(No Model.) 3 Sheets—Sheet 1.

G. W. TAFT.

MACHINE FOR MAKING, REPAIRING, AND CLEANING ROADS.

No. 315,184. Patented Apr. 7, 1885.

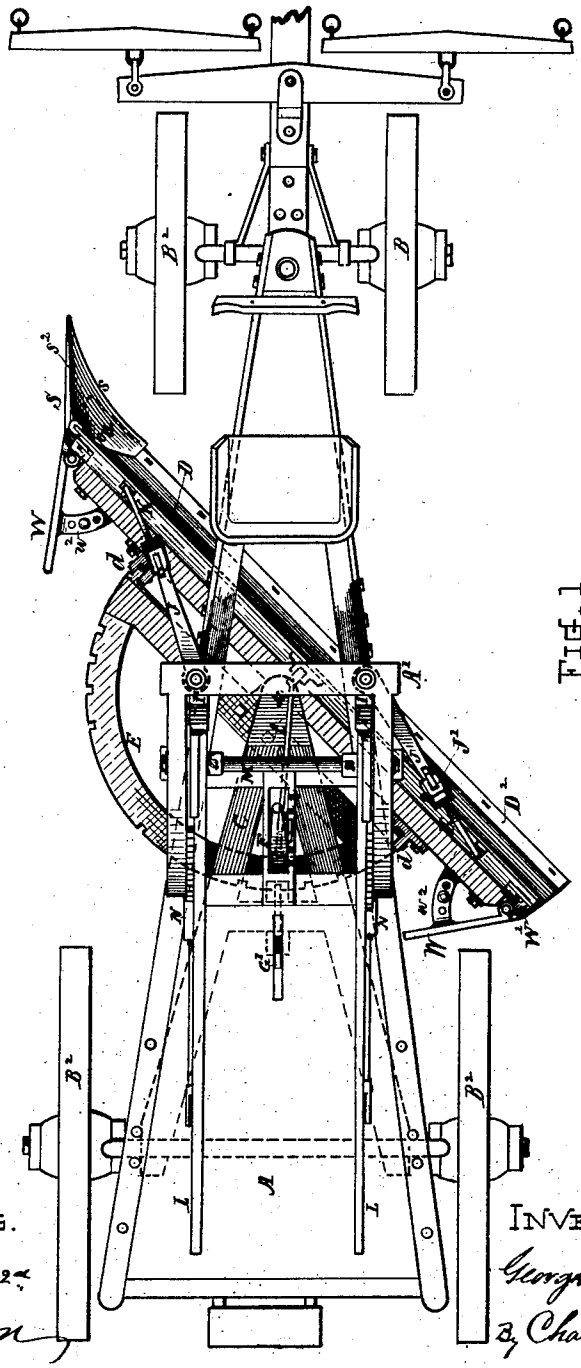


Fig. 1

WITNESSES.

Geo. M. Rice 2d

O. R. Burton

INVENTOR

George W. Taft

By Chas. H. Burleigh

Atty

(No Model.) 3 Sheets—Sheet 2.

G. W. TAFT.

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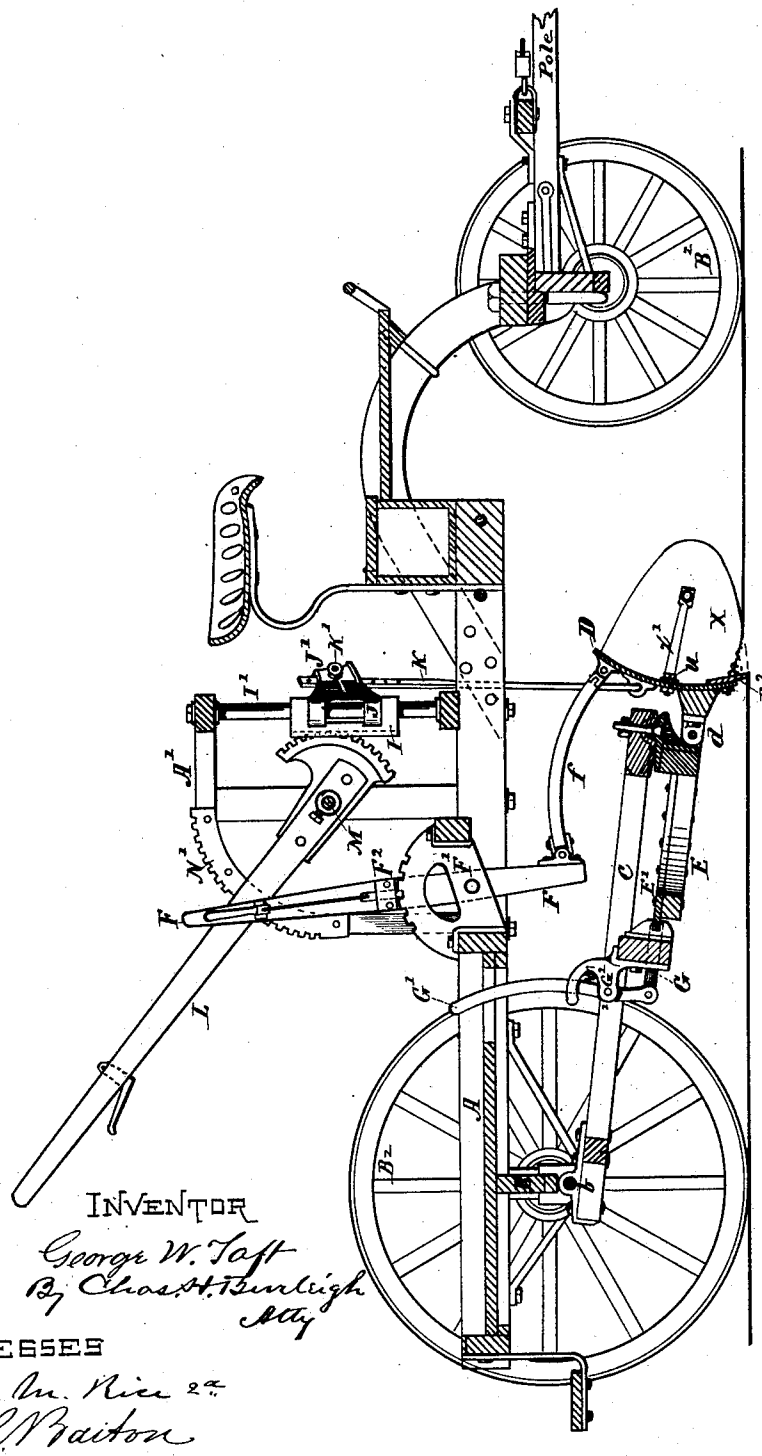


Fig 2

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G. W. TAFT.

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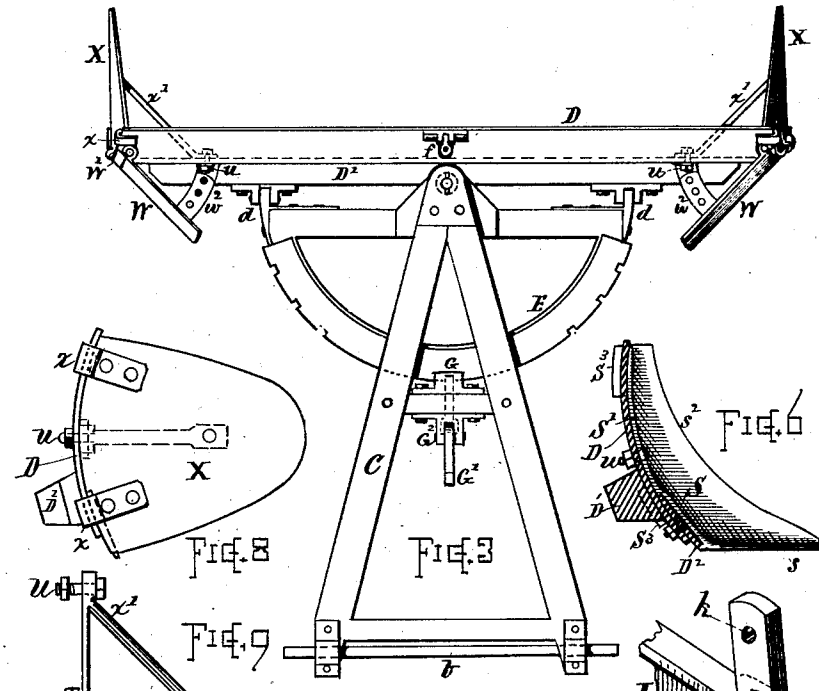


FIG. 3

FIG. 8

FIG. 6

FIG. 9

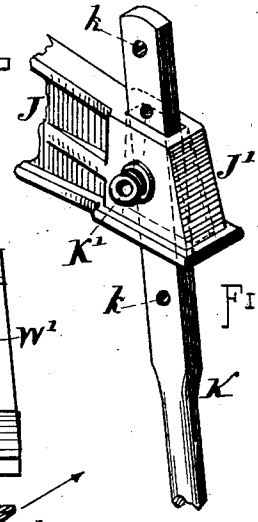


FIG. 10

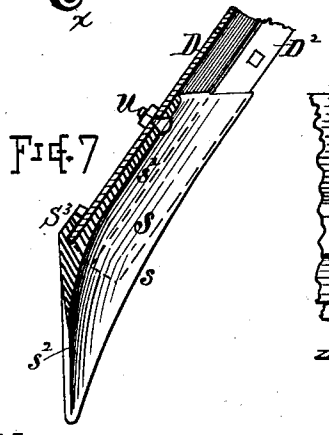


FIG. 7

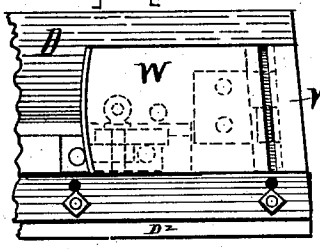


FIG. 4

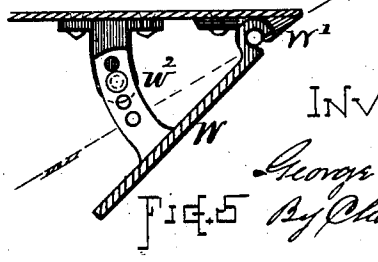


FIG. 5

WITNESSES.

Geo. A. Rice 2d

J. R. Bartow

INVENTOR.

George W. Taft

By Chas. H. Burleigh

Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. TAFT, OF ABINGTON, CONNECTICUT.

MACHINE FOR MAKING, REPAIRING, AND CLEANING ROADS.

SPECIFICATION forming part of Letters Patent No. 315,184, dated April 7, 1885.

Application filed March 6, 1884. (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 county of Windham and State of Connecticut, have invented certain new and useful Improvements in Machines for Making, Repairing, and Clearing Roads; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to 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 a part of this specification.

My present invention relates to certain new attachments and features of improvement, as hereinafter explained, some of which are applicable to various classes of road-machines, but which are more especially designed for that class of machines for which Letters Patent No. 276,093 were granted to me on the 17th day of April, 1883; and, if desired, reference may be had to the specification in said patent for a better understanding of the general construction and operation of such parts of the road-machine as are not herein specifically explained.

The objects of my present invention are to provide a convenient means for imparting to the blade its forward and backward tipping action under control of the operator from his position upon the platform of the carriage or machine; to afford a more convenient device for unlocking the parts to permit angular adjustment of blade; to provide a peculiar connection for the suspending rods and hanging cranes, which will avoid twisting movement between such parts; to provide in a road-scraper an adjustable wing or landside adapted for counteracting the tendency of the blade to run to land, said landside being capable of detachment or of being used at different degrees of inclination in relation to the face of the blade; to provide a convenient detachable pilot iron or share adapted for attachment and use in connection with the cylindrical or curved blade, as hereinafter more fully set forth, to provide detachable side plates or guards for use in connection with the blade for scraping and cleaning streets, and for similar purposes, as hereinafter explained. These objects I attain by mechanism the nature, construction, and operation of which are illustrated in the drawings, and herein described, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a plan view of a machine for making and repairing roads embracing features of my invention. Fig. 2 is a longitudinal section of said machine, with the scraper or blade adjusted at right angles to the line of draft, and showing the side guard in position on the blade, also showing the tipping-lever and locking devices. Fig. 3 is a plan view of the blade and blade-supporting frame, showing the adjustable landside or wing-plates and the cheek-plates or side guards in connection with the blade. Fig. 4 is a rear view of one end of the blade, showing the adjustable wing-plate and its connections on a larger scale. Fig. 5 is a horizontal section of the same. Fig. 6 is a section of the blade and side view of the detachable share or pilot-iron. Fig. 7 is a horizontal section illustrating the manner of connecting the share to the end of the blade. Fig. 8 is a side view of the cheek-plate. Fig. 9 is a top view of the cheek-plate; and Fig. 10 is a perspective view of the end of the swinging frame and suspension-rod, showing the peculiar form and manner of connecting said parts.

In referring to parts, A designates the body or wagon platform; B, the axle; B^2, the wheels; C, the triangular blade-supporting frame hung upon the rear axle or bar, *b*, to have vertical adjustment at its forward end. D is the blade hinged for forward and backward tipping action, as at *d*, to the semicircular frame E, that is pivoted on frame C, and arranged to be held at any desired position of angular adjustment by the segment-plate E', having notches *g*, which are engaged by the locking-bolt G. I' I' are the guide-standards for the racks I and swinging cranes or arms J, from which the respective ends of the blade D are suspended by the rods K. L L are the elevating-levers mounted on the shaft M, and having segment-gears that mesh with and actuate the racks I, and provided with locking devices N, that engage the notched segments N', fixed on the upright frames A', for holding the parts at any position of adjustment as desired.

The above-named parts are located and adapted for operation substantially as de-

scribed in my Letters Patent No. 276,093, above referred to, and need not, therefore, be herein more fully described.

Between the two upright frames A′ is located a hand-lever, F, fulcrumed in a suitable casting or bearing piece, F′, fixed on the wagon-body A, as indicated. The lower arm of said lever is connected to the blade D by the curved rod *f*, or other suitable means, for imparting to the blade D a forward or backward tipping adjustment, accordingly as the lever F is swung forward or back by the attendant. A locking device, F^2, is combined with the lever, which operates to engage lugs or notches on the segmental part of the casting F′, thereby retaining the lever and blade at position of adjustment. The ends of the connection *f* are joined to the lever F and to upper edge of the blade D by joints that permit free action of the parts at all their various positions of angular, vertical, and rocking adjustment. By the use of the lever F, arranged as shown, the attendant is enabled to change the pitch of the blade when the machine is in operation and while standing upon the platform A. The locking-bolt G is provided with a lever, G′, fulcrumed on a suitable guide-bracket, G^2, attached to the transom-bar of the frame C, which lever extends directly upward through an opening in the platform A, in convenient position to be actuated by the foot of the attendant when he desires to change the angular adjustment of the blade D. This arrangement of the latch-operating devices is more simple and convenient than that shown in my former patent. The outer ends of the arms or cranes J are made with irregular rectangular sockets J′, as illustrated in Fig. 10, and the upper ends of the blade-suspending rods K are made irregular or rectangular in section where they pass through said sockets, so as to be non-rotative therein, while they are allowed sufficient freedom of action to avoid cramping when either end of the blade is elevated. A series of recesses or holes, *k*, are formed in the upper part of the rod, and a corresponding opening is formed in the part J′ for the reception of a fastening device or a pin, K′. This pin retains the rod suspended in the socket by passing through one of its holes, *k*. Adjustment of the rod K can be effected by placing different holes *k* in engagement with the pin K′. This manner of arranging the rods K and the arm-sockets J′ in rectangular or irregular form obviates any liability of twisting and bending the rods within the socket, and the arms J and blade D are caused to swing more positively and regularly with each other when effecting their angular adjustment from one position to another. The pin K′ can be provided with a spring-catch or split pin through its end to prevent it from jarring out of place when using the machine.

W denotes an outwardly-inclined wing-plate or adjustable landside arranged at the end of the scraper or blade D, and which serves as a guard or to counteract the tendency of the inclined action of the blade to crowd the machine laterally or from the direct line of draft toward the bank. Said wing or landside plate W is made narrower than the scraper-blade, and may be made straight or curved, as preferred. It is adjusted so as to stand with an outward inclination from line of draft when the blade is in proper angular working position. Said wing W is preferably hinged to a plate, W′, that is rigidly fixed upon or bolted to the rear side of the blade, and the rear portion of said wing is sustained by an adjustable brace, W^2, or equivalent support, that permits of the rear end of the landside-wing being swung out or in and set at a greater or less angle in relation to the face-line of the blade, or so that said wing will crowd with greater or less force in opposition to the incline of the blade. The lower edge of the wing W is located some three inches (more or less) above the bottom edge of the blade or its re-enforce D′, and its upper edge may be somewhat lower than the top of the blade. This landside or wing can be set at such inclination or position that it will act to crowd the machine away from the bank when in operation with a force sufficient to practically overcome or counterbalance the tendency of the inclined blade crowding toward the bank, thus guiding the machine in a straight course corresponding to the line of draft. The inclination or position of the landside-wing can be varied according to the requirements of the soil or material in which the machine is used. The wing W, set at an outward inclination, is also of great service as a guard when the machine is employed for clearing city streets, as the wing, running against the face of the curbstones, prevents the front corner of the blade from grinding against the stones or catching upon the joints or projections of the curbing.

The landside-wing may be permanently secured to its attaching-plate; or it may be made with detachable joint-connections or a lock-hinge, which will permit of its being readily taken off when desired.

In Fig. 5 is shown a detachable lock-hinge which permits of the wing being detached by removing the adjusting-pin and then swinging the rear of wing outward until it is passed a line beyond which the lock of the hinge-joint is released. The wings W can be formed of plate iron or steel, with the hinges and brace riveted or bolted thereto; or it can be cast with its plate, brace, and hinges integral or all in a single piece.

The adjustable or outwardly-inclined wings or variable landside-plate can be employed in road-machines of other construction than that herein shown with beneficial results, and such use for the purpose set forth I desire to include as within the scope of my invention.

S designates a detachable share or pilot-iron provided with a curved back plate, S′, to fit the blade D, and sharp lateral and upright edges *s* s^2, and adapted for attachment to the forward end of the scraper or blade D, as in-

dicated, for dividing the soil and for cutting and raising the furrow-slice in front of the leading angle of the blade. The back of said share is curved to fit the face of the blade, and it is provided with lips or ear pieces S^3, that loop over the end of the blade to support the thrust, and with an opening for the reception of a bolt, stud, or fastening device, *u*, that is located at or near a central position in the height of the blade at some distance from its end. A lip may be formed along the lower edge of the share to lock under the edge of the re-enforce plate D′ and prevent the share from being forced upward.

The stud *u*, together with the overlocking lips, retains the pilot in connection with the blade, and, by simply releasing the stud, the pilot iron or share can be readily detached when not wanted for use.

I am aware that plow-points have heretofore been used in connection with diagonal road-scrapers; and I do not therefore make claim, broadly, to a plow in combination with a scraper irrespective of construction and operation of the mechanism; but it will be observed in this that the combination of the plow-point or pilot-iron with a scraper-blade mounted in connection with a wheeled carriage, and having the capacity for both inclined and pitch adjustment, or provided with facilities for elevating the end of the blade, and also for varying its backward and forward pitch, effects results unattained by the ordinary plow-pointed scrapers, and produces a mechanism that is adapted for all conditions of soil, since, by the rolling and incline adjustments of the blade and point, the operator is enabled to make the machine penetrate or take earth with greater or less freedom and vigor, as desired, and this, too, in a convenient manner at any time while on the machine and while the machine is in motion, as he not only has the elevation and depression of the point under control, but also and in addition thereto the power of controlling and varying the dip of the point or pilot-share.

X indicates a detachable cheek piece or plate adapted for attachment to the front of the blade D at or near its ends, when the machine is used with the blade at right angle, or nearly so, to the line of draft for scraping up filth in city streets and accumulating it in small heaps. Said plates X are arranged to project forward from the blade, and serve as side guards for preventing the accumulated material from escaping around the ends of the blade. (See Figs. 2 and 3.)

The plate X may be made of boiler-plate or other suitable material provided with ears *x* *x* for looping over the ends of the blade D, and with a connecting-bar and brace-rod, *x′*, arranged for engagement with the bolt or fastening device *u*, whereby the parts are retained in connection in the manner indicated; or, if preferred, other convenient means may be employed in lieu of the parts *x′* *x* for detachably securing said plates X in connection with the scraper D.

I am aware that a machine has heretofore been patented in which a scraper hung at the rear end of backwardly-extending bars is provided with a tilting bar and lever for effecting back and forward adjustment of said scraper, and I do not therefore include such an arrangement within the scope of my claim.

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

1. The combination of the body or platform A, mounted on front and rear axles and wheels, the blade D, supported by a vertically-adjusting frame, and a horizontally-adjusting segment in rear of said blade and hinged for backward and forward tipping action, the hand-lever F, its fulcrum-support plate F′, the locking devices F^2, and the connecting-link F, having compound or universal joint attachments, substantially as and for the purposes set forth.

2. In a road-machine having a scraper-blade mounted at the front of a thrust-frame or support, and adapted for angular adjustment in relation to the direction of draft, and inclined adjustment in relation to the plane of the road, and hinged for backward and forward tipping action, the actuating-lever, as F, for effecting or retaining such tipping action of the blade, located in relation to the lifting-levers L, platform A, and blade-supporting frame, as shown, whereby said lever is conveniently under control of the attendant at his position upon the platform of the machine, substantially as set forth.

3. The latch-bolt lever G′, fulcrumed at G^2, and extending upward through the platform A, as shown, in combination with the latch-bolt G, the semicircular notched plate E′, and supporting-frame C, for the purpose set forth.

4. The swinging crane J, provided with the rectangular end or socket J′, in combination with the blade-suspending rod K, having a rectangular recessed end passing through said socket, and the retaining-pin K′ arranged therein, substantially as shown and described.

5. In combination with the adjustable scraper or blade and blade-elevating racks and levers, the crane-arms J, provided with rectangular end sockets, J′, and suspending-rods K, having irregularly-shaped top ends passing through and non-rotative in said sockets, and means for retaining said rods in connection with said arms, substantially as and for the purpose set forth.

6. In a road-machine having a scraper or blade supported beneath a carrier-frame or body mounted upon wheels, the combination, with said blade D, its supporting-frame, and traveling wheels, of the wing or plate W, connected to its end, substantially as described, and provided with means for effecting its adjustment to different degrees of lateral incli-

nation relatively to the direction of movement of the carrier, substantially as and for the purpose set forth.

7. In a road-grading machine, the combination, with a diagonally-reversible scraper-blade supported beneath a carriage body or frame mounted on wheels, of guards or land-side-plates, as W, attached to the ends of said blade in such relation thereto that they will respectively assume a rearwardly and outwardly inclined position in relation to the direction of draft when their particular end of the blade is adjusted to its forward position, for the purpose set forth.

8. In a road-machine mounted on traveling wheels, the combination of a diagonally-reversible scraper-blade suspended for vertical and horizontal adjustment in relation to the carriage or supporting body, and a plate or wing connected to the end of said blade by a hinging-piece, W′, and extensible brace W^2, which permit adjustment or detachment of said wing, substantially as and for the purpose described.

9. In a road-scraper or grading-machine, the combination, with a carrier, body, or frame mounted on wheels, of a diagonal scraper-blade supported thereon and hinged for backward and forward pitch adjustment, a plow-point rigidly attached to said blade, mechanism for independently raising and depressing the respective ends of said blade, and devices for imparting the backward and forward action to said blade from the operator's position upon the machine, whereby the dip of the plow-point can be regulated at will, substantially as and for the purpose set forth.

10. The pilot-iron or share S, having cutting-edges s s^2, overlocking lips S^3, and fastening-stud u, disposed in the manner shown and described, in combination with the blade D of a road-machine, substantially for the purpose set forth.

11. The combination, with a curved scraping-blade in an adjustable road-machine, of the detachable pilot-iron S, having lateral and vertical cutting-edges s s^2, and provided with upper and lower lips, S^3, locking over the end of the blade, and the fastening device u, whereby ready and convenient attachment and detachment with the blade can be effected, substantially as hereinbefore set forth.

12. In a road-machine, the combination of the curved metal blade suspended in connection with a carrying-frame mounted on forward and rear axles and wheels, and supported by an adjustable segment and thrust frame in rear thereof, the detachable pilot-iron S, having a curved back plate, S′, and cutting-flanges s and s^2, disposed as shown, and the adjustable wing or plate W, attached to the blade and sustained at an outward inclination in relation to the cutting-flange s^2, as and for the purposes set forth.

13. A detachable side guard-plate, as X, provided with attaching-ears x and braces x', adapted for use in combination with the scraping-blade D in an adjustable road-machine, substantially as and for the purpose set forth.

Witness my hand this 29th day of February, A. D. 1884.

GEORGE W. TAFT.

Witnesses:
CHAS. H. BURLEIGH,
FRANK STONE.