No. 629,826. Patented Aug. 1, 1899.

J. A. TAYLOR.

ROAD SCRAPER AND CARRIER.

(Application filed Oct. 17, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

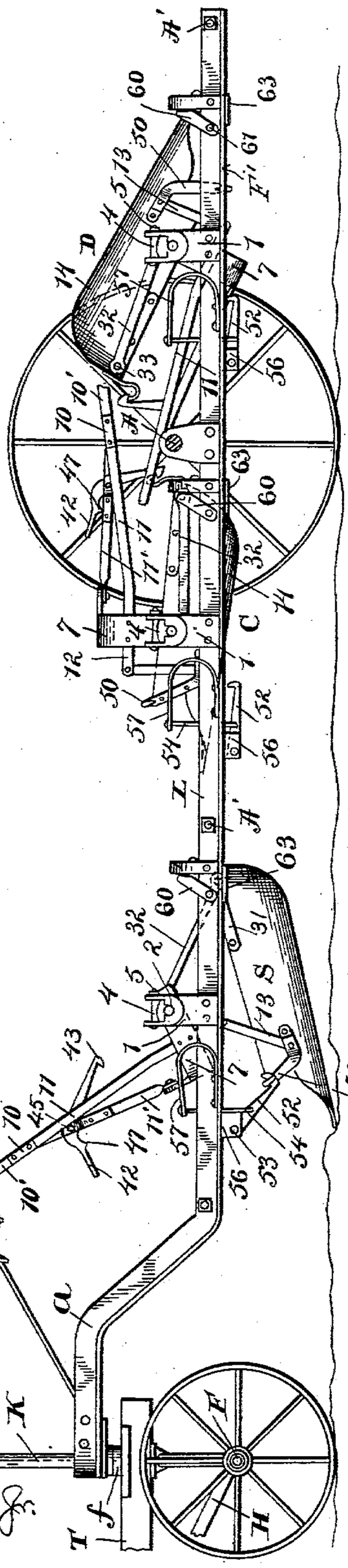
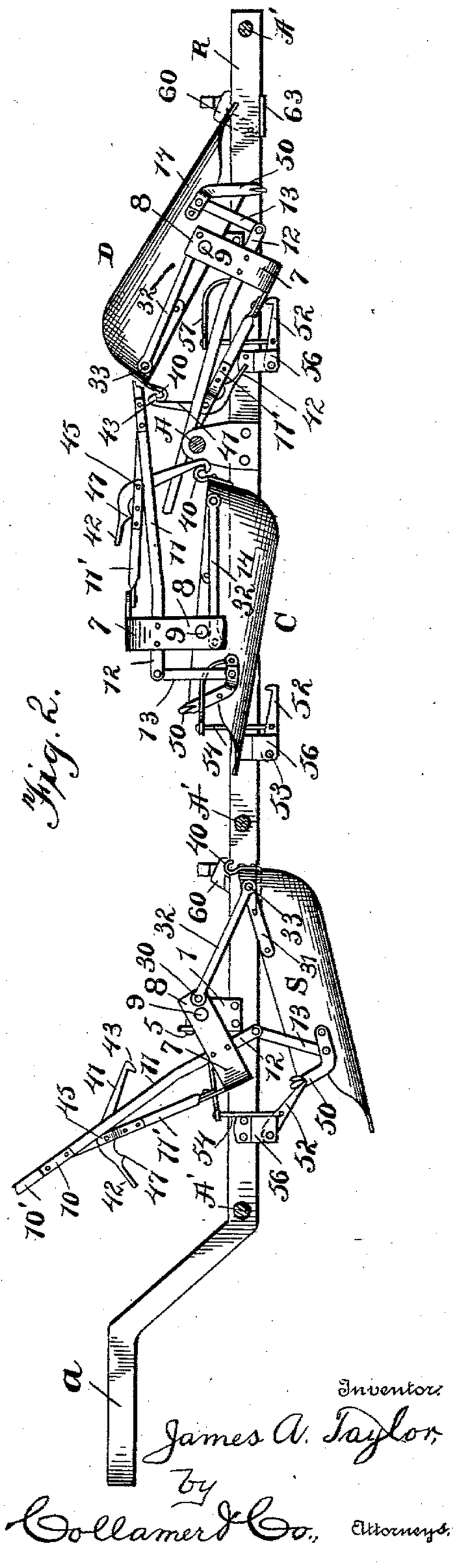


Fig. 2.



Witnesses:
Geo. E. Freck.
J. V. Jochum Jr.

Inventor:
James A. Taylor,
by
Collamer & Co., Attorneys.

No. 629,826. Patented Aug. 1, 1899.

J. A. TAYLOR.

ROAD SCRAPER AND CARRIER.

(Application filed Oct. 17, 1898.)

(No Model.) 3 Sheets—Sheet 2.

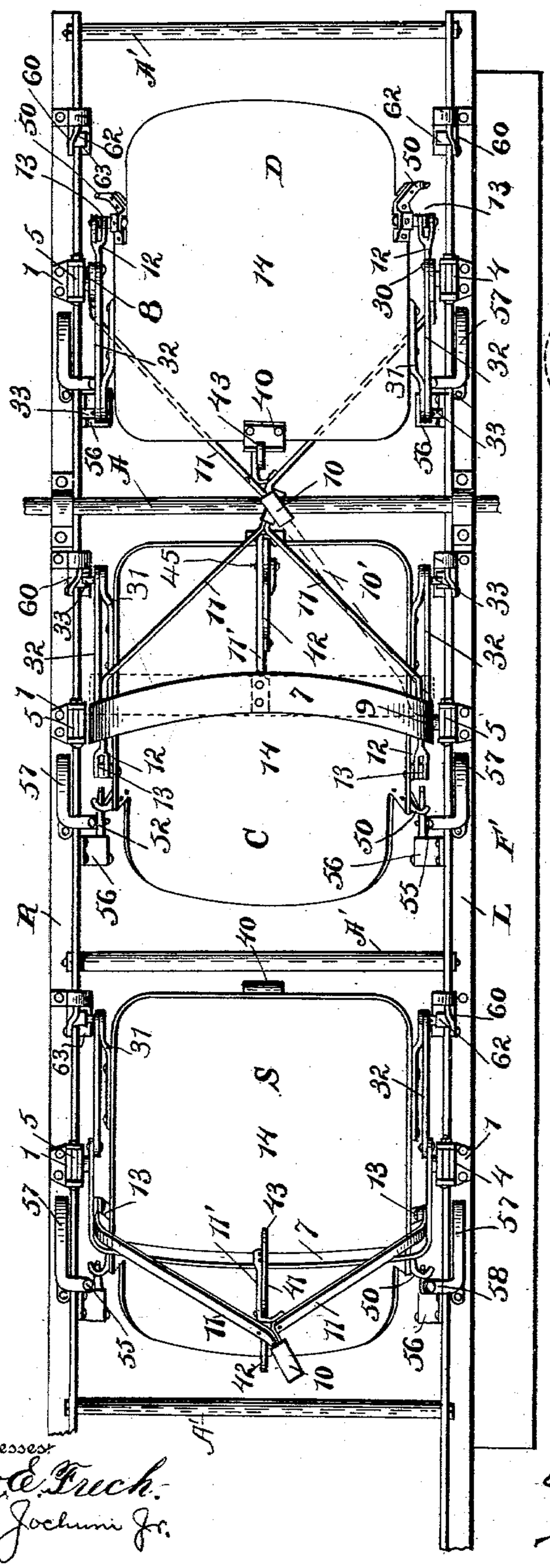


Fig. 3.

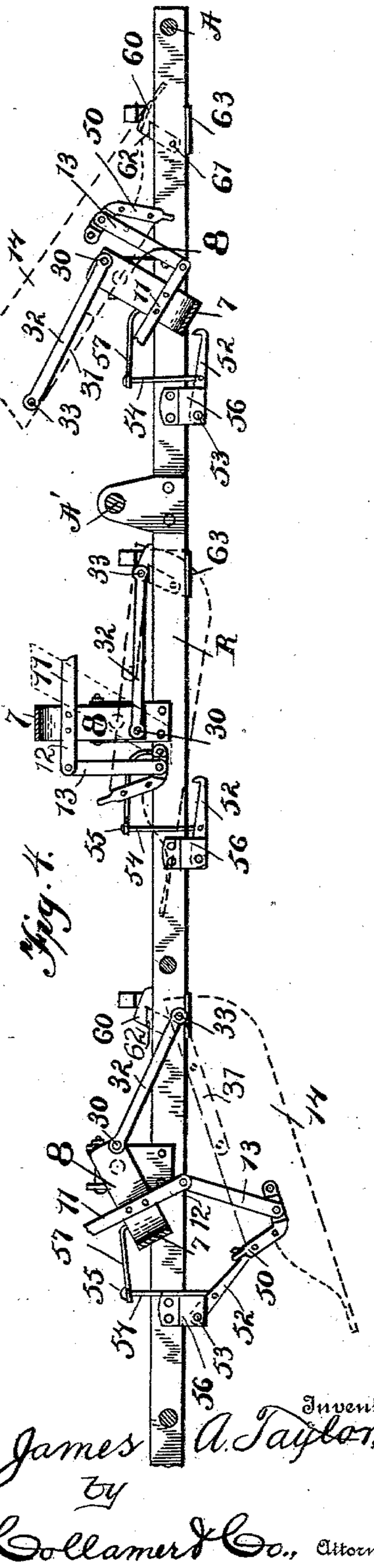


Fig. 4.

Witnesses:
Geo. E. Frech.
J. H. Jochum Jr.

Inventor:
James A. Taylor,
by
Collamer & Co., Attorneys.

No. 629,826. Patented Aug. 1, 1899.

J. A. TAYLOR.

ROAD SCRAPER AND CARRIER.

(Application filed Oct. 17, 1898.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

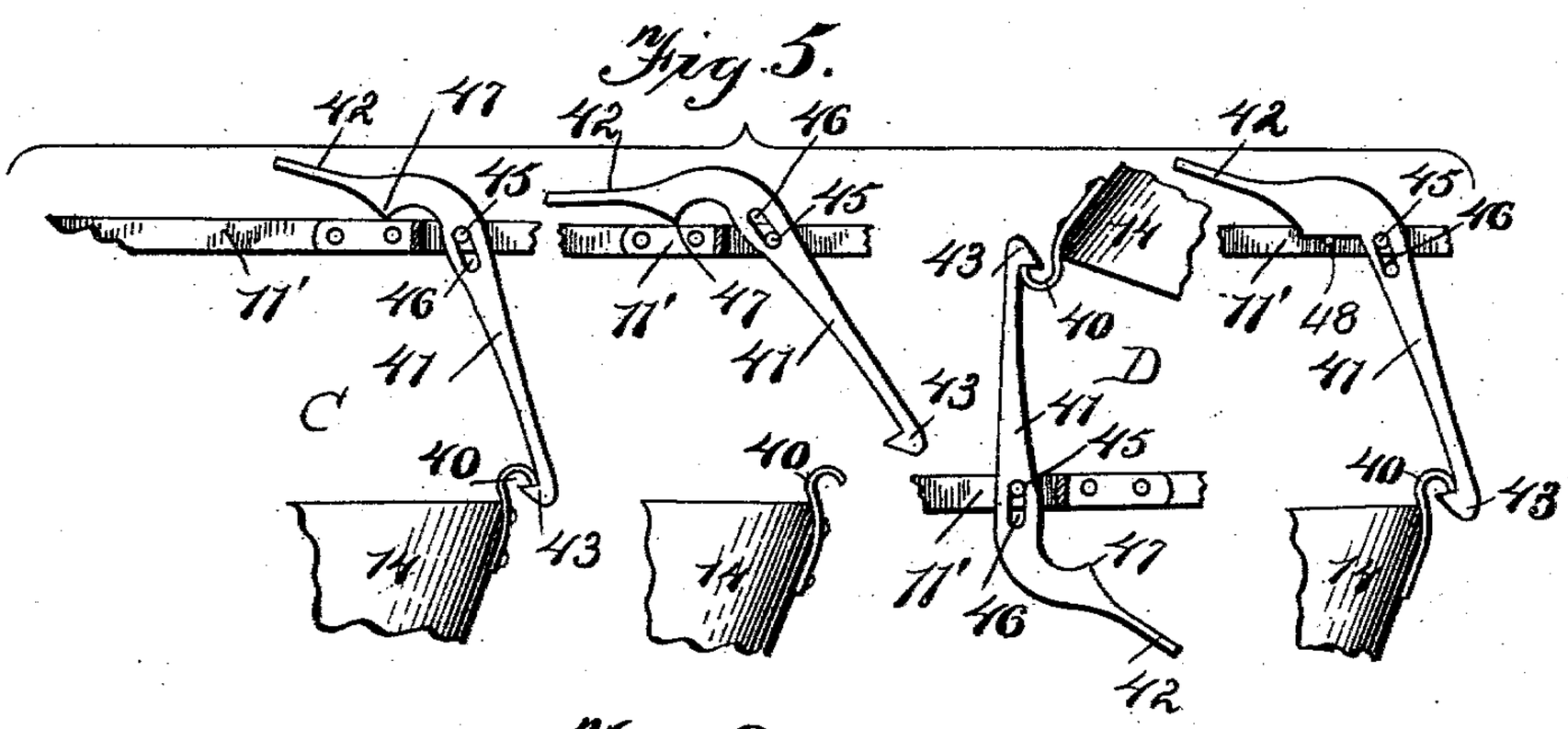


Fig. 6.

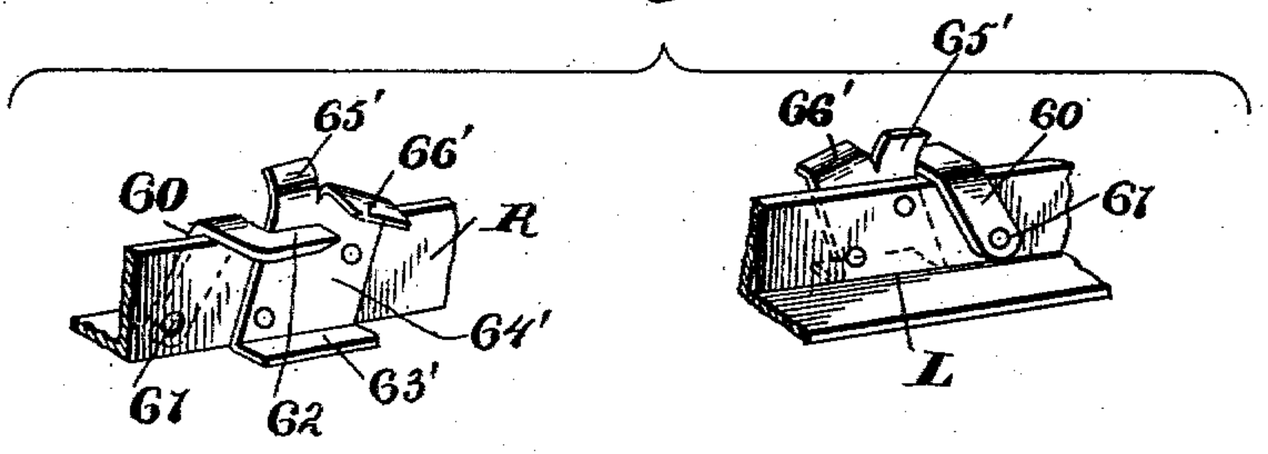
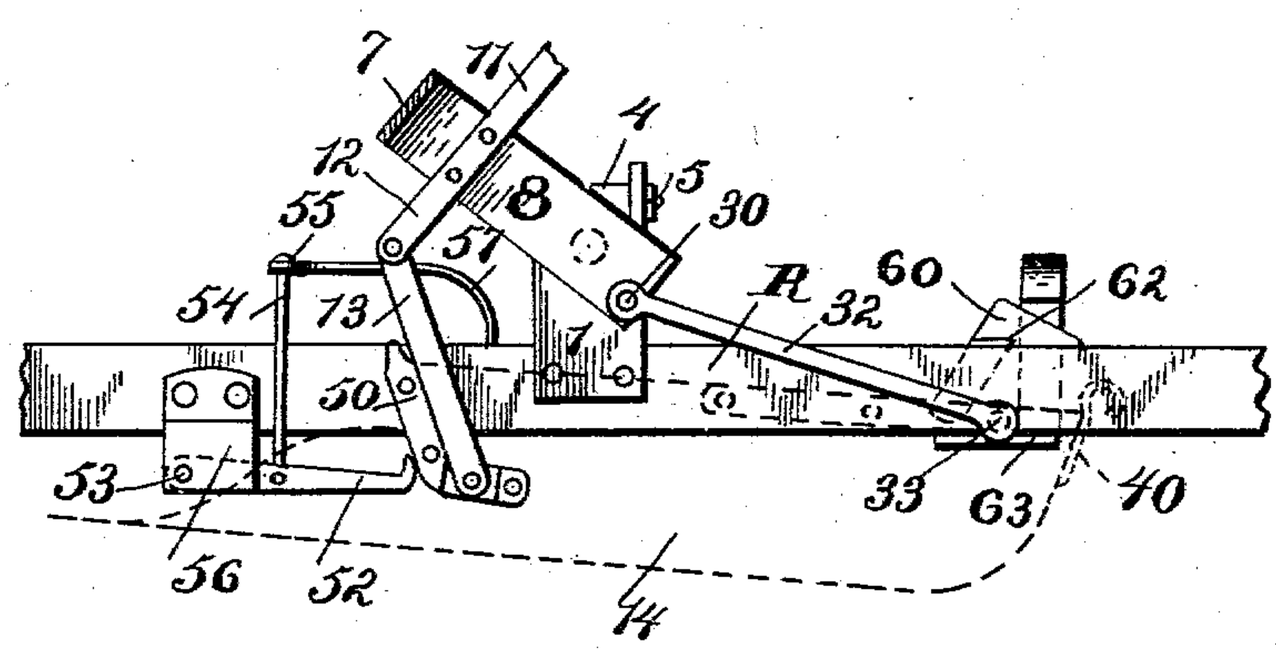


Fig. 7.



Witnesses:
Geo. E. Frech.
J. H. Jochum Jr.

Inventor:
James A. Taylor,
by Collamer & Co., Attorneys.

UNITED STATES PATENT OFFICE.

JAMES A. TAYLOR, OF LIMA, INDIANA.

ROAD-SCRAPER AND CARRIER.

SPECIFICATION forming part of Letters Patent No. 629,826, dated August 1, 1899.

Application filed October 17, 1898. Serial No. 693,746. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. TAYLOR, a citizen of the United States, and a resident of Lima, La Grange county, State of Indiana, have invented certain new and useful Improvements in Road-Scrapers and Carriers, (Case D;) and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to road-scrapers and carriers, and more especially to that class thereof known as "self-loading carts;" and the object of the same is to produce improvements in the details of construction of devices of this character which will simplify and cheapen their manufacture.

To this end the present invention consists in certain improvements over my former patents, Nos. 552,936, 555,270, and 570,885, issued, respectively, January 14, February 25, and November 3, in the year 1896, which improvements relate more especially to the shape of the arch, braces, and handle-socket, the front hooks for the scoop, the supports for its rear corners, and the catch through which it is dumped, and contemplate the omission of certain parts, such as the bail and other features, which I have found unnecessary.

The invention also includes certain details of construction, all as hereinafter more fully described and as shown in the accompanying drawings, wherein—

Figure 1 is an elevation of the machine complete, taken from its left side and showing the same as carrying three scoops or scrapers, the forward one of which (lettered S) is illustrated in the act of scraping or taking up earth, the second one of which (lettered C) is shown at a carry, as when conveying the earth, and the rearmost one of which (lettered D) is illustrated as in a dumped position. The remaining views omit the arch carrying the driver's seat and also the wheels. Fig. 2 is a similar view and with the parts in the same position, but taken on a line just inside the left side bar of the framework, whereby certain parts are in section. Fig. 3 is a plan view with parts in the same positions. Fig. 4 is a longitudinal section taken just inside the right side bar of the framework, the parts being in the same positions; but while in Fig. 2 we were looking toward the scoops, in this view we are looking toward the side bar. Fig. 5 is a sectional detail showing the catch in various positions. Fig. 6 is a perspective detail of modifications of the support for the rear corner of the scoop. Fig. 7 is a sectional view with the scoop in dotted lines, the parts being in a position between the carry C and scraping S and the section being on the same line as in Fig. 4, with the forward hooks not yet engaged.

In the drawings the main framework comprises right and left longitudinal side bars R and L, suitably connected at proper intervals, as at A′, and supported by the rear axle A, carrying wheels at its extremities, and having at their forward ends arches *a* or the like supporting the driver's seat *d* and converging to a king-bolt K. F is the front axle, having fifth-wheel *f*, connected with the king-bolt, as will be understood. H are the hounds, and T is the tongue. These details, however, form no part of the present invention, and it will be obvious that the construction of the framework and running-gear may be left to the manufacturer.

The machine herein shown has three scoops or scrapers located between the side bars of the framework; but there could be more or less, as desired. The framework is preferably of L-shaped metal bars, the flange of the L on one or both sides being continued outwardly into a platform or footway F′, upon which stands the operator who is to manipulate the scoops as necessary, while another operator (possibly a boy) is to sit on the seat *d*, with his entire attention given to the team. The sizes, shapes, proportions, and materials of parts herein described are immaterial, and considerable change therein and addition thereto may be made without departing from the spirit of my invention. In all instances the letter S designates the scoop or scraper in scraping position—*i. e.*, taking up earth. C is one that is at a "carry," or in position to transport the material so taken up, and D one that is or has been dumped. Fig. 7 only illustrates the scoop in an intermediate position between its positions C and S.

Rising from and secured to the side bars are blocks 1, having cut in their upper ends transverse semicircular notches 2, forming the lower portions of bearings, and these blocks are also longitudinally perforated for the reception of pins or bolts 5, which may pass through or above blocks 4, having semicircular notches in their lower faces, so as to form the upper portions of said bearings.

7 is a strong arch whose center stands normally across and above the body of the scoop and is preferably deflected to the rear, being either straight across, as dotted, or curved, as in full lines, in Figs. 3 and 4, while its ends 8 turn downward at opposite sides of the scoop and are provided intermediate their length with outwardly-projecting stub-shafts 9, which are journaled in the bearings just above described.

10′ is the removable part of the handle constituting the main lever for operating this scoop, which handle is inserted in a socket 10, formed at the junction or meeting point of two oblique braces or straps 11, which converge to the rear from the arch, preferably from its ends 8, as shown, and may be additionally braced by a central strap 11′, leading from the socket to the center of the arch 7. This socket is preferably deflected laterally, as seen in the plan view, in order that the handle may project over one footway of the framework and stand in easy reach of the operator thereon. This I consider an important feature of the construction herein. Each brace 11 is continued slightly beyond the end 8 of the arch and formed into a slotted arm 12, and pivoted in the slot thereof is a link 13, whose other end is pivoted to the exterior of the scoop near its mouth. It will thus be seen that the rocking of the arch on its pivots 9 will be communicated in inverse order to the forward end of the scoop—that is to say, when the rear of the arch (the main lever) is raised the front of the scoop will be lowered. Said scoop is lettered 14 in the drawings.

Projecting inward from the lower ends of the upright portions 8 of the arch are pins 30, which are pivoted in the forward ends of side links 32, employed in this device in place of the bail in my former patent. Each link extends alongside the scoop to the rear and is pivoted at 33 at its rear end to a pin at the rear end of an arm 31, projecting from and rigidly attached to the side of the scoop. It will thus be seen that the rocking of the arch on its pivots 9 will be communicated in inverse order also to the rear end of the scoop—that is to say, when the rear of the arch (the main lever) is raised and carried forward the links will cause the rear of the scoop to be pushed to the rear, since said links are connected with the ends 8 of the arch below their pivots 9.

The numeral 40 designates a hook projecting to the rear from the upper edge of the rear of the scoop at its center, and this hook is adapted to engage with a catch 41 of peculiar construction, supported at the center of the arch. (See Fig. 5.) This catch comprises an L-shaped body 41, having a hook 43 at its lower end, adapted to engage the hook 40, and a longitudinal slot 46 near its elbow, and the foot 42 of the L has on its under side an angle 47, adapted to rest on the upper edge of the central brace or strap 11′ or other support for the whole, which support has a transverse pin 45 standing loosely within said slot 46. When the parts are at a carry, as at C in Fig. 5, the catch rests at its angle on the support, (or, in the right-hand view, on a second pin 48, if desired,) and this throws the center of gravity so far forward that the hook 43 is caused to swing forward into engagement with the scoop-hook 40, as is desired, and will not disengage the same even on quite rough ground. To disengage it therewith, the operator places his foot on the forward end of the foot 42, (see second view in this figure,) and the entire catch is rocked over the angle 47 as a fulcrum, the upright slot 46 permitting, until the two hooks are disengaged, as shown. Even when the scoop is in dumped position, as at D, and all parts are completely inverted the hooks will not disengage each other, because at this time the weight of the catch causes it to fall, so that its support is the pin 45, then in the upper end of the slot 46, and the foot 42 being rearward of this support acts as a weight to throw the hook 43 into engagement. This form of catch I consider an improvement on the construction set forth in my former patents, and it does away with any additional levers by which it may be tripped by the operator. In the present instance he employs his foot for this purpose.

At each side of the scoop or scraper 14 and at the front upper corner thereof is a laterally-projecting hook 50, whose body, where it is attached to the scoop, preferably forms a strap extending over the link 13 and supporting the outer end of its pivot. This hook is adapted to engage with a longitudinal supporting-hook 52, standing just inside and below the side bar of the framework, its front end being pivoted at 53 within a hanger 56, carried by the side bar, and its body extending thence to the rear, as shown. Pivoted to this body intermediate its length is a rod or link 54, rising therefrom, and 57 is a spring of U shape, the lower arm of which is connected with the side bar of the framework and the upper arm of which is loosely connected, as at 55, with said link 54. The location and proportions of these several parts are such as to produce the actions described below.

The support for the rear corner of the scoop consists of a pivoted dog and a plate beneath it, which plate may be either pivoted or rigid. The dog 60 is pivoted at its lower end at 61 to either the inner or outer face of the upright portion of the side bar of the framework, from which point it rises alongside the same and has an inwardly-projecting flange 62,

adapted (if pivoted outside) to pass over and rest on the upper edge of said side bar, whereby the outer end of the pivot-pin 33 may at this time rest upon and be supported by said flange, or (if the dog is pivoted inside) its flange 62 is caused to stand about flush with the upper edge of the side bar by reason of the presence of a shoulder 62′ on the outer face of the dog, which rests at this time upon the upper edge of the side bar.

Beneath the flange is an inwardly-projecting plate 63, which may be carried rigidly by the side bar and is of greater length longitudinally of the machine than the flange 62, and on this plate said pin 33 may rest after dropping off the flange and slide, as is necessary in the various movements of the scoop hereinafter set forth. As a modified form of this support the plate may be an inturned lip 63′, carried by the body of the dog 60 when the latter is pivoted inside the side bar, as above stated. Either form of support may be used, or both on one machine; but the plate is always longer to the rear than the flange, so that when the pin 33 slips off the latter it will rest upon the former.

A team of horses is hitched to the tongue, the driver takes his seat, the other operator mounts the footway and throws all the scoops to a carry, and the machine is driven to the point of operation. Here one of the scoops is lowered to a scraping position, which is accomplished as follows: The operator presses his foot on the foot 42 of catch 41 while the latter stands as at C in Fig. 5, and the hooks 40 and 43 disengage, as seen in the second view of this figure. He then raises the main lever, which through the slotted arms 12 and links 13 gradually depresses the mouth of the scoop and through the ends 8 of the arch 7 and links 32 gradually forces the rear corners of the scoop backward. When the main lever and braces have reached an angle of about forty-five degrees, the parts stand as seen in in Fig. 7, and a slight additional rise in the main lever causes the pins 33 to slide off the rear ends of the flanges 62 and drop onto the plates 63. The main lever is then further raised, and as it reaches a vertical position the hooks 50 and 52 engage, and, finally, said lever is thrown over to the front, as seen at S, until the links 13 stand in line between their pivots to the scoop and the trunnions 9, by which time the hooks 52 will have drawn down the hooks 50 and the links 54 will have contracted the springs 57, as shown at S. The machine is then driven forward, the mouth of the scoop or scraper taking up earth, which is forced up at an angle and accumulates within its body. When any scoop has been filled, the operator returns it to a carrying position, as follows: Grasping the main lever, he draws it to the rear, which raises the mouth of the scoop backward through the course above described, its rear end being meanwhile supported by the pins 33, which rest upon the plates 63. The lever is depressed at the rear extreme of its movement sufficiently to cause the catch 41 to engage the hook 40, and, finally, the lever is raised again to the position shown at C, which latter motion causes the rear end of the scoop to rise, (hooks 40 and 43 being engaged, as at C, Fig. 5,) so that the pins 33 strike beneath the flanges 62, tilt the dogs 60 forward on their pivots 61 until the pins slip out from under the rear ends of the flanges 62, and permit the dogs to drop to rest, so that the pins are supported thereon, as at C in all the views of the drawings. In this manner the operator finally fills all the scoops on the machine, and the latter is then driven to the dump or the point at which the earth carried by the scraper is to be discharged. It is only necessary in order to dump the various scoops to grasp the main lever while the parts stand at carry and throw it forward, the forward motion terminating when the proper angle is reached to cause the earth to slide out. No matter how damp and sticky the soil it will surely be discharged, for, as shown at D, the scoops can be completely inverted, if desired, and at this time the main levers rest on the axle A or the connecting-rods A′ just forward of them. It should be observed that the trunnions 9, which support the scoop when at a carry, are located about midway between the mouth and rear of the scoop, which supports the load in such manner that in the act of dumping the operator need lift only the excess of weight in rear of the pivot and which normally prevents automatic dumping at undesired moments.

What is claimed as new is—

1. In a road-scraper, the combination with a framework having bearings, an arch extending across the framework and having its center deflected to the rear and its ends depending therefrom, stub-shafts secured to said ends and journaled in the bearings, braces converging rearwardly from said ends, a socket carried by the braces where they meet and set oblique to the length of the machine, and a handle in said socket; of a scoop supported by the arch and beneath the same, and means for detachably holding said scoop in various positions, as and for the purpose set forth.

2. In a road-scraper, the combination with a framework, an arch pivoted therein, and a handle for swinging the arch; of a scoop pivotally connected with the arch and having lateral hooks at its front corners, other hooks pivoted to and extending longitudinally of the framework to engage the first-mentioned hooks; links rising from the longitudinal hooks and having heads at their upper ends, and springs mounted on the framework and having their upper ends loosely embracing said links beneath their heads, as and for the purpose set forth.

3. In a road-scraper, the combination with

a framework having bearings, an arch having downturned ends provided near their mid-lengths with trunnions journaled in said bearings and below the trunnions with pins, and means for turning the arch in its bearings; of a scoop having pins projecting laterally from its rear corners, links connecting said pins of the arch and scoop, and supports pivoted to the framework to permit the rise but prevent the fall of said pins on the scoop, as and for the purpose set forth.

4. In a road-scraper, the combination with a framework having bearings, an arch having trunnions journaled therein and pins beneath the trunnions, a scoop pivotally connected at its front with the arch, and a detachable catch between its rear and said arch; of laterally-projecting pins near the rear corners of the scoop, links connecting the pins on the arch and scoop and which pins move longitudinally slightly as the arch is turned in its bearings, a dog pivoted to the framework and having an inturned flange adapted to support each pin of the scoop and of such length that said pin may slip off its rear end, and a plate supported by the framework beneath each flange than which it is of greater length, as and for the purpose set forth.

5. In a road-scraper, the combination with a framework having bearings, a scoop supported by trunnions therein, and laterally-projecting pins at the rear corners of the scoop; of an upright plate secured to the framework adjacent each of said pins and having an inturned lip at its lower edge on which the pin rests when lowered, and at its upper end an ear standing opposite the end of the pin when raised and an inturned guard in rear of the ear, and a pivoted dog having an inturned flange standing normally below said ear and forward of said guard and adapted to support the pin when the latter is raised, as and for the purpose set forth.

6. In a road-scraper, the combination with a framework having bearings, spring-supported hooks forward thereof, and pivoted supports in rear of the bearings; of an arch having stub-shafts journaled in said bearings, a scoop having hooks at its front corners for engaging those on the framework and lateral pins at its rear corners for engaging said supports, and flexible connections between the arch and scoop whereby the latter may be turned pivotally about said bearings or may be dropped so that the hooks engage and the pins slip off said supports, all as and for the purpose set forth.

7. In a road-scraper, the combination with a framework having bearings, hooks forward thereof and below the same, plates rearward thereof and below the same, and pivoted supports having flanges standing above said plates; of an arch journaled in said bearings, a scoop flexibly connected with the arch, a catch between the arch and scoop whereby the latter may be turned bodily around said bearings, and means for causing a slight rearward movement of the scoop to push its pins off said supports onto said plates and permit the engagement of its hooks with those on the framework when said catch is disconnected, substantially as described.

8. In a road-scraper, the combination with a pivoted arch, a scoop pivotally connected at its front end thereto, and a hook at the rear of the scoop; of braces converging from the ends of the arch to a handle, a central strap from the arch to the point of convergence, and an L-shaped catch loosely pivoted at its angle to said strap with its foot extending forward of its pivot and its hanging body provided with a forwardly-projecting hook adapted to engage that on the scoop, as and for the purpose set forth.

9. In a road-scraper, the combination with a pivoted arch having a longitudinal strap, a scoop pivotally connected at its front end thereto, and a rearward hook at the rear of the scoop; of a pin in said strap, an L-shaped catch having a slot near its angle loosely embracing said pin, its lower end having a hook adapted to engage that on the scoop and its forward portion or foot having an angle in its under side in front of said slot and resting on said strap, and means for turning the arch on its pivots, as and for the purpose set forth.

10. In a road-scraper, the combination with a pivoted arch having a longitudinal strap, a transverse pin therein, a scoop pivotally connected with the arch, and a rearwardly-projecting hook at the rear of the scoop; of an L-shaped catch whose body hangs normally vertical and has a longitudinal slot near its angle loosely embracing said pin, whose lower end has a forwardly-projecting hook adapted to engage that on the scoop, and whose foot projects forward from said angle and has an angle in its lower edge resting on said strap and so spaced from the slot as to serve as a fulcrum for tripping the engaging hooks and moving the slot over the pin, all as and for the purpose set forth.

11. In a road-scraper, the combination with a framework having bearings, an arch having its center deflected to the rear and its downturned ends provided near their mid-lengths with trunnions journaled in said bearings and below the trunnions with pins, and a handle for turning the arch on its bearings; of a scoop having pins projecting laterally from its rear corners, links connecting said pins of the arch and scoop, and supports for the pins of the scoop, as and for the purpose set forth.

12. In a road-scraper, the combination with a pivoted arch, a scoop connected at its front thereto, and a hook at the rear of the scoop; of braces leading from the arch to the handle-socket, and an L-shaped catch loosely pivoted at its angle to one of said braces with its foot extending forward of its pivot and

its hanging body provided with a hook adapted to engage that on the scoop, as and for the purpose set forth.

13. In a road-scraper, the combination with a framework, an arch pivoted therein, and a handle for swinging the arch; of a scoop pivotally connected with the arch and having lateral hooks at its front corners, other hooks pivoted to and extending longitudinally of the framework to engage the first-mentioned hooks, and spring-supports for the hooks of the framework, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 12th day of October, A. D. 1898.

JAMES A. TAYLOR.

Witnesses:

C. L. BOTHWELL,

F. M. NICHOLS.