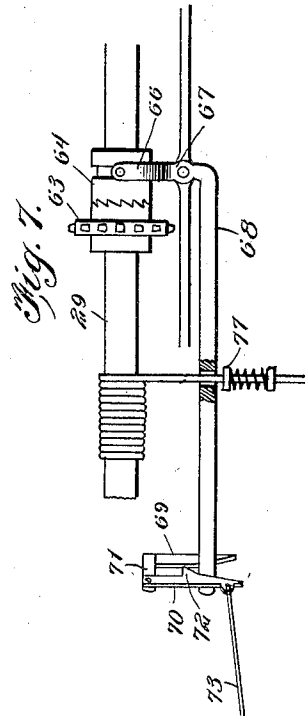
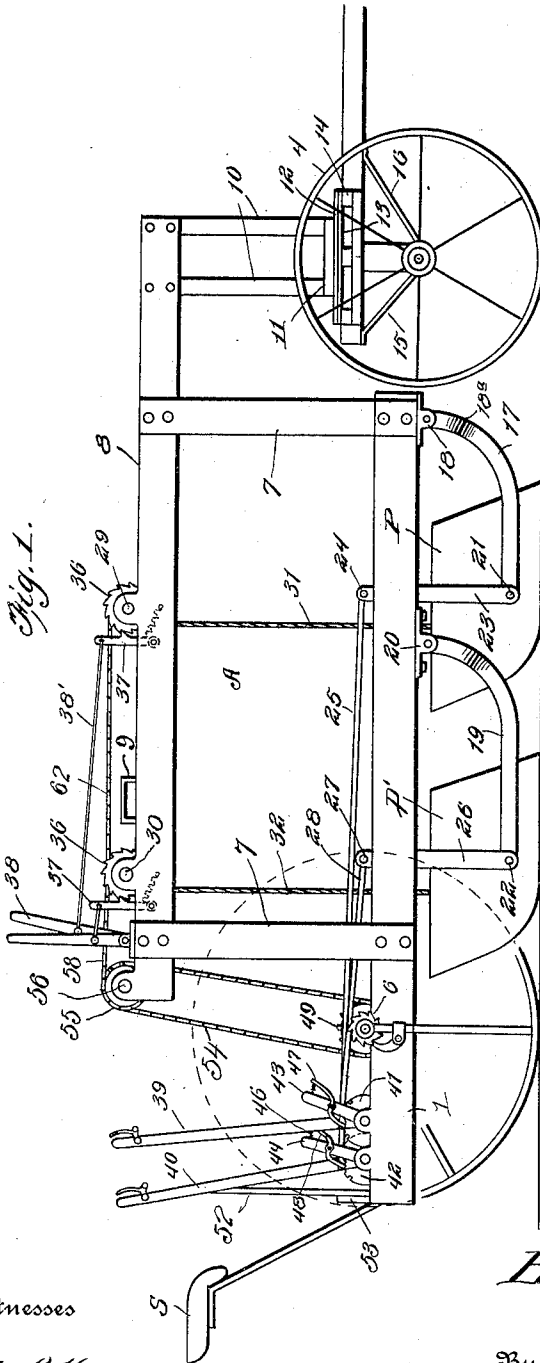


B. A. WATT.  
FOUR-WHEEL SCRAPER.  
APPLICATION FILED MAY 6, 1911.

1,056,611.

Patented Mar. 18, 1913.

4 SHEETS—SHEET 1.



Witnesses

Louis P. Heinrichs  
R. B. Brauagh.

Inventor  
Bruce A. Watt

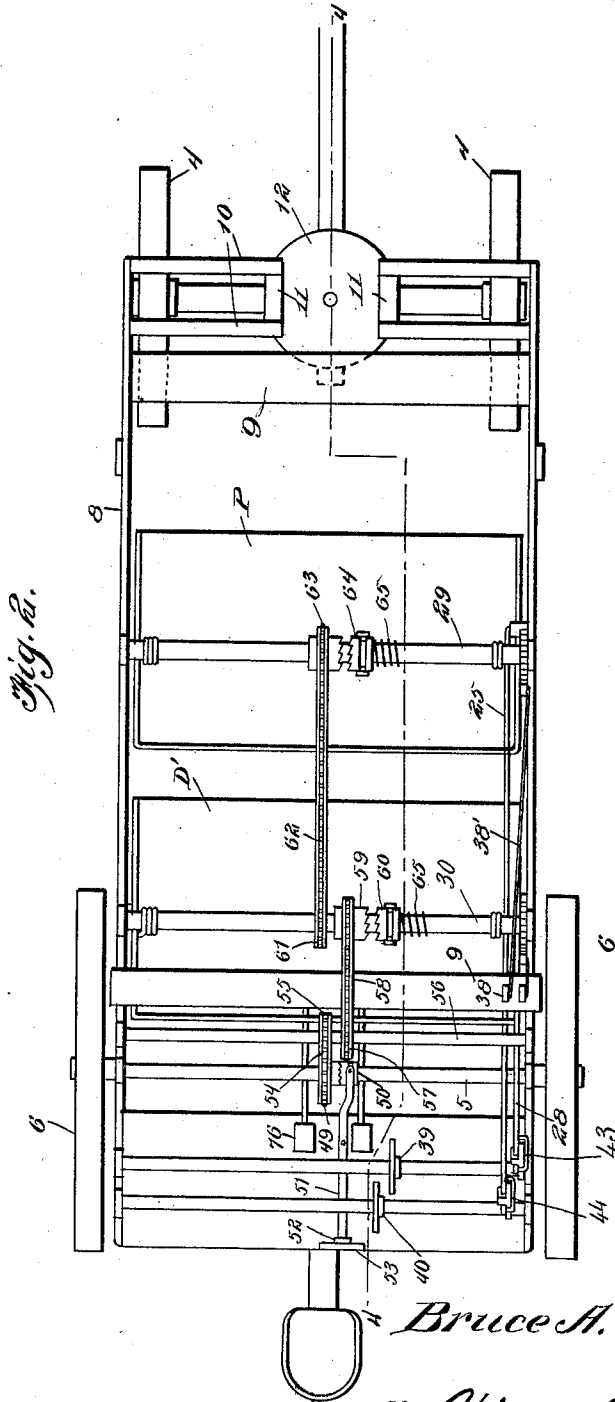
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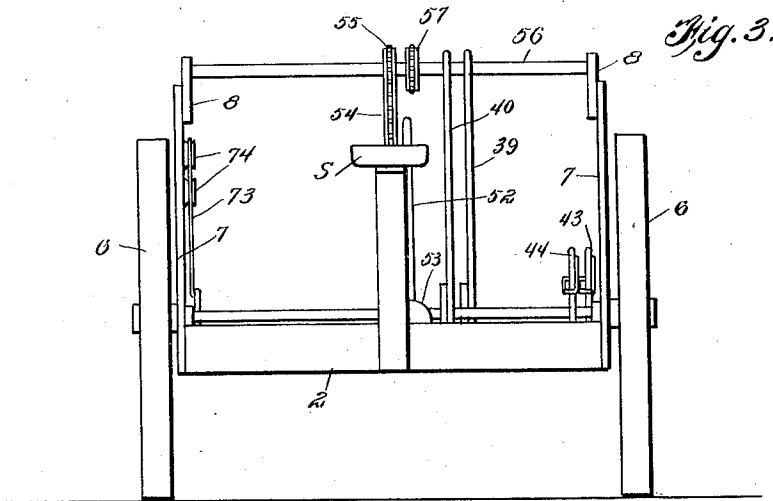
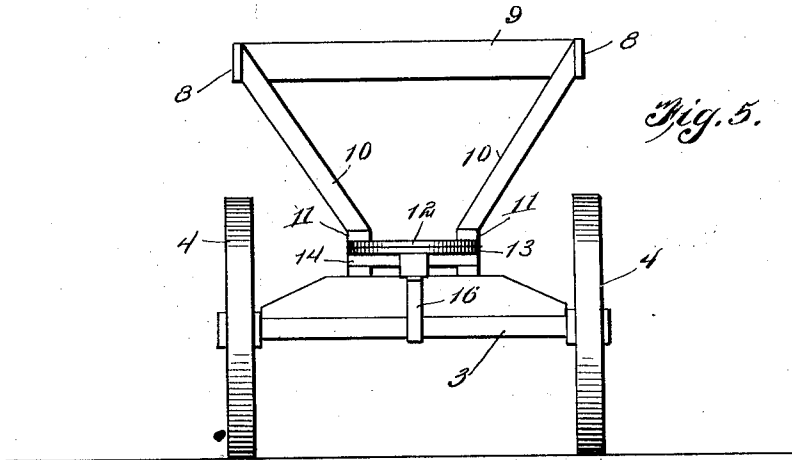
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 4.

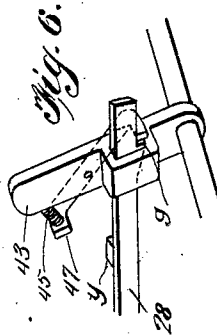
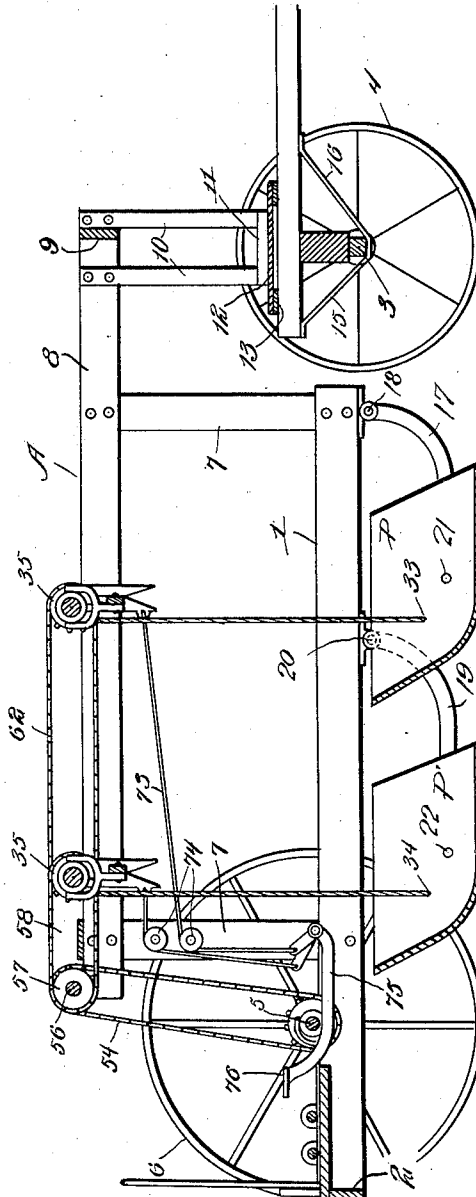


Fig. 6.

Witnesses

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# UNITED STATES PATENT OFFICE.

BRUCE A. WATT, OF MOORCROFT, WYOMING.

## FOUR-WHEEL SCRAPER.

1,056,611.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed May 6, 1911. Serial No. 625,420.

*To all whom it may concern:*

Be it known that I, BRUCE A. WATT, citizen of the United States, residing at Moorcroft, in the county of Crook and State of Wyoming, have invented new and useful Improvements in Four-Wheel Scrapers, of which the following is a specification.

The present invention relates to certain novel and useful improvements in wheel scrapers and has particular application to a machine of the class described embodying in its construction a plurality of scraper pans.

In carrying out my invention it is my purpose to provide a machine of the type referred to whereby the material may be loaded, conveyed to a selected point, deposited and dumped, with a minimum expenditure of time and labor.

A further object of my invention is to provide a scraper having a plurality of pans so that when one is loaded it may be raised from the ground and the remaining pan lowered successively to collect a load of material.

Still another object of my invention is to provide a wheel scraper having a novel form of mechanism for operating the loaded carrying pans, such mechanism enabling the pans to be successively and quickly loaded, raised and dumped.

It is also my purpose to provide a scraper which will embody in its construction the desired features of strength, durability and cheapness, the structure of the device being such that it may be subjected to considerable wear and tear without effecting its usefulness.

With the above recited objects and others of a similar nature in view my invention consists in the construction, combination and arrangements of parts set forth in and falling within the scope of the appended claims.

In the drawings; Figure 1 is a view in side elevation of a machine embodying my improvements; Fig. 2 is a top plan view of the same; Fig. 3 is a rear view of the machine; Fig. 4 is a vertical longitudinal sectional view taken on the line 4—4 of Fig. 2; Fig. 5 is a front view; Fig. 6 is a detail view of the arrangement of levers for the operating mechanism of the pans; Fig. 7 is a detail view of the mechanism for automatically throwing the winding shafts in and out of gear when raising the pans from the ground.

In this machine a frame is mounted on four wheels, the machine containing two or more scraper pans which are designed to be operated by levers situated on the rear platform adjacent to the driver's seat. The machine is also provided with means for raising the pans from the ground to any desired height. The purpose of providing it with two or more pans is that a maximum amount of work may be obtained from a team of horses or other draft animals. With the machines now generally in use but one pan is usually employed and the consequence is that the load drawn by the team is not nearly commensurate with the draft capacity of such team. In my invention any number of pans may be employed commensurate with the draft capacity of the team, said pans or scrapers being successively loaded and raised as they are drawn over the ground.

Referring to the accompanying drawings in detail the letter A designates the frame of the machine as an entirety, and in the present instance comprises the lower longitudinal sills 1—1 connected at the rear by the cross beam 2. The axle 5 of the rear traction wheels is mounted upon the longitudinal sills, and both of the rear driving wheels are geared to the axle 5 through the medium of the axle ratchet wheels 6 and the dogs of such wheels so that such wheels will remain stationary while the axle revolves as in the turning of the scraper. Extending upwardly from the lower longitudinal sills are the vertical posts or standards 7, preferably four in number and supporting the upper longitudinal sills 8, the latter having front and rear cross bars 9. At the front of the machine are the downwardly and inwardly inclined struts 10 connected to the brace 11 above the plate 12 and the fifth wheel or turn table 13, the latter being carried by the cross bars 14. Below the cross bars 14 and relatively associated with the fifth wheel and turn table is the front axle 3 carrying the ground wheels 4.

The numerals 15 and 16 designate the braces for the draft bar or tongue of the machine. Secured at the front portion of the lower or longitudinal sills are the draft arms 17 of the front pan P of the machine, said arms being pivotally connected to lugs 18 depending from the sill, and said arms are preferably provided with offsets as at 18<sup>a</sup> so that the pan may be raised within the

frame. Likewise the rear pan P' is also provided with draft arms 19 similar to those of the front pans and connected to lugs 20 depending from the lower sills of the frame.

5 The draft arms of the front and rear pans are pivotally connected to such pans at the points 21 and 22 respectively, that is to say approximately at the center of gravity of such pans.

10 The numeral 23 indicates vertically extending arms made fast to the outside of the pan P and is connected at its upper as at 24 to the horizontally extending operating rod 25. Similarly the rear pan or scraper

15 P' is provided with an arm 26 connected to the outside of the pan and connected as at 27 to the horizontal lever 28. The means for operating these rods 25 and 28 will be described in detail hereinafter. Mounted

20 on the top sills of the frame, are the winding drums or shafts 29 and 30, upon which are wound the pair of hoisting cables 31 and 32 of the front and rear scraper pans respectively, the tail ends of said cables being connected

25 as at 33 and 34 to the inner sides of the pans, preferably on the vertical center thereof and a short distance above the bottom of the scrapers. Each of the winding shafts or drums 30 and 31 is provided with a

30 sprocket member 35 for winding the drum, such shaft members each having the ratchet wheel 36 engaged by the pawl 37 for holding the winding shaft or drum after it has been wound up. When the bucket is to be

35 lowered the pawl is disengaged from the ratchet and the drum permitted to rotate backward to unwind the cable by actuating the ratchet lever 38 connected to the lever arm 38' and if desired a brake may be used

40 in conjunction with the winding shafts.

Each of the horizontally extending shifting rods 25 and 28 are controlled, to adjust the pans when loading and dumping from ratchet levers 39 and 40 having the quadrant racks 41 and 42 mounted on the rear platform within easy reach of the driver on the seat S.

43 and 44 are self-adjusting arms on one end of each lever shaft, and 45 and 46 are small tension springs to hold the small levers 47 and 48 at an angle from the arms 43 and 44. These small levers permit the shifting arms 23 and 26, attached to the pans, to extend or move forwardly when the levers

55 are thrown forward into approximately horizontal position. A detail of this lever arrangement is shown in Fig. 6. When the arm 43 is in upright position the small pivoted lever 47 at the front, is held up by the

60 spring, and acts as a latch to hold the respective pan shifting rod down at the bottom of the groove g which gives the operator more leverage when loading the pans.

When the pans are raised, and it is desired 65 to dump the same, the operating quadrant

lever is thrown forward until the small lever 47 strikes the shoulder of the respective shifting rod which causes such small lever to close against the main lever thereby opening the groove and permitting the weight of the load to draw the particular shifting rod forward thus extending their range of action.

Both of the rear drive or ground wheels 6 are geared to the axle 5 by means of ratchets in the hubs so that said axle 5 will revolve in the hub when the scraper is turned. Mounted on this drive axle 5 is a loose sprocket clutch member 49 adapted to be placed in driving engagement with the shaft by the sliding clutch member 50 splined or keyed on the shaft, while 51 designates a lever connected to the sliding clutch member and operated by the ratchet lever 52 actuated from the driver's seat and engaging with the quadrant rack 53 for shifting the sliding clutch member 50 into and out of engagement with the loose sprocket clutch member 49 for putting the latter in and out of driving engagement with the axle 5.

54 is an endless driving chain running over sprocket clutch 49. This chain leads up and around the member 55 of a double sprocket loose on the shaft 56, the other member 57 of the sprocket driving the endless chain 58 leading over the sprocket 59 of a double sprocket clutch member loose on the rear winding drum 30 and placed in and out of driving engagement with the sliding clutch 60 keyed on the shaft. 61 indicates the other sprocket wheel of the last mentioned double sprocket clutch member on the rear winding shaft and over which runs the endless chain 62 to the loose sprocket clutch member 63 on the forward winding shaft 30, this sprocket clutch member being also put in and out of driving engagement with its shaft by the sliding, keyed clutch member 64. It will thus be seen that the winding shafts or drums may be revolved singly or simultaneously.

As the means for throwing the clutch members into and out of driving engagement for raising the pans are identical in construction for both winding shafts, the description herein is applicable to both. Each of the sliding clutch members 60 and 64 is normally held in driving engagement by a spring 65, the yoke 66 of each sliding clutch being connected at 67 to a bell-crank lever 68 the end of which passes between the arms 69 and 70 connected by a plate or bar 71. The arm 70 is pivoted to the bar 71 and is formed with a shoulder 72, these latching devices being suitably fastened in a convenient or desired position at the side of the main frame. To each of the shouldered arms of the latch devices is fastened one end of a cord 73, said cord passing over pulleys 74 carried by the vertical struts 7 to the foot levers 75, the foot plates 76 are

conveniently arranged for the feet of the driver. When a pan is on the ground and is to be raised, the respective foot lever is pressed by the operator thereby pulling the cord attached to the particular pivoted, shouldered latch thus drawing the latter out and releasing the bell crank lever, when the spring back of the sliding clutch will push or force the latter into contact with its companion sprocket thereby starting the winding shaft to wind up the hoisting cables of the pan. When the pan has reached a desired, predetermined height it is held at such an elevation through the following means. Each lifting cable is provided with a spring tensioned stop 77 connected thereto by set screws or other means so that such stop may be adjusted along the length of the cable as desired to limit the distance which the respective pan is to be raised; such stop striking against the bell crank lever thus raising the latter and throwing the sliding clutch out of contact with its sprocket member, the object of the spring for the stop being that when the stop contacts with the lever, and the latter has been thrown to separate the clutch members the spring of the stop being stronger than the spring behind the sliding clutch, expands, and elevates the lever on the pivoted arms of the latching device thus holding the clutch members out of contact.

From the above description taken in connection with the accompanying drawings, the construction and operation of my wheel scraper will be readily apparent.

When the driver or operator wishes to load the pans, he lowers the same to the ground with the ratchet levers and brakes for that purpose. To load the levers are thrown or tilted forward, and being connected through the means heretofore described with the pans, cause the bottom of the latter to be slightly tilted or inclined so that the pans will be readily loaded when drawn through a mass of dirt or other material. When the pans have been loaded the operator presses the foot levers thus causing the bell crank levers of the clutches to drop and slide the clutch members on the winding shafts so that the driving sprockets will be locked thereto, thereby starting the winding shaft which raises the pans to the desired height, such height being determined by the location of the stops on the hoisting cables. At the same time the operator presses the foot lever such operator sets the operating lever of the pan to the rear, and by so doing the pan is tilted backward at an angle which keeps the dirt from falling out at the open front, the back wall of the pan being preferably of the same height as the side walls. The pan is dumped as heretofore described that is to say by throwing the operating lever forward to the limit

of its movement, thereby forcing or thrusting the horizontal shifting rods, and consequently tilting the pan forward.

It will be seen that I have provided a type of scraper wherein any suitable number of pans may be employed, all of which may be successively controlled by an operator occupying a station or seat at a suitable point upon the seat, and drive the team at the same time.

While I have herein shown and described one particular embodiment of my invention, I wish it to be understood that I do not limit myself to all the precise details of construction herein set forth by way of illustration as modification and variation may be made without departing from the spirit of the invention or exceeding the scope of the appended claims.

What I claim is:

1. In a wheeled scraper, the combination with a frame and ground wheels carried thereby, of load receptacles carried by the frame, a winding shaft mounted upon the frame for each load receptacle, connections between the load receptacles and the respective winding shaft, a power shaft, means between the power and the winding shafts for driving the latter, mechanism for placing the winding shafts in and out of driving engagement with the power shaft, horizontally disposed shifting rods for tilting the receptacles, and lever controlling mechanism for said shifting rods.

2. In a wheeled scraper the combination with a frame, and the ground wheels carried thereby, of load receptacles carried by the frame, a winding shaft for each of said receptacles mounted upon the frame, hoisting connections between the shaft and the respective receptacle, a power shaft, means between the power shaft and the winding shafts for driving the latter, mechanism for placing the winding shaft in and out of driving engagement with the power shaft, shifting rods extending backward from the load receptacles, and lever mechanism mounted on the platform of the frame for actuating the pans through the shifting rods to tilt and dump said pans.

3. In a wheeled scraper the combination with a frame, and the ground wheels, of a power axle or shaft for the rear ground wheels, a plurality of load receptacles, draft arms for each of said receptacles, vertically extending arms connected pivotally to the draft arms, rearwardly extending horizontally disposed rods connected to the vertical arms, a winding shaft for each of said receptacles, hoisting cables connecting said receptacles with the winding shafts, means for holding each of said winding shafts against backward rotation, drive connections between the power axle or shaft and the winding shafts, clutch mechanism carried by each

of said shafts for placing the latter in and out of driving engagement with the power axle, foot levers carried by the frame, and means actuated by said foot levers for holding the clutches of the winding shafts out of driving engagement, an operating lever for each of said pans, and connections between the operating levers and the horizontally disposed rods for moving said rods to

tilt the pan when loading, and for dumping the pan when loaded. 10

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

BRUCE A. WATT.

Witnesses:

LEW DAVIS,  
J. B. QUEST.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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