July 28, 1936. J. W. ROSS 2,048,952

ROAD SCRAPER

Filed Feb. 27, 1935 4 Sheets-Sheet 1

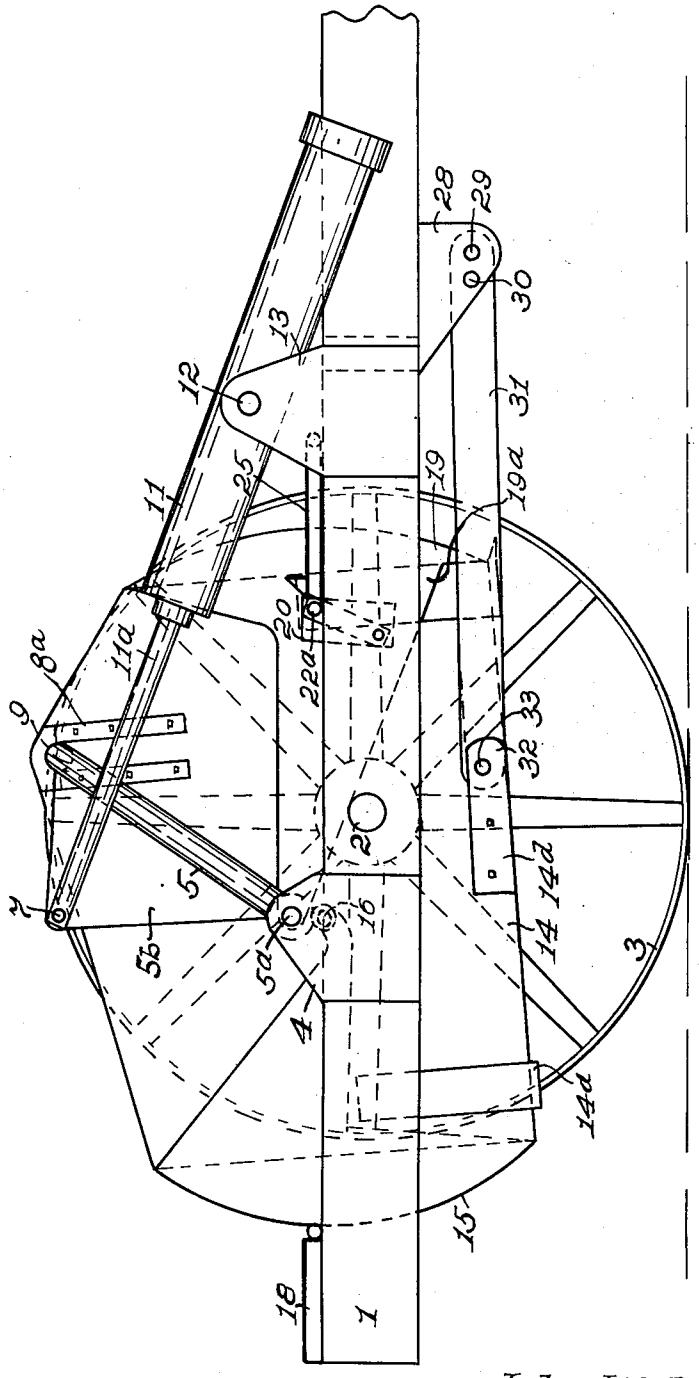


Fig. 1.

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ROAD SCRAPER

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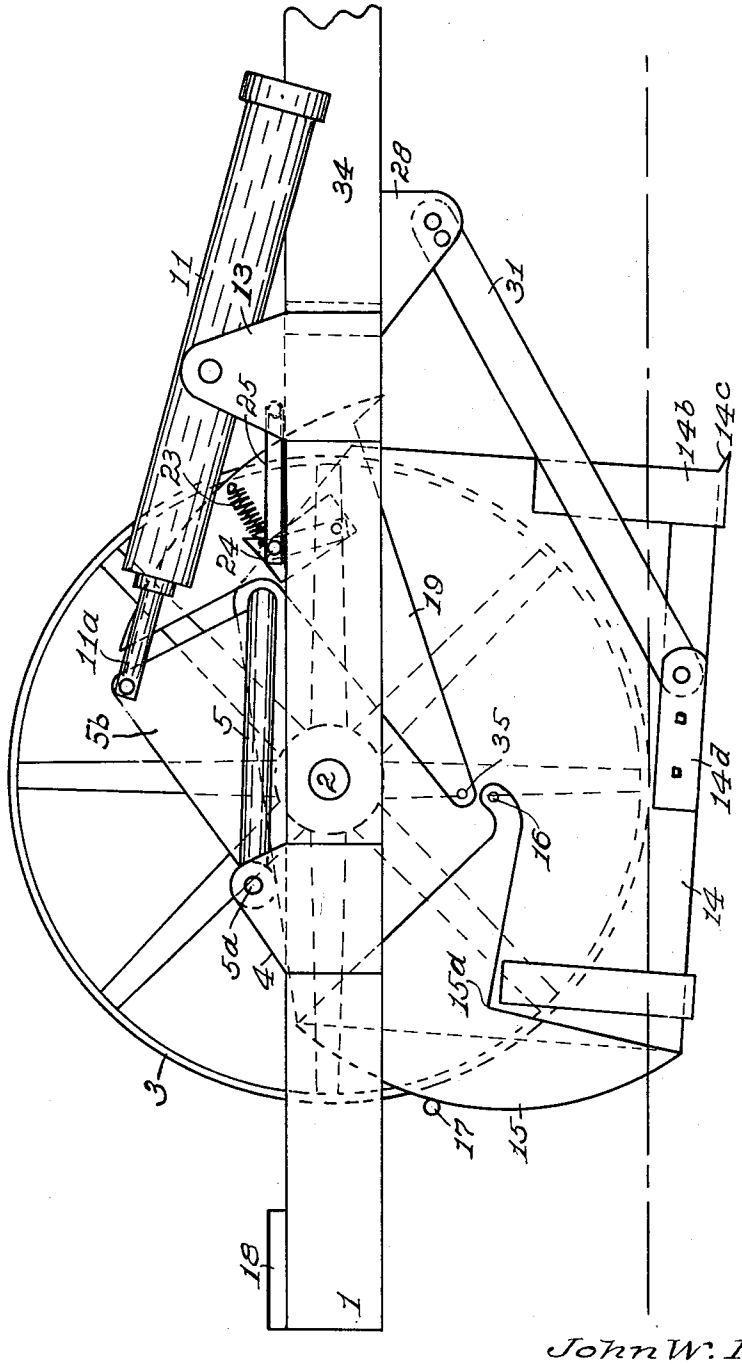


Fig. 2.

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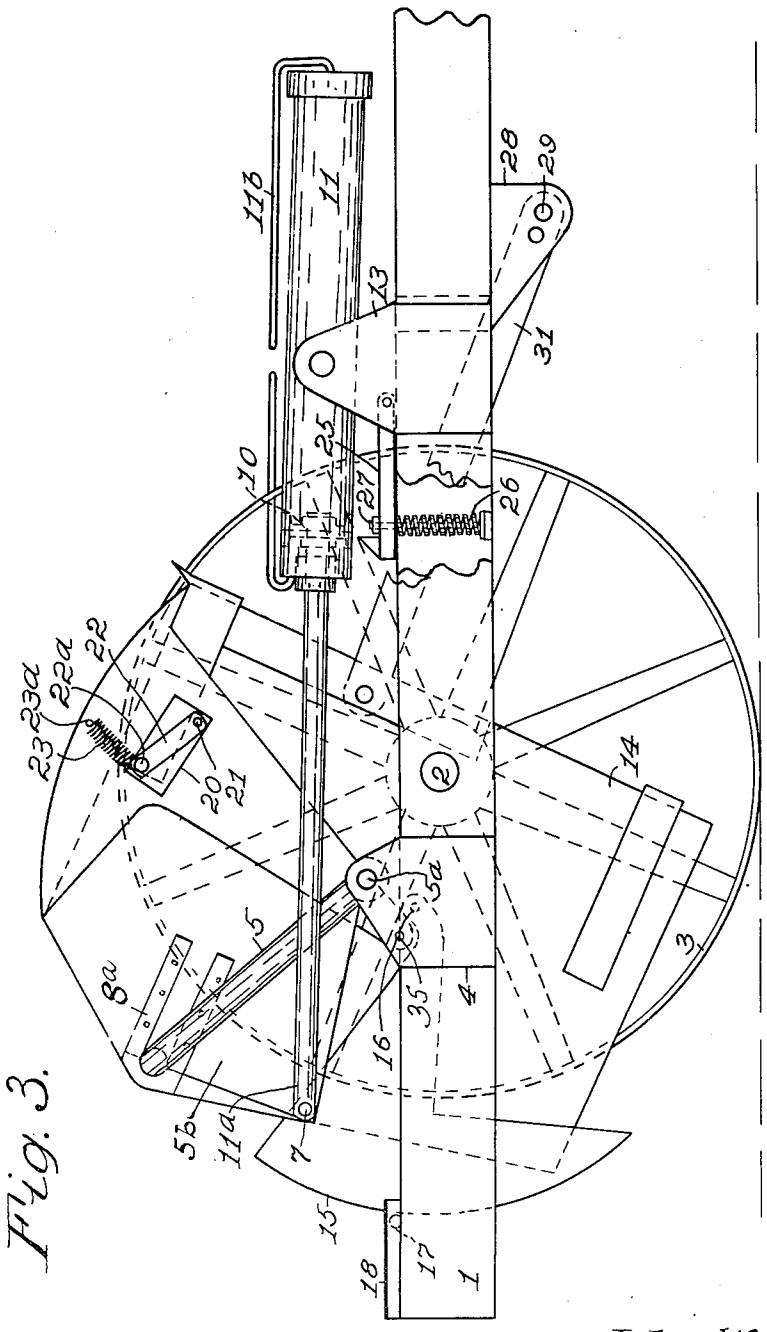


Fig. 3.

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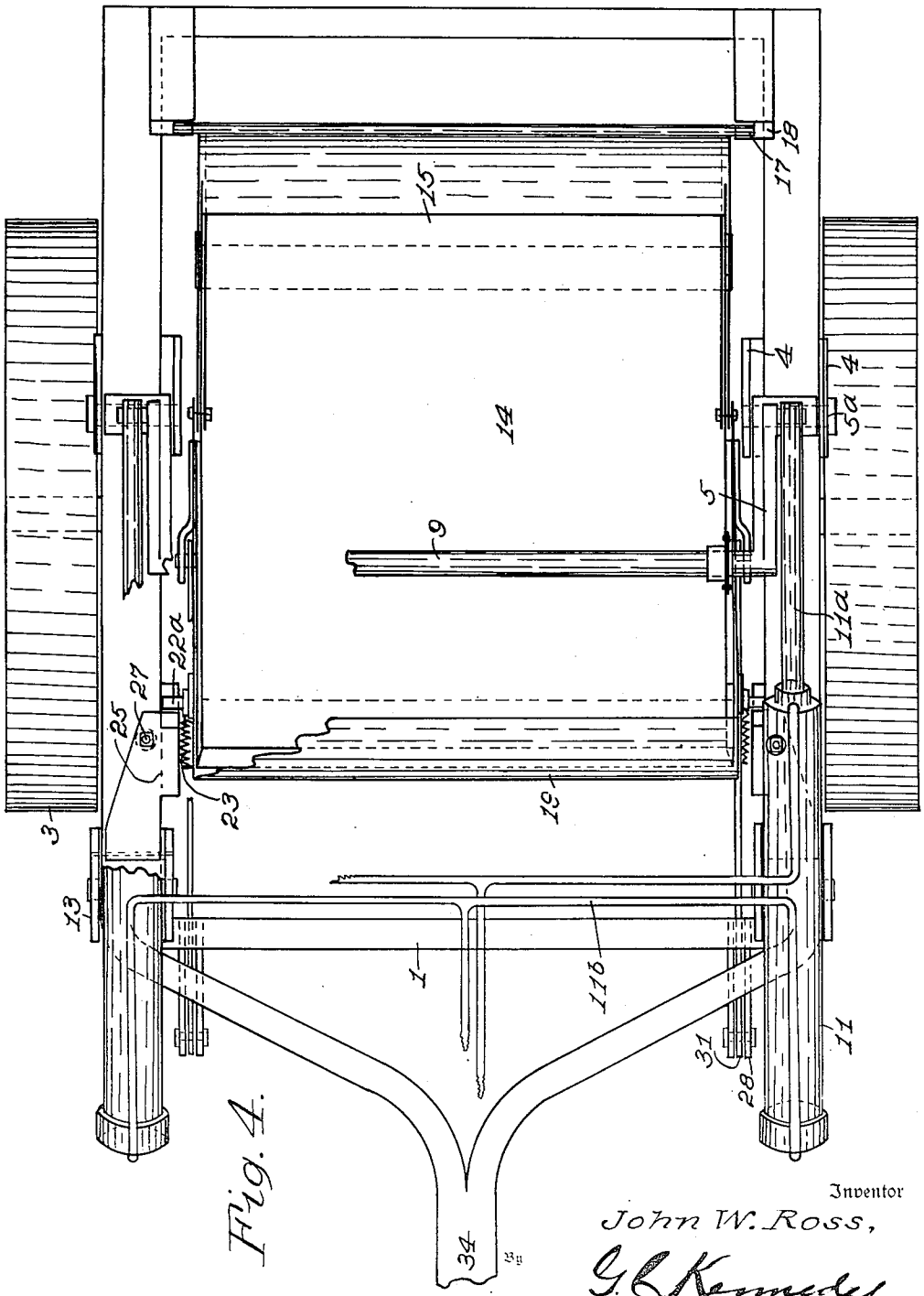


Fig. 4.

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ROAD SCRAPER

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Application February 27, 1935, Serial No. 8,529

2 Claims. (Cl. 37—129)

My invention relates to improvements in road scrapers, and an object of my improvements is to provide an improved road scraper adapted for use in scraping or treating a soil surface, receiving and carrying the removed soil to a place of deposit, and for delivering its load conveniently.

Another object is to provide in such a device a rockable scraper bowl and tiltable front and rear closures therefor, provided with relative working connections permitting of alternated movements of said units to effect the first mentioned purposes.

Another object of my improvements is to furnish suitable releasable locking means for said units.

Another object of my improvements is to supply additional supporting means for the rockable scraper bowl to limit its scope of movements adjustably.

Another object of my improvements is to employ actuating means for said scraper bowl and said closures adapted to move these relatively to each other appropriately to effect the differing functions of the invention.

I have accomplished the above objects by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which Fig. 1 is a side elevation of the invention, showing the scraper bowl raised to a carrying position with the end closures associated therewith in closed relations. Fig. 2 is a side elevation showing the scraper bowl lowered to scraping position with the front closure open and the rear closure closed. Fig. 3 is a side elevation showing the rear closure open and the front closure closed, with the scraper bowl rocked rearwardly to a discharging position. Fig. 4 is a top plan of the invention, with parts broken away or removed.

It is to be understood that various changes may be effected in the details of the invention and their coaction without thereby departing from the scope of my protection.

Referring to the drawings, the numeral 1 denotes a hollow rectangular frame having side medial bearings to seat the spindles 2 of an axle carrying the wheels 3. Upon opposite outer faces of said frame are fixed the raised bearing brackets 4 having bearing apertures to seat the outturned spindles 5*a* of a transverse bow 5 rockable above the frame. Loosely mounted on the cross part of said bow at each end thereof are the side walls 8 of a scraper bowl 14 supported preferably and removably in inverted U-shaped reinforcing plates 8*a*. The numeral 11 denotes a pair of like hydraulic motor cylinders which at opposite sides of the frame are trunnioned at 12 to raised brackets 13 fixed on the outer faces of the frame. The cylinders are thereby positioned for longitudinal rocking movements, and each contains an imperforate piston (shown in dotted lines at 10 in Fig. 3) having a piston-rod 11*a* whose outer end is pivoted at 7 to one angle of the adjacent bracket 5*b* fixed on the bow 5.

The numeral 14 denotes a scraper bowl device having a bottom and side walls braced by angle braces 14*a* and 14*b* and mounted within said frame rockingly and to depend from the bow cross part 9 between the plates 8, and the scraper body at the bottom in front is provided with a fixed scraper blade 14*c*.

I have provided side linking connections between the side walls of the scraper 14 and the forwardly projecting part 34 of the frame 1. These comprise fixed brackets 14*d* and 28 secured respectively upon the scraper and upon the frame part 34 and said brackets 28 are connected pivotally to each other by a bar 31 on pintles 29 and 33 seated in bearing apertures 30 in the brackets, with provision in the brackets 28 for another bearing aperture 30 for adjustments of the connecting bar 31.

The numerals 15 and 19 respectively denote curvate rear and front closures for the scraper bowl 14, and have side arms 15*a* and 19*a* whose terminations are respectively pivoted differentially eccentrically relative to the spindle 5*a* to the scraper bowl 14 at 16 and 35.

I have furnished releasable stop means for said closure 15. At the rear of the frame 1 are mounted fixed angle-bars 18 to receive at times the end parts of a cross rod 17 fixed across the rear face of the curvate rear closure 15 and which in the opened position thereof serve as stops therefor.

Referring to Figs. 2 and 3, the stop or locking means for the front closure 19 are as follows. Upon opposite side arms or walls of the closure 19 yieldable coiled springs 23 are hung on pintles 23*a* and connected pivotally at pins or studs 22*a* to arms 22 which have their opposite ends pivoted at 21 to a plate 20 mounted on the adjacent side of the closure 19. Each projecting stud or pin 22*a* is received and stopped by an angle-bar 25 in one position of said closure as shown in Fig. 2, when the scraper is lowered to scraping position. The member 25 as shown in Fig. 3, is end pivoted to the frame and has limited vertical scope of swinging in slidably releasing the pin 22*a*, as the member 25 is traversed loosely by a fixed bolt 27

secured to said member by an adjusting nut above, the member 25 resting upon the upper end of a coiled spring 26 mounted on the bolt. This spring supports the member 25 and takes up for shocks caused by the downward movements of the closure 19. The pins 22a of the front gate 19 are separated from the swingable stop member 25 when the scoop 14 is swung upwardly to a rearwardly tilted position shown in Fig. 3 by the yielding of the springs 23 and the yielding upwardly of the members 25 with their basal spring connections 26, the members 25 being returned when the pins 22a are released and by the retraction of the tensed springs 26; and on the return movements of the pins 22a they become engaged again with the members 25, the springs 23 then keeping the members 22a and 25 in engagement as shown in Fig. 2, where the pins 22a are resiliently retained until again released as above described.

Fig. 2 shows the scraper body 14 lowered into scraping position, with limited vertical adjustments at the forward ends of the connecting bars 31. The latter support the scraper in any of its relative positions without binding and with a limiting action. In its said scraping position the rear closure 15 is closed to be a rear wall therefor, the front closure being lifted to clear the scraper, whereby soil excavated by the blade 14c may be deposited upon the bottom of the scraper and between its side walls.

The connected elements 14, 15 and 19, together with the side bowl parts 8 are associated to cause them to be relatively actuated by means of any desired application of power, for instance one or more hydraulic motors 11, or other operating means, to permit of the use of the scraper as such, and also as a receptacle for deposited soil, and as a dumping wagon for this soil, in succession. The operation of the motors 11 is obvious for each of said actions, controllable by an operator. The coaction of the rear and front closures in succession is thus made automatic and exact, so that there can be no failure therein. It is also evident that when desired, the invention may be used in its showing of said Fig. 1, as a carrier and dumping wagon at any time, without regard to its road treating function.

It will be observed that a prime feature of my invention is the combination of the controllable motor cylinders 11, tiltably mounted on the standards 13, with their piston-rods 11a having their rear ends pivotally connected with the rearwardly projecting angled parts of the bracket-plates 5b fixed on the swingable arms 5. As the scraper bowl side walls 8 are swingingly supported upon the upper end parts of the arms 5, and the rear ends of the piston-rods 11a are pivoted to the angle-plates or brackets 5b which project rearwardly from said arms 5, the piston-rods have a long scope of length of reciprocations, and therefore in tilting, lifting and lowering the scraper bowl 14, shift the bowl suitably in bringing the closures 15 and 19 to and from the stop angle-bars 18 and 25 longitudinally so that the catches 17 and 22a respectively are at appropriate times caused to become engaged releasably with said stops 18 and 25, to retain the closures in certain relative positions to the bowl bottom, to permit of filling the bowl when scraping, or to discharge at the rear when the bowl is tilted rearwardly as in Fig. 3, to discharge its load. All the necessary operations above mentioned are performed by a single operator who may be upon a propelling tractor, and by his using the motors 11. It will also be seen that the linking bars 31 between frame brackets 28 and the lower side walls 8 of the bowl, as adjusted at 29 or 30 holes of the brackets, support the bowl properly during its different positions of tiltably swinging and in a positive manner, particularly when the bowl is being employed as shown in Fig. 2, in scraping or excavating soil.

I claim:

1. A road scraper, comprising in combination, a frame mounted for transportation, arms swingably mounted on the frame and having brackets, a scraper scoop with bottom, side walls and open ends and supported swingably on said arms, means pivoted to said brackets for swinging said arms to and fro, linking means between said scoop and the forward part of said frame, front and rear gates independently and swingably mounted on the side walls of the scoop, and separable locking means between the frame and said gates respectively.

2. A road scraper, comprising in combination, a frame mounted for transportation, arms swingably mounted on the frame and having brackets, a scraper scoop with bottom, side walls and open ends and supported pivotally on said arms, means movably connected to said brackets for swinging the arms to and fro, linking means adjustably connected between said frame and said scoop, front and rear gates independently and swingably mounted on the scoop, a stop on the frame and a stop on the rear gate coengageable therewith and releasable therefrom when the scoop is swung to and from dumping position, a stop on the frame resiliently connected thereto swingably, and a stop on the forward gate connected thereto resiliently and swingably for coengagement with said resiliently connected frame stop for yielding separation when the scoop is in a dumping position.

JOHN W. ROSS.