

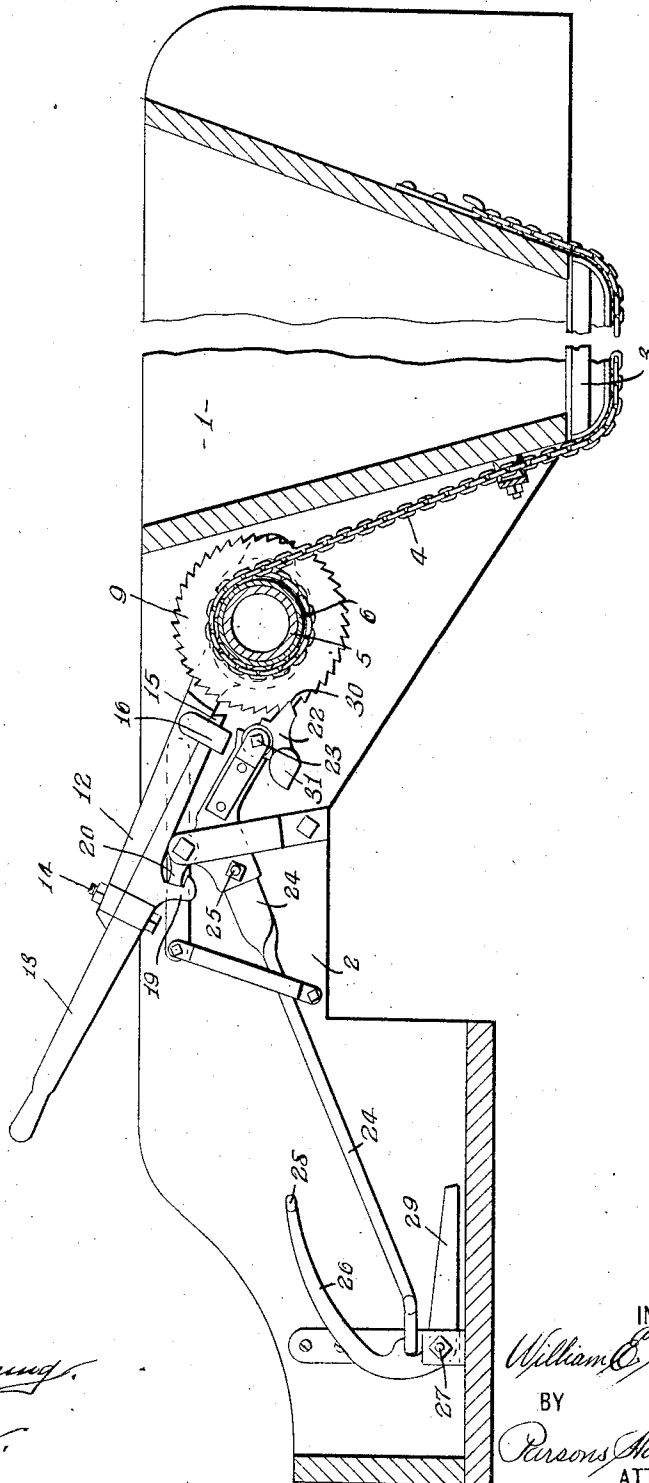
W. E. SHERWOOD.
WINDING MECHANISM FOR DUMPING WAGONS.
APPLICATION FILED FEB. 13, 1911.

1,050,753:

Patented Jan. 14, 1913.

2 SHEETS-SHEET 1.

Fig. 1-



WITNESSES:

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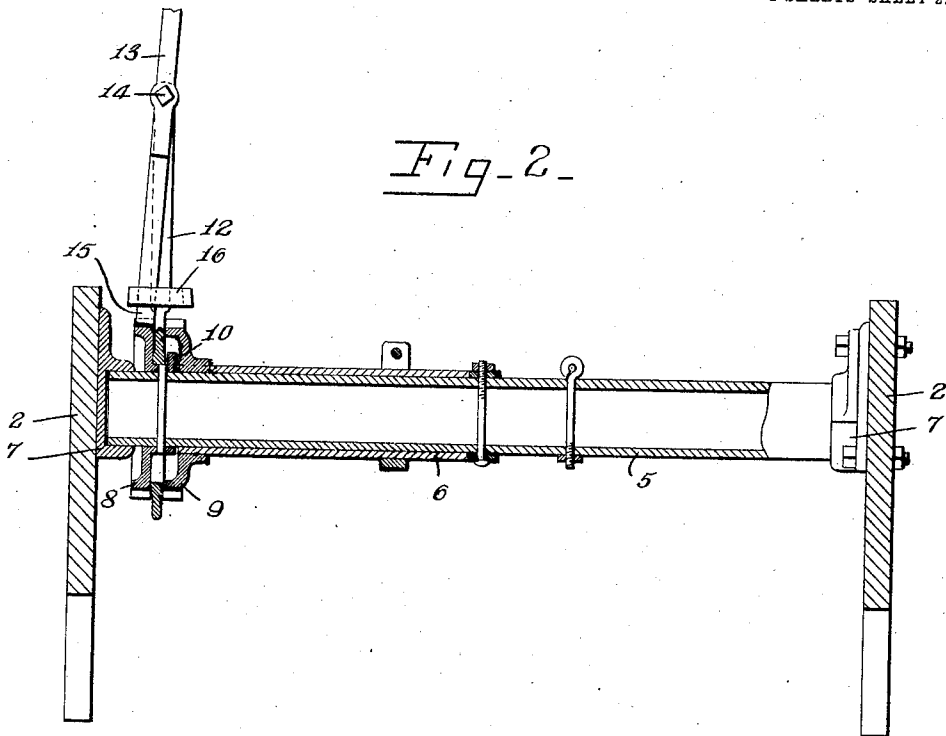


Fig-2-

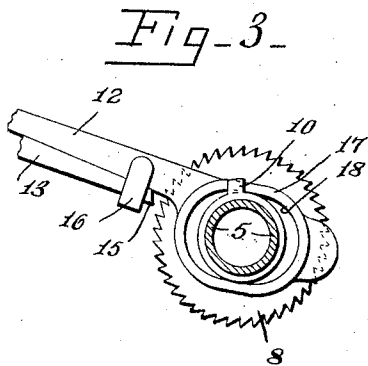


Fig-3-

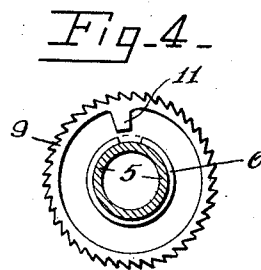


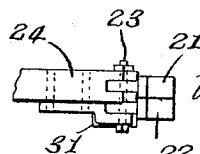
Fig-4-

Fig-5-

Fig-6-

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM E. SHERWOOD, OF SYRACUSE, NEW YORK.

WINDING MECHANISM FOR DUMPING-WAGONS.

1,050,753.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed February 18, 1911. Serial No. 609,481.

To all whom it may concern:

Be it known that I, WILLIAM E. SHERWOOD, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Winding Mechanism for Dumping-Wagons, of which the following is a specification.

This invention has for its object the production of a particularly simple and efficient winding mechanism for closing the dumping doors or sections of dumping wagons, cars and other dumping apparatus; and the invention consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a longitudinal sectional view of a dumping wagon embodying one form of my invention, the running gear being omitted, and the intermediate portion of the wagon box being broken away. Fig. 2 is a sectional view through the winding drums and contiguous parts. Figs. 3 and 4 are sectional views, looking in opposite directions, on a plane extending between the ratchet wheels on the drums. Figs. 5 and 6 are detail views in elevation and plan, respectively, of the holding pawls and contiguous parts, one of the pawls being omitted in Fig. 5.

This winding or operating mechanism for dumping doors comprises, generally, two winding drums, actuating means for winding both drums together, and one drum independently of the other, means for holding the drums from retrograde movement, and means for releasing the holding means.

1 is the box or hopper of the body of a dumping wagon provided with my invention, said body also including a neck 2 which supports the winding or operating mechanism to be described.

3 is one of two dumping doors or sections forming the bottom of the hopper or box 1; and 4 is one of two chains extending under the doors 3 respectively and winding on the drums presently described.

5 and 6, are respectively, winding drums usually coaxially arranged, the drum 6 being here shown as a sleeve rotatable on the drum 5 which is supported at its ends in bearings

7 supported by the opposite sides of the neck 2 of the body of the wagon.

The operating means for winding the drums 5, 6 comprises toothed members mounted, respectively, on said drums 5, 6 60 and arranged contiguous to each other, and a driving or actuating element having means common to both of such toothed members, and operable to actuate one of such toothed members and the drum associated therewith 65 after the chain 4 connected to the other of said drums has been wound up. The toothed members are here shown as ratchet wheels 8, 9 mounted respectively on the drums 5, 6; and the actuating element comprises a lever 70 having a pawl for engaging the teeth of either of the ratchet wheels 8, 9, and shiftable out of engagement with one of such ratchet wheels into engagement with the other. My winding apparatus is also provided with means whereby the motion of 75 one of the drums 5 or 6 is transmitted to the other during the winding operation, in order that both drums may be wound together, such connection being preferably a lost-motion connection, in order that one of the drums will be initially rotated in advance 80 of the other before the rotation of the drums, together as one body begins, and thus will close one door in advance of the other. Such 85 lost-motion also permits additional rotation of the drum whose actuation has been delayed, the additional rotation closing the other door. In the illustrated embodiment of my invention, such lost-motion connection 90 is provided for by forming one of the ratchet wheels as 8 with a hub extended toward the other of such wheels and formed at its outer end with a shoulder or tooth 10; and by forming the other ratchet wheel 9 95 with an annular recess into which said shoulder 10 projects, and with an internal shoulder or tooth 11, the shoulders or teeth 10 and 11 projecting into each other's path 100 so that one will engage the other after one drum has made at most nearly, a complete revolution. After said shoulders 10 and 11 have engaged, both ratchet wheels 8, 9 and consequently the drums 5, 6 will rotate as a unit. However any other form of lost-motion 105 connection may be used.

In the illustrated embodiment of my invention the operating element comprises an oscillating lever 12 extending between the ratchet wheels 8, 9 and mounted on the hub 110

of the wheel 8, and a hand lever 13 pivoted between its ends at 14 to the lever 12 on a pivot arranged with its axis extending crosswise of the axis of the ratchet wheels 8, 9 and the drums 5, 6. The hand lever 13 carries a rigid pawl tooth 15 at its lower end for coacting with either of the ratchet wheels 8, 9 and is shiftable on its pivot 14 for carrying the pawl tooth 15 laterally out of engagement with either of the ratchet wheels 8, 9 into engagement with the other. The hand lever 13 is guided in its movement and held from tilting too far on its pivot, by suitable means 16 carried by the lever 12 near the pawl 15 of the hand lever 13.

In the illustrated embodiment of my invention the lever 12 is formed with a slotted bearing 17, Fig. 3, on the hub of the ratchet wheel 8, the slot 18 of such bearing extending lengthwise of the lever 12 and being of greater length than the diameter of the hub of the ratchet wheel 8 for permitting endwise or rectilinear movement of the lever 12 and parts associated therewith for the purpose of carrying the pawl tooth 15 out of engagement with the ratchet wheels 8 and 9 during the rearward movement of the lever 12. One of the levers 12, 13 of the operating element, here shown as the lever 13 is also formed with a rigid catch 19 co-operating with a shoulder 20 fixed to the neck 2 of the body of the wagon for holding the operating element with the pawl tooth 15 out of position to be engaged by the wheels 8, 9 during the unwinding of the drums 5, 6 when the load is being dumped.

The constructions whereby the rectilinear or endwise movement of the operating element is effected for the purpose of releasing said element from the ratchet wheels 8, 9 and for permitting the pawl 15 to ratchet during backward movement of the levers 12, 13, form no part of this invention but form the subject-matter of my pending application Sr. No. 609,482, filed Feb. 18, 1911.

The drums 5, 6 are held from retrograde movement by pawls 21, 22 pivoted at 23 to the short arm of a lever 24 pivoted at 25 between its ends to the neck 2 of the wagon body, the longer arm of such lever being engaged by a catch or trip lever 26 pivoted at 27 and having a pedal 28 by means of which it is operated to release the lever 24. The catch 26 is also formed with an arm 29 for engaging the longer arm of the lever 24 and raising the same during the tripping movement of the catch 26. The parts 21, 24 and 26 are of substantially the same form as the corresponding parts described in my copending application previously referred to. As in this embodiment of my invention it is intended that the ratchet wheel 8 be first wound, and that after the chain on the drum 5 has been drawn taut the slack remaining

in the chain connected to the drum 6 shall be drawn taut by shifting the lever 13 into engagement with the ratchet wheel 9 and winding such ratchet wheel 9 independently of such ratchet wheel 8, the holding pawl 21, which coacts with the ratchet wheel 8, must be held while the pawl 22 is ratcheting. Consequently, the pawl 21 is held from pivotal movement during the ratcheting thereof over the teeth of the ratchet wheel 8 during the winding of such wheel 8, and the required yielding of such pawl 21 to ratchet is provided for by permitting the lever 24 to move slightly on its pivot 25, such pivotal movement of the lever 24 being usually due to the resilient intermediate portion of the long arm of said lever. The pivot 23 of the pawls 21 and 22 is normally arranged above a straight line passing through the pivot 25 and the point of engagement 30 of the pawls 21 and 22 and the ratchet wheels 8, 9, and is movable below such line during the releasing movement of the lever 24 from the catch 26, so that the pawls 21 and 22 are ineffective. The pawl 22 which coacts with the last wound ratchet wheel, that is the ratchet wheel 9, is capable of pivotal ratcheting movement while the pawl 21 is holding the ratchet wheel 8, and in order that the pawl 22 may be returned to its operative position after ratcheting it is provided with a weighted tail 31.

In operation, after the doors 3 have been dropped by operating the pedal 28, they may again be raised to their closed position by moving the lever 12 and parts carried thereby endwisely outwardly disengaging the catch 19 from the shoulder 20, and, after such catch 19 has cleared the shoulder 20, permitting the lever to move in the opposite direction until the pawl tooth 15 engages the ratchet wheel 8. The levers 12 and 13 are then moved rearwardly, said levers moving endwisely as the pawl 15 ratchets over the teeth of the wheel 8 during such rearward movement. At the end of such rearward movement, the pawl drops into one of such teeth and the lever is then moved forwardly actuating the ratchet wheel 8 and drum 5 secured thereto. By repeating the oscillating movement of the levers 12 and 13, the lost-motion between the drums or the ratchet wheels 8, 9 is taken up, at most at the end of one complete revolution of the ratchet wheel 8, whereupon both ratchet wheels 8, 9 will be actuated as a unit, owing to the engagement of the shoulders 10 and 11 thereof, until the dumping door 3 connected to the first actuated drum, that is the drum 5, has been closed and the door 3 operated by the drum 6 is nearly closed. Whereupon the lever 13 is moved or shifted on its pivot 14 until the pawl tooth 15 thereof engages with the ratchet wheel 9 and the oscillations of the levers 12 and 13 are continued until the

chain 4 winding on the drum 6 connected to the ratchet wheel 9 is drawn taut.

What I claim is:

1. In a winding mechanism, the combination of two winding drums, and actuating means comprising members arranged contiguous to each other, operating means for said members and means for transmitting the movement of one member to the other, substantially as and for the purpose described.

2. In a winding mechanism, the combination of two winding drums, and actuating means comprising toothed members associated respectively with the drums and arranged contiguous to each other, means for actuating the toothed members and a connection between the toothed members for transmitting the movement of one member to the other, substantially as and for the purpose specified.

3. In a winding mechanism, the combination of two winding drums, and actuating means comprising toothed members associated respectively with the drums and arranged contiguous to each other, a single operating element for coacting with either of said members and being shiftable out of engagement with either member into engagement with the other, and means for transmitting the motion of one member to the other, substantially as and for the purpose set forth.

4. In a winding mechanism, the combination of a pair of drums, and actuating means for both drums including a driving element, and means for transmitting the movement of said element to either drum or to both drums, substantially as and for the purpose described.

5. In a winding mechanism, the combination of a pair of drums, and actuating means for both drums comprising a driving element, means for transmitting the motion of one drum to the other, and means for transmitting the movement of said element to either drum, substantially as and for the purpose specified.

6. In a winding mechanism, the combination of two winding drums, and actuating mechanism for both drums comprising a driving element, means for transmitting the motion of one drum to the other including a lost motion connection, and means for transmitting the movement of the driving element to either drum, substantially as and for the purpose set forth.

7. In a winding mechanism, the combination of two winding drums, and actuating means comprising toothed members associated respectively with the drums and arranged contiguous to each other, an operating element for coacting with either of said toothed members, and a connection between the toothed members for transmitting the

movement of one member to the other, substantially as and for the purpose set forth.

8. In a winding mechanism, the combination of two winding drums, and actuating means comprising toothed members associated respectively with the drums and arranged contiguous to each other, an operating element for coacting with both of said toothed members and operable to actuate one toothed member independently of the other toothed member, and a lost-motion power-transmitting connection between the toothed members whereby one of such toothed members may be wound ahead of the other until the lost-motion is taken up, substantially as and for the purpose described.

9. In a winding mechanism, the combination of winding drums, and actuating means comprising toothed members associated respectively with the drums, and arranged contiguous to each other, an operating element for coacting with both of said toothed members and operable to actuate one toothed member independently of the other toothed member, and a lost-motion connection between the toothed members whereby one of such toothed members may be wound in advance of the other until the lost motion is taken up, and the operating element being shiftable out of connection with one toothed member and into connection with the other, substantially as and for the purpose specified.

10. In a winding mechanism, the combination of coaxially arranged winding drums, and actuating means comprising toothed members mounted respectively on the drums contiguous to each other, said members being formed with shoulders on their opposing sides, the shoulders extending into each other's path in order that one will engage the other and transmit motion from one member to the other, and will also permit one member to be actuated independently of the other, and an operating element having a pawl for coacting with either of said toothed members, substantially as and for the purpose described.

11. In a winding mechanism, the combination of coaxially arranged winding drums, and actuating means comprising toothed members mounted respectively on the drums contiguous to each other, said members being formed with shoulders on their opposing sides, the shoulders extending into each other's path in order that one will engage the other and transmit motion from one member to the other, and also will permit one member to be actuated independently of the other, and an operating element having a pawl for coacting with either of said toothed members, the pawl being shiftable out of engagement with one of said members and into engagement with the

other, substantially as and for the purpose specified.

12. In a winding mechanism, the combination of two drums, and actuating means for both drums including an oscillating lever, and a hand lever pivoted between its ends to the first-mentioned lever by a pivot extending transversely of the first-mentioned lever, the hand lever being shiftable on its pivot into and out of connection with either of the drums, substantially as and for the purpose set forth.

13. In a winding mechanism, the combination of two drums, and actuating means comprising ratchet wheels associated respectively, with the drums and arranged contiguous to each other, an oscillating lever movable about the axis of the ratchet wheels, and a hand lever pivoted between its ends to the first-mentioned lever on a pivot extending transversely of, and eccentric to, the axis of the ratchet wheels, the hand lever having a pawl for coacting with the ratchet wheels and being shiftable on its pivot for carrying the pawl out of engagement with one ratchet wheel and into engagement with the other, substantially as and for the purpose described.

14. In a winding mechanism, the combination of two drums, and actuating means comprising ratchet wheels associated respectively with the drums and arranged contiguous to each other, an oscillating lever movable about the axis of the ratchet wheels, a hand lever pivoted between its ends to the first-mentioned lever on a pivot extending transversely of, and eccentric to, the axis of the ratchet wheels, the hand lever having a pawl for coacting with the ratchet wheels and being shiftable on its pivot for carrying the pawl out of engagement with one ratchet wheel and into engagement with the other, and means for transmitting the motion of one ratchet wheel to the other, substantially as and for the purpose specified.

15. In a winding mechanism, the combination of two drums, and actuating means comprising ratchet wheels associated respectively with the drums and arranged contiguous to each other, an oscillating lever movable about the axis of the ratchet wheels, a hand lever pivoted between its ends to the first-mentioned lever on a pivot extending transversely of, and eccentric to, the axis of the ratchet wheels, the hand lever having a pawl for coacting with the ratchet wheels and being shiftable on its pivot for carrying the pawl out of engagement with one ratchet wheel and into engagement with the other, and means for transmitting the mo-

tion of one ratchet wheel to the other, said means including a lost motion connection, substantially as and for the purpose set forth.

16. In a winding mechanism, the combination of coaxially arranged drums, toothed members mounted respectively on such drums, contiguous to each other, and actuating means including a lever extending between the toothed members, a hand lever pivoted between its ends to the first-mentioned lever on a pivot extending transversely of the axis of the drums and the first-mentioned lever, the hand lever being shiftable on its pivot into and out of connection with either of the toothed members in a lost-motion power-transmitting connection between the toothed members whereby one of such toothed members may be wound in advance of the other until the lost-motion is taken up, and the hand lever being shiftable on its pivot from one toothed member to the other, substantially as and for the purpose specified.

17. In a winding mechanism, the combination of coaxially arranged drums, one comprising a sleeve mounted on the other, toothed members mounted respectively on the drums contiguous to each other, the toothed member mounted on the inner drum having a hub extending toward the outer or sleeve drum, and provided with an outwardly extending shoulder at its end and the toothed member associated with the outer or sleeve drum being formed with a recess opposed to the other drum and with an internal shoulder, the shoulders of the toothed members extending into each other's path, and actuating means comprising a lever extending between the toothed members and mounted on the hub of one of such toothed members, and a hand lever pivoted between its ends to the first-mentioned lever on a pivot extending transversely of the axis of the drums and the first-mentioned lever, the hand lever having a pawl at its inner end and being shiftable on its pivot to carry the pawl out of engagement with one toothed member and into engagement with the other toothed member, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 11th day of February, 1911.

WILLIAM E. SHERWOOD.

Witnesses:

S. DAVIS,
L. DAVIS.