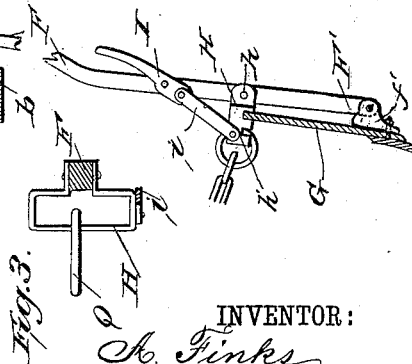
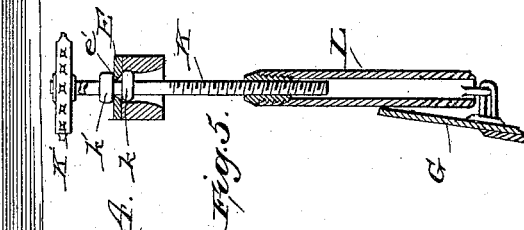
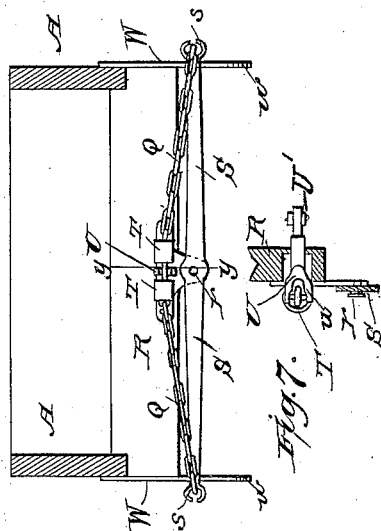


2 Sheets—Sheet 1.

No. 383,350.

Patented May 22, 1888.



WITNESSES:

Fred. G. Dietrich
R. B. Turpin,

INVENTOR:

A. Finks.
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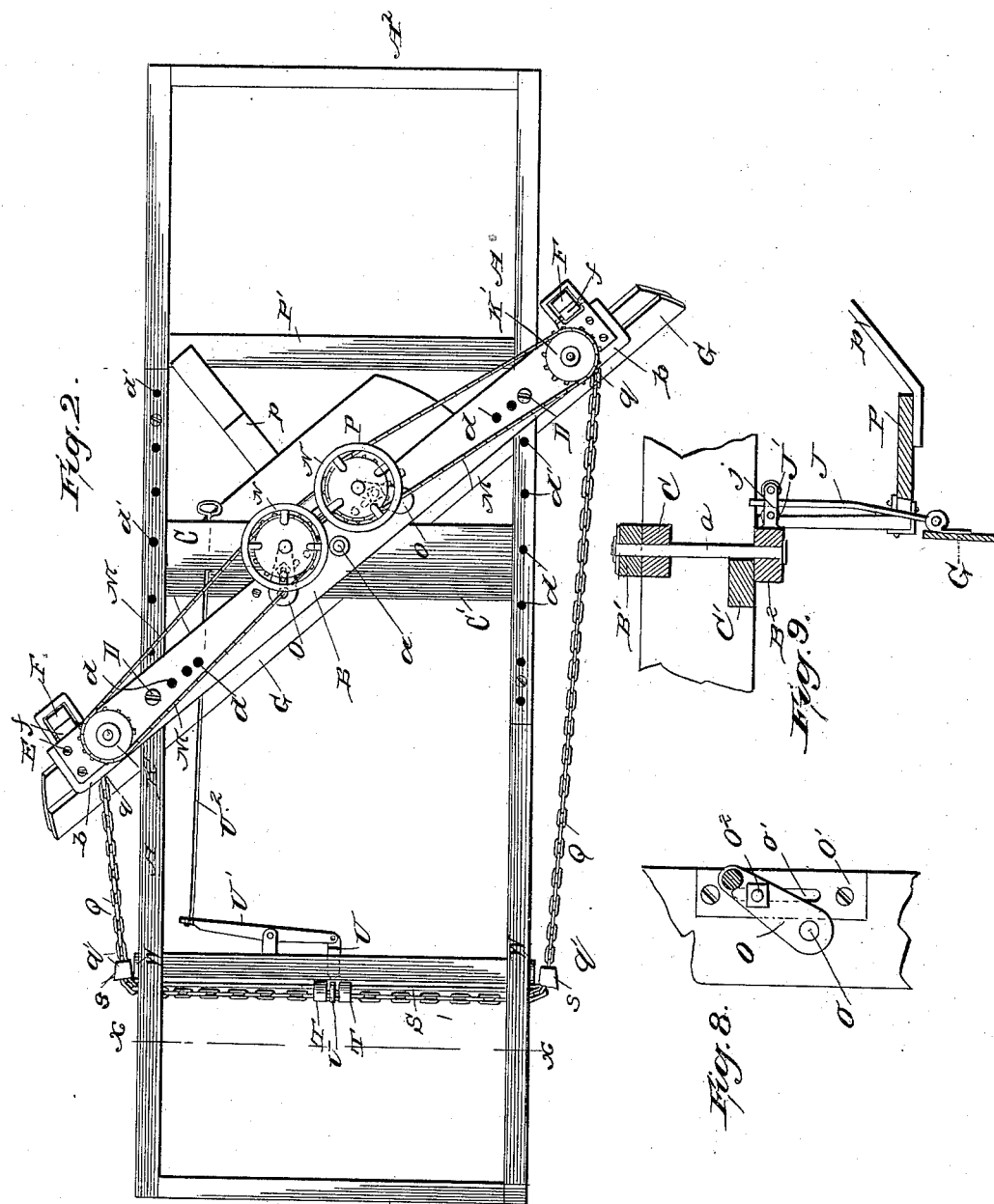
(No Model.)

2 Sheets—Sheet 2.

A. FINKS.
ROAD GRADER.

No. 383,350.

Patented May 22, 1888.



WITNESSES:

Fred. S. Dietrich.
P. B. Furber.

INVENTOR:

A. Finks.

BY

Munn & Co.

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UNITED STATES PATENT OFFICE.

ALBERTO FINKS, OF NEW BERLIN, NEW YORK.

ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 383,350, dated May 22, 1888.

Application filed August 10, 1887. Serial No. 246,616. (No model.)

To all whom it may concern:

Be it known that I, ALBERTO FINKS, of New Berlin, in the county of Chenango and State of New York, have invented a new and useful Improvement in Road-Machines, of which the following is a specification.

My invention is an improvement in road-machines and seeks to provide in connection with a reversible scraper simple and convenient means of securing the same in its different positions and for applying the draft to such scraper for adjusting such scraper vertically and for holding it at any suitable angle.

The invention seeks to provide other improvements; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation, one of the hind wheels being removed, of a machine constructed according to my invention. Fig. 2 is a top plan view of such machine, the running-gear being removed. Fig. 3 is a detail view of one of the box-clips of the scraper proper. Fig. 4 is a detail side view, part in section, of the scraper and one of its uprights. Fig. 5 is a detail view illustrating the devices for adjusting the scraper-blade vertically. Fig. 6 is a cross-sectional view on about line *x x*, Fig. 2. Fig. 7 is a detached vertical section on about line *y y* of Fig. 6. Fig. 8 is a detail view illustrating the support for one of the hand sprocket wheels and the means for adjusting such support, and Fig. 9 is a sectional view illustrating particularly the platform for the operator.

The main frame has side bars, *A A*, front and rear bars, *A' A'*, and is suitably supported on wheels, as shown. This main frame is provided between its ends and between its sides with a bearing at *a* for the scraper-frame *B*. This bearing is preferably provided in or by cross-bars *C C'*, which extend between the side bars, *A*, and are flush at the top and bottom with the top and bottom edges of said side bars, *A A*, as shown most clearly in Fig. 9.

The scraper-frame *B* has top and bottom bars, *B' B'*, which extend, respectively, over and under the main frame, and is provided with a central shaft, *B³*, by which it is pivoted to the main frame through the aid of the cross-

bars *C C'*, as shown. By preference the shaft is journaled in the top cross-bar, *C*, and in rear or to the rear side of the lower cross-bar, *C'*, which is arranged slightly in advance of the upper bar. By such construction a stronger support is provided for such scraper-frame, and one which will better sustain the shocks and jars incident to the use of the scraper proper.

The bars *B' B'* of the frame *B* are connected near their ends by uprights *B³*. It will be noticed that the bottom bar, *B²*, is shorter than the top one, *B'*, whereby I provide extensions *b* of the top bar at both ends of the frame, to which extensions I connect the hangers which support the scraper-blade. This construction is important, inasmuch as it provides the supports for the opposite hangers at suitable distances apart without necessitating the weight incident to forming the entire frame *B* of the desired length.

The frame *B* is adjustable on its central pivot to hold the scraper in one or the reverse position to cause it to work right or left, as may be desired. In order to secure the said frame *B* in any of its different positions, I provide pins *D* to pass through holes *d* in the top bar, *B'*, into holes *d'* in the side bars, *A*, such holes *d d'* being properly disposed to permit the securing of the frame *B* at any desired point.

On the extensions *b* of bar *B'*, I secure plates *E*, having guide-openings *e* for the scraper-blade uprights *F* and openings *e'* for the screw of the scraper-blade hanger. The uprights *F* extend up through openings *e* and bear at their front sides against anti-friction rollers *f*. At their lower ends the uprights *F* are connected with the scraper proper or blade *G* by being pivoted in boxes *F'*, which in turn are pivoted at *f'* to the blade near the lower edge thereof, thus permitting the movement of the scraper necessary to permit its adjustments to different angles, as well as permitting the necessary movement thereof in the elevation of one end thereof to a greater height than the other. These uprights form steady supports and braces for the scraper-blade. To the uprights I pivot at *h* the latches *H*, which also serve as the box-loops, and which have notches *h'* to engage the scraper. These latches serve to hold the blade in any desired adjustment and to permit it to

be dumped, as may be desired. In order to operate these latches I provide levers I, pivoted to the upright and connected by pitmen *i* with the movable end of the latch H. When the lever is turned to the position shown in Fig. 4, the pivotal connection of such lever with the pitman *i* will be out of line or in rear of the line between the pivot of the lever on the upright and the pivotal connection of the pitman with the latch, thus locking the latch in engagement with the scraper-blade.

Centrally between its ends the scraper has a steady-post, J, pivoted to it and extended up through a loop or guide, *j*, secured on the lower cross-bar, B², anti-friction rollers J' being provided in said guide *j* on opposite sides of the steady-post and prevent any binding of the steady-post in its guide. The plate E has its opening *e'* rounded or concaved at its lower end, and the collar *k* on the screw-rod K is also rounded to fit the rounded wall of said opening *e'*. The screw-shaft K has a collar, *k'*, above the plate E, and is held to such plate by the collars *k k'* bearing on opposite sides thereof. It will be noticed that the screw rod is loosely swiveled to the support or scraper frame through the aid of such plate E and is permitted a certain freedom of movement necessary or desirable for the scraper-blade, which it aids to support.

At its lower end the screw-rod K threads into a nut, L, connected with the scraper-blade. This nut is preferably a barrel or tube into which the screw-rod turns, and which encircles the end of the screw-rod past the threaded opening in such manner as to strengthen the connection. These parts K and L form the hangers by which the blade is suspended. By turning the screw-rod the scraper-blade may be raised or lowered, as desired. In order to effect this turning in a convenient manner I provide sprocket-wheels K' on the rods K, which wheels K' are geared by belts M with hand sprocket-wheels N, journaled on the outer ends of arms or plates O, which are pivoted at their inner ends *o* on the framing. By swinging these arms or plates O on their pivots the belts M may be tightened as desired, and as a means of securing the arms rigidly in any desired position I provide plates O', secured to the framing, and having slots *o'*, in which fit bolts O², which also engage the arms O. In operation, by loosening these bolts, the arms O may be turned to the desired position and then secured by tightening said bolts, as will be readily understood. It will be observed that the blade may be raised or lowered at either end independently of the other, and will be braced and steadied by the end uprights and central steady-post before described.

The operator's platform P is secured to and movable with the pivoted frame B. This is an important feature, inasmuch as thereby the operator is always in the same position with relation to the hand-wheels, through the aid of which he operates the devices for adjusting

the elevation of the scraper. To this platform P, I secure one end of a bar, *p*, which extends back and bears at its rear end on a cross-bar, P', provided in the main frame. This bar *p* moves from side to side as the platform is running with the frame B, and rests in its various positions on the cross-bar P', thus serving to steady and brace the platform. In applying the draft to the scraper I have sought to so arrange it that there would be no side-draft on either side in any adjustment of the scraper. To such end I carry the chains Q, or it might be ropes or other equivalent draft-connections, forward from the point *q*, where they connect with the scraper, in a line with the direction of motion of the machine, providing them with a bearing or attachment at *q'*, directly in said line. The draft-chains might be secured at this point *q'* to the framing without departing from some of the broad features of my improvement; but I prefer the construction as shown, and which I will hereinafter describe. It will be noticed that I secure a direct forward draft on both sides of the scraper.

In connecting the rear end of the chains Q, instead of securing them immediately to the scraper-blade, I attach them indirectly thereto through the aid of the uprights F, to which are secured box-loops H, to which the chains Q are secured. These loops H are elongated laterally, and the chain can play therein from side to side and thus avoid any twisting of the uprights by the force of the draft.

To a cross-bar, R, arranged near the front of the main frame, I pivot at *r*, centrally between its ends, a lever, S, which extends at its ends past the sides of the machine and is provided at such ends with guides *s* for the chains Q. These chains Q at the sides of the machine are preferably united or formed in a single chain passed through the guides *s* and across the main frame from side to side, passing centrally through loops T T. The chain, it will be seen, as the scraper is swung from one to the reverse position, also runs through the guides T and *s*, and may be secured, when desired, by means of the clamp U, arranged intermediately between the guides *s*. This clamp U has preferably a claw-like head, *u*, fitted to engage the chain and secure it, and moves through an opening in the cross-bar R, and may be operated at will from the platform. This is, by preference, effected by the aid of the lever U' and the handle-rod U². (Most clearly shown in Fig. 2.) To support the lever S at its end, I provide brace-bars W, fixed firmly to and depending from the main frame in rear of the ends of the lever S, thus relieving said lever of strain. At their lower ends the bars W have stop-hooks *w*, which prevent the ends of the lever from being forced down below the supports W. The advantage of this pivoted lever S is that by it the guides *s* for the chains Q may rise and fall to correspond with the elevation of the scraper proper, so that the draft will at all times be horizontal,

or approximately so, thus avoiding any lifting draft on the scraper.

The machine in operation will be found to work easy and give good results. It will be noticed that in the different adjustments of the scraper-blade and its frame I provide independent fastenings for the frame and for the blade, the clamp for the chain Q serving as a fastening for the blade, and the pin D locking the frame in position.

It is believed that the operation and advantages of the several parts will be fully understood from the foregoing description.

Manifestly the main frame may be of any suitable construction to support the operating parts of the machine.

Having thus described my invention, what I claim as new is—

1. In a road-machine, a main frame having guides at its opposite sides for the scraper draft-chain, combined with a reversible scraper and a draft-chain passed around the guides of the main frame and connected at its ends to the scraper, such guides being arranged approximately directly in advance of the point of connection of the draft-chains and scraper, whereby the draft on such scraper will be in the direction of motion in the different adjustments of the scraper, substantially as and for the purposes specified.

2. In a road-machine, a main frame and a scraper, combined with draft-chains connected with such scraper and vertically-adjustable guides for said draft-chains, substantially as set forth.

3. The combination, in a road-machine, with the main frame and the scraper, of the draft-chains and the lever or bar pivoted between its ends, and having at such ends guides for the chains, substantially as set forth.

4. The scraper and the upright connected therewith and having a loop, H, elongated laterally, combined with the draft-chain connected with said loop and movable from side to side thereof, whereby to avoid any twisting of the upright, substantially as set forth.

5. The combination, in a road-machine, of the main frame, the lever or bar S, pivoted between its ends, and the supporting-plates W, arranged directly in rear of the ends of said pivoted lever, substantially as and for the purposes specified.

6. In a road-machine, the main frame and scraper, combined with the pivoted lever S, having guides at its ends, the plates W, arranged directly in rear of the ends of the lever and provided at their lower ends with hooks or stops w, and the draft-chains, substantially as set forth.

7. In a road-machine, the combination of the main frame, the scraper, the draft-chain extended across the frame from side to side and connected with the scraper, the side guides for the said chain, and a clamp for securing the same, substantially as set forth.

8. In a road-machine, the main frame, side

guides, and scraper, combined with the chain, and a clamp arranged between said side guides and adapted to secure the chain, substantially as set forth.

9. The combination, in a road-machine, of the main frame, the scraper, the draft-chain, the pivoted lever S, having guides at its ends, the loops T T, and the clamp U, operating between said loops T, substantially as set forth.

10. In a road-machine, the combination of the main frame, the scraper, the draft-chain, the lever S, having guides s, the plates W, having hooks or stops w, the loops T T, the clamp U, operating between said loops and the lever U', and handle U², substantially as and for the purposes specified.

11. In a road-machine, a scraper proper or blade and upright or support, as F, combined with a pivoted latch, H, a lever, I, and a link, i, connecting said lever I with the latch H, all arranged and adapted for use substantially as and for the purposes specified.

12. In a road-machine, the combination, with the scraper proper or blade, of the box F', pivoted to the said blade, and the upright F, pivoted to said box, substantially as set forth.

13. In a road-machine, the combination of a scraper-blade, a nut connected therewith, and a screw engaging said nut and loosely swiveled at its upper end, substantially as described, whereby the said screw may be turned or rotated and may swing at its lower end, substantially as and for the purposes set forth.

14. In a road-machine, a changer, substantially as described, consisting of a screw-rod and a tube or sleeve, L, having a threaded bearing for the said rod and adapted below the said bearing to brace such rod, substantially as set forth.

15. The combination, in a road-machine, of the blade, the tube or sleeve connected therewith and having a threaded bearing, and the screw-rod engaging said bearing and loosely swiveled on its supporting-frame, substantially as set forth.

16. The combination, in a road-machine, of the scraper-frame having end extensions, b, provided with bearings in which to swivel the screw-rods and with guides for the uprights, the blade, and the hangers and uprights, substantially as set forth.

17. In a road-machine, the combination, with the screw-rod and the sprocket-wheel K' therefor, of the sprocket-wheel N, the arm or bar O, pivoted at one end and having the wheel N on its opposite end, and the belt connecting said sprocket-wheels, substantially as set forth.

18. The combination, in a road-machine, with suitable supports or framing, of an arm or bar, O, pivoted at one end, whereby its opposite end may be swung toward or from a given point, a plate on the frame, a bolt connecting such plate with the pivoted arm or bar, the pulley or wheel supported on the

swinging end of the pivoted plate, and the belt for connecting such pulley with the pulley to be operated, substantially as set forth.

19. In a road-machine, the combination of
5 the main frame, the scraper, the draft-chains connected with said scraper, and vertically-movable guides, as *s*, for said draft-chains, said guides being connected, whereby the raising or lowering of one will effect a reverse
10 movement of the other, substantially as set forth.

20. The combination of the main frame having a bar or bearing, *P'*, the scraper-frame, the platform fixed to said frame, and the brace *p*,
15 connected with said platform and resting and moving on the bearing *P'*, substantially as set forth.

21. The combination, in a road-machine, of the main frame, the reversible scraper-frame,

both having openings suitable to receive a 20 pin, with a pin fitted to said openings, whereby to lock the scraper-frame in any desired position, substantially as set forth.

22. In a road-machine, the main frame, the reversible scraper-frame and the scraper sus- 25 pended therefrom, and the draft-chain therefor, combined with the clamp for securing said chain and the lock for securing the scraper-frame in its different adjustments, substantially as set forth. 30

The above specification of my invention signed by me in the presence of two subscribing witnesses.

ALBERTO FINKS.

Witnesses:

P. B. TURPIN,
SOLON C. KEMON.