

UNITED STATES PATENT OFFICE.

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ADJUSTABLE ROAD-GRADER.

No. 910,928.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. KOONTZ, a citizen of the United States, residing in Indian Creek township, in the county of Monroe and State of Indiana, have invented certain new and useful Improvements in Adjustable Road-Graders; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to the class of road graders that are designed for moving the gravel or earth from the sides to the middle portions of the roads when making new roads or repairing highways.

The object of the invention is to provide an adjustable road grader that will be adapted to be constructed at small cost, and be efficient, and durable and economical in use.

With the above mentioned and other objects in view the invention consists in an improved adjustable road grader comprising a runner constituting a guiding frame, a scraping blade hinged to the runner, a spreader for holding the blade at various angles to the runner, and novel draft rigging for the grader; and the invention consists further in the novel parts and in the combinations and arrangements of parts, as hereinafter particularly described and defined in the accompanying claims.

Referring to the drawings, Figure 1 is a top plan of the improved grader; Fig. 2, a perspective view of the spreader; Fig. 3, a rear elevation of the grader minus the driver's seat; Fig. 4, a side elevation of the grader; Fig. 5, an elevation of the opposite side of the grader minus the driver's seat; Fig. 6, a fragmentary elevation of the scraping blade; and Fig. 7, an elevation of the inner side of the runner.

Similar reference characters throughout the drawings indicate like parts or features of construction referred to herein.

A practical embodiment of the improved grader comprises a runner *a* preferably composed of wood and having a curved portion *a'* at the lower front end thereof, the rear end of the runner having a guide iron *b* secured thereto by bolts or rivets *c* and *c'*, the iron extending downwardly and rearwardly from the under side of the runner, so as to cut into the earth somewhat and assist in guiding the runner. A reinforcing cleat *d* is attached

to the inner side of the forward portion of the runner and has a hinge member *e* mounted thereon to which is connected two hinge members *f* and *f'*, and a scraping blade *g* composed principally of wood, is secured at one end thereof to the two hinge members *f* and *f'*, so that the scraping blade is connected to the runner near the forward end thereof, and it extends rearward beyond the rear end of the runner and is designed to be spread out at various angles, so that the grader is A-shaped.

The lower edge of the scraping blade has a metallic plate *h* secured to the outer side thereof to prevent the blade from wearing away, the lower edge of the plate being in the same plane as the lower edge of the runner. A filling block *i* is secured to the inner side of the runner *a* forward of the cleat *d* and has a deflecting plate *j* secured to the front thereof that extends obliquely from the runner rearward, so as to deflect the earth from the hinging devices and onto the scraping blade when the grader is in operation. A plurality of cleats *k*, *k'*, *k''*, are secured to the inner side of the runner rearward of the middle part thereof, the cleats being spaced apart suitable distances, and they have eyes *l*, *l'*, *l''*, mounted thereon, an eye to each cleat. A corresponding number of cleats *m*, *m'*, *m''*, are attached to the inner side of the scraping blade *g* and have eyes *n*, *n'*, *n''*, mounted thereon, one to each cleat. A spreader is provided comprising a bar *o* preferably composed of wood which has a plate *p* attached to one end portion thereof, and a similar plate *p'* attached to the other end portion thereof, one plate having a lateral projection *q*, and the other plate having a lateral projection *q'*, thereon, the projections being adapted to be inserted in the eyes above described, so that the spreader may be connected with the eyes *l'* and *n''*, as shown, for grading some roads, or the blade *g* may be spread farther from the runner by connecting the spreader with the eyes *l'* and *n'* or spread still more by connecting the spreader with eyes *l* and *n* for wider roads. The rear end of the scraping blade *g* has a leveler *r* composed of metal connected to the lower inner side thereof by a pivot *s*, and a curved adjusting bar *t* is connected to the leveler by a pivot *s'*, the bar having a suitable number of bolt holes *u* therein to receive a securing bolt *v*, whereby the adjusting bar is connected adjustably

to the upper portion of the scraping blade *g*, so that the leveler may be set at various angles to extend rearwardly and upwardly beyond the rear end of the scraping blade, for the purpose of leveling the ridge of earth left at the rear end of the scraping blade when in operation.

The draft rigging of the grader comprises a draft rod *w*, that is nearly as long as the runner *a*, and is connected to a suitable draft iron *w'* which is rigidly secured to the rear portion of the runner and also to the cleat *k''* by suitable means, the draft iron being formed of suitable shape for the purpose, and the draft rod *w* extends from the draft iron along the inner side of the runner at an oblique angle thereto, so as to be farther from the runner at the forward end thereof than at the rear end portion of the runner, the draft rod preferably extending upwardly toward the forward end of the grader and over the forward end of the scraping blade which is of less height than the runner. The forward end of the runner has an arm *x* secured to the inner side thereof that supports the forward end of the draft rod, the latter having a draft eye *w''* on its forward end to which draft animals or other source of power may be connected.

The top of the middle portion of the runner *a* has a suitable clamp secured thereto on which is mounted a foot-rest *y* and also a seat spring *z* on which is mounted a seat *z'* to be used by the driver of the team.

In practical use the grader runner *a* will be drawn in a furrow that will be first plowed at the side of the road and will be guided therein, the scraping blade *g* scraping the earth that may have been loosened by the plow and forcing it evenly away from the furrow and will spread it evenly between the furrow and the middle of the road, so that the roadway will be made crowning, and the little ridge of earth that may be left at the rear end of the scraping blade will be leveled by the leveler *r*. It will be understood that by reason of the peculiar arrangement of the draft rod *w* the forward end of the runner will be prevented from being drawn away from the furrow by the resistance of the earth or gravel against the scraping blade *g*. The driver may sit with his weight either to one side or the other of the runner, so as to some extent control the operation of the scraping blade to cause it to scrape more or less deeply as may be desired.

Having thus described the invention, what is claimed as new, is—

1. A road grader including a runner having a draft rod connected to the inner side of the rear portion thereof and extending forward at an oblique angle to the runner, and a scraping blade connected to the inner side of the runner and extending under the draft rod.

2. A road grader including a runner having a draft rod connected to the rear portion thereof and extending forward at an oblique angle to the runner, a scraping blade connected to the inner side of the runner and extending under the draft rod, and a guide iron attached to the rear end of the runner.

3. A road grader including a horizontal runner having a plurality of vertical cleats secured thereto, one of the cleats having a hinge-member thereon and the remaining cleats having each an eye thereon, a scraping blade connected to the hinge-member and having a plurality of cleats thereon provided each with an eye, a spreader to be connected to the eyes, and a draft-rod connected with one of the cleats that is on the runner.

4. A road grader including a runner, a scraping blade hinged to the runner at the forward portion thereof and extending rearward obliquely to the runner, the rear end of the blade having a leveler pivoted thereto, an adjusting bar connected to the leveler and also connected adjustably to the blade, a spreader connected to the runner and also to the scraping blade, and a draft rod connected to the inner side of the rear portion of the runner and extending forward over the scraping blade.

5. A road grader comprising a runner having a draft rod connected thereto, a scraping blade hinged at its forward end to the forward portion of the runner, a guide iron attached to the rear end of the runner and extending downward beyond the bottom thereof, a leveler connected adjustably to the rear end portion of the scraping blade and extending upward beyond the rear end of the blade, a spreader connected adjustably to the runner and the scraping blade, a deflector attached to the forward portion of the runner and extending toward the scraping blade, and a seat and also a foot-rest mounted on the runner.

In testimony whereof, I affix my signature in presence of two witnesses.

JOHN H. KOONTZ.

Witnesses:

MONROE WRIGHT,
GEORGE EAST.