

(No Model.)

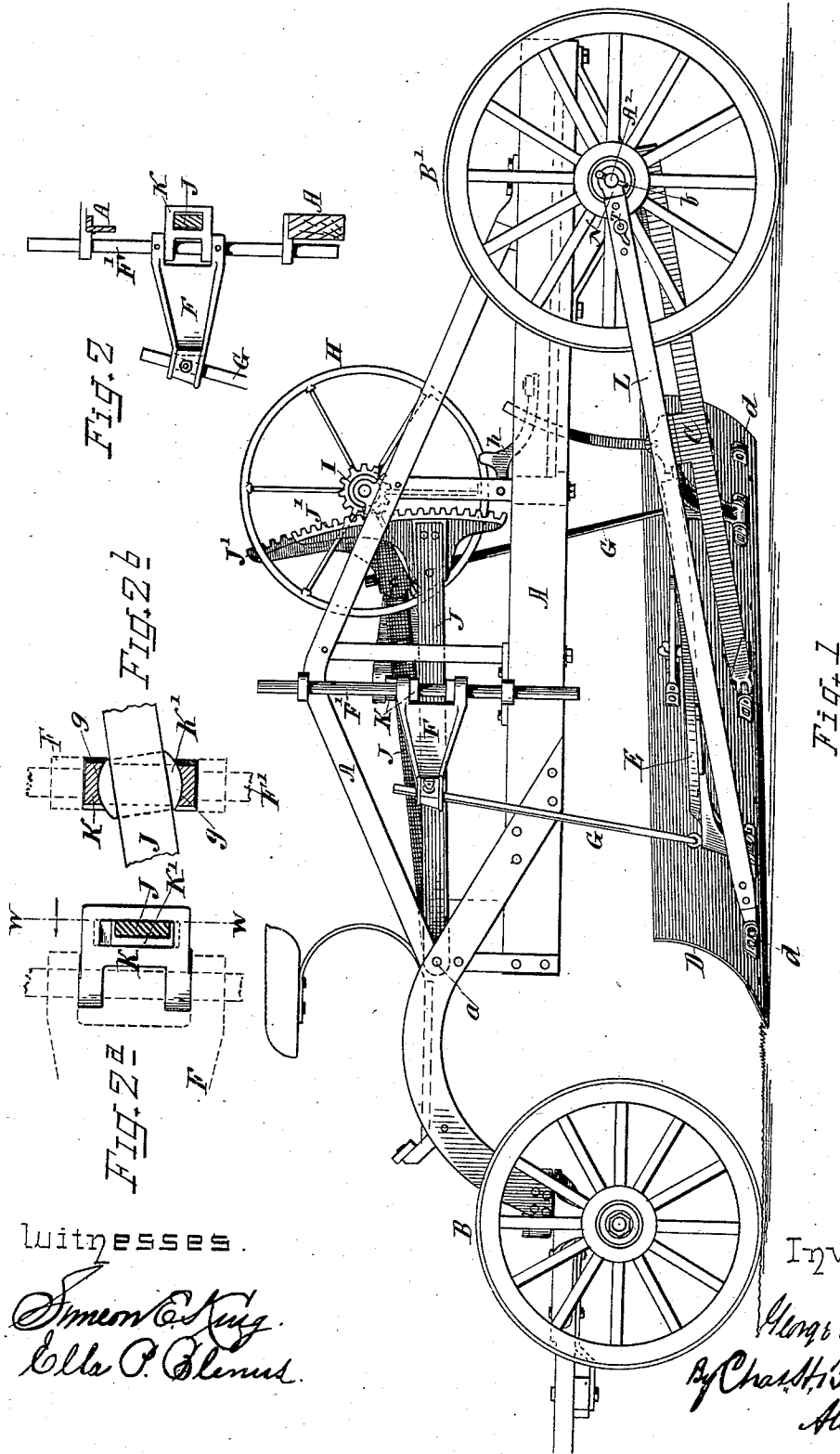
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G. W. TAFT.

MACHINE FOR MAKING, REPAIRING, AND CLEARING ROADS.

No. 380,954.

Patented Apr. 10, 1888.



Witnesses.

*Simon King*  
*Ella P. Glenud.*

Inventor.

*George W. Taft*  
*By Chas. H. Paulleigh*  
*Attorney.*

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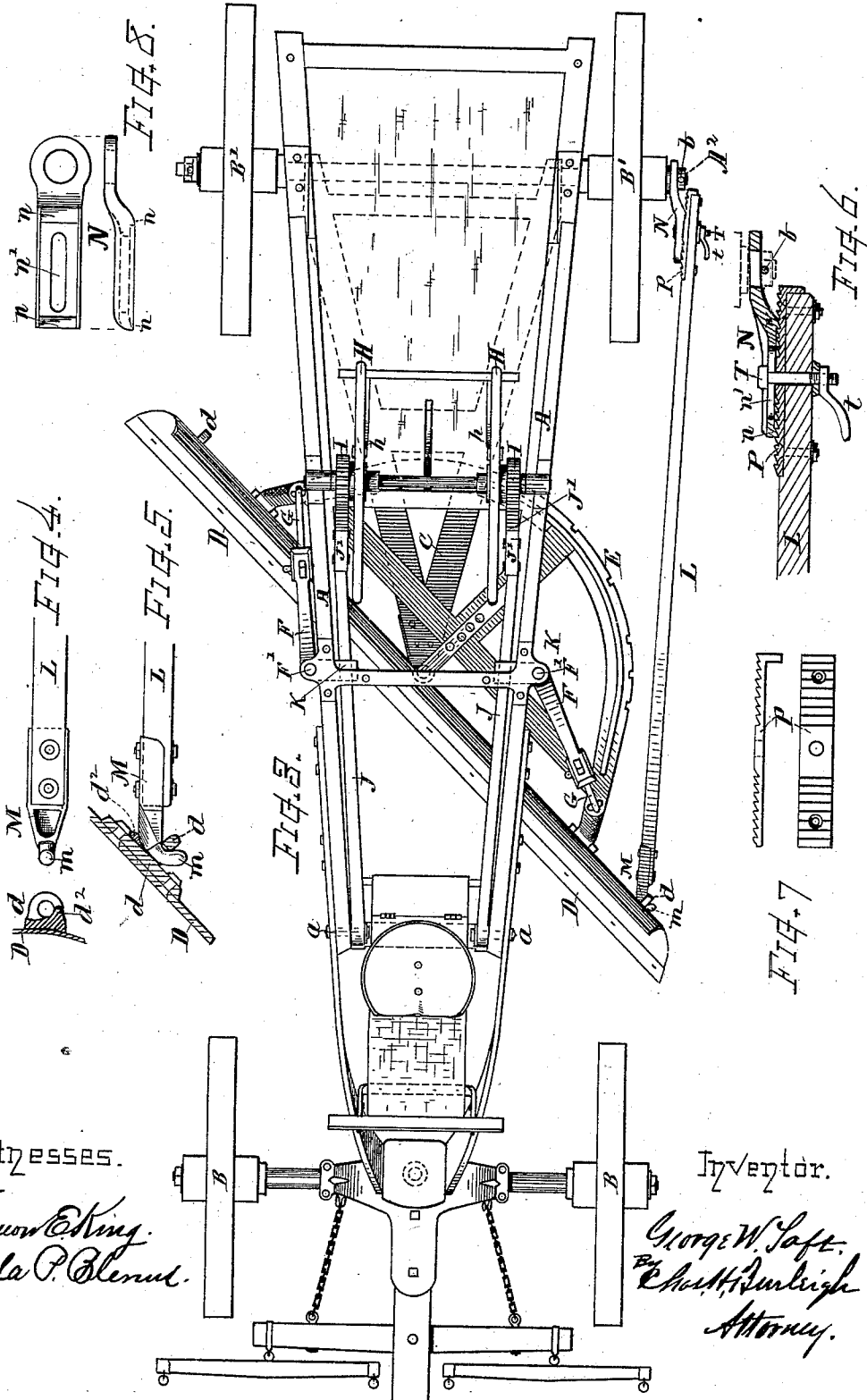
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# UNITED STATES PATENT OFFICE.

GEORGE WARNER TAFT, OF KENNETT SQUARE, PENNSYLVANIA.

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

SPECIFICATION forming part of Letters Patent No. 380,954, dated April 10, 1888.

Application filed February 4, 1888. Serial No. 263,008. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WARNER TAFT, a citizen of the United States, residing at Kennett Square, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making, Repairing, and Clearing 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.

One part of my present invention relates to the construction and arrangement of mechanism for raising and depressing the respective ends of the scraper, the object being to provide, in connection with the swinging arms or supports from which the scraper is suspended, a lifting-lever fulcrumed at its forward end, connected with said arms by a suitable coupling device, and provided at its rear end with a gear-segment that engages with the hand-wheel gear, so as to be raised and lowered by operation of the hand-wheel.

Another part of my invention relates to the combination, with the diagonal scraper, of a brace extending from the front end of the scraper to the end of the axle outside of the rear wheel, the object being to provide a brace that is detachable and capable of being shifted from one side of the machine to the other when the diagonal position of the scraper is reversed; also, to provide, in combination with said brace, mechanism for conveniently adjusting the length of said brace; also, to afford a convenient and efficient device for jointing or hinging the forward end of the brace to the scraper in a manner that will permit freedom of adjustment of the scraper, as desired. These objects I attain by mechanism the nature, construction, and operation of which are illustrated in the drawings and hereinafter explained.

In the drawings, Figure 1 is a side view of a road-machine, illustrating my invention. Fig. 2 is a sectional view showing one of the swing-arms or supporting-cranes, its upright guide-rod, and the coupling-piece for connecting the adjusting-lever therewith. Figs. 2<sup>a</sup> and 2<sup>b</sup> show the details of the coupling made with a rocking bearing-socket for the adjusting-lever, Fig. 2<sup>b</sup> being a section at line *w w*

on Fig. 2<sup>a</sup>. Fig. 3 is a plan view of the machine. Figs. 4 and 5 show details of the joint devices at the forward end of the side brace. Fig. 6 is a sectional view of the attaching devices at the rear end of the side brace. Figs. 7 and 8 are detail views showing the construction of the adjusting-plates at the rear of the brace.

In referring to parts, A denotes the body or carrying-frame; B B', the traveling wheels upon which said body is mounted; C, the push-frame; D, the scraper, pivoted to the forward end of said push-frame; E, the semicircle for supporting the blade at positions of diagonal adjustment; F, the swing-arms or adjustable supports for the scraper, and G the suspension-rods, all of which parts may be constructed in any suitable or well-known manner, or as heretofore employed in machines of this class.

H H indicate the rotatable hand-wheels, mounted on a transverse shaft and provided each with a gear, I, whereby the upward and downward adjustment of the scraper-supports is effected by the operator.

J J indicate bars or levers fulcrumed at their forward ends, in connection with the body or carrying-frame, by studs *a*, and having at their rear ends gear-segments J', that mesh with the hand-wheel gears I. Said levers at an intermediate position in their length pass through coupling-pieces K, that engage with the swing-arms or cranes F on the vertical guide-rods F' in the manner indicated in Fig. 2, or are so connected to the scraper-supports that said coupling-pieces will, together with the scraper-supporting devices, be raised and depressed for effecting upward or downward adjustment of the scraper as the levers J are operated up and down, the movement being imparted to said levers by the action of the intermeshing gear-segments J' and gears I as the hand-wheels H are rotated. The advantage of this construction and arrangement of levers and gearing is that there is very little, if any, backlash or lost movement in the mechanism, the scraper-blade being easily and firmly held to its work, and also that the action is attained without complication of mechanism and in a direct and natural manner, the lifting movement of the scraper resulting from a backward movement of the top of the hand-wheel, and

vice versa. I thus produce a very desirable mechanism and one that can be conveniently and easily manipulated by the operator. A brake or stop device, *h*, is employed in connection with the hand-wheels, the construction of which may be substantially the same as heretofore employed in machines of my construction.

L indicates my improved side brace, which is jointed to the front end of the scraper-blade and supported on the end of the rear axle,  $A^2$ . Said brace is preferably a straight bar having at its respective ends connecting devices such as illustrated in detail in Figs. 4, 5, 6, 7, and 8.

A hinging lug or joint eye, *d*, is fixed on the rear side of the scraper adjacent to the end thereof, right and left joint-eyes *d* being used at the respective ends of the scraper. To the front end of the brace-bar L is attached a joint-piece, M, having at its extremity a curved finger or hook, *m*, adapted to lock into the eye *d* and form a hinge or flexible joint that will afford free movement for the upward, downward, and rolling adjustment of the scraper-blade, while affording a firm support against thrust or backward pressure. The joint-eye *d* is preferably made with a ridge or lip, *d'*, at its lower end, (see Figs. 4 and 5,) against which the end of the brace abuts. This interlocking joint or connection permits of the brace-bar being readily and conveniently connected with and detached from the scraper-blade when desired. The rear end of the brace-bar L is provided with a bearing-plate, N, having an eye which slips over the end of the axle  $A^2$ , or onto the nut which confines the wheel where it projects outside of the wheel-hub. The nut or axle end is fitted to afford a suitable seat for the brace-bearing, and is provided with a hole for the introduction of a linchpin, *b*, to retain the brace in position. The bearing-plate N is preferably adjustable on the brace L, so that the length of the brace can be adjusted to give a firm support for the scraper and to avoid backlash in the mechanism. To afford this adjustment the parts are preferably constructed as indicated in Fig. 6. A bearing-plate, P, (see Fig. 7,) having a series of notches, is fixed to the bar L, and the plate N is provided with one or more teeth, *n*, adapted to engage said notches. Said plate N is slotted at *n'* and a clamping-bolt, T, extends through the slot and through an opening in the bar, and is provided with a handle-nut, *t*, on the opposite side, which nut can be turned down for binding the parts together, so that the teeth *n* will engage the notches and securely hold the parts from slipping upon each other when under strain. By loosening the nut *t* the teeth *n* can be disengaged and shifted to the various notches to give the required adjustment. This side brace, L, can be readily detached from the machine by removing the linchpin *b* and unlocking the finger *m* from the joint-eye *d*, and then be shifted for use in like manner at the opposite side of the machine when the diagonal position of the scraper is reversed, or said

brace be detached and carried upon the carriage when the machine is used with the scraper in transverse position, or when not required for use. This side brace is a very desirable adjunct when the machine is used for plowing in hard stiff soil, as it gives a direct support for the forward extremity or plowing-point of the scraper.

The coupling K, for connecting the lever J and scraper-supports, can be formed in any suitable manner. I prefer to make it as a loop or eye to embrace the lever-bar. If desired, this coupling may be provided with a rocking bearing, K', as indicated in Figs. 2<sup>a</sup> and 2<sup>b</sup>. In this the part K has its opening formed with curved surfaces *g* at top and bottom, while the bearing K' is made with a recess across one side for receiving and embracing the lever J and with rounded ends to fit the curved surfaces *g*, so that the bearing can rock freely within the main casting K and prevent cramping or excessive wear as the inclination of the lever J in relation to the vertical axis of the guide-rod and coupling changes by reason of the upward and downward movement at one end of said lever when operating the mechanism.

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

1. In combination with the standards and swing-arms from which the scraper is suspended, and the rotating hand-wheels provided with pinion-gears, the levers J, fulcrumed at their front ends on the carrying-frame and provided at their rear ends with gear-segments J', that mesh with said hand-wheel gears, and coupling-pieces connecting said levers with the swing-arms and standards, substantially as set forth.

2. In a road-machine having a diagonal adjustable scraper, the combination, with the lifting-supports whereby the respective ends of the scraper are raised and depressed, of a lever fulcrumed at one end and having a gear-segment at its opposite end and connected or coupled at an intermediate point to said lifting-support, a rotatable hand-wheel provided with a pinion that engages said gear-segment for raising and depressing said lever and scraper-supports by rotation of said hand-wheel, and a brake or stop for retaining the parts at positions of adjustment.

3. In a road-machine having a diagonal scraper and a supporting carriage or frame mounted on wheels, in combination with said scraper, a side brace jointed or hinged to the advance end of the scraper-blade to permit freedom of adjustment and supported at its rear end upon the end of the axle outside of the wheel, for the purpose set forth.

4. In a road-machine having a carrying-frame mounted on wheels and a diagonal adjustable scraper, the combination, with the scraper, of a side brace detachably jointed to the forward end of the blade and provided at its rear end with an eye to slip onto the projecting end of the axle (or its nut) at the outside of the wheel.

5. The detachable side brace having at its forward end the curved finger *m*, and provided at its rear with an adjustable bearing-plate, and a clamp to retain said plate at position of  
5 adjustment, in combination with the scraper-blade provided with the joint-eyes *d*, for engaging with said finger *m*, and a rear axle provided with nuts or seats for supporting said bearing-plate, for the purpose set forth.
- 10 6. In a road-machine, the combination, with the upwardly and downwardly adjustable support that sustains or carries the scraper or end  
of the scraper-blade, of the blade-adjusting lever *J*, and a coupling for connecting said lever and support, provided with a rocking bearing, *K'*, substantially as and for the purpose  
15 set forth.

Witness my hand this 26th day of January,  
A. D. 1888.

GEORGE WARNER TAFT.

Witnesses:

S. JONES PHILLIPS,

W. E. VOORHEES.