.

I do not, however, restrict my invention to the particular Hoy dumping-wagon illustrated. In the wagon shown the longitudinally-extending bottom doors or sections have their outer longitudinal edge portions connected with the box or body by sliding hinge connections, and by reason of the heavy loads which such wagons are in practice called upon to carry the hinge connections will be subject to and will in time so yield to strain as to cause more or less of a gap between the inner edges of the doors when the latter are closed; but this objectionable result will also be incident to wagons having the outer edges of longitudinal bottom doors attached to the body by other forms and arrangements of hinge device, and in such cases my invention is also equally applicable and beneficial. Broadly considered, the door having the ledge opens against a yielding spring resistance which operates to close said door more rapidly than the other door when the chains or cables are drawn in a direction to close the doors, and, more specifically, the cable or cables for the door having the ledge is or are subject to such spring action.

What I claim as my invention is—

1. In a dumping-wagon having hinged bottom doors; means for opening and closing the bottom doors, and a yielding spring resistance opposed to the opening of one door, said door being provided along one edge with a ledge which laps the edge portion of the other door when the doors are in a closed position, and the yielding spring resistance being in opposition to the opening of the door having the ledge.

2. In a dumping-wagon having hinged bottom doors; chains or cables connected with the bottom doors for permitting them to open in dumping and for subsequently closing them; means for operating the chains or cables; a yielding spring resistance applied to the chain or cable connection between one bottom door and means for operating such chain or cable connection, said bottom door being opened against such yielding spring resistance and being provided with a ledge along one edge arranged to lap the edge of the other bottom door when the doors are in closed position.

3. In a dumping-wagon having longitudinal bottom doors hinged at their outer longitudinal edge portions; chains or cables attached to the bottom doors for closing the same after dumping; winding and unwinding means for paying out and shortening the chains or cables; and a spring interposed in the chain or cable connection between the winding and unwinding means and one bottom door which said door is provided along its inner longitudinal edge with a projecting ledge arranged to lap the inner longitudinal edge of the opposite bottom door when the two doors are closed.

4. In a dumping-wagon having longitudinally arranged, hinged bottom doors; means for raising the doors into closed position, and for permitting the doors to swing apart for dumping; and a spring applied to cause one door to close quicker and in advance of the other door; the door thus subject to the spring having along its inner edge portion a cleat or ledge arranged to overlap the inner edge portion of the other door when the two doors are closed.

5. In a dumping-wagon having longitudinal hinged bottom doors; chains or cables for op-

erating the doors; means for operating the chains or cables; and a spring device interposed in the chain or cable connection between one door and the means for operating such chain or cable connection, said door being provided with a ledge along its inner edge and projecting to lap the other door when the two doors are closed; the said spring device comprising a spring and follower device and supporting-yoke.

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