

(No Model.)

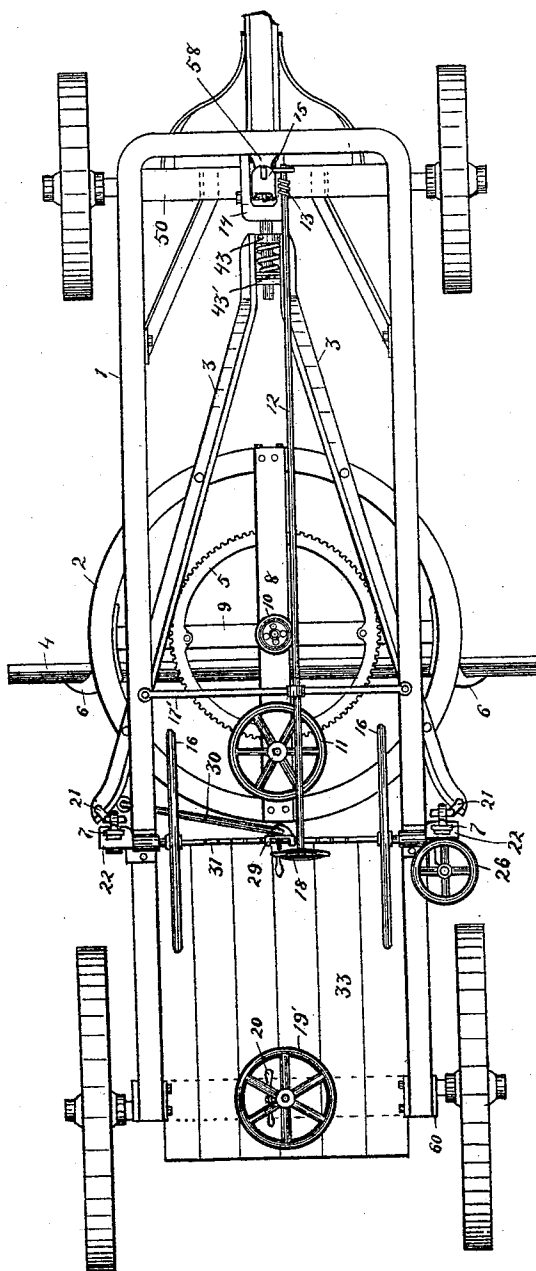
4 Sheets—Sheet 1.

B. POULSON.
ROAD WORKING MACHINE.

No. 585,227.

Patented June 29, 1897.

Fig. 1.



WITNESSES:

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INVENTOR

BY *Chapin & Denny*
his ATTORNEYS.

(No Model.)

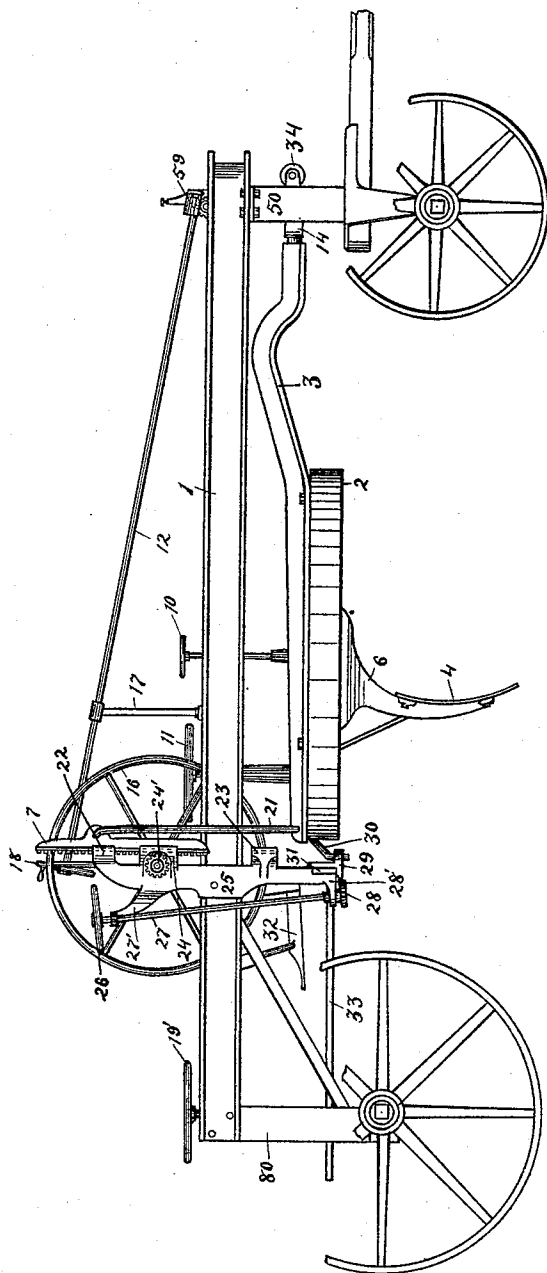
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Fig. 2.



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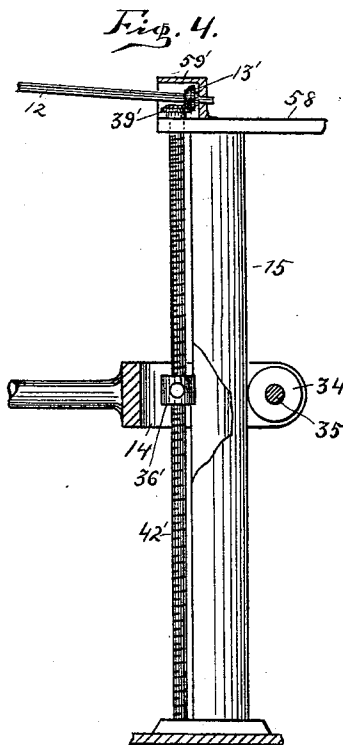
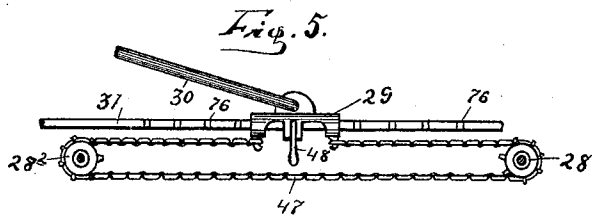
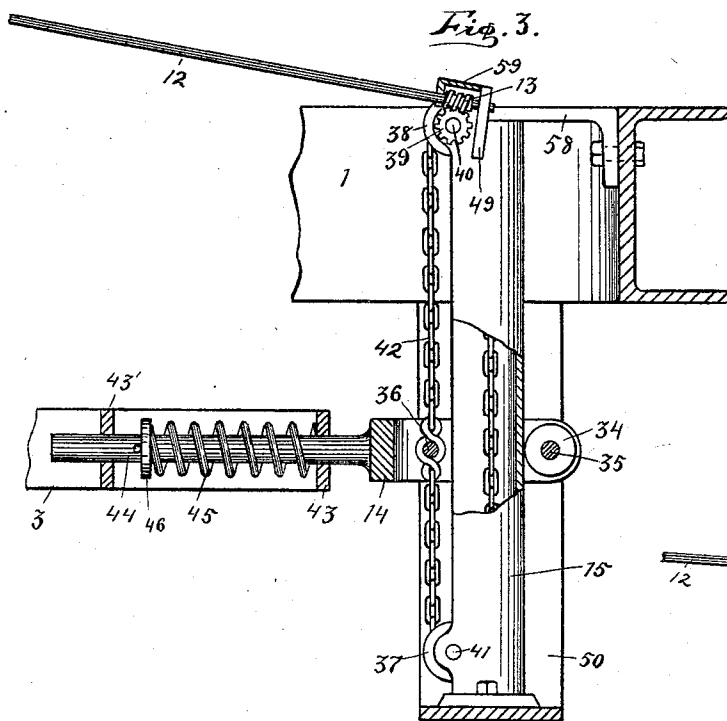
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Fig. 6.

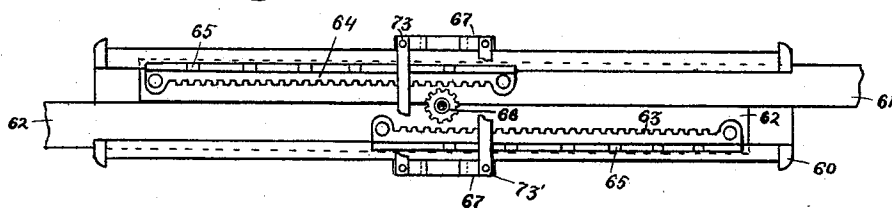


Fig. 7.

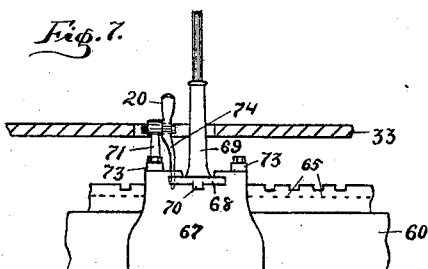


Fig. 8.

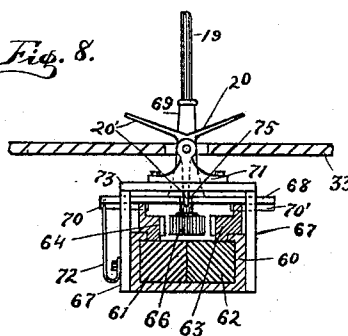
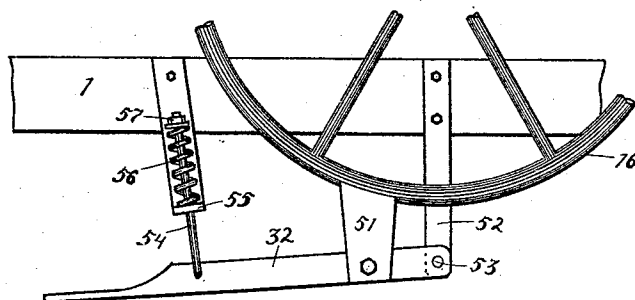


Fig. 9.



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UNITED STATES PATENT OFFICE.

BRITTON POULSON, OF FORT WAYNE, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE INDIANA ROAD MACHINE COMPANY, OF SAME PLACE.

ROAD-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 585,227, dated June 29, 1897.

Application filed May 26, 1894. Renewed January 11, 1897. Serial No. 618,894. (No model.)

To all whom it may concern:

Be it known that I, BRITTON POULSON, 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 Road-Working Machines; 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.

In an application filed November 3, 1893, Serial No. 498,919, I have described and specifically claimed certain features, parts, and combinations of features in road-working machines, and I do not, therefore, herein claim the features and combinations so expressly and specifically claimed.

The present invention relates to certain improvements in the means for raising and lowering the forward end of the draw-bars in a road-working machine, on which the scraper-blade is mounted; in the means for effecting the vertical and horizontal adjustments of the scraper-blade, and in the construction and arrangement of the rear axle to secure a lateral extension of the same.

The object, therefore, of my invention is to provide more efficient means for effecting the various adjustments of the scraper-blade and for controlling the operating mechanism under the various conditions of actual service.

Another object is to provide an improved laterally adjustable or spreading rear axle.

Referring to the drawings forming part of this specification, Figure 1 is a plan view of a road-working machine embracing my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a detail in vertical section of the means for raising and lowering the forward end of the bifurcated draw-bars. Fig. 4 is a modified form of the same. Fig. 5 is a plan view of the horizontal shifting device for securing a lateral adjustment of the scraper-blade. Fig. 6 is a plan view of my improved shifting axle, showing the mechanism for operating the same. Fig. 7 is a detail of the same. Fig. 8 is a cross-section of

Fig. 6. Fig. 9 is a side view of the brake for the hand-wheel 16.

The operating mechanism, as in my pending application above mentioned, is mounted upon a carrying-frame 1, which is supported upon front and rear axles with traveling wheels by front and rear standards.

My improved means for raising and lowering the forward ends of the draw-bars consists of the hollow upright post 15, rigidly secured to the base of the oblique frame-supporting braces 50, which post is further stayed by the horizontal brace 58, having one end secured to the top of said post and the other end to the forward end of the frame 1, Fig. 3. The said hollow post or standard 15 is open upon its rearward side and has two pulleys 38 and 37 rigidly mounted on the revoluble shafts 40 and 41, respectively, in the upper and lower ends thereof. The said pulleys have their perimeters properly grooved and adapted to receive the links of the endless chain 42, which is mounted thereon and is secured at one point to the draw-head 14 by the bolt 36.

Upon one end of the shaft 40 is rigidly mounted the pinion 39, adapted to mesh with the worm-gear 13 on the rod 12, which is obliquely and rearwardly extended to the platform 33 and is loosely mounted in the top of the standard 17, which in turn is supported by the cross-bar 17'. The said rod 12 is provided at its rear end with a hand-wheel 18 for operating the same, and the forward end, bearing the worm 13, is loosely mounted in the perforated lug 49, integral with the standard 15. The said worm-gear is inclosed by the semi-circular cap or shield 59.

The draw-bars 3 are united at their forward extremity by the integral cross-pieces 43 and 43'. The bifurcated end of the draw-head 14 incloses the standard 15 by means of the shaft 35, on which is loosely mounted the roller 34, adapted to roll on said standard, while the other end of said draw-head is loosely mounted in suitable perforations in the cross-bars 43 and 43', has a fixed washer 46, and is surmounted by a coil-spring 45, arranged between the said washer and the cross-bar 43, and is adapted to break the effect of a sudden stop-

page of the machine by contact with an obstacle.

Instead of the chain 42, secured to the draw-head by the bolt 36, a screw-shaft 42' (seen in Fig. 4) may be substituted for the same purpose and secured to the draw-head by the perforated bolt 36', in which case the pulleys 37 and 38, the pinion 39, and the worm-gear 13 are omitted, and instead thereof the two bevel-pinions 39' and 13', adapted for engagement, are mounted, respectively, on the upper end of the screw-shaft 42' and the forward end of the rod 12, which is mounted in the cap or box 59'. The said pinions are inclosed and protected by the cap or box 59', open at the rear end and integral with the brace 58. The ring 2 is also provided with the rigid diametrical cross-bars 8 and 9, the concentric toothed ring 5, having suitable means for operating the same, and a locking device 10, and an operating hand-wheel 11, as described in said pending application.

My improved means for adjusting the scraper-blade vertically and laterally consists of the duplicate standards 25, rigidly secured to the outer side of the frame 1 at a proper point in the rear of the supporting-ring 2 and the operating mechanism mounted thereon. In suitable lateral perforations in the said standard 25 are loosely mounted proper shafts, carrying upon their inner ends the rigidly-mounted hand-wheels 16 and upon their outer ends the pinions 24', adapted for engagement with the rack-bars 7 through the slotted lugs 24. The said standards 25 are provided with lugs 22, 23, and 24, having laterally-grooved vertical slots adapted to contain and secure the laterally-flanged and vertically-movable rack-bars 7, which mesh with the pinions 24' and support the rear end of the said draw-bars by means of the loosely-mounted hanger-rods 21, as seen in Fig. 2.

It is obvious that turning the hand-wheels 16 will raise or lower the scraper-blade by the engagement of the pinion 24' with the rack 7, and the said blade will be secured in any desired vertical adjustment by the shoe-mounted brake-lever 32, hereinafter described.

At the front edge and at the lower end of the standards 25 is rigidly fixed the cross-piece 31, having a series of transverse notches 76, as seen in Fig. 5. Upon the upper edge of the said cross-piece 31 is arranged the slidable locking device 29, having an internal longitudinal retaining-slot (not shown) for the upper edge of the said cross-piece 31, a slotted lug at the center of its length, in which is pivotally mounted the gravity-pawl 48, normally in engagement with the said notches, and rearwardly-projecting hooks, to which the ends of the sprocket-chain 47 are secured. The said locking device is connected with the rear end of one of the draw-bars by the rod 30.

In the perforated lugs 28' on the lower ends of the standards 25 are loosely mounted short vertical shafts having upon their lower ends

the rigid sprocket-wheels 28 and 28², on which is mounted the sprocket-chain 47.

The sprocket-wheel 28 has a vertical operating-shaft loosely mounted in a rearwardly-projecting lug 27 on the standard 25 and provided with a hand-wheel 26, Fig. 2, the rotation of which effects a lateral adjustment of the ring 2.

The scraper-blade is firmly secured in any position of vertical adjustment by means of my improved brake, adapted to normally bear upon the perimeter of both hand-wheels 16, and comprises a hanger 52, secured to the inner face of the frame 1, a pedal brake-lever 32, pivotally connected to the lower end of the said hanger-rod, a vertical brake-shoe 51, rigidly secured to said lever and adapted to engage the perimeter of the hand-wheel 16, and a hanger 55 with a tension-rod 54 loosely mounted therein, having a threaded nut 57 mounted thereon, adapted to regulate the holding friction of the brake-shoe on the perimeter of said hand-wheel by raising or lowering the said nut 57 on the screw-threaded rod 54, Fig. 1.

My improved shifting axle consists of the axles 61 and 62, longitudinally adjustable in the open-topped box 60 and having rigidly secured thereon the rack-bars 64 and 63, respectively, Fig. 6. The said rack-bars are provided with a longitudinal vertical flange having transverse slots 65 and 65', respectively, for engagement with a locking device hereinafter described.

On the sides of the box 60, equally distant from the ends thereof, are rigidly fixed the vertical plates 67, Figs. 7 and 8, connected by the parallel cross-plates 73 and 73'. The tops of the said plates 67 are properly slotted to contain the ends of the cross-plate 68, having a slot 75 upon one edge thereof and having at each extremity the depending locking-lugs 70 and 70', adapted to be held normally in engagement with the slots 65 and 65' on the said rack-bars by means of the spring 72, which has one end secured to the plate 67 and the other end to one extremity of the plate 68.

In the standard 71, rigidly fixed on the cross-plate 73, is pivotally mounted a pedal-lever having three radial arms, the pedal-arms 20 and 20' being arranged to project above the surface of the platform 33, on which the operator stands, and the downwardly-projecting vertical arm is arranged in the slot 75 and is adapted to actuate the plate 68 in its endwise movement and thereby disengage the locking-lugs 70 and 70' from their engagement with the rack-bars 64 and 63, respectively.

The hollow standard 69, firmly fixed on the plate 68, preferably cast integrally therewith, contains the loosely-mounted rod 19, which passes through the said plate 68 and has upon its upper end the rigid hand-wheel 19' and upon its lower end the rigid pinion 66, adapted for engagement with the teeth of the said rack-bars 63 and 64, when brought into contact therewith by the said movement

of the plate 68. It is obvious that the movement of the said pedal-lever which unlocks one of the said rack-bars will simultaneously bring the pinion 66 into engagement with the said unlocked rack-bar, when the rotation of the said pinion, by means of the hand-wheel 19, will longitudinally extend the corresponding axle in the box 60 in the desired direction.

It is obvious from the above description that the operator from the same rear platform 33, which is suspended in any proper manner from the standards 25 and 80, Fig. 2, can readily and conveniently raise and lower the front end of the draw-bars by means of the hand-wheel 18, can raise or lower the blade by means of the hand-wheels 16, when released from their normal engagement with the spring-actuated brake, and can move the blade and its attachments laterally from one side of the supporting-frame to the other by means of the hand-wheels 26, and which can be operated either separately or simultaneously when disengaged from the said brakes. The operator can also readily extend either or both of the said axles 61 and 62 longitudinally in the box 60 by means of the hand-wheel 19 and the said pedal-lever which actuates the slidable plate 68.

Having thus described my invention and the operation of the same, what I desire to secure by Letters Patent is—

1. In a road-working machine a device for raising and lowering the forward end of the draw-bars, comprising a hollow vertical post or standard 15 rigidly mounted on the oblique braces 50, and carrying at its extremities proper pulleys having an endless chain or cable mounted thereon, and secured to the draw-head as described, and a pinion 40 adapted to mesh with the worm 13 on the shaft 12 and thereby actuate the said pulleys, an oblique shaft 12 mounted in a proper supporting-standard 17 and provided with a worm 13 adapted for engagement with the said pinion, and a bifurcated draw-head 14 loosely mounted in the said draw-bars and secured to the said chain or cable and inclosing the said standard 15, all substantially as described.

2. In a road-working machine, the slotted cross-bar 31 rigidly secured at its extremities to the vertical standards 25, provided with a slidable locking device 29 connected to the draw-bars by the rod 30, as shown, and having an actuating sprocket-chain 47 connected thereto, as described, and mounted on the revoluble sprocket-wheels 28 and 28², one of which wheels is provided with an operating-rod 27, all substantially as and for the purpose set forth and described.

3. In a road-working machine having a frame mounted on wheels, the combination of the vertically-adjustable bifurcated draw-bars having the blade-supporting ring rigidly mounted thereon, means for raising and lowering the front end of the said draw-bars, comprising the vertical standard 15 carrying an endless chain in which the front ends of the draw-bars are mounted, and provided with the described mechanism for actuating the said chain, a single blade-supporting ring having a locking device mounted thereon, as described, the oscillatory blade rigidly mounted on said ring and means for oscillating the same, the slotted cross-bar 31 carrying the slidable locking device 29, and means for operating the same, the said locking device being adapted to effect a lateral adjustment of the said blade, the described means for vertically adjusting the rear end of the said draw-bars, and a shifting rear axle comprising the axles 61 and 62 with the described means for operating the same, all substantially as described.

4. In a machine for the purpose specified a device for lateral adjustment of the blade, comprising a cross-bar 31, rigidly secured to the standards 25 having upon its upper surface a series of notches 76 and provided with a slidable locking device 29 connected to the rear end of the draw-bars by the rod 30, having a gravity-pawl 48 and provided with a sprocket-chain 47 mounted on proper sprocket-wheels loosely mounted in the said standards 25 and having an operating-rod 27 to actuate the said wheels as shown, all substantially as described.

5. In a road-working machine, a shifting rear axle comprising the axles 61 and 62 loosely mounted in the box 60 and having the rigidly-mounted rack-bars as shown, provided upon their upper surface with a series of locking-notches, and adapted for alternate engagement with a horizontal actuating-pinion, the fixed slotted vertical plates 67 in which is mounted the slidable cross-plate 68 having upon both ends thereof depending locking-lugs adapted for engagement with the said rack-bars and bearing the rigid hollow standard 69 having the operating-shaft 19 loosely mounted therein and carrying upon its lower end the rigid pinion 66 adapted to engage the said rack-bars and a pedal-lever having a vertical arm adapted to actuate the cross-plate 68, all substantially as described.

Signed by me, at Fort Wayne, State of Indiana, this 3d day of May, A. D. 1894.

BRITTON POULSON.

Witnesses:

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SIDNEY C. LUMBARD.