

(No Model.)

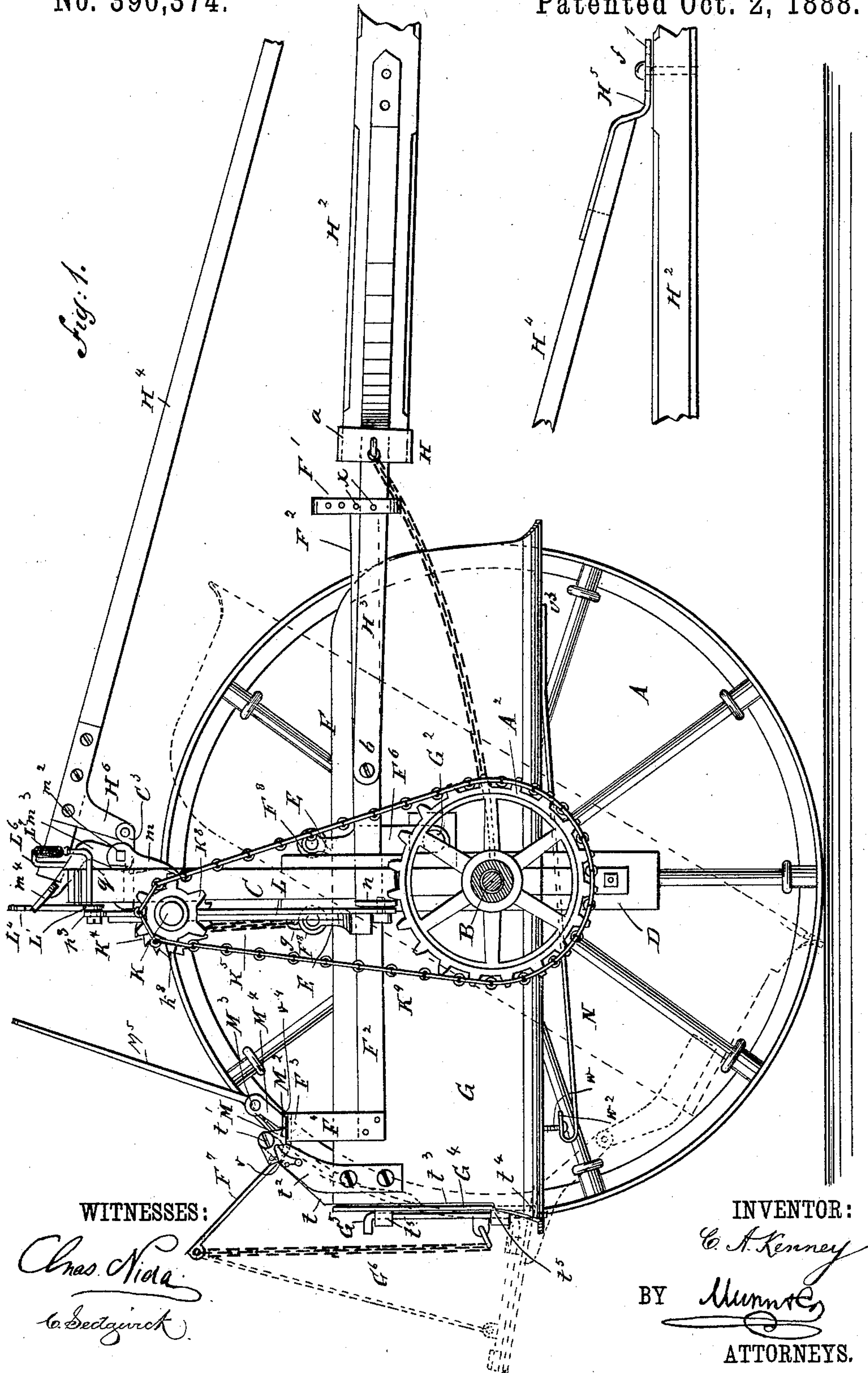
3 Sheets—Sheet 1.

C. A. KENNEY.

WHEELED DUMPING SCRAPER.

No. 390,374.

Patented Oct. 2, 1888.



(No Model.)

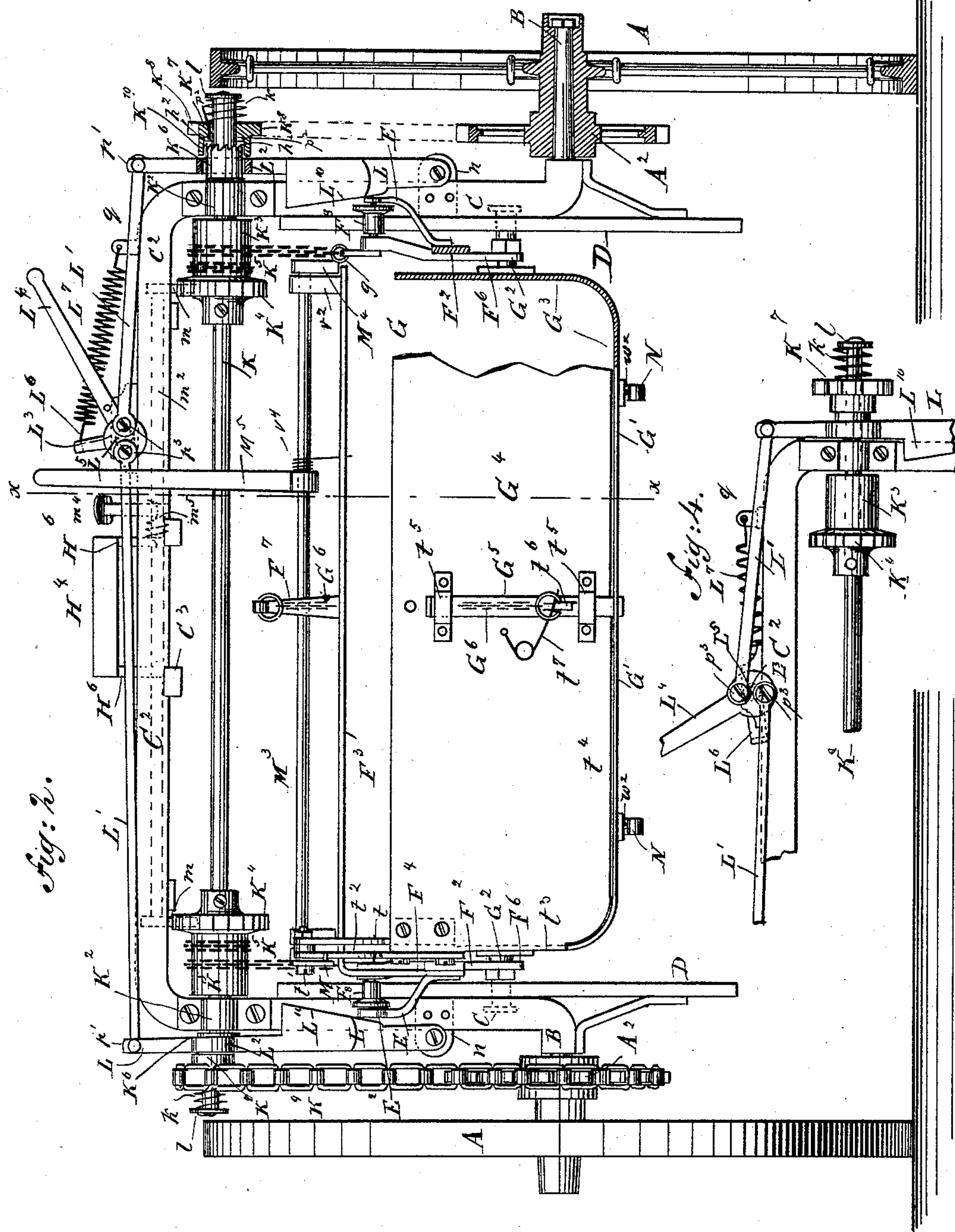
3 Sheets—Sheet 2.

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## WHEELED DUMPING SCRAPER.

No. 390,374.

Patented Oct. 2, 1888.



WITNESSES :

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

CYRUS A. KENNEY, OF NICHOLASVILLE, KENTUCKY.

## WHEELED DUMPING-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 390,374, dated October 2, 1888.

Application filed November 8, 1887. Serial No. 254,603. (No model.)

*To all whom it may concern:*

Be it known that I, CYRUS A. KENNEY, of Nicholasville, in the county of Jessamine and State of Kentucky, have invented a new and  
5 Improved Wheeled Dumping-Scraper, of which the following is a full, clear, and exact description.

The present invention relates to a scoop or scraper which is supported on wheels, and is  
10 adapted to be lowered to present its scooping-edge to the ground for filling, for being raised to a greater or less height, and to be dumped backwardly; and it consists in a combination of the mechanisms and of the constructions  
15 and combination of parts thereof, substantially as will hereinafter more fully appear, and be pointed out in the claims.

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

Figure 1 is a side elevation of the wheeled scoop, showing the scoop-body as raised with its rear end closed for carrying the load, and  
25 by dotted lines its position for dumping, with the tail-board or rear gate as held in its opened position. Fig. 2 is a rear elevation of the same, with parts at one side broken away the better to illustrate the construction of the scoop-elevating drum-shaft clutching mechanism, the  
30 clutches thereof being shown as disengaged. Fig. 3 is a central longitudinal section through the same on line *xx* of Fig. 2, but with the scraper-body as dropped into its position for scooping; and Fig. 4, sheet 2, is a view in rear  
35 elevation illustrating the changed position of some of the parts for shifting the clutching mechanism.

The wheels A A are mounted on the outwardly-projecting axles B at the lower end of  
40 standards O C of an arch-frame formed by said standards and a cross-bar, C<sup>2</sup>, and said standards are provided on their inner sides with flanges or ways D, upon which flanged rollers  
45 F<sup>3</sup>, carried by the guiding and embracing arms or clasps E of a supporting-frame, F, run, said supporting-frame consisting of side bars, F<sup>2</sup>, and a cross-brace, F<sup>3</sup>, held above the horizontal line of the side bars, F<sup>2</sup>, by uprights F<sup>4</sup>, said  
50 side bars, F<sup>2</sup>, having extending downwardly from an intermediate portion at each side

thereof rigid arms F<sup>6</sup>, to which the scoop or scraper-body G is pivotally hung forward of the center, as by its trunnions G<sup>2</sup>, passing loosely  
through said arms F<sup>6</sup>, and provided with suitable retaining shoulders or collars, said scoop-  
55 body consisting of bottom G<sup>1</sup>, with forward edge suitably beveled for taking to the ground, sides G<sup>3</sup>, formed integral with the bottom, and opening and closing rear gate or tail-board, G<sup>4</sup>; 60  
and from the ends of a cross-brace, H, of the tongue H<sup>2</sup> or thills are rearwardly-extending draft-bars H<sup>3</sup>, passing through vertical guiding-slots in vertical bars F<sup>7</sup>, extending from  
and above the side bars, F<sup>2</sup>, and pivoted at a  
65 point, *b*, of said scoop frame bars F<sup>2</sup> in advance of the central portion of the scoop-body, said bars H<sup>3</sup> continuing forward inwardly until they join and are secured to the tongue H<sup>2</sup>,  
and from a forward portion of the tongue to  
70 the central portion of the cross-bar C<sup>2</sup> of the axle-arch is extended a brace-plank, H<sup>4</sup>, secured at its forward end to said tongue by a headed screw or bolt, *f*, passing through a  
shoe, H<sup>5</sup>, of the brace-plank and to the said  
75 cross-bar C<sup>2</sup> by ear-pieces H<sup>6</sup>, pivoted to lugs C<sup>3</sup> of said cross-bar, and thus when the scoop-frame is suspended in either its raised or  
lowered position from parts on the axle-arch  
uprights, as hereinafter described, said up-  
80 rights are by said brace-plank always held substantially at right angles to the tongue.

A transverse drum-shaft, K, is horizontally supported in suitable journals, K<sup>2</sup>, of the axle-arch uprights, on which shaft the drums K<sup>3</sup>  
85 are keyed or otherwise secured, each drum being provided with a ratchet-wheel, K<sup>4</sup>, formed thereon, as shown, or secured thereto, and to each drum K<sup>3</sup> is fastened the end of a chain, K<sup>5</sup>, or other similar flexible connection, from  
90 the outer ends of which chains the scoop-frame F is hung at *g*. A pawl, *m*, is provided at each ratchet-wheel K<sup>4</sup>, keyed upon a common horizontal pawl-shaft, *m*<sup>2</sup>, rotatably supported  
on the front side of the axle-arch cross-bar C<sup>2</sup>,  
95 a radial lever-arm, *m*<sup>3</sup>, with rearwardly-extended handle *m*<sup>4</sup>, being provided for convenience in throwing said pawls out of engagement with their respective drum-ratchets, a  
coiled spring, *m*<sup>5</sup>, secured to a part of the  
100 pawl-shaft by one end and to a part of the axle-arch by its outer end, retaining said pawls



in their engagement with the ratchets  $K^4$  in a well-known manner. Near each end of the drum-shaft  $K$  is keyed a clutch-sleeve,  $K^6$ , with its clutch-teeth  $p$  toward the outer ends of said shaft, outside of which, playing loosely inwardly and outwardly on the shaft, are clutch-sleeves  $K^7$ , with clutch-teeth  $p^2$  toward the teeth of the clutches  $K^6$ , a spring,  $k$ , between the inner face of a flange,  $l$ , of the drum-shaft and the outer face of each sliding clutch-collar forcing said clutches  $K^7$  inwardly into engagement with the clutches  $K^6$ , except when forced outwardly, as will be explained hereinafter.

Each moving clutch-sleeve  $K^7$  is provided with sprockets  $K^8$ , driven by endless sprocket-chains  $K^9$  from a sprocket-wheel,  $A^2$ , on the hubs of wheels  $A$ .

There is pivoted to a projection,  $n$ , of each upright  $C$  a vertically-extending arm,  $L$ , having a strap or yoke,  $L^2$ , loosely embracing the fixed clutch collar  $K^6$  and continued upwardly therefrom, terminating in about the horizontal line of the top rear edge of cross-bar  $C^2$ , to the outer end,  $p'$ , of which connecting-rods  $L'$  are pivoted, said connecting-rods extending inwardly therefrom and pivoted at eccentric points, as at  $p^3$ , of a disk,  $L^3$ , centrally pivoted to the rear side of the cross-bar  $C^2$ , having an extended arm,  $L^4$ , for convenience in moving it, and its journal or pivot  $L^5$  has a radial or cranked arm,  $L^6$ , to the end of which one end of a spring,  $L^7$ , is secured, which by its other end is fastened to a projection,  $q$ , of cross-bar  $C^2$ , the turning of said disk  $L^3$  through the connecting-rods  $L'$  carrying the ends  $p'$  and yokes  $L^2$  of arms  $L$  inwardly out of bearing upon the overlying annular flange  $K^{10}$  of the moving clutch-collars  $K^7$ , permitting them, under the recoil of the spring  $k$ , to be thrown into engagement with the clutches  $K^6$ .

The vertical arms  $L$  are provided between their lower pivotal points and their yoke portions with inclined edges  $L^{10}$ , projecting inwardly in a vertical plane intersected by that of the outer end of a projection,  $E^2$ , on the scoop-frame guiding-clasp  $E$ , so that as the scoop-frame rises and forces the arms  $L$  outwardly the connecting-rods  $L'$  partially rotate the disk  $L^3$  sufficiently to carry the radial arm  $L^6$  off the dead-center. (Indicated in Fig. 4.) The reaction of the spring  $L^7$  then secures such a farther rotation of the disk and projection of the connecting-rods that the clutches  $K^7$  are forced outwardly against their springs and there maintained by the excess of pressure of said spring  $L^7$  over the clutch-springs  $k$ .

When the clutches  $K^7$  are placed in engagement with the drum-clutches by the turning of the lever-arm  $L^4$  therefor into the position shown in Fig. 4, to permit the clutches  $K^7$ , under the reaction of their springs  $k$ , to slide into such engagement to secure, under the rotation of the wheels through the sprocket-connections described, the rotation of the drum-shaft and the winding of chains and raising of scoop-frame and scoop, the said projections

$E^2$  of the rising scoop-frame  $F$  abut against said inclined edges  $L^{10}$  of the vertical lever-arms  $L$ , and said arms are thrown outwardly, their yoke portions forcing the movable clutches  $K^7$  outwardly against their springs  $k$ , and out of engagement with the clutches  $K^6$ , thus terminating the winding of chains  $K^5$  upon the drums and the raising of the scoop. Pressing downwardly on the outer end of the pawl-shaft arm  $m^4$  releases the pawls from their ratchets and leaves the drum-shaft free for the unwinding of the chains and descent of the scoop under its weight.

The rear gate,  $G^4$ , of the scoop body is hung by upwardly-extending arms  $t$  thereof, pivoted, as at  $t'$ , to the upper ends of arms  $t^2$ , extended above the scoop-sides  $G^3$  at the rear portions thereof, said gate by its ends  $t^3$  lying against the rear ends of said sides, its bottom edge,  $t^4$ , lying slightly in advance of the rear end of the scoop-bottom  $G^1$ , and it is provided with a bolt,  $G^5$ , playing through sockets  $t^5$ , secured on the gate, having a lug,  $t^6$ , against which a spring,  $t^7$ , secured by its one portion to the gate, bears by its free end to force said bolt downwardly to project its lower end through a hole or socket,  $t^8$ , in the rear end of the scoop-bottom; and a chain,  $G^6$ , by its lower end secured to the lug  $t^6$  of said bolt, and its upper end to an upwardly and outwardly extended arm,  $F^7$ , of the cross-bar  $F^3$ , serves, when the scoop-body is tipped backwardly on the trunnion  $G^2$ , to draw the bolt from the socket, and as the rear of the scoop tilts downwardly and inwardly, maintaining the lower end of the gate within the range of the chain, it is caused to swing upwardly from the pivotal point  $t'$  on the arms  $t^2$  of the body as the body swings downwardly, as will readily be understood on reference to Fig. 1, where such tilted positions are illustrated in dotted lines. The arms  $t^2$  of the scoop-body are provided with angular-shaped dogs  $M$ , pivoted thereto, against the inner arms,  $M^2$ , of which springs  $v$  bear to project the arms  $M^2$  of said dogs forward to rest upon the top side of the scoop frame cross-bar  $F^3$ , and through them the rear end of the body is supported; and a shaft,  $M^3$ , is hung above and parallel with said cross-bar  $F^3$  in lugs  $v^2$  thereof, having dogs  $M^4$  extending downwardly and rearwardly to lie near or against the arms  $M^2$  of the dogs  $M$  on the scoop-arms, a coiled spring,  $v^4$ , by one end secured to said dog-shaft and by its other end to the cross-bar, maintaining said dogs  $M^4$  to a bearing by their ends upon the cross-bar; but by partially rotating said shaft through its handle-lever  $M^5$  in a manner to swing the rear ends of said dogs outwardly and against the overlying and engaging ends of the dogs  $M$  of the body, the rear end of said body is released from its engagement with the cross-bar of the scoop-frame and will, from the manner of its hanging and under its load or its own weight, tip backwardly to dump.

$N$   $N$  represent shoes or runners upon the bottom of the scoop-body extending or inclin-



ing from their forward ends,  $v^3$ , which are substantially flush with the under surface of the scoop-body downwardly, their rear ends being somewhat below said bottom. These shoes  
5 or runners may be rigidly attached to the bottom, or adjustably attached, as shown, by securing their said forward ends,  $v^3$ , thereto, and forming their rear ends with an inward and returning bend,  $w^2$ , through a slot in which a  
10 headed pin,  $w$ , screwing in and out of the bottom, projects, by its end or head maintaining the rear ends of the runners outwardly, as desired.

In the operation of the wheeled scoop, with  
15 the scoop-body suspended in its uppermost position by the chains from the drums, held from unwinding by the pawls, as seen in Figs. 1 and 2, and it is desired to scrape and scoop dirt, &c., by pressing downwardly on the pawl-  
20 arm  $m^4$  the pawls are made to release the drum-ratchets, and said drums and their shafts are rotated under the unwinding of the chains supporting the scoop-frame, and from it the scoop-body, which descends to the ground, the  
25 inclining runners forcing the forward end of the scoop downward to take to the ground, too great a tip forward of the scoop being limited by the rear end of the body abutting against the cross-bar  $F^3$  of the scoop-frame; and when  
30 the tip of the scoop-body is adjusted by the runners for any depth of cut a pin should be passed through one of the holes  $x$  in the vertical guide-clasp bar  $F'$  of the scoop-frame, through which the draft-irons pass, above such  
35 draft-irons, in a manner to prevent the forward end of the scoop being forced too deep into the soil by the suction caused by the resistance on the cutting-edge, said cutting-edge being below the line of draft. In other words, the lower  
40 the draft-irons are confined by said pin the lower the line of draft is brought, and the lower the line of draft the less suction-power there is to draw the cutting-edge into the ground. Then as the carriage with the scoop  
45 moves forward the latter fills, and on throwing the lever-arm  $L^4$  of disk  $L^3$  over to draw the connecting-rods inward, and through them the sleeve surrounding the yoke of the arm  $L$  away from its bearing upon the overlying pro-  
50 jection  $L^{10}$  of the clutch-collar  $K^7$ , permitting said sprocketed clutch, under the action of its spring, to be thrown into engagement with the clutch  $K^6$ , which, causing the drum-shaft to rotate, winds up the chain and raises the  
55 scoop-body until such time as the clutches  $K^7$  are disengaged from the clutches  $K^6$ , which may be done at any time during the raising of the scoop by throwing the lever  $L^4$  back into its normal position shown, thus enabling it to  
60 be carried at any height, or when the scoop-frame rises to the height at which it is usual to carry the same, by its projection  $F^2$  abutting against the incline  $L^{10}$  on arm  $L$ , the clutches  $K^7$  are then automatically thrown out  
65 of engagement with the drum-shaft clutches and the winding discontinued. If desired, the inclined edge portion  $L^{10}$  of lever  $L$  may be

adapted for being adjustably secured thereon, whereby an automatic throwing off of the parts described for securing the winding up  
70 of the chains may be secured when the scoop-body has reached any desired height.

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

1. The combination, with a cranked axle  
and its supporting-wheels, of a scoop-supporting frame held to slide on the standards of said  
axle, a scoop pivoted in said frame, and hoisting devices for said frame actuated from the  
80 wheels, and means for throwing said hoisting devices into and out of action, substantially as set forth.

2. The combination, with a cranked axle  
and its wheels, a scoop-supporting frame held  
85 to slide vertically on the standards of the axle, a scoop pivoted in said frame, and mechanism, substantially as described, for raising and lowering said scoop, of a forked draft-bar pivoted  
90 to the sides of the frame near the center and vertically adjustable at the forward end of said frame, substantially as set forth, whereby the downward draft of the cutting-edge of the scoop can be regulated, as described.

3. The combination, with the cranked axle  
95 and its wheels, a scoop-frame held to slide on the vertical standards of said axle, and a scoop pivoted in said frame, of a shaft journaled on said standard, chains attached to said shaft and to said scoop-frame, and retaining-pawls  
100 for said shaft, substantially as set forth.

4. The combination, with a cranked axle, its wheels, a scoop-frame held to slide on the standards of said axle, and a scoop pivoted in  
105 said frame, of a shaft journaled on said standards, chains extending from said shaft to the scoop-frame, a second shaft on said standards carrying pawls engaging ratchets on the chain-shaft, sprocket-wheels on the chain-shaft and on the wheels, and chains connecting said  
110 sprocket-wheels, substantially as set forth.

5. The combination, with a cranked axle, its wheels, a scoop-frame held to slide on the standards of said axle and a scoop pivoted in  
115 said frame, of a shaft journaled on said standards, chains connecting said frame and shaft, ratchets on said shaft and retaining-pawls therefor, clutches on said shaft, sprocket-wheels loose on said shaft provided with clutch-teeth, sprocket-wheels on the axle-wheels,  
120 chains connecting said sprocket-wheels on the shaft and on the wheels, and levers for operating the clutches, substantially as set forth.

6. The combination, with a cranked axle, its wheels, a scoop frame held to slide on the  
125 standards of said axle and a scoop pivoted in said frame, of a shaft journaled on said standards, chains connecting said frame and shaft, ratchets on said shaft and retaining-pawls therefor, clutches on said shaft, sprocket-  
130 wheels loose on said shaft provided with clutch-teeth, sprocket-wheels on the axle-wheels, chains connecting said sprocket-wheels on the shaft and on the wheels, levers pivoted on the



axle-standards engaging the sprocket-wheels on the shaft and provided with inclines adjacent to the supporting frame, a disk provided with a handle pivoted on the cross-bar of the axle, and connecting-rods pivoted to the upper ends of the clutch-levers and eccentrically to said disk, substantially as set forth.

7. The combination, with a cranked axle, its wheels, a scoop-frame held to slide on the standards of the axle, and a scoop pivoted in said frame, of a shaft journaled on said standards, chains connecting said frame and shaft, ratchets on said shaft and pawls therefor, clutches on the shaft, sprocket-wheels on said shaft provided with clutch teeth, springs bearing on said wheels, sprocket-wheels on the axle and connecting-chains, levers pivoted on the axle-standards engaging the sprocket-wheels on the shaft and provided with inclines adjacent to the scoop-frame, a handled disk pivoted on the cross-bar of the axle, connecting-rods pivoted to the upper ends of the clutch-levers and eccentrically pivoted to said disk, and a spring attached at one end to the axle and at the other end to the disk, said spring being of greater strength than the springs bearing on the sprocket-wheels, substantially as set forth.

8. The combination, with the axle of a wheeled support, of a scoop-frame suspended therefrom, means, substantially as herein shown and described, for raising and lowering said frame, draft-irons attached to said frame and to the tongue of the wheeled support, a brace-bar between said tongue and axle, and a scoop body pivotally hung to said frame, substantially as shown and described.

9. The combination, with a wheeled support provided with an arched axle, of a scoop-frame suspended from said axle, means, substantially as herein shown and described, for raising and lowering said frame, draft-irons attached to said frame and to the tongue of the wheeled support, a brace bar between said tongue and said axle, and a scoop-body pivotally hung to said frame, substantially as shown and described.

10. The combination, with an axle provided with wheels, and a drum-shaft journaled on said axle, of a scoop-frame suspended by chains from said shaft, ratchet-wheels on said shaft, pawls on said axle engaging said ratchet-wheels, sprocketed wheels on said axle and drum-shaft, endless chains on said sprocketed wheels, a scoop-body pivotally hung to said frame, and draft-irons connected to said frame, substantially as shown and described, for the purposes herein set forth.

11. The combination, with an arched wheel-axle, comprising uprights provided with vertical ways, and a cross-bar connecting said uprights, and a drum-shaft journaled on said axle, of a scoop-frame suspended by chains from said shaft and sliding in said ways, sprocket-wheels on said axle, ratchet-wheels on said shaft, engaged by pawls on said axle, fixed and movable clutches on said shaft, said

movable clutches having sprockets thereon, chains connecting the sprockets on the shaft and the axle, a lever and connecting-rods mounted on said axle, arms connected to said rods and engaging said sliding clutches, a scoop-body pivotally hung to said frame, and draft-irons connected to said frame, substantially as shown and described, for the purposes herein set forth.

12. The combination, with a wheel-axle having a drum shaft journaled thereon, of a scoop-frame having an apertured guiding-slide and suspended by chains from said shaft, sprocket-wheels on said axle, endless chains on said sprocket-wheels, ratchet-wheels on said shaft engaged by pawls on said axle, fixed and movable clutches opposing each other on said shaft, a lever and connecting-rods mounted on said axle, arms connected to said rods and lying against said sliding clutches, a scoop-body pivotally hung to said frame, and draft irons connected to said frame and passing through said guiding-slide, substantially as shown and described, for the purposes herein set forth.

13. The combination, with a wheel-axle having a drum-shaft journaled thereon, of a scoop-frame suspended by chains from said shaft and sliding in vertical ways on said axle, sprocket-wheels on said axle, endless chains on said sprocket-wheels, ratchet-wheels on said shaft engaged by pawls on said axle, fixed and movable clutches opposing each other on said shaft, a lever and connecting-rods mounted on said axle, arms connected to said rods and lying against said sliding clutches, a scoop body pivotally hung to said frame, draft-irons connected to said frame, and a brace beam or tie pivotally connected to said axle and draft-irons, substantially as shown and described, for the purposes herein set forth.

14. The combination, with an axle having a drum-shaft journaled thereon, of a scoop-frame and its suspending-chains, said frame vertically guided in ways on said axle, sprocket-wheels, ratchet-wheels on said shaft engaged by pawls on said axle, fixed and movable clutches on said shaft, levers L, pivoted to the axle-standards C, and having a yoke, L<sup>2</sup>, connecting with the clutch K<sup>7</sup>, and provided with an incline projection, L<sup>10</sup>, and the connecting-rods L', secured to said levers, said rods connected with a spring-actuated disk, L<sup>3</sup>, provided with a lever, L<sup>4</sup>, whereby said clutches are engaged or disengaged, substantially as and for the purposes described.

15. The combination, with a frame, F<sup>2</sup> F<sup>3</sup>, mounted on a wheeled support, of a scoop-body pivotally hung thereon and provided with a rear end-gate, and dogs M, arranged and adapted for engagement with and disengagement from said frame, for the purposes herein set forth.

16. The combination, with a frame, F<sup>2</sup> F<sup>3</sup>, mounted on a wheeled support and provided with a pivoted dog, M<sup>4</sup>, having a lever-handle, M<sup>5</sup>, of a receptacle-body pivotally hung on said frame, provided with a rear end-gate, and



dogs M, arranged and adapted to engage and release the end of said body with and from said frame, for the purpose herein set forth.

17. The combination, with a frame, F<sup>2</sup> F<sup>3</sup>, mounted on a wheeled support and provided with a pivoted dog, M<sup>4</sup>, having a lever-handle, M<sup>5</sup>, and an arm, F<sup>7</sup>, of a receptacle-body pivotally hung on said frame, provided with a hinged rear gate, a socket, t<sup>8</sup>, in the bottom of said body, dogs M on said frame, a sliding bolt at the rear of said gate adapted to said socket, and a chain connecting said bolt and the arm F<sup>7</sup>, substantially as shown and described, for the purposes herein set forth.

18. The combination, with a frame, F<sup>2</sup> F<sup>3</sup>, mounted on a wheeled support and provided with pivoted spring-dogs M<sup>4</sup>, having a lever-handle, M<sup>5</sup>, and an arm, F<sup>7</sup>, of a receptacle-body pivotally hung on said frame, provided with a hinged rear gate, a socket, t<sup>8</sup>, in the bottom of said body, arms t, having spring-dogs M, a sliding bolt at the rear of said gate adapted to said socket, a spring, t<sup>7</sup>, acting on said bolt, and a chain connecting said bolt and the arm F<sup>7</sup>, substantially as shown and described, for the purpose herein set forth.

19. The combination, with an axle having a drum-shaft journaled thereon, of a scoop-frame sliding in vertical ways on said axle and provided with a pivoted dog, M<sup>4</sup>, and suspending-chains, sprocketed wheels on said shaft and axle, endless chains on said sprocketed wheels, ratchet-wheels on said shaft engaged by pawls on said axle, fixed clutches on said shaft, a lever and connecting-rods on said axle, arms connecting said rods and lying against said sliding clutches, a scooping-receptacle pivotally hung on said frame, provided with dogs M, and a hinged rear gate adapted to be engaged and disengaged with and from said receptacle, substantially as and for the purposes herein set forth.

20. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, spring-pawls m on said axle, a drum-shaft journaled on said axle provided with ratchet-wheels K<sup>4</sup>, fixed clutches K<sup>6</sup>, and sliding clutches K<sup>7</sup>, having sprockets K<sup>8</sup>, chains K<sup>9</sup>, connecting said sprockets, a lever-disk, L<sup>3</sup>, pivoted on said axle, and connecting-rods L', pivoted to said disk and bearing at their outer ends against said sliding clutches, of a scoop-body, and suspending-chains secured to said body and to said drum-shaft, substantially as shown and described.

21. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, spring-pawls m on said axle, a drum-shaft journaled on said axle and provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, shoulder l, spring k, and sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>, a chain, K<sup>9</sup>, connecting said sprockets, a lever-arm, L, pivoted to said axle and adapted to engage the sliding clutch, a lever-disk, L<sup>3</sup>, pivoted on the axle, and a rod, L', pivoted to said disk and lever, of a scoop-body, and suspending-chains

secured to said body and to said drum-shaft, substantially as shown and described.

22. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, a spring-pawl, m, mounted on said axle, a drum-shaft journaled on said axle provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>, a chain, K<sup>9</sup>, connecting said sprockets, and means, substantially as herein shown and described, for engaging and disengaging said clutches, of a scoop-frame sliding in vertical ways on said axle, suspending-chains secured thereto and to said drum-shaft, and a scoop-body pivotally hung to said frame, substantially as shown and described.

23. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, vertical ways D on said axle, a spring-pawl, m, on said axle, a drum-shaft journaled on said axle provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>, a chain, K<sup>9</sup>, connecting said sprockets, and means, substantially as herein shown and described, for engaging and disengaging said clutches, of a scoop-frame sliding in said ways D, suspending-chains secured to said frame and to said drum-shaft, and a scoop-body pivotally hung to said frame, substantially as shown and described.

24. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, vertical ways D in said axle, a spring-pawl, m, on said axle, a drum shaft journaled on said axle provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>, a chain, K<sup>9</sup>, connecting said sprockets, and means, substantially as herein shown and described, for engaging and disengaging said clutches, of a scoop-frame having flanged rollers F<sup>8</sup>, running in said ways D, and also having downwardly-projecting arms F<sup>6</sup>, suspending-chains secured to said frame and drum-shaft, and a scoop-body hung by its trunnions in said arms F<sup>6</sup>, substantially as shown and described.

25. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, and also provided with vertical ways D, a spring-pawl on said axle, a drum-shaft journaled on said axle provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>, a chain, K<sup>9</sup>, connecting said sprockets, a lever-disk, L<sup>3</sup>, pivoted on said axle, a rod, L, pivoted to said axle and adapted to engage said sliding clutch, and a rod, L', connecting said lever and disk, of a scoop-frame sliding in said vertical ways, suspending-chains secured to said frame and drum-shaft, and a scoop-body pivotally hung to said frame, substantially as shown and described.

26. The combination, with an axle provided with wheels A, having sprockets A<sup>2</sup>, a spring-pawl, m, on said axle, a drum shaft journaled on said axle and provided with a ratchet-wheel, K<sup>4</sup>, fixed clutch K<sup>6</sup>, shoulder l, spring k, and sliding clutch K<sup>7</sup>, having sprockets K<sup>8</sup>,



a chain,  $K^9$ , connecting said sprockets, a lever-arm,  $L$ , pivoted to said axle and engaging said sliding clutch, a lever-disk,  $L^3$ , pivoted on said axle and provided with a radial arm, 5 a spring between said arm and the axle, and rods  $L'$ , pivoted to said disk and lever-arm, of a scoop-frame sliding in vertical ways on said axle, suspending-chains secured to said frame and drum-shaft, and a scoop body pivotally 10 hung to said frame, substantially as shown and described.

27. The combination, with an axle provided with wheels  $A$ , having sprockets  $A^2$ , a spring-pawl,  $m$ , on said axle, a drum-shaft journaled 15 on said axle provided with a ratchet-wheel,  $K^4$ , fixed clutch  $K^6$ , shoulder  $l$ , spring  $k$ , sliding clutch  $K^7$ , having sprockets  $K^8$ , a chain,  $K^9$ , on said sprockets, a lever-arm pivoted to said axle and lying against said sliding clutch, 20 a lever-disk,  $L^3$ , pivoted on the axle, provided with a radial arm,  $L^6$ , a spring,  $L^7$ , connected to said arm and said axle, and rods pivotally connected to said disk and lever, of a scoop-frame sliding vertically on said axle, suspending-chains secured to said frame and drum-shaft, and a scoop-body pivotally hung to said 25 frame, substantially as shown and described.

28. The combination, with an axle provided with wheels  $A$ , having sprockets  $A^2$ , a spring-pawl,  $m$ , on said axle, a drum-shaft journaled 30 on said axle provided with a ratchet-wheel,  $K^4$ , fixed clutch  $K^6$ , shoulder  $l$ , spring  $k$ , sliding clutch  $K^7$ , provided with sprockets  $K^8$ , a chain,  $K^9$ , on said sprockets, and a lever-arm,  $L$ , pivoted to said axle and having an inclined edge, 35  $L^{10}$ , and lying against the sliding clutch, of a scoop-frame sliding in vertical ways on said axle and having a projection,  $E^2$ , suspension-chains secured to said frame and drum-shaft, 40 and a scoop-body pivotally hung to said frame, substantially as shown and described.

29. The combination, with an axle provided with wheels  $A$ , having sprockets  $A^2$ , a spring-pawl,  $m$ , on said axle, a drum-shaft journaled 45 on said axle provided with a ratchet-wheel,  $K^4$ , fixed clutch  $K^6$ , shoulder  $l$ , spring  $k$ , sliding clutch  $K^7$ , having sprockets  $K^8$ , a sprocket-chain,  $K^9$ , a lever-arm,  $L$ , pivoted to said axle, having an inclined edge,  $L^{10}$ , and lying against 50 said sliding clutch, a lever-disk,  $L^3$ , pivoted on the axle, a rod,  $L'$ , pivotally connected to said disk and lever, and a lever-arm,  $L^4$ , connected

to said disk, of a scoop frame sliding in vertical ways on said axle and having a projection,  $E^2$ , suspension-chains secured to said 55 frame and drum-shaft, and a scoop-body pivotally hung to said frame, substantially as shown and described.

30. The combination, with a wheel-axle, comprising the cross-bar  $C^2$ , uprights  $C$ , and 60 wheel-receiving projections  $B$ , and the wheels  $A$  turning thereon, provided with sprockets  $A^2$ , a shaft,  $K$ , journaled in said uprights, having drums  $K^3$  and ratchets  $K^4$ , the fixed clutches  $K^6$  and sliding clutches  $K^7$ , provided 65 with overlying projections  $L^{10}$ , and sprockets  $K^8$ , chain  $K^9$  between sprockets  $K^8$  and sprockets  $A^2$ , pawl-shaft  $m^2$ , with spring  $m^5$ , handle-lever  $m^4$  and pawl  $m$ , journaled in the cross-bar, the vertical guideway  $D$  on said uprights, the 70 vertical lever  $L$ , pivoted to said uprights, having a yoke,  $L^2$ , surrounding the clutch  $K^6$ , and by its edge bearing on a projection of said sliding clutch  $K^7$ , said lever having the projected end  $p'$ , a lever-disk,  $L^3$ , pivoted on the 75 axle cross-bar  $C^2$ , having a handle,  $L^4$ , its pivot being provided with a radial arm,  $L^6$ , and a spring,  $L^7$ , by one end secured to said arm and by its other to said cross-bar, connecting-rods  $L'$ , pivoted to said disk  $L^3$  and to said end 80  $p'$  of lever  $L$ , of a scoop frame comprising the side bars,  $F^2$   $F^2$ , cross-bar  $F^3$ , and supporting-bars  $F^4$ , said side bars having an apertured sliding clasp-bar,  $F^7$ , arms  $E$ , with projections  $E^2$ , and the rollers  $F^8$  hung therein, and arms 85  $F^6$ , and the cross-bar  $F^3$ , provided with spring-shaft  $M^3$ , having dogs  $M^4$  and handle  $M^5$ , and the arm  $F^7$  and the scoop-body  $G$ , having trunnions  $G^2$ , a socket,  $t^8$ , spring dogs  $M$ , a hinged gate,  $G^4$ , having socket  $t^8$  and bolt  $G^5$  90 sliding therein, a chain,  $G^6$ , connecting said bolt and arm  $F^7$ , adjustable runners  $N$ , the tongue  $H^2$ , having draft-irons  $H^3$ , connected to said scoop-frame and passing through said apertured sliding clasp-bar  $F^7$ , and the brace 95 beam  $H^4$ , pivotally connected to said tongue and the said axle cross-bar  $C^2$ , when all arranged together for operation substantially as shown and described.

CYRUS A. KENNEY.

Witnesses:

JNO. J. BRONAUGH,  
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