

G. J. WEBER.
Wheeled-Scraper.

No. 216,588.

Patented June 17, 1879.

Fig. 1.

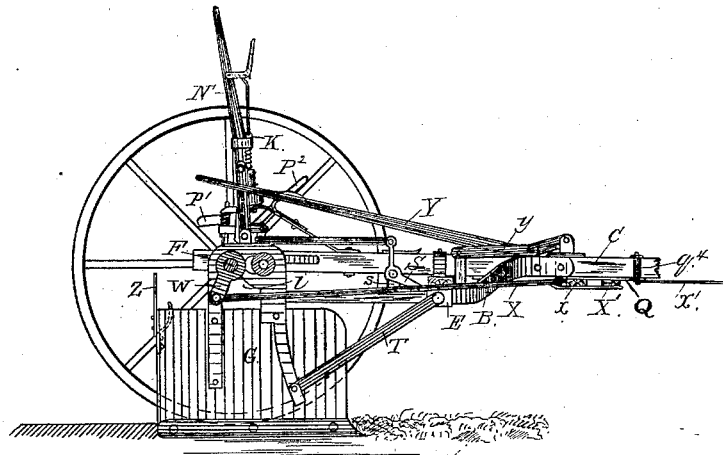
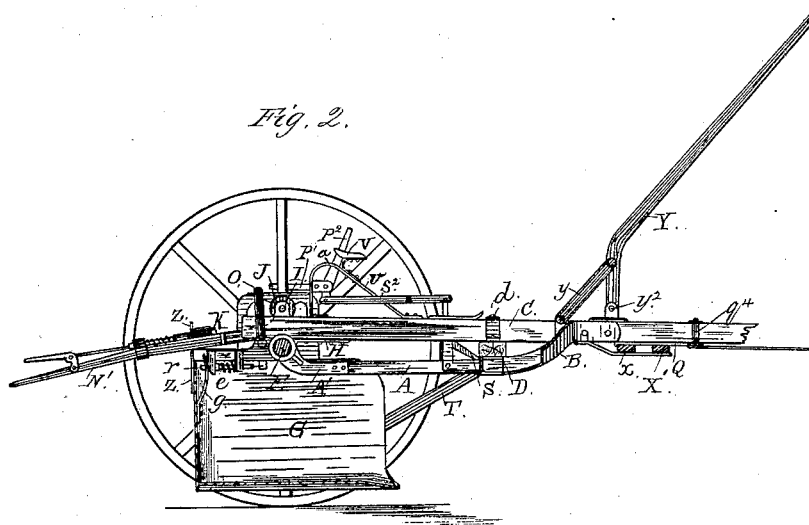


Fig. 2.



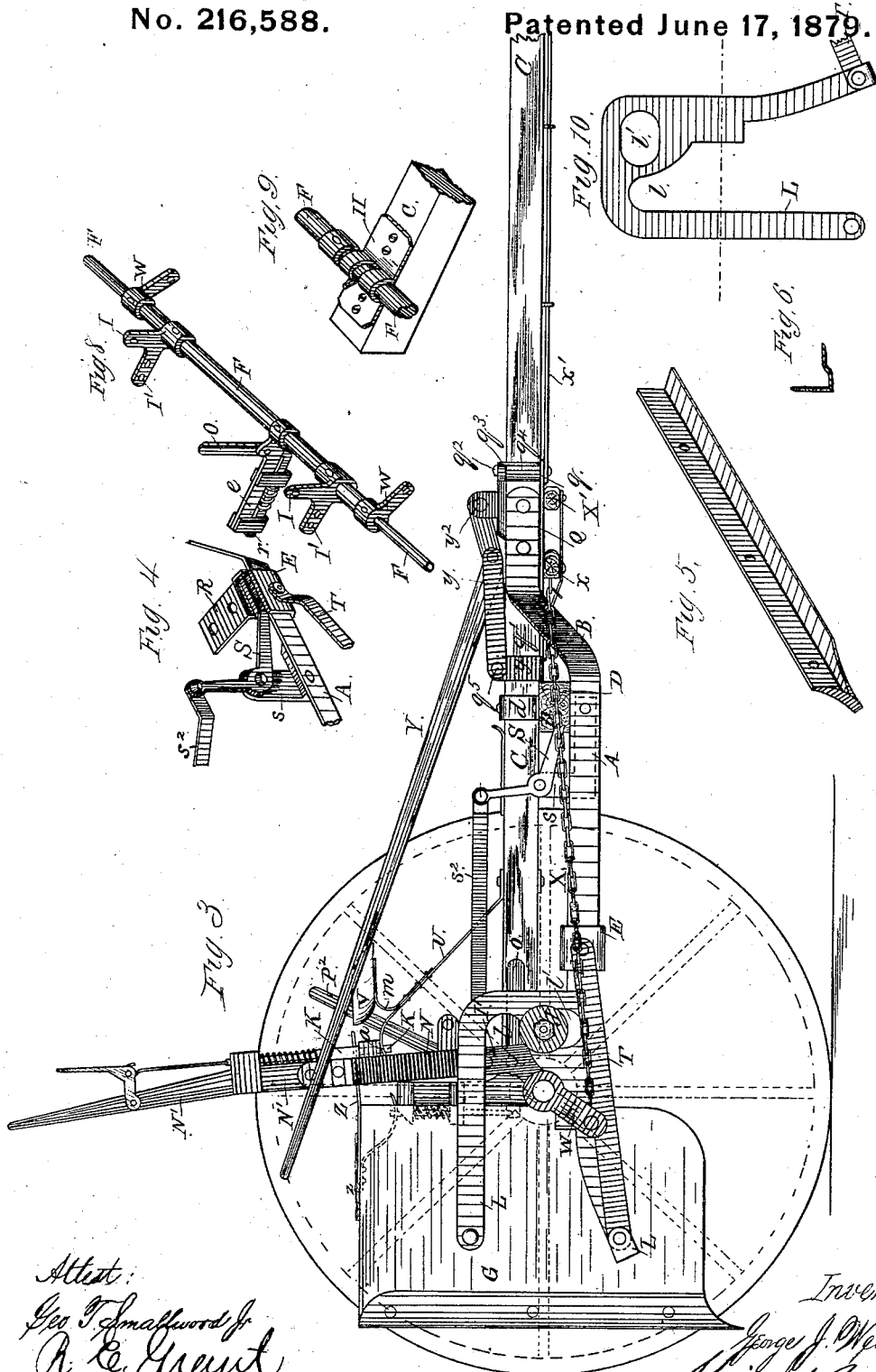
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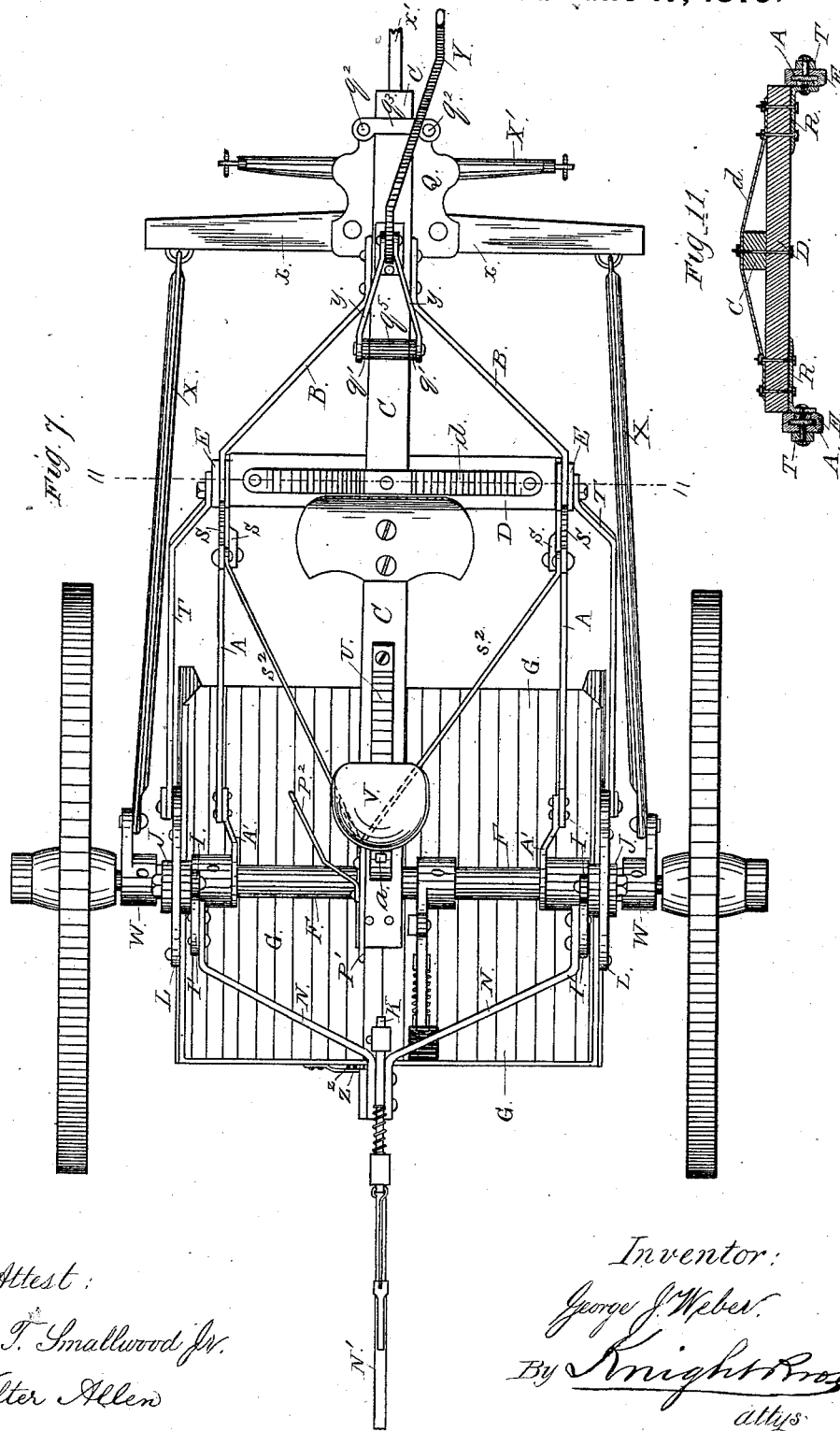
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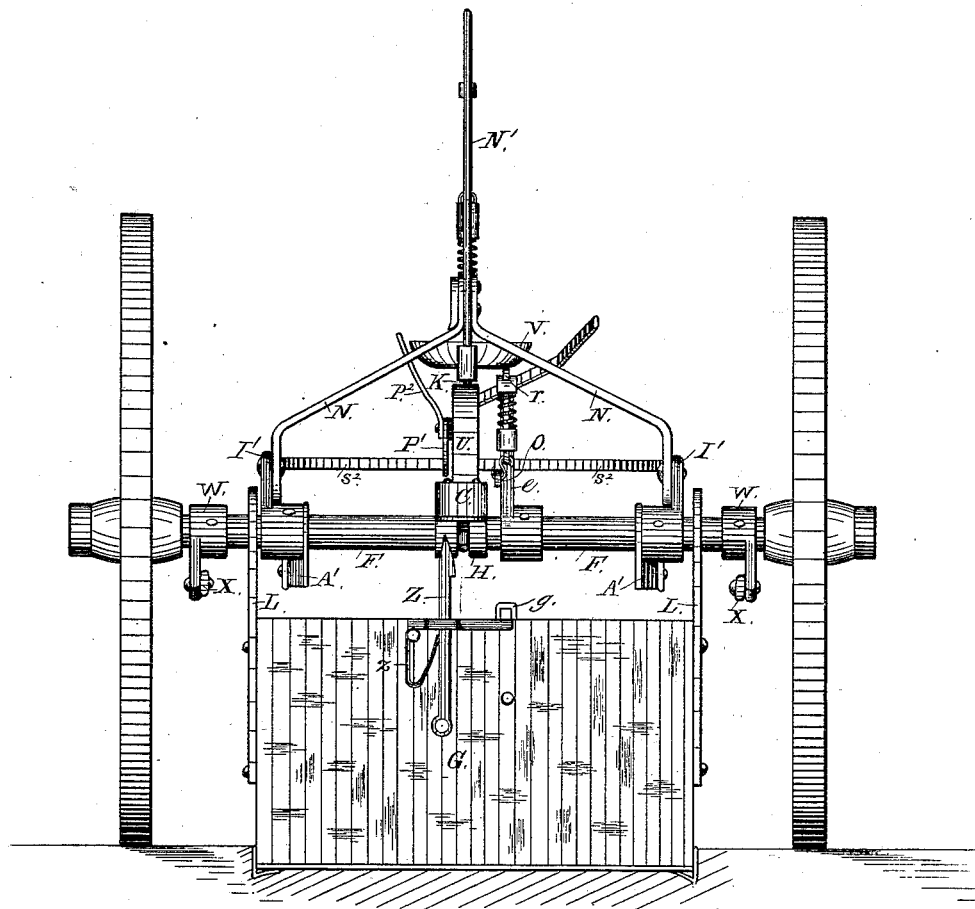
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Fig. 12.



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UNITED STATES PATENT OFFICE.

GEORGE J. WEBER, OF BOONVILLE, MISSOURI.

IMPROVEMENT IN WHEELED SCRAPERS.

Specification forming part of Letters Patent No. **216,588**, dated June 17, 1879; application filed September 5, 1878.

To all whom it may concern:

Be it known that I, GEORGE J. WEBER, of Boonville, in the county of Cooper and State of Missouri, have invented certain new and useful Improvements in Wheeled Scrapers, of which the following is a specification.

Parts of my improvements are applicable to either riding or walking scrapers; and I shall describe the complete implement as adapted to be used and manipulated in either manner.

It is constructed with a round axle, on which the carrying-wheels turn freely; and to said axle are securely bolted or riveted two pairs of crank-arms, projecting nearly at right angles to each other. To one pair of arms the scoop is hung. The other pair are connected by rods to a draft-beam sliding on the tongue, so as to impart a forced rotation to the axle to elevate the loaded scoop. This movement is prevented while the scoop is filling by means of a toggle-joint locking the aforesaid draft-beam to the tongue, which extends back to the axle, and is provided with a box, in which the axle rotates.

While the scoop is filling the draft is applied through oblique draft-bars connected to hangers attached to the scoop and to slides working on guide-bars connected to the tongue and axle, said slides being held by pawls when the scoop is to be braced in its horizontal position for filling or for carrying its load, and released when the scoop is to be allowed to turn for dumping or for turning it up into position for transportation.

The hangers by which the scoop is suspended from the axle are firmly riveted to the sides of the scoop and extended upward in the form of ears with L-shaped openings, to allow the play of the scoop relatively to the axle in rising, falling, and turning; also with horizontal slots, which receive rollers mounted in the ends of the crank-arms, from which the scoop is suspended.

For supporting the back of the scoop while carrying a load, or for turning it up, the back of the scoop is connected at will by a spring-catch or bolt with an arm or lever projecting rigidly from the axle, so that the turning motion may be communicated to the scoop when required for dumping or inversion.

The scoop is provided with runners of pecu-

liar construction firmly riveted to each corner, and approximating in form and function to the share and land-side of a plow, as herein-after described.

The front of the scraper is formed of a cutting-edge of steel, which may be removed when worn.

In order that my invention may be more clearly understood, I will proceed to describe it with reference to the drawings, in which—

Figure 1 is a side elevation, with one wheel removed, showing the machine as adjusted for filling. Fig. 2 is a vertical longitudinal section, showing the scoop or box elevated in position for carrying the load. Fig. 3 is a side elevation on a larger scale, showing the scoop or box turned up, as when the machine is being transported from place to place. Fig. 4 is a perspective view of a portion of one of the guide-bars with its attaching-bracket, showing the slide working on said guide-bar and the pawl for fastening the same. Fig. 5 is a perspective view of one of the scoop-runners. Fig. 6 is a transverse section of the same. Fig. 7 is a plan of the machine in position for carrying the load. Fig. 8 is a perspective view of the axle, showing the arms arranged at right angles to each other. Fig. 9 is an under-side view of a portion of the axle and tongue, exhibiting their mode of connection. Fig. 10 is an elevation of one of the ears detached. Fig. 11 is a vertical transverse section on the line 11 11, Fig. 7. Fig. 12 is a rear view.

In constructing the scraper-frame, the guide-bars A A and braces B B are formed in one piece of metal. The cross-bar D is secured in place by a bolt passing through it and the tongue C, and through a truss-bar, *d*, placed over said tongue and bolted at its ends, the bolts passing through the cross-bar D and the iron brackets R beneath said cross-bar, to which the guide-bars A A are fastened, making the frame of the machine strong and durable.

The guide-bars and braces are fastened at their front end by bolts passing through them and the tongue, and at cross-bar D by bolting to brackets R, said brackets being bolted to the cross-bar D.

E E are slides working on the guide-bars A

A and connected to draft-bars T T, the rear ends of which are bolted to the U-shaped legs of hangers L L, riveted to the sides of the box or scoop G, and extending upward in the form of ears, having L-shaped openings l , to receive the axle F and permit the vertical and horizontal movement of the scoop thereon, and elliptic slots l' , which receive sheaves J, located on arms I, secured on the axle F, by which the scoop is raised and lowered, as hereinafter described.

On the guide-bar A, in rear of the bracket R, is a standard, s , formed to support the pawl S. Said pawl is for the purpose of holding the slides E E in place until it is desired to dump the load.

The rear ends of the bars A A are left unaltered in size and shape, to permit the slides E E to be taken off without disturbing any other part, and are fastened to hangers A', that encircle the axle.

The arms I I have a projection, I' , on them for receiving the double lever N, which converges at the back of the box and terminates in a bar, N' .

The lever N N' is used for lifting the box out of the earth, lowering it, and dumping the load from the same. When the box is to be raised from the ground the lever N is drawn down until engaged by a catch, Z, located at the back of the scoop, and thrown into lock with said lever by a spring, z . The effect of this is to secure the box in its elevated position near the axle.

On the top of tongue is bolted a rack, U, which forms a rest for receiving the weight of the box and lever N when the bolt K is thrown into the opening a on top of said rack. On the side of said rack is secured a double lever, $P^1 P^2$, from which two connecting-bars, s^2 , extend to the pawls S. On rack U is also fastened the spring for supporting the seat V.

In order to assist the operator in lifting the box when loaded, I apply the power of the team on the two arms W W, which are fastened to the axle by rivets passing through them and the axle in the same manner as the arms I I.

In front and under the tongue is a shoe, Q, provided at its ends with guides $q q^1$, which encircle and slide on the tongue, the front guides being formed by bolts q^2 passing through a plate, q^3 , on top and through sleeves q^4 , which encircle the bolts q^2 and form bearings for the plates q^3 .

In order to take up any lost motion it is only necessary to shorten the sleeves and tighten up bolts in both ends.

The rear guides, q^1 , run up the sides and above the tongue. On top of tongue and between the rear guides, q^1 , is a roller, q^5 , for relieving friction, said roller turning on a bolt passing through the ends of straps $y y$, that form, in connection with the lever Y, a toggle-joint, employed to hold the scoop firmly in position while filling.

On the under side of shoe Q is bolted a cross-beam, x , and said shoe has flanges to secure the beam in place firmly. The double-tree X' and draft-rod x' are also fastened to the said shoe; the draft-rod x' being for attachment of the leading team.

The toggle-joint lever Y is secured to its fulcrum y^2 by a bolt passing through said fulcrum and lever, said fulcrum being secured to tongue by two bolts.

The ends of the cross-beam x are connected to the ends of the axle-arms W W by draw-bars X X or by chains, the latter being preferred for some work.

Fig. 1 shows the implement adjusted for filling the depression of the lever Y, and consequent straightening of the toggle-joint $y y^2$, locking the draft-shoe Q into its rearmost position relatively to the tongue, and causing the axle-arms W, which are connected to said shoe by rods or chains X and cross-beam x , to assume the backward position shown in said Fig. 1. At the same time the elevation of the forked lever N N', attached to arms I' , by turning the axle and throwing the scoop-carrying arms I into horizontal position, lowers the scoop relatively to the wheels, so as to permit it to enter the ground as required.

When the scoop is filled and it is desired to raise it into carrying position, the lever N' is unlocked, to allow it to move back and downward. The toggle-lever Y is at the same time raised slightly; to throw the toggle $y y^2$ out of line, permitting the shoe Q to slide forward on the tongue, so that the draft of the team, transmitted through the bar x and connecting rods or chains X to the arms W, turns the axle forcibly and lifts the scoop clear of the ground. This position of the scoop and lever is shown in Fig. 2; but the section does not exhibit either of the arms W. The back of the scoop is now locked to the axle by the catches $r z$, (either or both,) in readiness for dumping.

When it is desired to dump the load the pawls S are raised by a forward movement of the lever $P^1 P^2$ to release the slides E. The scoop is then tipped slightly by the operator, if he is on the ground, lifting on the lever N', or, if he is seated, drawing back the lever Y, which, through the medium of the rods X, turns the axle till the point or blade of the scoop enters the ground, when the forward movement of the team completes the dumping, the draft being now applied to the upper part of the hangers instead of to the draw-bars T by means of the rods X and the axle F, the latter bearing against the upper portions of the front legs of the hangers. A further upward movement of the lever N' then raises and locks the scoop in the position shown in Fig. 3, in readiness for transportation, the bolt K engaging in the hole a .

The catch Z is specially used when the operator walks. For a riding-scraper I provide the rigid arm e and the lever O, fulcrumed thereon, and connected with a spring-bolt, r , which en-

gages with a catch, *g*, riveted to the back of the scraper. The parts to be manipulated are thus placed within reach of the seated driver.

The catch *Z* may be placed out of use by permanently disconnecting or slipping out its spring *z*, and allowing it to lie on the face of the catch.

The scraper may be manipulated from the ground in the following manner: To lower the scoop into position for filling, the catch *Z* is thrown out and the lever *N N'* lifted until its bolt catches in the rack *U*. For lifting the load, the toggle-lever *Y* is lifted slightly, the bolt of lever *N N'* retracted, and the lever *N'* drawn back and down until held by the catch *Z*. The load is then ready for transportation. To dump the load, the pawls *S S* are disengaged, as before described, and the back of the box raised by means of the lever *N'* until the front of the scraper strikes the ground. The dumping is then effected by the force of the team, and a continued upward movement of the lever *N'* raises and fixes the empty box in position for transportation.

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

1. The straight axle provided with two pairs of arms, *I I* and *W W*, substantially as and for the purpose set forth.

2. The hangers *L L*, fastened to the sides of the scoop and slotted, as described, for the reception of the axle *F*, and elevating-sheaves *J*, as set forth.

3. The combination of the axle *F*, elevating-arms *I I*, sheaves *J*, hangers *L L*, and scoop *G*, substantially as and for the purpose set forth.

4. The tongue *C*, extending back beyond the axle, and connected thereto by a box slot-

ted to receive a stud projecting from the axle, so as to permit a limited rotary motion of the latter, while preventing lateral movement of the tongue.

5. The combination of the tongue *C*, cross-bar *D*, brackets *R*, braces *B B*, bars *A A*, and axle *F*, as and for the purpose set forth.

6. The guide-bars *A A*, slides *E E*, attached draft-bars *T T*, hangers *L*, and scoop *G*, in combination with the pawls *S*, actuated by a lever, *P¹ P²*, to detain or release the slides, as required.

7. The toggle-joint formed of the lever *Y* and links *y y*, connected to the tongue and the sliding shoe on the draft-beam, as described, for the purpose of locking said draft-beam to the tongue while the scoop is filling, and permitting it to move when it is desired to raise the load by the power of the team, as set forth.

8. The shoe *Q*, provided with guides *q q¹* at its ends encircling the tongue, in combination with the roller *q⁵* and draft-rod *x'*.

9. The combination of the toggle-joint and lever *Y y y*, tongue *C*, shoe *Q*, scoop *G*, axle *F*, connecting-rods *X X T T*, slides *E E*, and pawls *S S*, to facilitate the dumping of the load by the seated driver, as explained.

10. The scoop-runner formed of a vertical and a horizontal flange, the latter having a downwardly-projecting sole, and the united flanges terminating in front in a share-like point, forked for the reception of the scraper-blade, said runner being riveted by its vertical flange to the side of the scoop, as described.

Witnesses:

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