No. 662,740. Patented Nov. 27, 1900.

G. E. RICHARDSON.

SCRAPER.

(Application filed Feb. 14, 1900.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

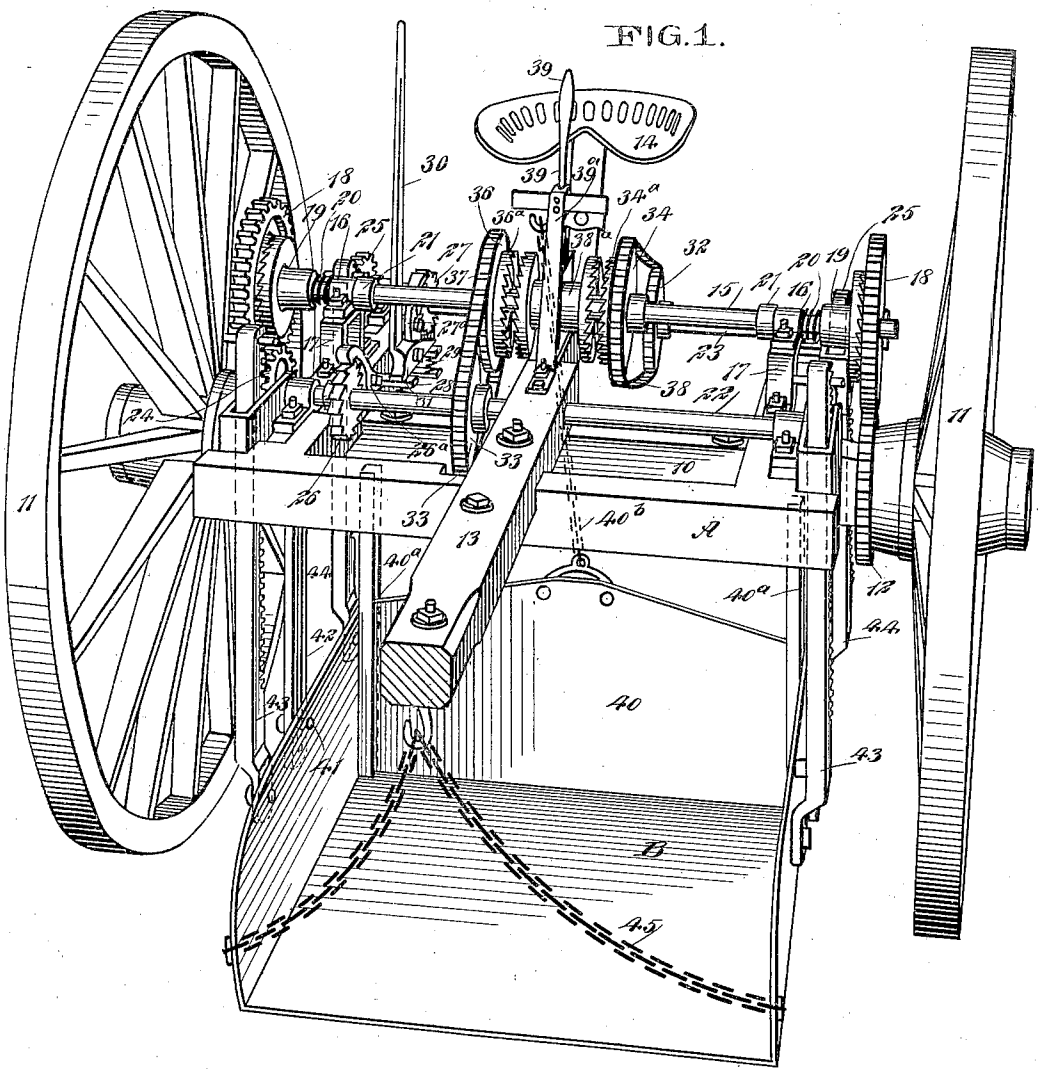
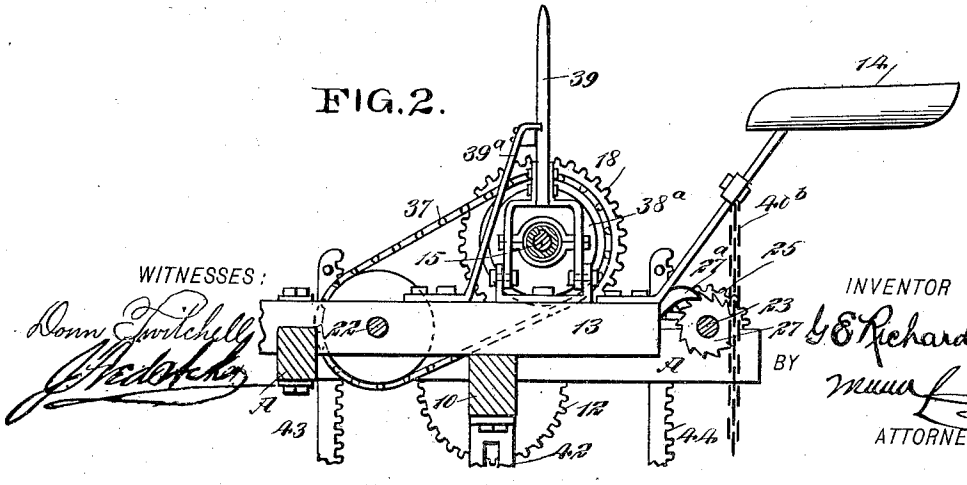


FIG. 2.



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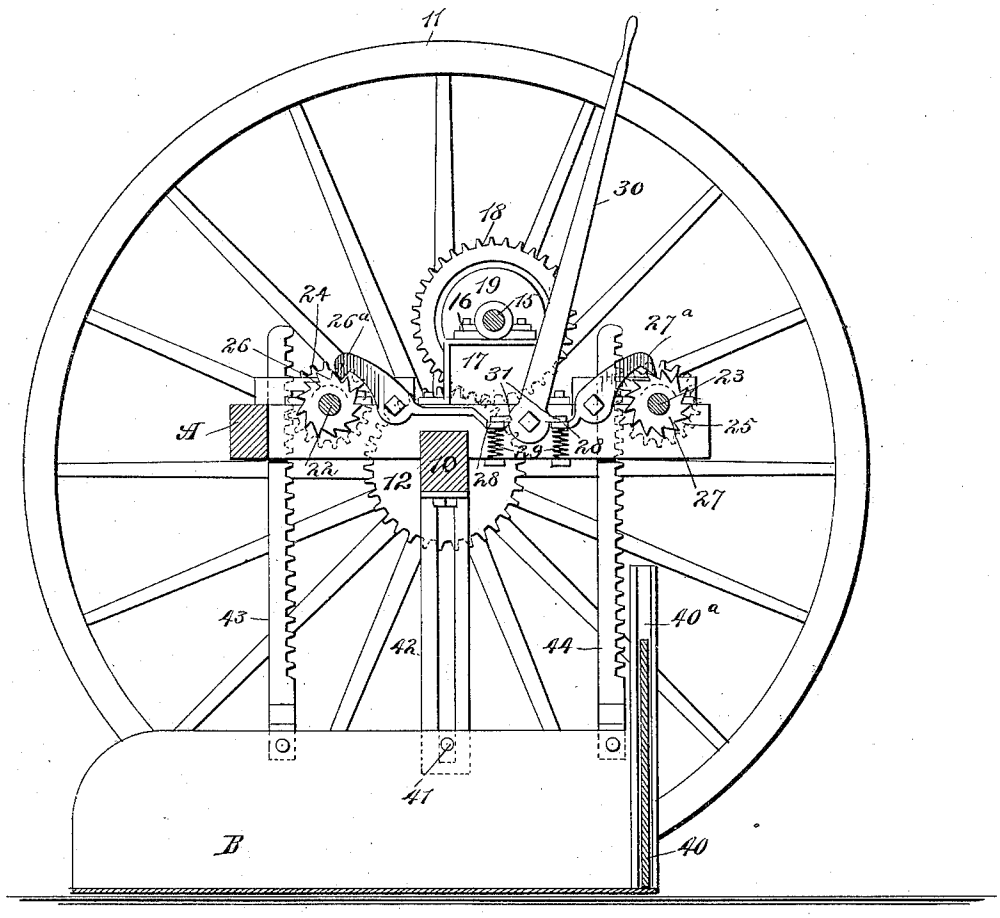
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Fig. 3.



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UNITED STATES PATENT OFFICE.

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SCRAPER.

SPECIFICATION forming part of Letters Patent No. 662,740, dated November 27, 1900.

Application filed February 14, 1900. Serial No. 5,215. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. RICHARDSON, a citizen of the United States, residing at Chief, in the county of Manistee and State of Michigan, have invented a new and Improved Scraper, of which the following is a full, clear, and exact description.

One object of the invention is to so improve upon the scraper for which Letters Patent were granted to me October 20, 1896, No. 569,887, that the scraper may be raised and lowered at either the front or the back by means of mechanism operated at the axle.

Another purpose of the invention is to evenly balance the scraper, and thus avoid lift on the neck of the draft-animals, as the draft will be beneath the tongue.

A further purpose is to so construct the scraper that it will be light, strong, and simple, and to so mount the scraper that it will in no manner interfere with the driver in the guidance of his team.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a scraper embodying the features of my invention. Fig. 2 is a longitudinal section through the scraper on a smaller scale than in Fig. 1, and Fig. 3 is a longitudinal sectional view of the improvement.

A represents a frame upon which an axle 10 is mounted, the axle being either straight or crooked, and wheels 11 are mounted to turn on said axle. Each of the wheels 11 is provided with a toothed wheel 12, secured upon the inner portion of its hub. A tongue 13 is secured to the frame A in any suitable or approved manner, and a seat 14 for the driver is mounted on the said tongue at the rear end thereof. A main driving-shaft 15 extends transversely of the frame A, and the said driving-shaft is mounted to turn in boxes 16, attached by brackets 17 or their equivalents to the upper portion of the frame. A gear-wheel 18 is loosely mounted at each end of the shaft 15, and said gear-wheels mesh with the toothed wheels 12, carried by the hubs of the supporting-wheels 11. Each of the gear-wheels 18 on the drive-shaft is provided with a clutch-surface at its inner face, adapted for engagement with clutches 19, mounted to turn with the shaft and slide thereon. The clutches 19 are so arranged that they drive the shaft 15 while the machine is being drawn forward; but when the machine is backed the clutches 19 simply slip over the ratchet-surfaces of the wheels 18, and the said wheels have no effect on the shaft 15. The clutches 19 are held in engagement with the ratchet-surfaces of the gears 18 through the medium of springs 20, the said springs being located between the boxes 16 and the hub portions of the clutches 19. The shaft 15 is prevented from having end movement by securing collars 21 on the said shaft at the inner sides of the boxes 16.

A driven shaft 22 is journaled in suitable bearings on the upper portion of the frame A, near the front, and a like shaft 23 is similarly journaled at the rear portion of the said frame, and the main shaft 15 is between the two shafts 22 and 23 and at an elevation above the same. The shafts 22 and 23 are employed for raising and lowering, respectively, the forward and the rear ends of the scraper B, to be hereinafter described. A pinion 24 is secured to each end of the shaft 22, and a pinion 25 is attached in like manner to the rear shaft 23. The shaft 22 is also provided with a ratchet-wheel 26, and the shaft 23 also carries a ratchet-wheel 27, the ratchet-wheels and the pinions being secured firmly to the shafts 22 and 23. A dog 26^a is pivoted on the frame and is arranged for engagement at one of its ends with the ratchet-wheel 26, while a second dog 27^a, also pivoted on the frame, is adapted for engagement with the ratchet-wheel 27 on the shaft 23, and each dog is provided with an outwardly-extending arm 28. These arms are held upward by springs 29, the springs serving to hold the dogs in engagement with the said ratchet-wheels.

Each one of the dogs may be thrown out of engagement with its ratchet-wheel through the medium of a lever 30, the lever being fulcrumed upon the frame A between the dogs, and the said lever is provided with a horizontal foot 31, which is carried over the extensions 28 from the dogs 26^a and 27^a. Thus by carrying the lever to the rear the rear dog is released from the ratchet-wheel 27, and when the lever is carried forward the forward dog 26^a is disengaged from its ratchet-wheel 26, and the shafts 22 and 23 are thus released and are free to turn and permit the end of the scraper connected therewith to fall in direction of the ground.

A sprocket-wheel 32 is secured to the shaft 23, and a similar wheel 33 is fastened on the shaft 22, as shown in Fig. 1. The sprocket-wheel 32 on the shaft 23 is connected by a chain belt 38 with a larger sprocket-wheel 34, loosely mounted on the drive-shaft 15, and a belt 37 connects the said sprocket-wheel 33 on the shaft 22 with a sprocket-wheel 36, loosely mounted on the drive-shaft 15. The two wheels 34 and 36 on the drive-shaft 15 are placed one at each side of the center of the shaft and have ratchet or clutch surfaces upon their inner faces, the ratchet-surface on the wheel 34 being designated as 34^a, while the corresponding surface of the wheel 36 is designated as 36^a, as shown in Fig. 1. A double clutch 38^a, mounted to slide on the drive-shaft 15 and turn therewith, is located between the two wheels 34 and 36, as is also shown in Fig. 1, and this clutch 38^a may be either carried in engagement with the clutch-surface on the wheel 36 to revolve the shaft 22 or said clutch 38^a may be carried in contact with the clutch-surface 34^a on a wheel 34 to revolve the rear shaft 23, and in this manner either the forward or the rear end of the scraper B is elevated by the action of the drive-shaft driven from the supporting-wheels of the machine. A shifting lever 39 is employed in connection with the clutch 38^a, and this shifting lever is adapted for engagement with a suitable rack 39^a.

The scraper B consists of a bottom, as is usual, and side sections, together with a back 40, the back being in the form of a gate held to slide in guides 40^a, carried by the side portions of the scraper, and said gate 40 is provided with a chain 40^b, which is carried upward and suitably attached to the standard of the seat 14, so that the occupant of the seat may raise the gate 40 at any time and permit the load in the scraper to be dumped out at the rear thereof when the front portion of the scraper has been elevated and its rear portion lowered. The scraper is raised and lowered by attaching racks 43 to its side portions near the front and attaching a second set of racks 44 to the sides of the scraper at its rear. These racks extend up through suitable guide-slots in the frame, the forward set of racks engaging with the pinions 24 on the forward shaft 22, while the rear set of racks engage with the pinions 25 on the rear shaft 23.

The scraper is guided in its upward-and-downward movement by pins 41, secured to its sides at or near the center, which pins enter and have movement in slots made in guide-bars 42, attached to and extending downward, preferably from the under surface of the axle 10. The forward end of the scraper is connected with the tongue or pole 13, usually through the medium of chains 45, which extend from the sides of the scraper at its forward end to a keeper attached to the pole or tongue, as is also shown in Fig. 1.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A wheel-supported frame, a drive-shaft receiving motion from the supporting-wheels of the frame, lifting-shafts, a driving connection between the lifting-shafts and the drive-shaft for alternately operating the lifting-shafts, and a scraper having its forward end portion controlled by one of the lifting-shafts and its rear end portion controlled by the second lifting-shaft, the said shafts acting to raise the said scraper or permit the same to drop, as described.

2. A wheel-supported frame, a drive-shaft, a driving connection between the supporting-wheels of the frame and the drive-shaft, driven shafts, a driving connection between the driven shafts and drive-shaft, said driving connection including a clutch and means for shifting the same, pinions carried by the driven shafts, a scraper, racks carried by the scraper and engaging with said pinions, ratchet-wheels carried by the driven shafts, dogs engaging with the said ratchet-wheels, and a trip device for the said dogs, for the purpose specified.

3. The combination, with a wheel-supported frame, a drive-shaft carried by the said frame and driven from a supporting-wheel of the frame, and a driven shaft at each side of the drive-shaft, the driven shafts being provided with pinions at their ends, wheels loosely mounted on the driven shaft, said wheels having clutch-faces, a clutch mounted on the drive-shaft and adapted for engagement with the clutch-surface of either of the loosely-mounted wheels, and a driving connection between the loosely-mounted wheels and the driven shafts, of a scraper, means for guiding the same, racks secured to the said scraper, engaging with the pinions on the driven shaft, ratchet-wheels carried by the driven shaft, dogs for the said ratchet-wheels, and a lever arranged to operate each of the said dogs in a manner to release either of them from engagement with a ratchet-wheel, for the purpose specified.

4. In a scraper, the combination with the lifting-shafts, and a ratchet-wheel on each shaft, of pivoted and spring-pressed pawls engaging the ratchet-wheels, and a lever for engaging the pawls to throw them out of en-

gagement with the ratchet-wheels, substantially as described.

5. In a scraper, the combination with the lifting-shafts, and a ratchet-wheel on each shaft, of pivoted pawls provided with arms projecting beyond their pivots, springs arranged below the arms of the pawls for holding them in engagement with the ratchet-wheels, and a lever fulcrumed between the arms of the pawls and provided with a foot for engaging the said arms, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE E. RICHARDSON.

Witnesses:
HIRAM AXTELL,
JULIA CHARLARNEAU.