No. 754,087. PATENTED MAR. 8, 1904.

J. H. OSTEN.

ROAD GRADING AND SCRAPING MACHINE.

APPLICATION FILED SEPT. 9, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

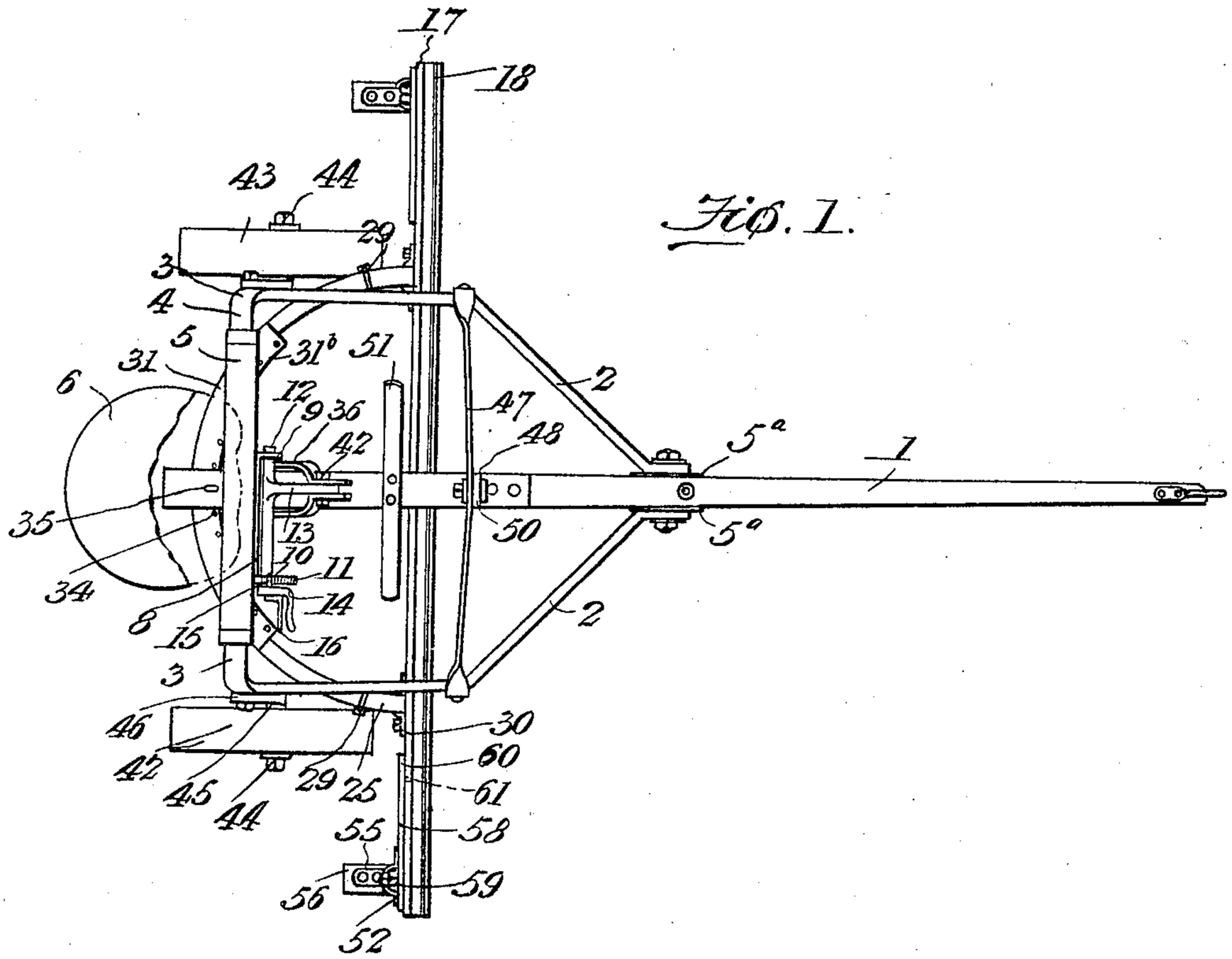
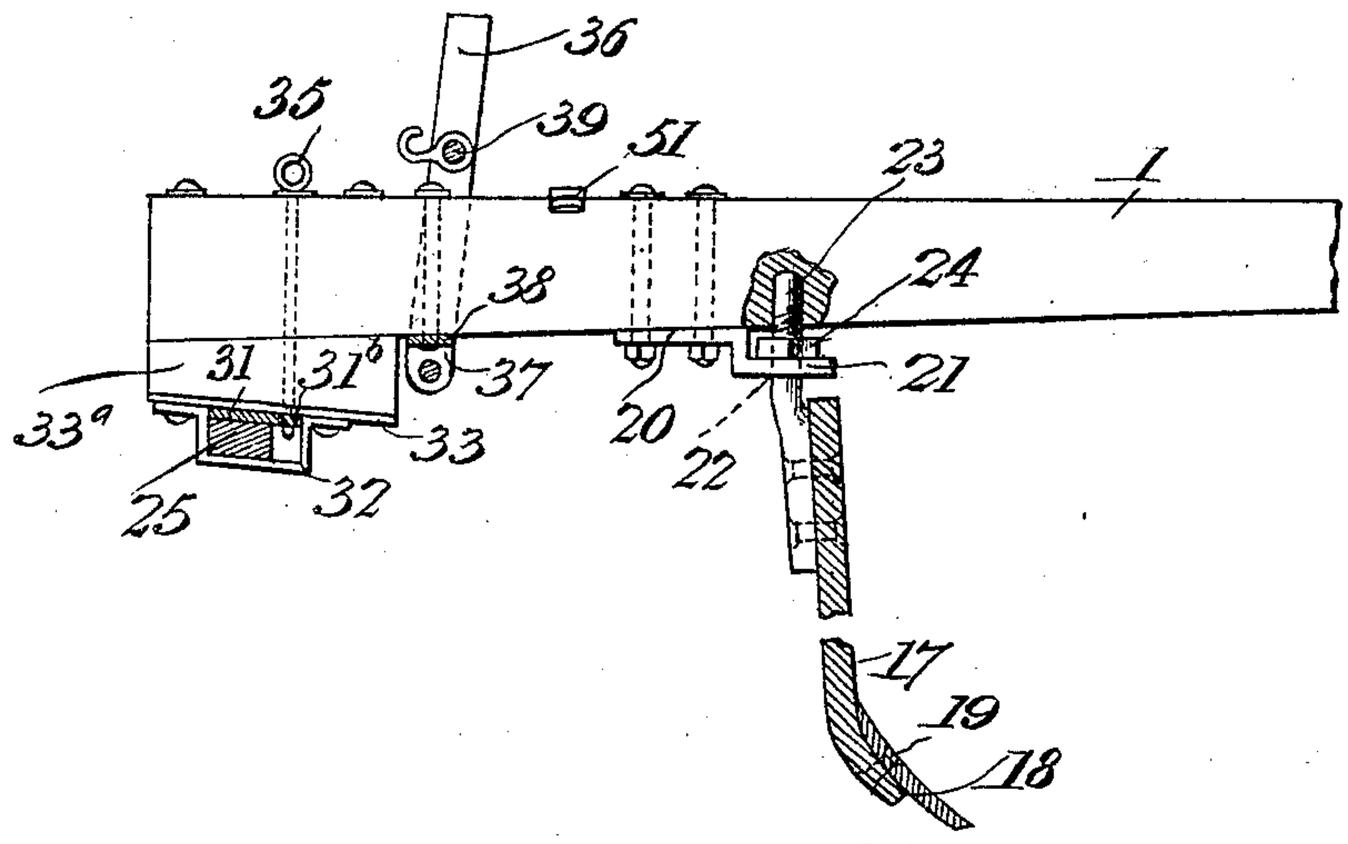


Fig. 4.



Witnesses
E. P. Stewart
Wm Bagger

Inventor,
J. H. Osten,
by Cachow & Co.
Attorneys

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

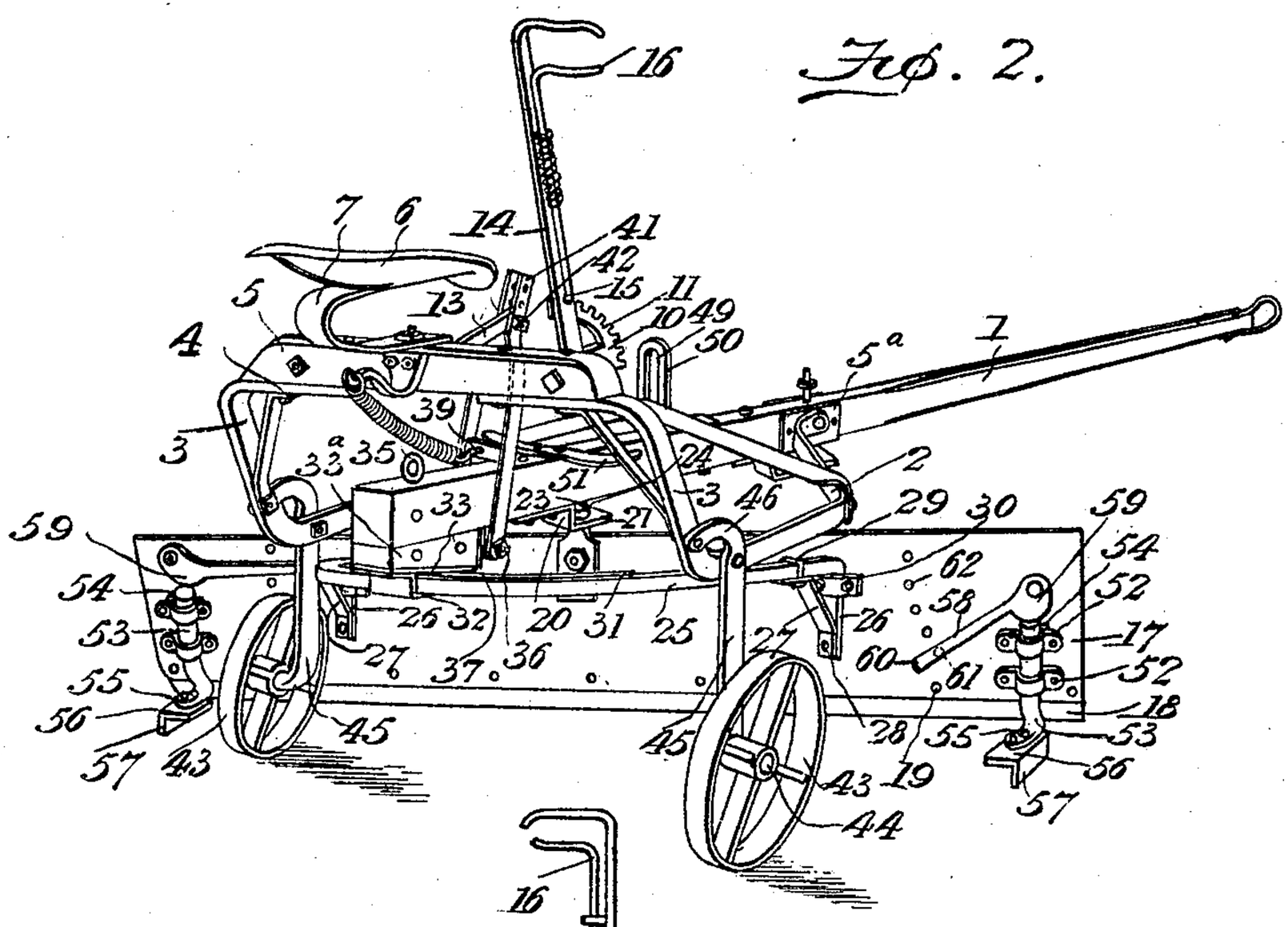
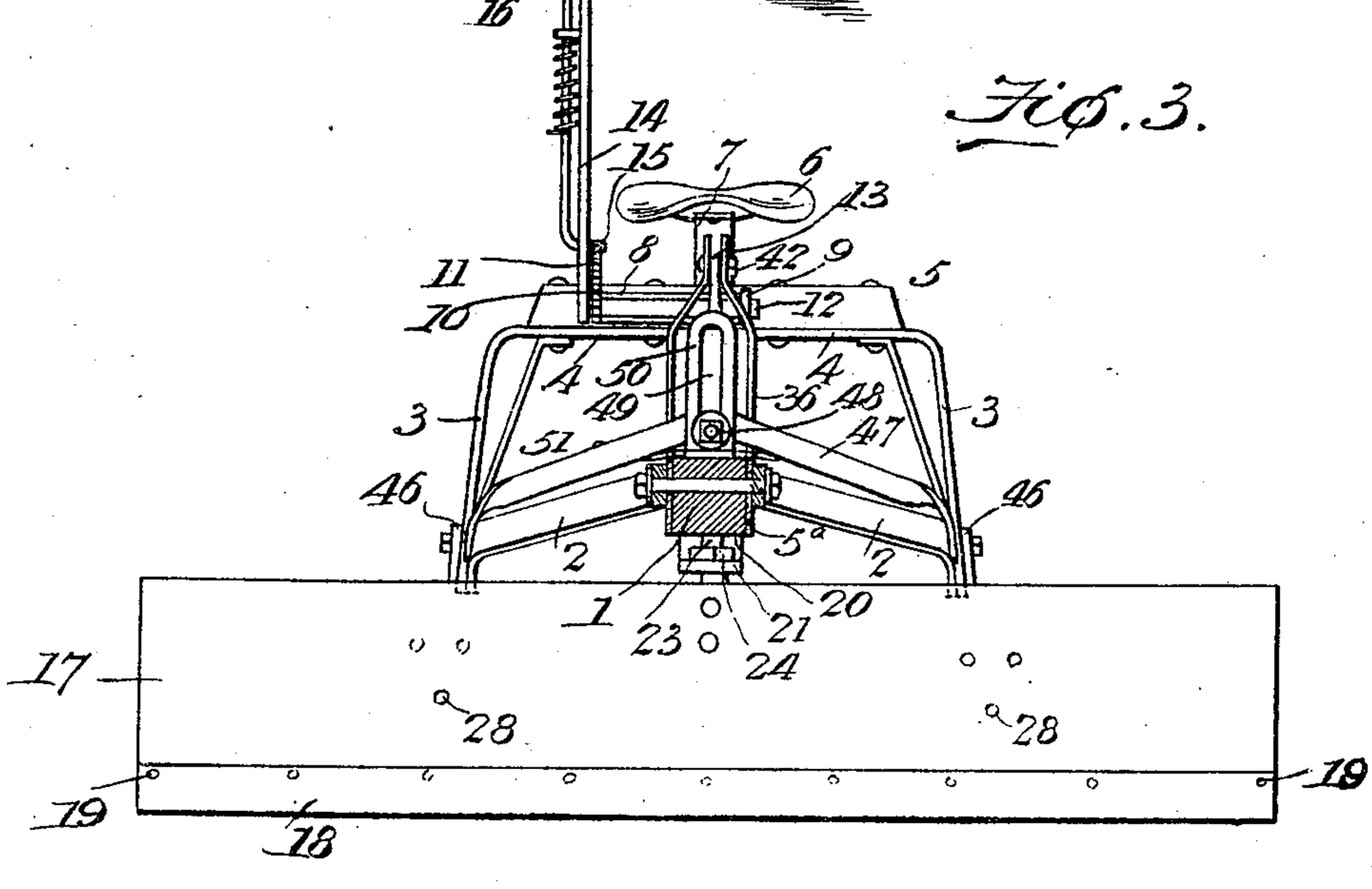


Fig. 3.



Witnesses
E. P. Stewart
Wm Bagger

J. H. Osten Inventor
by Church & Co
Attorneys

No. 754,087. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

JAMES H. OSTEN, OF WHITE CITY, KANSAS, ASSIGNOR OF TWO-THIRDS TO ROBERT GUY OSTEN AND JOHN WALKER.

ROAD GRADING AND SCRAPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 754,087, dated March 8, 1904.

Application filed September 9, 1903. Serial No. 172,508. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. OSTEN, a citizen of the United States, residing at White City, in the county of Morris and State of Kansas, have invented a new and useful Road Grading and Scraping Machine, of which the following is a specification.

This invention relates to machines for grading, scraping, and leveling roads; and it has for its object to provide a machine of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

My improved machine belongs, generally speaking, to that class of graders and scrapers which comprise in their construction a wheel-carrying frame and a scraping-blade, the latter being adapted to be set at different angles to the line of progress and the said blade being also mounted in such a manner that it may be raised from the ground or lowered to any desired extent, so as to penetrate into the ground as far as may be desired.

My present invention principally relates to certain improvements in the frame structure and in the supporting means for the transporting-wheels, in devices adjustable upon the rear side of the blade, whereby the latter shall be kept in its proper course, even when set at a considerable angle, which would otherwise induce said blade to slide laterally with relation to the line of draft.

My invention further consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings there is exhibited a form of embodiment of my invention which is simple and generally preferable. It will be understood, however, that I do not confine myself to the structural details therein exhibited, but reserve the right to any changes and modifications within the scope of my invention and which may be resorted to without departing from the spirit or sacrificing the utility of the same.

In the said drawings, Figure 1 is a top plan view of my improved implement. Fig. 2 is a perspective rear view of the same. Fig. 3 is a front elevation, the tongue and several frame parts being shown in section. Fig. 4 is a longitudinal vertical detail view.

Corresponding parts in the several figures are indicated by similar numerals of reference.

1 designates the tongue, to the side of which are pivotally connected a pair of diverging rearwardly-extending frame-bars 2, the rear ends of which are upturned, forming standards 3 3, while the upper ends of said standards are bent inward in the direction of each other, forming brackets 4, which support the top cross-piece 5. Wear-plates 5^a are interposed between the front ends of the pivoted frame-pieces 2 and the tongue. The seat 6 is bolted to a spring 7, which is suitably mounted upon the cross-piece 5.

To the front side of the cross-piece 5 is bolted a plate 8, provided at its ends with ears 9 and 10, the latter of which is extended to form a segment-rack or toothed quadrant 11.

Journaled in the ears 9 and 10 is a rock-shaft 12, having a radial arm 13 and a hand-lever 14, which is provided with a spring-actuated lock-dog 15, operable in the usual manner by a handle-rod 16 and engaging the quadrant 11.

17 designates the scraper-blade, which is slightly dished or curved and provided with a detachable cutting-blade 18, secured thereto by means of bolts 19 or similar means which will permit of the removal of said cutting-blade when needed for sharpening purposes. Said cutting-blade is likewise dished or curved, as shown, to provide for the perfect working of the machine. Suitably and firmly secured to the under side of the tongue is a shouldered plate 20, having a portion 21, that lies in a plane below the tongue and which has a perforation 22 for the passage of a pintle 23, the lower end of which is flattened and riveted or otherwise secured to the upper edge of the blade 17, which latter is thereby pivotally connected with the tongue. The upper end of the pintle is extended into a recess in the under side of the tongue in order that said pintle may be suitably braced, and said pintle is threaded for the reception of a nut 24,

whereby it is retained in position, and the blade is thus connected pivotally with the tongue.

25 designates a semicircular brace the ends of which have downwardly-extending brackets 26, bolted to or otherwise connected with the ends of the scraper-blade. Auxiliary braces 27 connect the ends of the brackets 26 with the body of the brace 25, bolts 28, clips 29, and clip-plates 30 being employed to form the desired connections in such a manner as to insure the utmost stiffness and rigidity.

Upon the upper side of the semicircular brace 25, about midway between the ends of the latter, is secured a plate 31, which is of greater width than the said semicircular brace, said plate being extended forwardly beyond the upper front edge of the semicircular brace 25, thus forming a flange 31^b. Suitably secured to the under side of the tongue is a clip or keeper 32, provided with a washer-plate 33, a slightly-beveled block 33^a being interposed for the purpose of imparting the desired slant. The flange 31^b is provided with a plurality of perforations 34, any one of which is adapted to receive the point of a pin 35, which extends vertically through the tongue and which serves to secure the scraper-blade at any angle to said tongue which may be attained within the limits of the semicircular brace and the flange 31^b. The range of adjustment will be made amply sufficient to meet any contingency that may be encountered. It will be understood that by forming the perforations 34 for the reception of the connecting-pin 35 in the flange 31^b there will be less danger of weakening the construction than if said perforations were formed directly in the semicircular brace 25.

36 designates a fork member the ends of the arms of which are pivotally connected with ears or lugs 37, depending from the under side of the tongue, said ears or lugs being formed upon a cross-piece 38. The arms of the fork member 36 are connected above the tongue by a cross-piece 39, and a spring connects the latter with the rear side of the cross-piece 5 of the frame, the object of said spring being to counterbalance the weight of the scraper. The upper end of the fork member 36 is pivotally connected with the arm 13, extending forwardly from the rock-shaft 12, said pivotal connection being also made adjustable by the presence of a plurality of perforations 41, through any of which the pivotal pin 42 may be inserted.

The supporting-wheels 43 of the device are mounted upon spindles 44 at the lower ends of arms 45, the upper ends of which are provided with rearwardly-curved bracket members 46, which are suitably bolted to or otherwise connected with the side pieces 2 of the frame at the point where the latter are bent upward to form the standards 3. The curved bracket members 46, it will be observed, are connected with the side pieces 2 and also with the standards 3, thereby greatly strengthening and bracing the frame structure at a point where much strength is needed.

47 designates an arched cross-bar the ends of which are connected with the side braces 2 2 of the frame, the central portion of said cross-bar being curved above the tongue and provided with a pin 48, engaging a slot 49 in an upstanding bracket 50, which is suitably secured to the tongue. This bracing means permits of the vertical movement of the tongue with relation to the brace, and it serves to greatly assist in preventing forward or rearward displacement of the parts of the device relatively to each other. The foot-rest 51 is suitably mounted upon the tongue a short distance in rear of the cross-bar 47.

Upon the rear side of the blade 17, near the ends of the same, are secured pairs of keepers 52, which serve as bearings for vertically-disposed slidable shanks 53, which are provided near their upper ends with transverse perforations for the passage of pins 54 to retain the said shanks in the keepers or sockets. The lower ends of the shanks are bent rearwardly to form feet 55, to which are secured laterally-extending plates 56, provided at their outer edges with downwardly-extending colters or cutters 57, which are adapted to engage the soil, and thereby to prevent the tendency to side draft, which is invariably present in the class of scrapers to which my invention belongs. To the rear side of the blade are pivotally secured levers 58, provided with cam-heads 59, that bear against the upper ends of the shanks 53, thereby serving to set the latter to any desired depth. The ends of the levers terminate in handles 60, and they are provided with projections 61, adapted to engage recesses 62 in the rear side of the scraper-blade, thereby enabling the said adjusting-levers to be secured at their various adjustments.

The tongue or draft-bar of my improved implement is provided with the ordinary means for the attachment of draft, as will be readily understood.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains.

By properly adjusting the pin 35 the scraper-blade 17 may be adjusted at any desired angle with relation to the line of draft. By manipulating the hand-lever 14 the scraper may be set at any desired depth with relation to the wheel-supported frame of the device, and the said scraper when actively engaging the ground will be securely retained in the line of draft by means of the colters or cutters 57, which, as hereinbefore described, are adjustably mounted upon the rear side of said scraper.

My improved machine is extremely simple

as to the construction thereof, and it may be easily operated with slight expenditure of power and with gratifying results.

Having thus described my invention, I claim—

1. In a device of the class described, a tongue, side pieces connected pivotally with the latter and having upturned standards provided with inturned brackets at their upper ends, a seat-supporting cross-piece mounted upon said brackets, a plate secured upon the front side of said cross-piece and having ears, one of said ears terminating in a toothed quadrant, a rock-shaft journaled in said ears and having a forwardly-extending arm and an operating-lever, a lock-dog upon said lever engaging the toothed quadrant, a fork member straddling the tongue and connected pivotally therewith, and a pivotal connection between the upper end of said fork member and the arm extending forwardly from the rock-shaft.

2. In device of the class described, a tongue, a scraper-blade connected pivotally with the under side of said tongue, rearwardly-diverging side pieces connected pivotally with the sides of the tongue and having upturned standards with inturned brackets, a seat-supporting cross-piece mounted upon said brackets, a plate secured to said cross-piece and having ears, one of said ears being extended to form a toothed quadrant, a rock-shaft journaled in said ears and having a forwardly-extending arm and an operating and locking lever, a fork member connected pivotally with the arm of the rock-shaft, straddling the tongue and connected pivotally with lugs depending from the latter, a cross-piece connecting the arms of said fork member above the tongue, and a spring connecting said cross-piece with the seat-supporting cross-piece of the frame.

3. In a device of the class described, a wheeled supporting-frame including a seat-supporting cross-bar, a scraper-supporting tongue pivotally connected with said supporting-frame at the front end of the latter, an arched cross-bar connecting the side members of the supporting-frame, a vertically-slotted upright mounted upon the tongue, and a pin connected with the arched cross-bar and engaging the slot in said upright.

4. In a device of the class described, a supporting-frame comprising side pieces having upturned standards at the rear ends, in combination with wheel-carrying standards connected with the side pieces and having rearwardly-extending brackets connected with the uprights of said side pieces.

5. In a device of the class described, a tongue, a shouldered plate secured to the under side of the latter and having a free perforated member disposed in a plane below the under side of the tongue, a scraper having an upwardly-extending pintle extending through the perforated plate, and a nut adjustable upon said pintle between said plate and the under side of the tongue.

6. In a device of the class described, a tongue, a scraper-blade, a swivel connection between said blade and the under side of the tongue, a semicircular brace having downturned brackets secured to the rear side of the scraper-blade, a flange-plate secured upon the upper side of the semicircular brace and having a plurality of perforations, a keeper secured under the rear end of the tongue and engaging the semicircular brace and flange-plate, and a lock-pin extending vertically through the tongue and adapted to engage any one of the perforations in the flange-plate.

7. In a device of the class described, a scraper-blade, keepers upon the rear side of the latter, shanks movable in said keepers, earth-engaging members at the lower ends of said shanks, levers pivotally connected with the rear side of the scraper-blade, cam-heads upon said levers engaging the upper ends of the shanks, and means for securing the levers in adjusted position.

8. In a device of the class described, a scraper-blade, keepers upon the rear side of the latter, shanks vertically slidable in said keepers, earth-engaging members at the lower ends of said shanks, cam-levers pivotally connected with the rear side of the scraper-blade with their cam-heads in engagement with the upper ends of the vertically-slidable shanks, and projections on the resilient handles of said levers, engaging recesses in the rear side of the scraper-blade, said recesses being concentric with the fulcra of the cam-levers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES H. OSTEN.

Witnesses:
JOHN WALKER,
W. L. TOMPKINS.