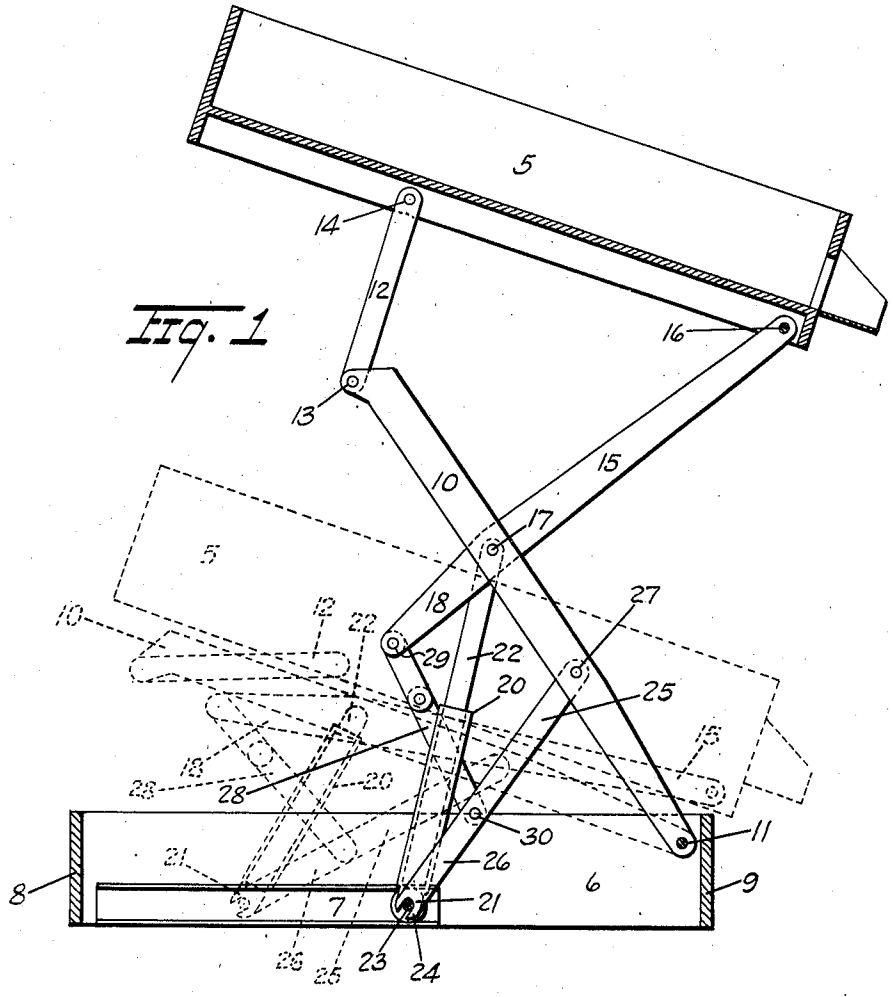
June 4, 1940. H. S. PALM 2,203,059

BODY ELEVATING MECHANISM FOR DUMPING WAGONS OR THE LIKE

Filed Feb. 17, 1939

Fig. 1



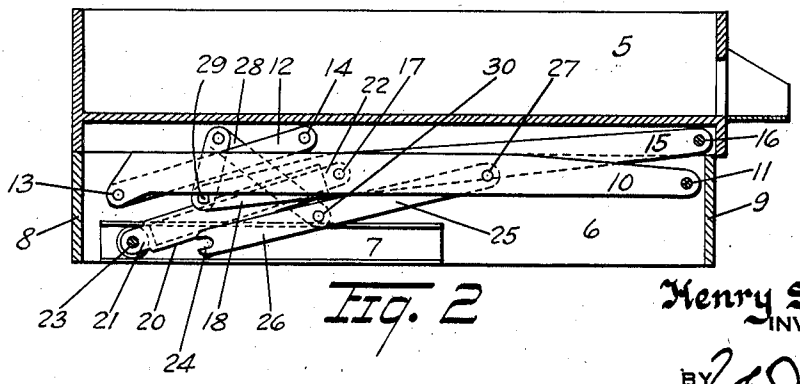


Fig. 2

Henry S. Palm
INVENTOR

BY W. E. Dinsmore

ATTORNEYS

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BODY ELEVATING MECHANISM FOR DUMPING WAGONS OR THE LIKE

Henry S. Palm, Reading, Pa.

Application February 17, 1939, Serial No. 256,890

3 Claims. (Cl. 298—11)

My invention relates to body elevating mechanism for dumping wagons and the like, and more particularly it consists in certain new improvements to the elevating lever mechanism thereof, whereby its construction is simplified, its elevating height increased, and the body elevating stress reduced, all as more fully set forth and described hereinafter in connection with the accompanying drawing, and the novel features thereof defined in the appended claims.

Fig. 1 is a sectional side elevation of a movable body and its supporting frame, in connection with one embodiment of my improved elevating lever mechanism shown in extended body elevating position, an initial body lifting position being indicated in dotted lines, and a tilted position by elevation of the front end only of the body being partially indicated in dash lines.

Fig. 2 is a corresponding sectional side elevation showing the body lowered and resting on the supporting frame, and my elevating lever mechanism closely folded within the side walls of said supporting frame.

The drawing shows one side portion of the movable body 5, and one side wall 6 of the body supporting frame having a guide-way 7 thereon, the like opposite side walls being connected by end walls 8 and 9.

The body elevating arms are, as usual, arranged in pairs of like members spaced to fold within the frame side walls and are mounted on the latter and connected to side portions of the body, and in describing the arms at one side shown in the drawing, it is to be understood that like arms on the opposite side, not seen, cooperate in elevating the body.

As seen in the drawing, 10 indicates a main body elevating arm, pivotally connected at 11 to a rear portion of frame wall 6, with its opposite end in lifting engagement with a forward portion of the body 5, preferably, as shown, by means of a link arm 12, pivoted at 13 to the end of arm 10, and at 14 to the body 5, such link arm connection providing for necessary relative body adjustment to said main arm 10, and increasing the body elevating action of the latter as link arm 12 is swung on its pivotal connections.

A supplemental body elevating arm is indicated at 15, pivotally connected at 16 to a rear portion of the body 5, and intermediately, at 17, to main arm 10, with an arm portion 18 extending beyond such pivotal connection.

To initially elevate the front end of the body 5, the drawing shows a primary operating lever preferably comprising a section 20 having its end 21 slidably engaging in guide-way 7, and a telescoping extension 22 thereof having its end pivotally connected to main frame 10, preferably shown as coincident with the pivotal connection 17 of the main and supplemental elevating arms 10 and 15.

A supplemental operating lever 25 is shown as having its end 26 slidably engaging in guide way 7 rearward of the end 21 of the primary operating rod, and its opposite end pivotally connected at 27 to main arm 10 at a point spaced from pivotal connection 17 and nearer the frame pivotal connection 11 of said arm 10. And an intermediately hinged link arm 28 is shown with one end pivotally connected at 29 to the end of extension 18 of the supplemental elevating arm 15, and its other end pivotally connected at 30 at an intermediate point in the length of supplementary operating lever 25. This supplemental operating lever 25 acts on main arm 10 to further swing the latter on its pivotal frame connection 11 and to swing arm 15 on its pivotal connection 17 to jointly elevate the rear and further elevate the front end of the body 5.

Cross bracing between the like arms of the several pairs to insure their cooperative equal movements is shown by cross-section lines on certain of the pivotal connections to indicate transverse tie rods acting also as pivot pins for the connected members.

The end 21 of primary operating lever 20 is shown with an anti-friction roller engaging in slide way 7 and the pintle 23 of the latter is cross-sectioned to indicate a tie rod connection to its like end of the opposite side lever. End 26 of lever 25, also slidably engaged in guide way 7, is shown at 24 as forked to engage tie rod 23; and, as seen in Fig. 2, end 21 has an independent movement in guide way 7 before its tie rod 23 engages the fork 24 in the end 26 of lever 25, after which they move jointly in guide way 7. And such independent and joint guide-way movements of the ends 21 and 26 may be secured by any suitable operating means acting to move end 21 rearwardly, a suitable gear and rack mechanism being shown in my prior Patent No. 1,264,432 of April 30, 1918, which also shows means for slidably engaging the end 26 of lever 25 in guide way 7, not herein indicated.

The primary operating lever 20—22 has an advantageous leverage due to its arm pivotal connection 17 being at a distance from the frame pivotal connection 11 of the latter, and the independent guide-way movement of its end 21 causes only the front end of the body 5 to be

elevated, thus reducing the stress of such initial elevation and the force required to effect it, and such initial elevation determines the delivery incline or pitch given to the body. And during the joint guide-way movement of the ends 21 and 26 of both operating levers 20—22 and 25, the latter with its increased lifting action on arm 10, due to its pivotal connection 27 being closer to pivotal connection 11, swings arm 10 to an increased height, made possible by the free extension of telescoping extension 22 of said primary operating lever. The hinged link arm 28 is opened by movement of lever 25 and acts on the end 18 of arm 15 to swing the latter on its pivotal connection 17 to main arm 10 so as to elevate the rear of body 5 while main arm 10 further elevates the front end so that said body is elevated with the pitch given by the initial elevating action of lever 20—22. And due to the increased movement of main arm 10 by supplemental operating lever 25, link connection 12 between said arm end and the body, and to the pivotal connections 17, 29 and 30 being on arms elevated above the supporting frame, a greatly increased body elevation is secured, with a closely compacted folded relation of said arms within the height limits of the supporting frame walls as clearly seen in Fig. 2.

When mere tilting dump elevation of the body is desired either pivot connection 29 or 30 may be arranged for disconnection, in which case supplemental arm 15 does not act, and main arm 10 only acts to raise the front end of the body 5 as indicated in dash line in Fig. 1.

From the foregoing description it is believed the nature and advantages of my improved elevating lever mechanism will be readily understood, and the particular embodiment shown and described may of course be modified within the spirit of my invention as defined in the following claims.

What I claim is:

1. The combination with an elevating body and a supporting frame provided with a horizontal guide-way, of a main elevating arm pivotally connected to the rear portion of said frame and in lifting engagement with the forward portion of the body, a supplemental elevating arm for the rear portion of the body intermediately pivoted to said main arm, and primary and supplemental operating levers separately pivoted to said main arm at different distances from the frame connection thereof and having their free ends separately and jointly movable in said frame guide-way; said primary lever being operable upon said main elevating arm to lift the forward portion of the body only, and said supplemental lever being linked to said supplemental arm so as to operate both arms for joint front and rear elevating of the body.

2. In the construction set forth in claim 1, said primary operating lever having telescoping parts, in combination with a folding-link connecting said supplemental operating lever to the end of said supplemental elevating arm, extending beyond its intermediate pivotal connection to said main arm.

3. The combination with an elevating body and a supporting frame provided with a horizontal guide-way, of an elevating arm pivotally connected to the rear portion of said frame and in lifting engagement with the forward portion of the body, a primary operating lever of telescoping parts, and a supplementary operating lever of fixed length, respectively separately pivoted to said elevating arm at different distances from the frame connection of the latter and having their free ends separately and jointly movable in said frame guide-way; said primary lever being operable on said elevating arm to initially lift the forward portion of the body during its separate movement in said guide-way and to idly elongate its telescoping parts during its joint guide-way movement with said supplemental lever operable on said elevating arm to further raise the forward portion of the body.

HENRY S. PALM.