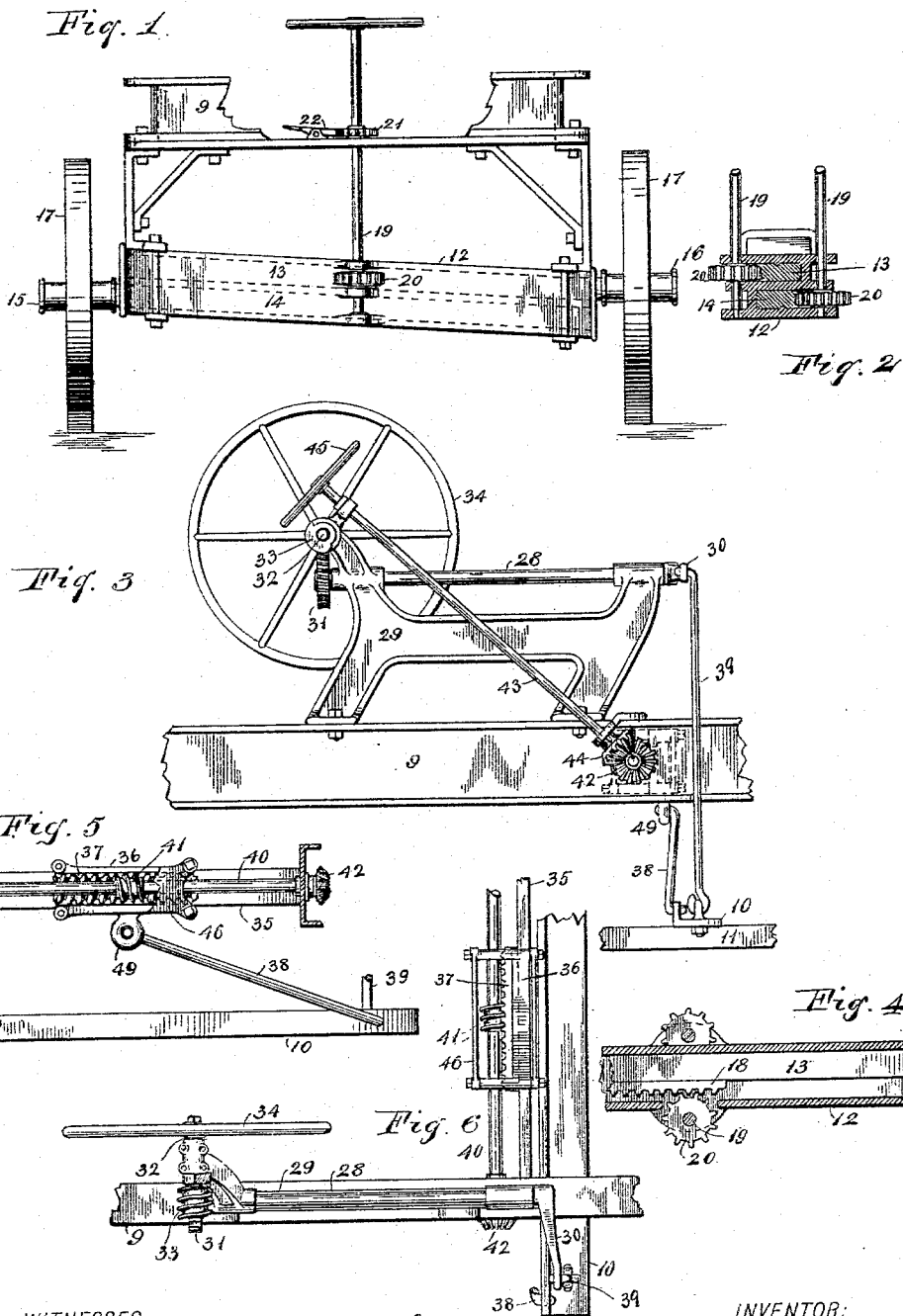


(No Model.)

H. J. SCHNEIDER.
WHEELED SCRAPER.

No. 533,561.

Patented Feb. 5, 1895.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

HENRY J. SCHNEIDER, OF FORT WAYNE, INDIANA, ASSIGNOR TO CHARLES PAPE, OF SAME PLACE.

WHEELED SCRAPER.

SPECIFICATION forming part of Letters Patent No. 533,561, dated February 5, 1895.

Application filed July 20, 1893. Serial No. 480,982. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. SCHNEIDER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Wheeled Scrapers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of wheeled scrapers in which a scraper blade is suspended directly, or by its attachments, from a frame mounted on wheels. Its objects are to provide improved devices, first, for the lateral adjustment of the scraper blade; second, for elevating the scraper blade to and from the ground, and third, for a horizontally adjustable axle, all of which devices can be and are embodied in a single machine, whereby it can be operated more conveniently and the mechanism more perfectly controlled under the varying conditions and requirements of actual service.

Other objects and advantages will hereinafter appear.

It is in some respects an improvement upon the construction shown in Letters Patent No. 479,444, issued to me, and dated July 26, 1892; and the invention consists in the construction and novel combination of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, in which—

Figure 1 is a view of the rear end of a road grader with part of the frame broken away illustrating the adjustable axle. Fig. 2 is a cross section of Fig. 1 on a line passing through the operating rods. Fig. 3 is a side view of the elevating mechanism and lateral adjusting mechanism attached to part of the frame of a road grader. Fig. 4 is a top view of part the adjustable axle showing the construction. Fig. 5 is a side view of part of the lateral adjusting mechanism; and Fig. 6 is a top view of the lifting mechanism connected with part of the frame of a road grader.

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

Referring to the drawings by numerals, 9 represents the frame of the road machine.

10 is the supporting bar to which the scraper blade or its supporting ring (11) is attached.

The construction for the adjustable axle consists essentially in a double axle box or sleeve (12) in which the two axles (13) and (14) are held in place firmly in two separate boxes or sleeves preferably a double box (12) respectively, the one axle above the other. These axles are provided at opposite ends with skeins or spindles (15) and (16) which are bent, so that when the two wheels (17) of equal diameter are mounted upon them, the two skeins or spindles (15) and (16) will be in the same horizontal line, and the wheels at right angles to such horizontal line; while the respective axles will be at an angle thereto. The braces which support the frame of the machine are adapted in length to hold it in horizontal position above the axles. By this construction each axle is held and operated independently of the other, and its action more perfectly controlled than where one axle is placed in front of another in a horizontal plane, and there is also a lighter draft.

Any suitable means to extend the axles may be used. I prefer attaching or forming a rack bar (18) on one side of each axle, preferably on the opposite sides thereof. On each side an operating rod (19) suitably mounted is provided with a pinion (20) held in engagement with the teeth of the rack bar (18) and a hand wheel is attached to the top of the rod for turning it. I also mount a toothed gear (21) upon each rod near or at the floor of the frame, and provide a catch (22) to engage and lock such toothed gear, whereby the axle is held rigidly and lateral motion of the axles is prevented when desired.

The lifting device for the scraper blade consists essentially in mounting a shaft (28) in bearings in line with the frame (9) of the machine on either side, preferably in a frame (29) attached thereto. One end of this shaft (28) is provided with an arm or lever (30) to which the lifting rod (31) is pivotally at-

tached, and the other end of the lifting rod (31) is pivotally attached to the supporting bar (10) of the scraper ring (11) to which the scraper blade, not shown, is attached, or it may be attached directly to the scraper blade in machines where rings are not used. The other end of this shaft (28) is provided with a worm gear wheel (31).

A cross-shaft (32) is mounted revolubly in bearings, preferably in the same frame (29) and is provided at one end with a worm gear (33) engaging the worm gear wheel (31), and at the other end with a hand wheel (34) for operating. By this construction the operator can stand on the rear part of the machine having all the machinery in front of him, and by operating a hand wheel on either side of him elevate and lower the scraper blade horizontally or at such angle as the work may require, the operation of the worm gear being such that it will always hold the parts in the positions in which they are placed without any locking device, which is not possible with the bevel gear used in other machines.

The device for lateral adjustment of the scraper blade is especially applicable to the class of road machines known as reversible. The construction is as follows: A cross piece (35) adapted to form a slide for a removable collar (36) is secured to both sides of the frame (9) at right angles thereto, and on it is mounted a movable collar (36) provided on one side with teeth (37) adapted to engage a worm gear. A shaft (40) provided with a worm gear (41) at or near its center is mounted revolubly in the frame (9), so that the worm gear (41) is in engagement with the gear teeth (37) of the collar (36), and a plate (46) secured to the collar (36) prevents the worm gear from being sprung out of engagement. A bevel gear wheel (42) is attached to one end of this shaft (40), and an operating rod (43) provided with a bevel gear wheel (44) at one end and a hand wheel (45) at the other is mounted revolubly with its bevel gear wheel (44) meshing with the bevel gear wheel (42) on the shaft (40). The hand wheel (45) is placed in convenient position for the operator. The operation of the shaft (40) moves the collar with great force and steadiness laterally. By connecting this collar 36 to the scraper blade or to its supporting attachments by a rod 38, the blade is caused to move laterally with the motions of the collar. The preferable method for such connection is shown in Fig. 5 and consists in attaching the shifting rod 38 pivotally at both ends, one end to a lug 29 on the collar 36 and the other end to a supporting bar 10 of the scraper blade.

The advantages of this construction are obvious. The adjustment is under perfect control, and does not require any locking or releasing mechanisms. It is an improvement on the device shown in the Letters Patent No. 479,466, issued to me, consisting in the substitution of a worm gear to the shaft and

worm gear teeth to the collar instead of using the threaded rod, whereby the operation is much more speedily performed, and the operator is thereby enabled to meet the emergencies of actual service more promptly. These devices relate to separate parts of a road machine, but they are all capable of being united and are united in one machine, co-acting with each other in operation to make the best and most efficient road grader yet offered to the public.

From the foregoing description of the construction and functions of each device and the elements thereof and the unitary actions of all the parts the practical operations of the complete machine will be readily understood by persons familiar with the art to which the invention appertains.

I claim as my invention—

1. In a wheeled scraper machine of the class specified the combination with the frame and the scraper-blade, of a supporting bar for the scraper-blade: a cross-piece attached to the frame and adapted to form a slide-bar for a movable collar: a movable collar mounted on said cross-piece and provided on one side with worm gear teeth: a shaft mounted revolubly in line parallel with said cross-piece and provided with a worm gear adapted to engage the worm gear teeth of said movable collar: a bevel gear wheel fixed on said shaft: a shifting rod attached pivotally to said collar and to said supporting bar: and an operating rod provided on one end with a hand wheel and at the other with a bevel gear wheel held in engagement with the said bevel gear wheel on said shaft.

2. In a wheeled scraper of the class specified, the combination with the frame and the scraper blade of the cross-piece 35, the movable collar 36 provided with worm gear teeth: the shaft mounted in the frame revolubly and parallel with said cross-piece and provided with worm gear and engaging the teeth of said collar, the rod 38, and means to operate said shaft.

3. In a machine for the purpose specified the combination substantially as described of the carrying frame mounted on wheels, with two boxes or sleeves for separate axles to slide in, one placed above and attached to the other: two axles adapted to slide snugly in said boxes respectively and provided at their opposite ends with skeins or spindles bent or attached at such angles from the respective axles so that they shall be in the same horizontal line: braces attached to said boxes supporting the frame with its end parallel with the line of said skeins: and means to extend said axles at will, independently of each other.

4. In a wheeled scraper machine of the class specified, the combination of the frame with an adjustable device consisting of two boxes or sleeves for separate axles to slide in and placed one above and attached to the other: two axles adapted to slide within said sleeves

and provided at their opposite ends with
skeys or spindles arranged in a coincident
horizontal line: means to support the frame
above said sleeves, and means to extend the
5 axles separately at will: a lifting device con-
sisting of the horizontal shaft 28, the lever 30,
lifting rods 31, worm gear wheel 31, cross
shafts 32, worm gear 33, and means for oper-
ating the cross shaft: and a device for lateral
10 adjustment consisting of the cross piece 35,

the collar 36, the shaft 40 provided with a
worm gear, the rods 38, and means to operate
the shifting rod.

In testimony whereof I hereunto subscribe
my name, in the presence of two witnesses, 15
this 13th day of July, A. D. 1893.

HENRY J. SCHNEIDER.

Witnesses:

A. FITZSIMONS,
H. C. HARTMAN.