



# UNITED STATES PATENT OFFICE.

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## DUMPING-BOX.

SPECIFICATION forming part of Letters Patent No. 771,361, dated October 4, 1904.

Application filed August 1, 1904. Serial No. 219,094. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. ELLIS, a citizen of the United States, residing at Fulton, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Dumping-Boxes, of which the following is a specification.

My invention relates to dumping-boxes. It may be more closely classed as belonging to wagon-bodies having hinged and divided bottoms and used in connection with vehicles employed in excavating operations where earth removed at one point is to be transported and deposited in a more or less distant place.

The object of my invention is the production of lever and chain or cord devices of special construction and arrangement whereby the pivoted doors constituting the bottom of the box may be most promptly actuated with the least labor.

I accomplish the object stated by forming and associating parts as illustrated in the accompanying drawings, of which—

Figure 1 represents a view of my invention inverted, the bottom doors being closed. Fig. 2 is a side view exhibiting the specially-constructed lever and operating devices with the flexible connections, and Fig. 3 is a cross-section and shows in broken lines the open positions of the bottom doors.

Like letters are used to refer to the same parts throughout the drawings.

Considering the drawings, letter A designates the side-boards, and B the end-boards, of the box, which are usually inclined inwardly and downwardly, as illustrated, making the interior of the box larger at the top than at the bottom.

Cross-bars or saddle-bars C are transversely secured to the lower edges of the side-boards, and recesses D are provided in the ends of the saddle-bars by which the box may be bolted to the bolsters of a common wagon or sleigh.

I do not confine myself to any particular form of running-gear for use in connection with my invention or to the precise means shown for attaching the box to the wagon, as it is believed to be within the scope of my invention to adapt the box for use with any chosen style of running-gear.

The mid-rail E extends along the middle of the bottom of the box from end-board to end-board and supports a rod F that is, in fact, the pivot for the strap-hinges G, connected with it. The hinges are secured to the downwardly-opening doors H, which (see Fig. 3) direct the dumped earth to either side.

At their outermost extremities the hinges are connected with the cords or chains J that pass through pulley-blocks K, secured upon the exteriors of the side-boards. After passing through the blocks K the end of the nearest chain is directly attached to the coupling or roller-bearing block L, and the end of the farther chain is also secured to the roller-block by means of the link-rod M. It will be noted that the hand-lever N (see Fig. 2) passes through the roller-block in rear of the roller P, and that the roller engages the curved edge Q of the lever. Letter R marks the pivot of the hand-lever.

When the bottom doors H are closed, the lever is restrained by its engagement with the catch-hook S, fixed in proper position upon the exterior of the side-board, and when the doors are dropped and reach their full opened positions the lever meets the stop T, also fixed upon the side-board.

In the above description one lever with one set of pulley-blocks, chains, and roller-block have been mentioned. As ordinarily constructed I provide each side of the box with a lever and related parts which govern the operation of the door-bottom upon that side of the box. The operating parts upon each side of the box are precisely alike, and the description applies equally to either set.

In operation either side of the bottom of the box may be opened at will and, if desired, a portion of the contents retained to be dumped in another place. The levers assume the position indicated by broken lines in Fig. 2 and the doors the positions indicated by broken lines in Fig. 3. At the same time the rollers P of the blocks L roll from the lower to the higher parts of curved edges Q of the hand-levers—that is to say, in the dumping operation each roller P moves horizontally for a distance equal to the length of chain passing through the pulley-blocks K.



The roller also moves vertically into its position indicated in broken lines in Fig. 2. In following this diagonal path the roller necessarily moves a greater distance than would  
 5 be represented by the horizontal component of the diagonal alone. In closing the bottom doors the same path is followed by the roller reversely, and the greater distance the roller moves the less the amount of force necessary  
 10 to be continuously applied to it during the closing movement. Furthermore, it will be noted that when the closing movement is about completed the roller P is nearest the fulcrum of the lever and the force applied is  
 15 multiplied correspondingly to pull the doors upwardly and to close them tightly. Again, the introduction of roller P reduces the friction otherwise created by the operation of the parts.

20 Having thus described my invention and explained the manner of its operation, what I claim is—

1. In a dumping-box, the combination with a box having a hinged bottom, of a pivoted  
 25 lever having a portion of its edge curved substantially as set forth, a movable coupling engaging the curved edge of said lever, devices interposed between and connecting said coupling and hinged bottom whereby the said  
 30 bottom may be raised and lowered, and means for restraining the lever when the bottom is closed.

2. In a dumping-box, the combination with a box having a hinged bottom, of a pivoted  
 35 lever having a portion of its edge curved substantially as set forth, a movable roller-block provided with a roller engaging the curved edge of said lever, devices interposed between and connecting said roller-block and hinged

bottom whereby the bottom may be raised 40 and lowered, and means for restraining the lever when the bottom is closed.

3. In a dumping-box, the combination with a box having a bottom comprising independent hinged portions, of levers pivoted upon 45 the exterior of said box and having edge portions curved substantially as set forth, movable roller-blocks having rollers engaging the curved edges of said levers, flexible connecting devices joining the said roller-blocks 50 and the hinged portions of the bottom whereby said hinged portions may be raised and lowered, means for restraining the lever when said hinged portions of the bottom are closed, and a stop arranged to limit the opening move- 55 ment of the lever.

4. In a dumping-box, the combination with a box having a divided bottom comprising portions hinged at the middle line of the bot- 60 tom enabling the contents to be discharged at the sides of the box, of levers pivoted upon the sides of the box and having edge portions curved substantially as set forth, movable roller-blocks having rollers engaging the 65 curved edges of said levers, flexible connecting devices joining the said roller-blocks and said hinged portions of the bottom whereby said hinged portions may be raised or lowered, means for restraining the lever when 70 said hinged portions of the bottom are closed, and a stop arranged to limit the opening movement of the lever.

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

WILLIAM J. ELLIS

Witnesses:

THOS. MOORE;  
 P. J. BROWN.