

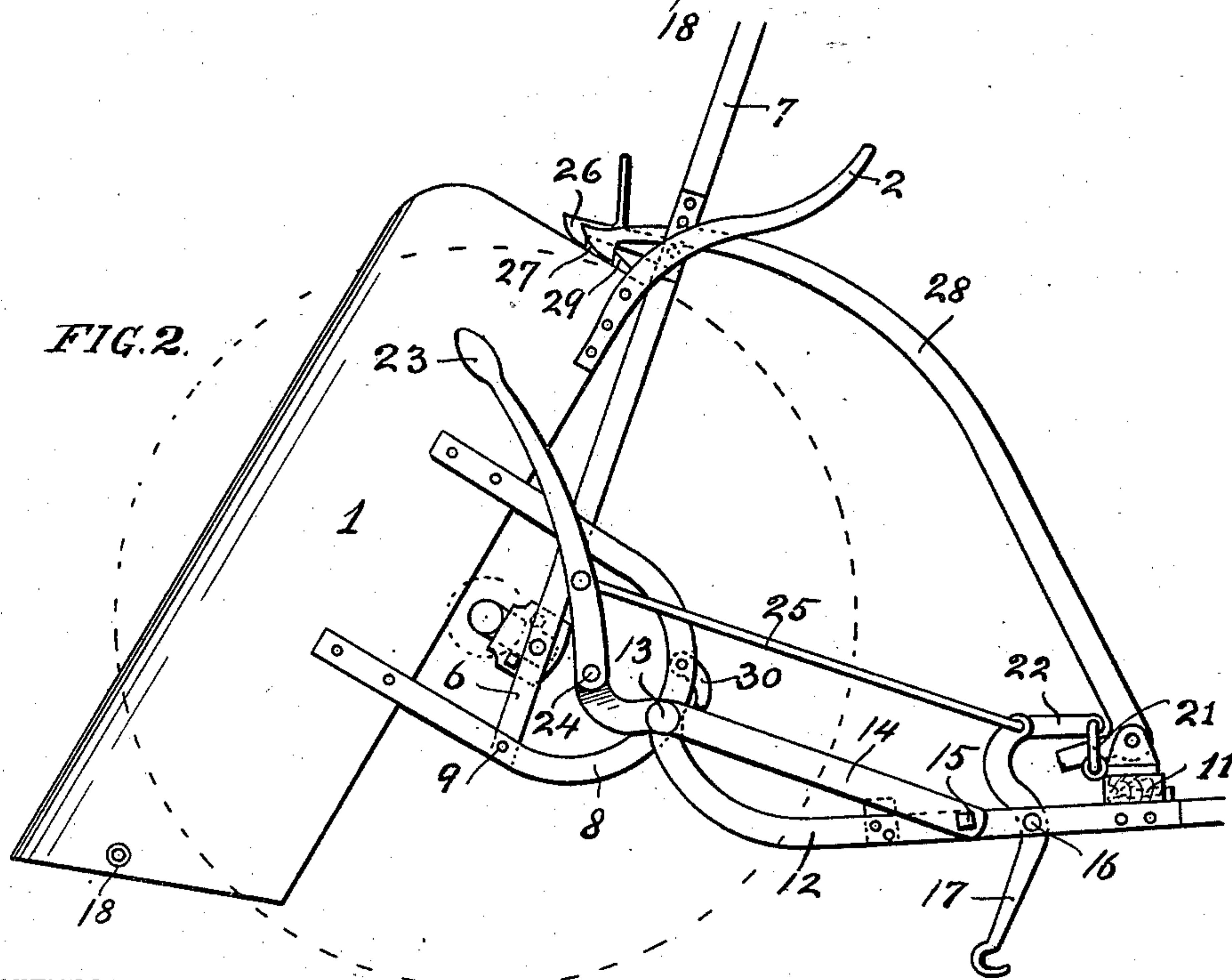
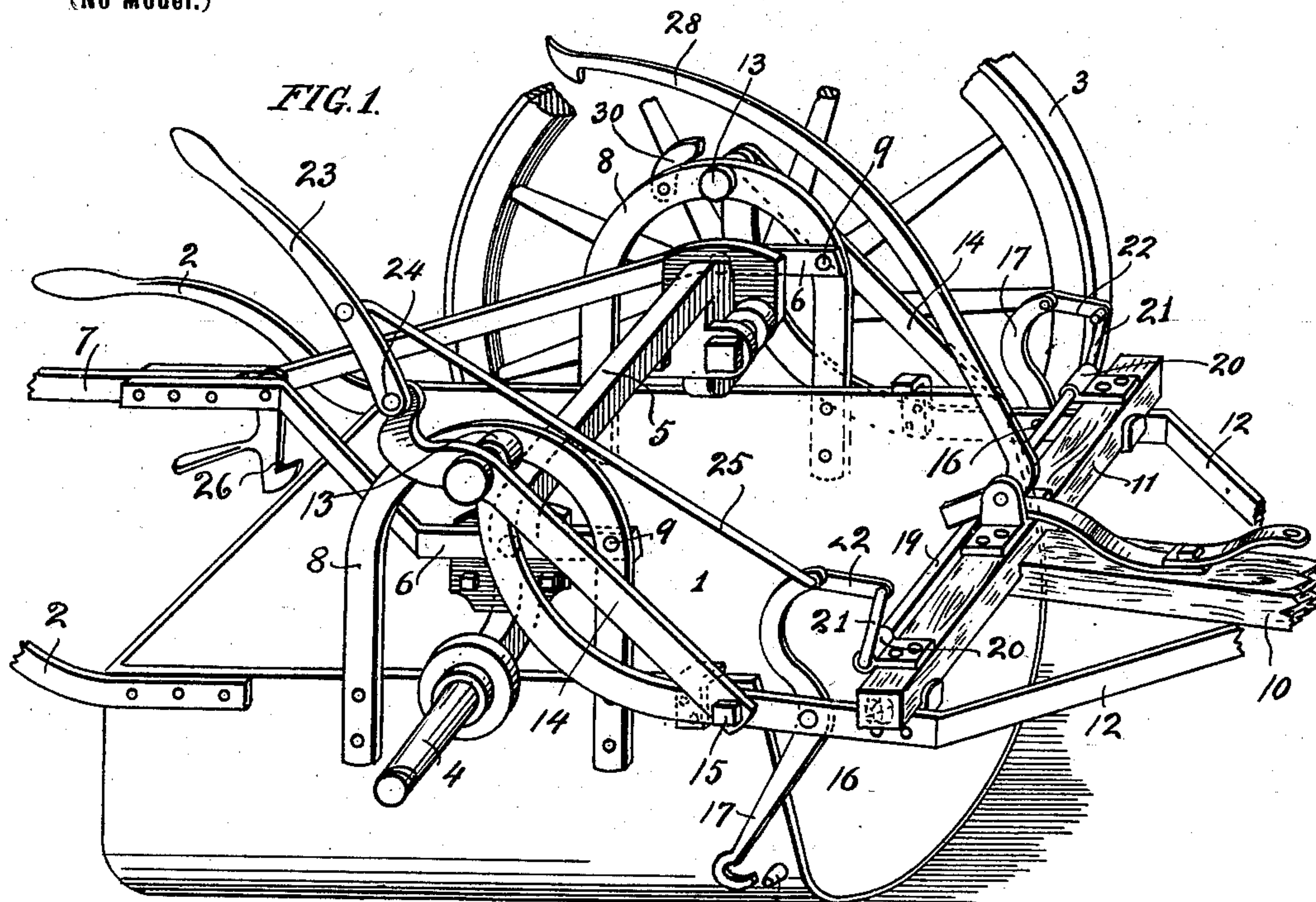
No. 657,321.

Patented Sept. 4, 1900.

J. STUBBS.  
WHEELED SCRAPER.

(Application filed July 12, 1900.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JESSE STUBBS, OF MOUNT PLEASANT, IOWA.

## WHEELED SCRAPER.

SPECIFICATION forming part of Letters Patent No. 657,321, dated September 4, 1900.

Application filed July 12, 1900. Serial No. 23,310. (No model.)

*To all whom it may concern:*

Be it known that I, JESSE STUBBS, a citizen of the United States, residing at Mount Pleasant, in the county of Henry and State of Iowa, have invented certain new and useful Improvements in Wheeled Scrapers, of which the following is a specification.

My invention relates to self-loading carts or scoops of the type familiarly known in the art as "wheeled scrapers," in which an invertible scoop is suspended from an axle between a pair of transportation-wheels and is provided with mechanism for lowering the same to a "scooping" or loading position for subsequently raising and locking the same in a substantially-horizontal or "carrying" position and for finally tilting or partially inverting the same to "dump" the load. Heretofore in scrapers of this type, so far as I am aware, the draft of the team has been applied at a point on the scoop forward of and usually a little below the level of the axle, and a common fault in the practical operation of such scrapers has been the difficulty and the onerous labor imposed upon both the team and the operator in dumping or unloading them. Furthermore, in the wheeled scrapers now in use it is nearly impossible to dump the load upon level ground, a slanting dump or incline being required down which to throw it, and so onerous is the labor involved in the unloading operation that the combined strength of two men is often found necessary. The demand, therefore, among manufacturers and users of this type of scraper for many years has been for a construction that would lighten the labor of both the operator and the team in unloading and render the latter operation as simple and easy of accomplishment as the operations of loading and carrying.

The object of my present invention, therefore, is to produce a scraper of this type in which not only will the labor of dumping or unloading heretofore performed chiefly by the operator be thrown upon the team, but the draft will be so applied as to greatly increase the mechanical advantage under which the power of the team is expended in getting rid of the load. This novel and desirable result I have secured by a few comparatively-simple changes in the mechanism

of the wheeled scrapers now in use, the principal and most important of which consists in changing the position of the application of the draft from a point forward of or below the axle to a point well above the axle, whereby, regarding the scoop during unloading as a lever of the third class, not only is the arm of the power greatly increased relatively to the arm of resistance over the scrapers now in use, but the angle formed by the arms of power and resistance is likewise largely increased, thereby further increasing the mechanical advantage.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a wheeled scraper embodying my improvements, one wheel being removed to more clearly show the mechanism; and Fig. 2 is a side elevation of the scraper as it appears in the dumping or unloading position.

Similar numerals of reference refer to similar parts throughout both views.

1 represents the scraper-box or scoop in the usual form and provided with the rearwardly-extending side handles 2 2.

3 represents the transportation-wheels, turning on the spindles 4 of an arched axle 5. Rigidly secured to the rectangular bends of the axle 5 are the parallel arms or prongs 6 6 of a forked operating-lever 7, which extends rearwardly of the scoop and constitutes the means for lowering and raising the scoop in the loading operation. At 8 8 I show the sides of the scoop as extended vertically to a point well above the level of the axle, my preferred means of so extending the sides of the scoop consisting of a pair of circle-irons formed integral with or secured to the sides of the scoop approximately centrally thereof and directly opposite each other and straddling the axle, as shown. The forwardly-projecting ends of the arms 6 6 of the operating-lever are pivotally connected, as at 9 9, to the said circle-irons 8 8, such connections constituting the means whereby the scoop is suspended from the arched axle 5.

10 designates the usual tongue of the scraper, secured at its base in a cross-head 11 and having attached thereto the hounds or draft-bars 12 12, which latter at their rear ends are preferably curved upwardly, as



shown, and are pivotally secured at 13 13 in the tops of the circle-irons, directly over and above the arched axle 5. This manner of securing the draft-bars to the scraper-body is of the essence of my invention, as will be more fully disclosed later in the description of the operation.

14 14 are a pair of braces to reinforce the draft-bars 12 12, being bolted to the latter at 15 and secured at or near their other ends on the pivot-bolts 13 13.

By reason of the fact that the draft-bars engage the scraper-box or scoop at such an elevated position (the tops of the circle-irons) it of course becomes necessary to provide another and lower means of engagement between said parts in order to effect the loading operation and to prevent the scoop from turning over while filling. To this end I pivot at 16 16 on the draft-bars 12 a pair of lever-hooks 17 17, the lower hooked ends of which are adapted to engage and disengage a pair of pins or lugs 18, secured in the sides of the scoop, near the forward ends thereof. These lever-hooks 17 17 are connected together, so as to operate in unison, by means of a rod 19, journaled at 20 20 on the cross-head 11 and having its upwardly-bent ends 21 21 connected through links 22 22 to the upper ends of said lever-hooks 17 17. When so connected, the lever-hooks may be caused to simultaneously engage and disengage the pins 18 at will by operating a lever 23, which is pivoted at 24 to the upwardly and rearwardly extending end of one of the braces 14 and is operatively connected to one of the lever-hooks 17 by means of a connecting-rod 25.

In the operating-lever 7 is pivoted a pendant hook 26, which during certain operations of the scraper is adapted to engage a lug or catch 27 on the rear wall of the scoop, and on the upper face of the cross-head 11 is secured an upwardly and rearwardly extending spring-hook 28, which when the scoop is in the dumping position, as shown in Fig. 2, is adapted to engage a similar lug or catch 29, also on the rear wall of the scoop, to prevent the latter from falling back before its contents are entirely discharged.

To the outer face of one of the circle-irons 8 may be bolted or otherwise secured a stop-pawl or equivalent device 30, which when the scoop is partially inverted, as shown in Fig. 2, engages the upper edge of the brace 14 or the draft-bar 12 to limit such rotary movement of the scoop.

Having thus described the mechanism of my improved scraper, I will now briefly set forth its mode of operation, calling attention particularly to the improved results secured by and consequent upon my novel mode of applying the draft of the team to the scraper.

When the scraper is to be loaded, the hook 26 is released from the catch 27, as shown in Fig. 1, and the lever 23 is drawn back, thus causing the lever-hooks 17 to engage the pins 18. The rearwardly-extending operating-le-

ver 7 is then raised by the operator, which has the effect of rocking the arched axle 5 on its spindles 4 and lowering the scoop 1 into contact with the ground. The rear of the scoop is then elevated more or less by the handles 2 2, so as to cause its front cutting edge or point to take into the ground, and then by starting up the team a load of dirt is scooped up greater or less in amount, according to the angular poise of the scoop relatively to the ground during the scooping or loading operation. When the scraper has been loaded, the operator then depresses the operating-lever 7 until the hook 26 engages its catch 27, whereby the loaded scoop is raised entirely free from the ground and, being suspended from its rear, as well as from both sides, is thus securely held against all danger of rocking or spilling. In this condition the load is drawn by the team to the place where it is desired to deposit the same, and having arrived there the operator pushes forward the lever 23, thus disengaging the lever-hooks 17 from the pins 18. By reason of the fact that the entire draft is then from the tops of the circle-irons the continued forward movement of the team causes the front edge of the scoop to drop and take into the ground, whereupon the continued application of the draft to the tops of the circle-irons causes the scoop to turn over on its front edge as a pivot until it assumes the position shown in Fig. 2, whereupon the spring-hook 28 may take into its catch 29 and prevent any tendency of the scoop to rock back to horizontal position.

In scrapers of this class, so far as I am aware, the draft-bars have always been secured to the sides of the scoop substantially in line with or below the level of the axle. As a result of such an arrangement the power of the team to invert the scoop during unloading was applied at an enormous disadvantage mechanically, both by reason of the very short leverage obtained and also because of the acuteness of the angle between the lines of power and of resistance. In such an arrangement the help of the team in unloading counted for very little, and the labor was almost entirely thrown upon the operator, the lifting effort of two strong men on the handles 2 2 often being required to get the scoop over and the load discharged. My arrangement, on the other hand, entirely obviates this fault. By pivoting the draft-bars to the sides of the scoop at a point well above the axle, as at the tops of the circle-irons, I enormously increase the mechanical advantage at which the power of the team is exerted in unloading, because, in the first place, the arm of the power is increased to nearly or quite equal the arm of resistance, and, in the second place, the angle between the lines of power and of resistance is much less acute in my arrangement than in those of the prior art. The result is that not only is far less effort required of the team in unloading than heretofore, thus saving wear and tear on the



latter, but the necessity for the application of lifting power on the rear of the scoop is practically entirely dispensed with and a boy can now do the work formerly requiring the time and strength of two men.

Certain minor features of construction hereinabove described may be omitted, if desired—as, for instance, the braces 14 14 may be dispensed with where the draft-bars 12 12 are made of sufficient weight and strength, in which case the lever 23 would be pivoted directly on one of the pivot-bolts 13 13. The spring-hook 28 is not absolutely necessary, as my peculiar method of pivoting the draft-bars and the weight of the operating parts forward of the axle will normally tend to keep the inverted scoop in the position shown in Fig. 2. Minor modifications may be made in other parts of the mechanism also, so long as the leading feature of my invention is preserved, which consists in the pivotal connection of the draft-bars to the sides of the scoop at a point well above the axle from which the scoop is suspended.

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

1. In a wheeled scraper, the combination with the axle and the scoop supported there- by, of a pair of draft-bars pivotally connected to the sides of said scoop above the level of the axle, substantially as described.

2. In a wheeled scraper, the combination with the axle and the scoop supported there- by, of a pair of draft-bars pivotally connected to the sides of said scoop above the level of the axle, and means for detachably connect- ing said draft-bars to the lower front end of the scoop, substantially as described.

3. In a wheeled scraper, the combination with the axle and the scoop suspended there- from, said scoop having a pair of vertical ex- tensions on its opposite sides rising above the axle, of a pair of draft-bars pivotally secured in said vertical extensions at or near their up- per ends, substantially as described.

4. In a wheeled scraper, the combination with the axle and the scoop suspended there- from, said scoop having a pair of vertical ex- tensions on its opposite sides rising above the axle, of a pair of draft-bars pivotally secured in said vertical extensions at or near their

upper ends, and detachable hooks pivoted to the draft-bars to engage the scoop near its front end during the loading operation, sub- stantially as described.

5. In a wheeled scraper, the combination with the axle and the scoop suspended there- from, of a pair of circle-irons secured in the opposite sides of the scoop and straddling the axle, and a pair of draft-bars pivotally se- cured in said circle-irons above the axle, sub- stantially as described.

6. In a wheeled scraper, the combination with the axle and the scoop suspended there- from, of a pair of circle-irons secured in the opposite sides of the scoop and straddling the axle, a pair of draft-bars pivotally secured in the tops of said circle-irons, a pair of con- nected lever-hooks pivoted in the draft-bars and adapted to engage and disengage projec- tions on the sides of the scoop, and means for operating said lever-hooks, substantially as described.

7. In a wheeled scraper the combination with the arched axle, of an operating-lever secured to the rectangular bends of the axle, a scoop pivotally suspended from the paral- lel arms of said operating-lever, a pair of cir- cle-irons secured in the opposite sides of said scoop and straddling the axle, and a pair of draft-bars having upwardly-curved ends piv- otally secured in the tops of said circle-irons, substantially as described.

8. In a wheeled scraper, the combination with the arched axle, of an operating-lever secured to the rectangular bends of the axle, a scoop pivotally suspended from the paral- lel arms of said operating-lever, a pair of cir- cle-irons secured in the opposite sides of said scoop and straddling the axle, a pair of draft- bars pivotally secured in the tops of said cir- cle-irons, means for applying the draft from the draft-bars to the lower front end of the scoop during the loading operation, and means for securing the scoop in a substantially-hori- zontal position during the carrying operation, substantially as described.

Signed at Chicago, Illinois, this 7th day of July, 1900.

JESSE STUBBS.

Witnesses:

SAMUEL N. POND,  
GEORGE E. HALEY.