

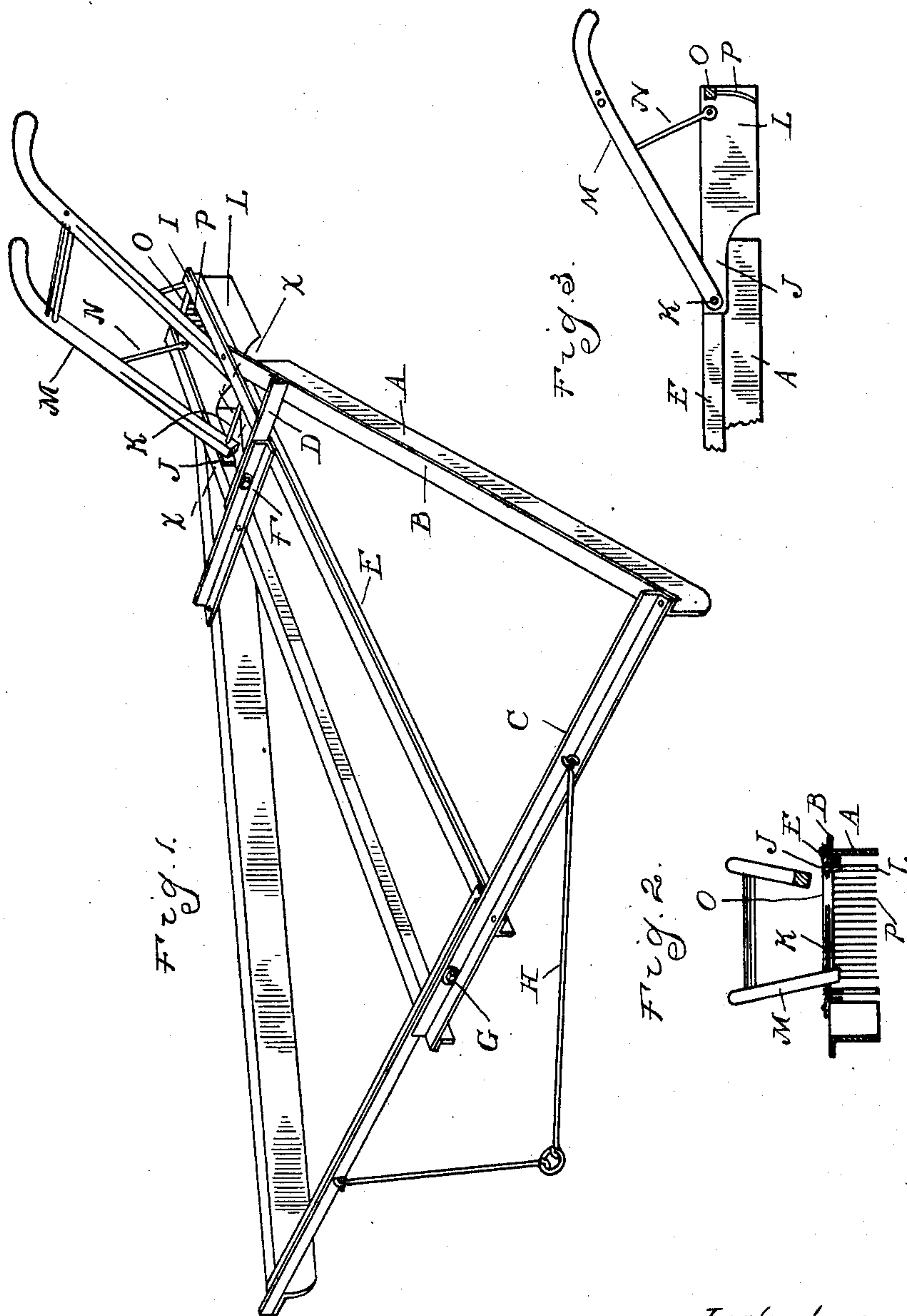
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J. T. HALL & W. H. HITCHCOCK.
ROAD GRADER.

APPLICATION FILED APR. 14, 1902.

NO MODEL.



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JAMES T. HALL, OF CHICAGO, ILLINOIS, AND WILLIAM H. HITCHCOCK, OF
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ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 737,611, dated September 1, 1903.

Application filed April 14, 1902. Serial No. 102,877. (No model.)

To all whom it may concern:

Be it known that we, JAMES T. HALL, residing at Chicago, county of Cook, and State of Illinois, and WILLIAM H. HITCHCOCK, residing at Holland Patent, in the county of Oneida and State of New York, citizens of the United States, have invented certain new and useful Improvements in Road-Graders, of which the following is a specification, reference being
10 had therein to the accompanying drawings.

The invention relates to new and useful improvements in road-graders; and it consists in the peculiar construction, arrangement, and combination of the various parts whereby a
15 road may be graded expeditiously into the desired crowning shape and whereby the construction required is very simple and economical to manufacture and yet strong and efficient in operation, and, further, whereby the
20 scrapers adjust themselves automatically to variations in the road, and also in steering devices for preventing the sluing or side movements of the scraper in use, all as more fully hereinafter described, and particularly pointed
25 ed out in the claims.

In the drawings, Figure 1 is a perspective view of our improved road grader and scraper. Fig. 2 is a cross-section thereof on line $x x$, and Fig. 3 is a longitudinal section illustrating the construction of the rear end of the device.
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A represents two oblique blades converging toward their rear ends. These blades preferably are formed of metal, having the
35 horizontal flange B at their upper edge, as shown. In other words, these blades are made from angle-plate, the vertical member thereof being longer than the horizontal member. These scraper-blades, together with the
40 cross-bars C and D and the longitudinal bars E, form a triangular frame, the bars being secured together at the point of intersection, as shown in Fig. 1. The bars C, D, and E are preferably angle-bars, the horizontal mem-
45 bers thereof contacting and forming an easy means of riveting or bolting the parts together. The vertical member of the bars E preferably extends downward, as shown in the drawings. The cross members C and D
50 we preferably extend over both the horizontal members E, and such overlapping portions F

we hinge together by means of the hinge-bolts G, which are located in this case along the central longitudinal line of the scraper.

H represents draft-bars, which are connected to the cross-bars C of the two triangular frames.
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It is obvious from the description of the device thus far set forth that it consists of two triangular frames, the oblique members there-
60 of forming scraper-blades hinged together along their longitudinal axis, so that they may assume any desired angular relation to each other below the horizontal line and that the extensions F of the cross-bars C and D will
65 act as stops to prevent their rising above the horizontal line. The object of this construction is to cause the scraper-frames to extend at an obtuse angle to each other over the road, so as to scrape the road into the usual desired
70 crowning form and so that as the scraper passes over the road the hinge-sections will rise and fall in following inequalities of the ground they are passing over.

It is obvious without explanation that the
75 sections instead of being hinged in the transverse center of the scraper may be hinged to the bars E, although we prefer the construction shown. As the bars E are separated and as the scraper-blades terminate at the inter-
80 section of the bars E, it is obvious that there will be a space between the rear ends thereof, into which the accumulated soil or large stones will enter. The bars E we preferably extend beyond the intersecting-point of the
85 scraper-blades to form the extensions I.

J represents the side bars or plates pivoted at their forward ends to the bars E upon the pivots K, as shown in Fig. 3, and at their rear ends formed with the blades L. These side
90 bars, with their blades, are connected to the handles M by the braces N, the handles likewise being pivoted upon the cross-bar or pivot K. At the rear end these two bars or plates J are preferably connected by the cross-
95 bars O, to which are secured a series of depending teeth P, forming a rake extending across the space between the scraper-blades at the rear of the machine.

The parts being thus constructed, the horses
100 or other traction device are connected to the draft devices H, and the operator, grasping

the handles M, walks behind, pressing the blades L into the earth to steer or prevent the side motion to the scraper-frame as it passes over the road, owing to slight obstructions which the scraper may encounter. Any large stones or large clods of dirt which may run to the back of the scraper will be carried along by the rakes or broken up if they are loose earth, and the larger particles may be dumped at any time by simply lifting the handles M, together with the rake-head and the blades L. The rake also tends to level and disintegrate the material at the apex of the crowning-roll.

While we deem the rake a desirable factor, it is evident that it may be omitted without materially affecting the operation of the device, and while we have shown two steering-blades L, which is the preferable form, it is probable that a single blade would answer the purpose.

For shipment it is obvious that the two triangular sections can be dismantled and superimposed and the handles secured thereto, so that a very compact form is obtained for such shipment, or if the angle-bars forming the scraper-frames are bolted together the entire device may be dismantled and shipped in still more compact form, and all a purchaser would have to do would be to connect the bolts up in a proper manner.

It is obvious that the device is very simply and cheaply manufactured, as the angle-bars are such as can be bought in the open market, and no special machinery or work is required to manufacture or assemble the parts, and yet the device in operation is eminently satisfactory, as it will scrape up and crown the ordinary country road in the manner ordinarily desired with the least possible work. If it is desired to scrape a horizontal surface, it is simply necessary to fasten the bars C and D in horizontal position by any suitable device, when it may be used for scraping plain surfaces.

What we claim as our invention is—

1. The combination of two triangular frames, the outer oblique members thereof forming scraper-blades and the hinge between the approximating members of the frames permitting them to assume any desired angle to each other below the horizontal.

2. The combination of two oblique scrapers hinged to each other so as to permit them to assume any desired angle to each other be-

low the horizontal, cross-bars at the forward ends thereof, and connecting the two oblique scrapers, and a draft attachment connected to said cross-bars.

3. The combination of two frames, scraper-blades on the outer converging members, each frame comprising a longitudinal bar and cross-bars connected to the scraper-blades and to its longitudinal bar, extensions on the cross-bar beyond the longitudinal bar and a hinge connection between the cross-bars of the two frames.

4. The combination of two oblique scrapers hinged together so as to permit them to assume any desired angle to each other below the horizontal, connecting cross-bars and vertically-movable, rearwardly-extending steering or holding blades for the purpose described.

5. The combination of two triangular frames, the outer oblique members thereof forming scraping-blades, and the inner parallel members being hinged together, of vertically-movable steering-blades secured to the rear of said parallel members.

6. In a road-grader, the combination of the oblique hinged scraper-blades, separated at their approximating ends, of the vertically-movable rake extending across the space between the rear ends thereof.

7. In a road-grader, a scraper-section comprising the sheet-metal scraper, A, having the lateral flange B at the upper edge, the angle cross-bars C, D, and the longitudinal angle-bar E, connected together to form a frame substantially as and for the purpose described.

8. In a road-grader, the combination of the oblique hinged scraper-blades separated at their rear ends, of the hinged side bars J, the blades L depending therefrom, the rake extending between the side bars, and the handles for raising and lowering the blades and rake.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES T. HALL.

WILLIAM H. HITCHCOCK.

Witnesses to signature of James T. Hall:

M. B. O'DOHERTY,

H. C. SMITH.

Witnesses to signature of William H. Hitchcock:

WM. MCCLUSKY,

R. J. MEREDITH.