

(No Model.)

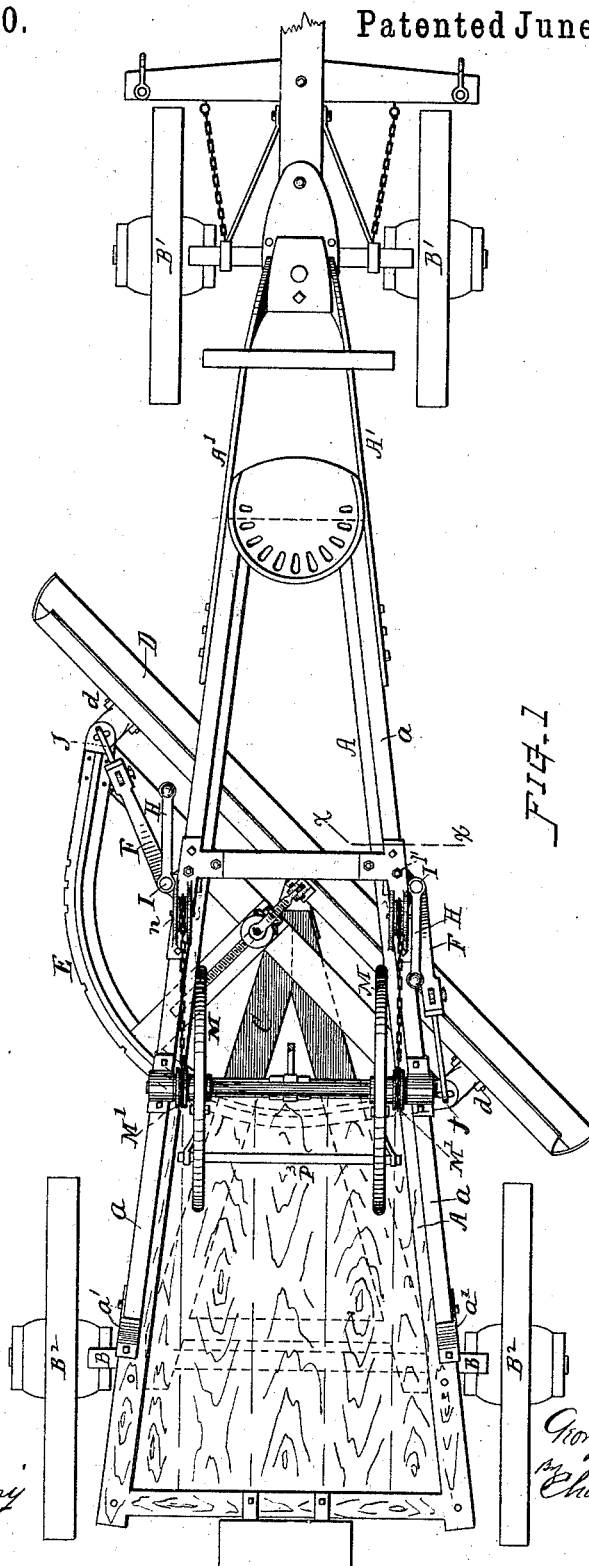
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G. W. TAFT.

MACHINE FOR MAKING, REPAIRING, AND CLEANING ROADS.

No. 344,690.

Patented June 29, 1886.



Witnesses:

*Henry Shaw*  
*J. T. Darling*

Inventor:

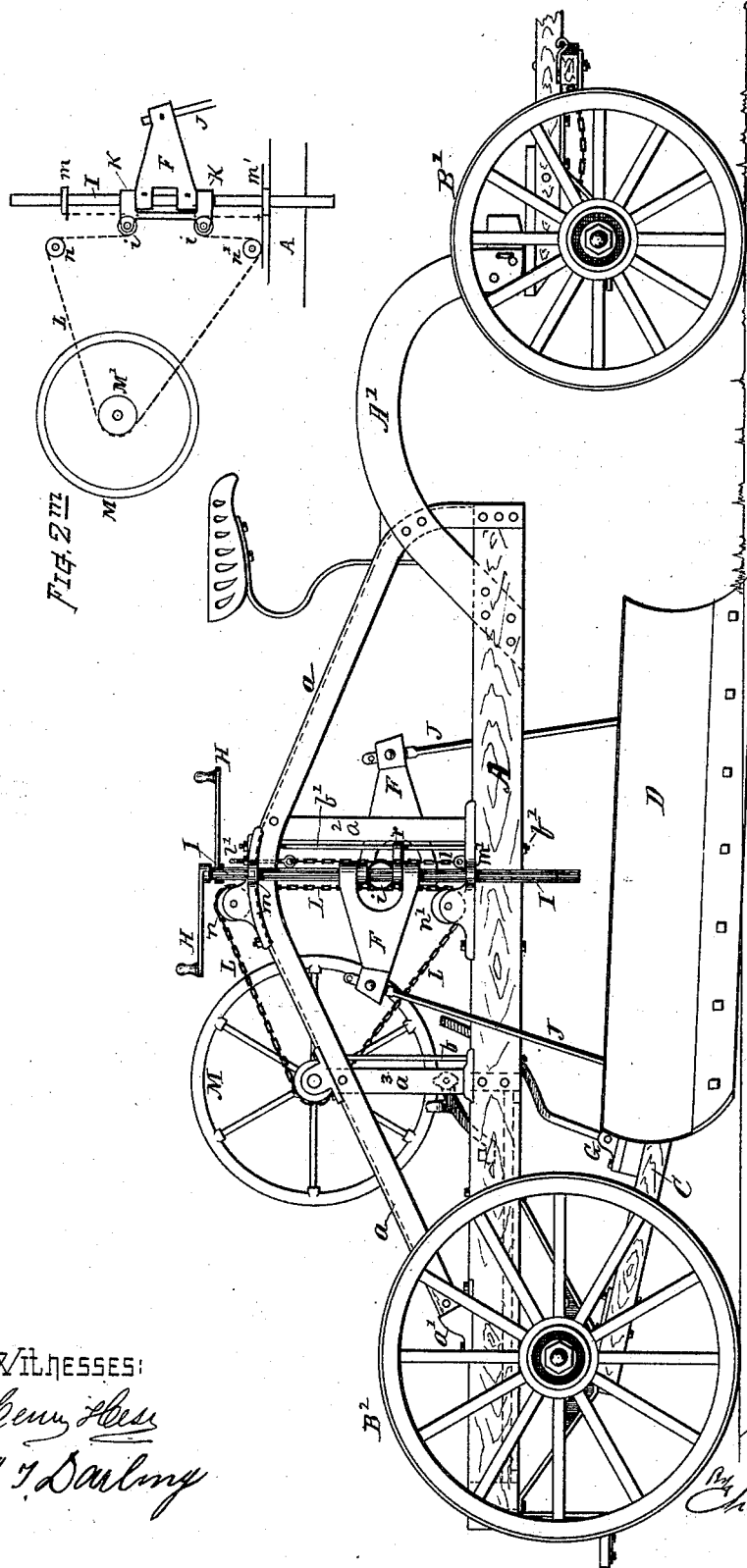
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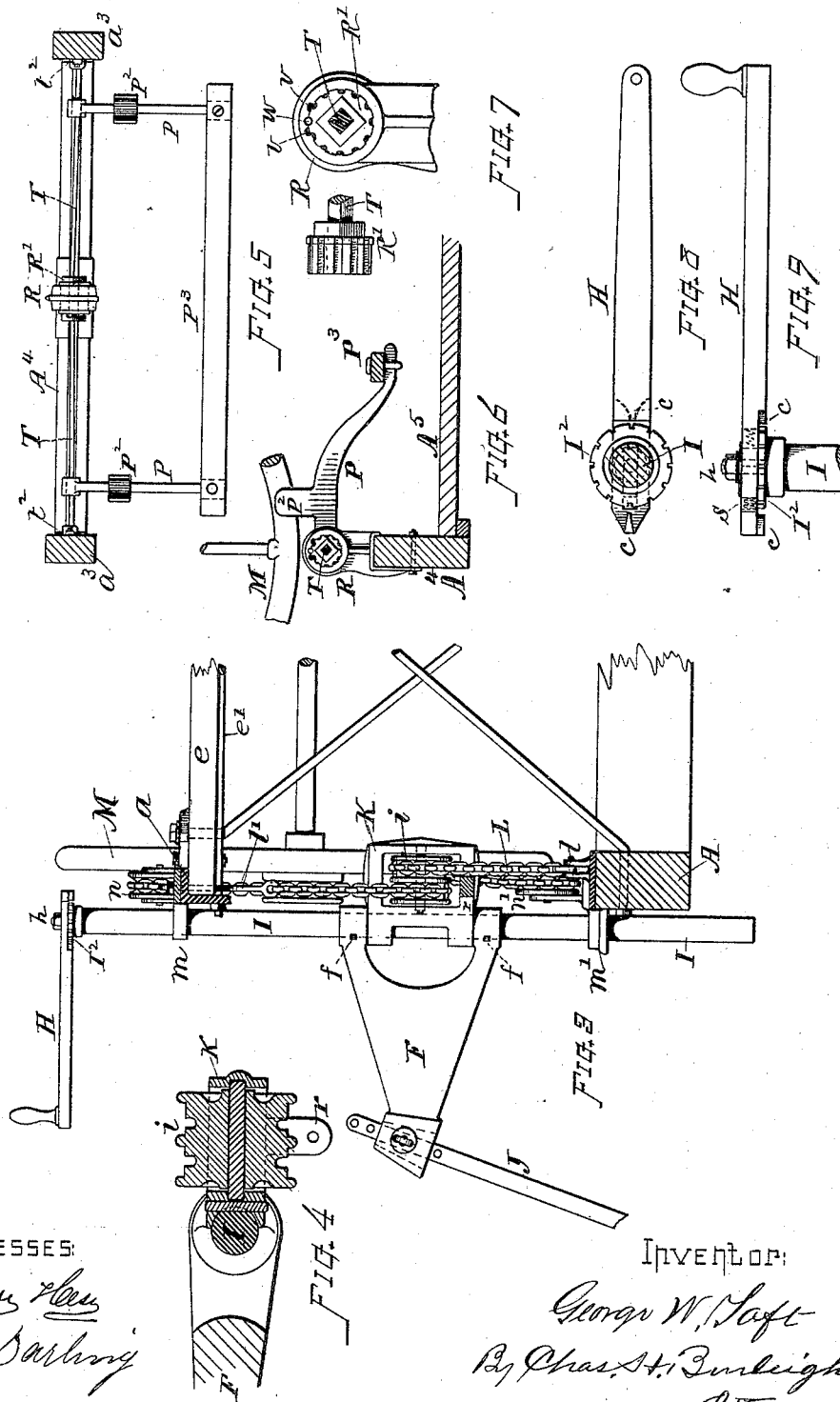
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*Henry Shaw*  
*J. T. Darling*

Inventor:  
*George W. Taft*  
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Attorney

# UNITED STATES PATENT OFFICE.

GEORGE W. TAFT, OF POMFRET, CONNECTICUT.

## MACHINE FOR MAKING, REPAIRING, AND CLEANING ROADS.

SPECIFICATION forming part of Letters Patent No. 344,690, dated June 29, 1886.

Application filed January 13, 1886. Serial No. 188,432. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. TAFT, a citizen of the United States, residing at Abington, in the town of Pomfret, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Machines for Making, Repairing, and Cleaning Roads, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

This invention relates to improvements in that class of road-machines in which the working blade or scraper is adapted for or capable of reverse diagonal adjustment in relation to the direction of draft, and is supported in connection with a carriage or body mounted on traveling wheels, and furnished with mechanism for effecting the adjustment of the scraper to the various positions required for efficiently executing the work for which the machine is intended.

The objects of my present invention are, first, to provide a construction of body-frame that will be sufficiently strong to resist the heavy downward strains that occur when the scraper is plowing deeply in heavy soil, or cutting under roots or stones; second, to provide an improved, simple, and desirable construction of adjusting mechanism for elevating and depressing the blade; third, to afford facilities for swinging or working the blade-supporting devices when effecting the diagonal adjustment of the scraper; and, fourth, to provide, in combination with the blade-adjusting devices, an improved adjustable tension-brake mechanism. These objects I attain by mechanism the nature, construction, and operation of which is shown in the accompanying drawings and explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a plan view of a road-machine illustrating my invention. Fig. 2 is a side view of the same. Fig. 3 is a transverse vertical section at line *xx*, Fig. 1, showing on larger scale the detail of construction of the blade-lifting mechanism at one side or half of the machine. The other side

or half is similar, but arranged in opposite or reversed order. Fig. 4 is a horizontal section through the supporting-rod and lifting-sheaves. Figs. 5, 6, and 7 are detail views showing the construction of the brake and tension spring mechanism, and Figs. 8 and 9 show details of the reversing-handle.

The present invention embraces certain improvements applicable to the machines described in my former Letters Patent Nos. 276,093, 315,184, 331,920, and 333,572, and my application Serial No. 173,968, and reference may be had to the specifications therein, if desired, for a more full understanding of the construction and operation of such parts of the machine as are not herein specifically explained.

Referring to parts, A denotes the carriage body or frame, mounted on axles and wheels B' B', in the usual manner, the front of the body being formed with arch-irons A', to permit the forward wheels to swing under when turning the team. In my present improvement I employ at each side of the body a hogging-bar or trussing-frame, *a*, formed from a rolled bar of angle-iron bent to proper shape and having its forward end fixed or riveted to the arch-iron A' and to the forward end of the timber A, and its rear end abutting against a step-block, *a'*, and secured to the timber A by the bolts which hold the frame to rear axle, B, or in other equivalent manner rigidly fixed in place above the side piece, A, so that the central part of said angle-iron or hog-bar *a* stands at a proper height to sustain the blade supporting and adjusting mechanism. Stud *a<sup>2</sup> a<sup>3</sup>* are arranged between the parts *a* and A and straining-bolts *b b'* connect said parts firmly together at positions intermediate between their ends. A girt, *e*, and connecting-rod, *e'*, extend across from one bar *a* to the other, to secure and brace the two bars *a* together from side to side at the top. I thus produce a very rigid, strong, and serviceable frame, and at the same time one convenient for supporting the working parts while giving desirable appearance to the machine.

The thrust-frame C, blade D, and its semi-circle E, with locking devices G and hinging devices *d*, may be of ordinary or heretofore-employed construction. The respective ends

of the blade may be, as heretofore, suspended by means of rods J, in connection with arms or swinging cranes F, which latter are in my present improvements carried by vertically-reciprocating pivot-rods or upright shafts I, preferably arranged at the outer sides of the carriage body or frame, and properly supported to turn and to slide in or through suitable guides or bearings, *m m'*, arranged upon or attached respectively to the timber A and hogging-bar *a*, substantially as indicated. The ends of said rods, which extend above and below the frame, are of such length that the rods will not slide out of their bearings at either end with the movement required for the elevation and depression of the scraper.

The hubs of the arms F are fixed upon or keyed to their respective rods I, which rods are each provided with a lifting-block, K, carrying sheaves or pulleys *i*, for the operating-chains L, which latter are arranged in the peculiar manner indicated.

The hand-wheel M, having a sprocket-wheel, M', formed on or attached to its hub, is mounted on a stud, shaft, or journal connected with or extending across the hog frame or bars *a*. Small guiding-sheaves *n n'* are supported in connection with the upper and lower parts of the frame. The operating chain L has one end, *l*, fixed to the beam A or foot-casting at *m'*, from whence it extends up over the top of sheave *i* down and beneath the guide-sheave *n'*, thence around the sprocket-wheel M', and over the upper guide-sheave, *n*, then down to and around the lower side of sheave *i*, then up to the bar *a*, to which its end is attached, preferably by means of an adjustable eyebolt, *l'*, arranged in vertical position through the bar *a*, and provided with a screw-nut, or connected to the frame by other equivalently-adjustable attaching devices, whereby the tension of the chain can be regulated. With this arrangement of the sheaves and chain, in connection with the rods I, the cranes F and ends of the scraper connected therewith can be raised or depressed by movement of the hand-wheel rim in one direction or the other, and the parts are held very rigidly and without backlash in the mechanism.

The sheave-block K is in the present instance loose to revolve on the rod or shaft I, and is confined between the hubs of the crane F, which latter are fixed on said shafts by means of keys or pins *f*, so that the cranes and shafts move together, the shaft turning in the bearings *m m'* and block K when said cranes swing back and forth with the diagonal adjustment of the scraper-blade.

In some instances it may be desired to have the lifting-block K rigidly keyed to the rod I and the crane-arm made to swing on said rod. In such case the key may be arranged through the block, as in Fig. 4, instead of through the hub of the crane-arm. As shown in Fig. 4, the key also serves to retain the pin or axle on which the sheaves *i* revolve.

The proper relation of the sheave-block K is maintained by means of an arm, *r*, guided on the stay-rod *b'*, or by other suitable means.

The construction and arrangement of the chains and sheaves and the vertically-reciprocating support-rods I, in combination with the hand-wheels and blade-supporting devices, are features of my invention.

As a modification in construction, the two sheaves *i* could be arranged in the block K, one above the other, instead of side by side, or two lifting-blocks, K, each having a single sheave, could be employed, (see diagram, Fig. 2, *m*;) or, again, the ends of the chain L could be attached to the block K or rod I, the sheaves being supported on the frame. I prefer, however, the construction first above described.

Another feature of my invention consists in providing the upright supporting-rods, one or both, with a hand lever or crank, whereby said rods can be rotated for swinging the arms or cranes and the scraper mechanism from one position of diagonal adjustment to another. These hand-levers may be fixed rigidly to the top ends of the rods I. I prefer, however, the manner of attachment illustrated in Figs. 3, 8, and 9, wherein the end of the rod I is furnished with a ratchet or wheel, I<sup>2</sup>, having notches or lugs about its periphery, which is rigidly fixed to the end of the rod. The handle-lever H is loosely mounted on a stud, *h*, being provided with a bearing or bushing that slides in a slot formed in the lever, and which is retained at normal position by a spring or springs, S. The lever is provided with a lug, (or lugs,) *c*, for engaging with the wheel I<sup>2</sup> and effecting rotation of the shaft or rod I. When in normal position, the spring or springs retains the lever with its lug *c* out of engagement with the wheel I<sup>2</sup>; but when the operator takes hold of the lever he can easily overcome the resistance of the spring by a slight pressure in one direction or the other, and lock the lug into any of the several notches of the wheel which he chooses, and then by swinging the handle can conveniently effect the adjustment of the scraper from one oblique position to another. The lever may be provided with a tooth or lug, *c*, at both front and rear of the wheel I<sup>2</sup>, so that engagement can be made either by pressing the crank or handle toward the rod I or by pressing it away from said rod; or, again, if preferred, the hand-lever H could be provided with a sliding bolt-latch or dog operated by a spring and hand piece for throwing it into and out of mesh with the notches of the wheel I<sup>2</sup>.

By arranging the crank or hand lever H so that it is normally disengaged from the ratchet or wheel I<sup>2</sup>, said lever remains loose and idle, and is not liable to catch on overhanging branches of trees at the roadside, and also allows of the scraper being reversed by the team when the machine is in motion, by dipping the corner of the blade into the earth without liability of swinging said hand-lever

so as to interfere or strike any object while so reversing the scraper.

The brake mechanism for retaining or locking the hand-wheels M at positions of adjustment, as desired, is, in my present improvements, made as illustrated in Figs. 5, 6, and 7.

A<sup>4</sup> indicates the central transom or a cross-piece of the body-frame. a<sup>3</sup> denotes the upright side studs, and A<sup>5</sup> the platform or floor of the carriage on which the operator stands. A bearing, R, is fastened to the transom A<sup>4</sup>, which carries two externally-fluted bushings, R', having central openings of square shape or other suitable irregular form, for supporting and rigidly holding the ends of torsional spring-bars T, which have their opposite ends retained in a manner to turn freely in eyes or bearings t<sup>2</sup> upon the studs a<sup>3</sup>. The brake-levers P for the respective hand-wheels M are mounted at their forward ends on the respective torsion-bars T, and extend back beneath the hand-wheels, where they are provided with U-shaped jaws or projections P<sup>2</sup>, to embrace or engage with the rims of said wheels. The rear ends of the two levers P are provided with a pedal-bar, P<sup>3</sup>, loosely connected to each. The fluted bushing R' is made so as to receive a wrench, and the bearing R is internally provided with one or more grooves, v, (see Fig. 7,) preferably with several, at different distances apart, which, when in conjunction with either of the flutings of the bushing R', admits of the introduction of a key or pin, w. By the aid of a wrench on the bushing R', said bushing and the rod T are turned until the lever P presses upward against the wheel M with the desired degree of force, and the pin W is then inserted in the corresponding grooves, as indicated in Fig. 7, thereby locking the parts with the spring-rod T, set at proper torsional tension to keep the brake on the wheel, except when forced therefrom by the foot of the operator.

The torsional spring-rods T could, if desired, be set into the bearing R without the adjusting-bushing R'; but I prefer the construction above described, as it admits of very convenient adjustment of the spring-tension.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In a road-machine, the combination, with the body-timbers A, of the hog-bars a, formed of angle-iron, secured thereto at the front and rear ends, intermediate studs, a<sup>2</sup> a<sup>3</sup>, and bolts b b', and the cross-bar e and bolt e', substantially as and for the purposes set forth.

2. In a road-machine, the combination, with the body and scraper-blade, of vertically-reciprocating rods I, carrying the swinging arms or cranes, from which the scraper is supported, substantially as set forth.

3. In a road-machine, the combination, with vertically-adjustable cranes, having the scraper

suspended therefrom, of the operating-chains L, connected for raising and depressing said cranes, wheels and sprockets M M', and guiding-sheaves n and n', substantially as and for the purpose set forth.

4. The combination, substantially as described, of the swinging arms having the scraper suspended therefrom, vertically-reciprocating rods by which said arms are pivoted on the frame, sheave-blocks connected therewith for raising and depressing said arms, upper and lower guiding sheaves connected with the body-frame, and the hand-wheels, sprockets, and operating-chains arranged for operation, as and for the purpose described and set forth.

5. The combination, substantially as described, of the side piece, A, the hog bar a, the guide-bearings m and m', attached thereto, respectively, the vertically-reciprocating rod I, mounted in said bearings, the chain L, attached at l, and the adjustable attaching-bolt l', the sheaves i, n, and n', operating-wheels M M', and stop-brake P, for the purposes set forth.

6. The combination, with the swinging blade-suspending arm mounted on the vertically-movable rod I, of the lifting sheave-block K, having a guiding-projection, r, and the guide or stay rod b', substantially as set forth.

7. The combination, with the diagonally-adjustable scraper, its suspending-cranes and pivoting-rods I, of a hand-lever or crank, H, for effecting the adjustment of said scraper, substantially as set forth.

8. The combination, with a diagonally-adjustable scraper, its suspending-rod, supporting-arm, and upright rod, which forms the axis on which said arm swings, of the hand-lever H, mounted on said rod, with a ratchet-connecting mechanism for engaging or disengaging the parts for operation, substantially as and for the purpose set forth.

9. The combination, with the carriage-frame and the hand-wheel which operates scraper-adjusting mechanism, of the brake-lever P, the torsional strained bar T, and supporting-bearings at t<sup>2</sup> and R, for the purposes set forth.

10. The combination, with the carriage-frame and hand-wheels which operate scraper-adjusting mechanism, of the brake-levers P, the torsional spring-bars T, end bearings, t<sup>2</sup>, and central bearing, R, having grooves v, the adjustable fluted bushings R', and locking-pin w, substantially as and for the purposes set forth.

Witness my hand this 6th day of January, A. D. 1886.

GEORGE W. TAFT.

Witnesses:

CHAS. H. BURLEIGH,  
J. T. DARLING.