A. J. & E. E. AKERS.

GRADING MACHINE.

APPLICATION FILED MAY 20, 1912.

1,054,483.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.

FIG. 1

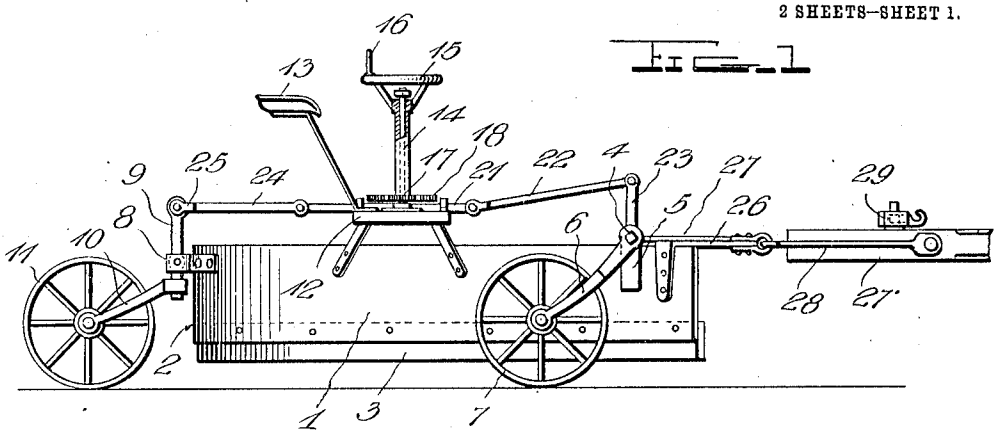


FIG. 2

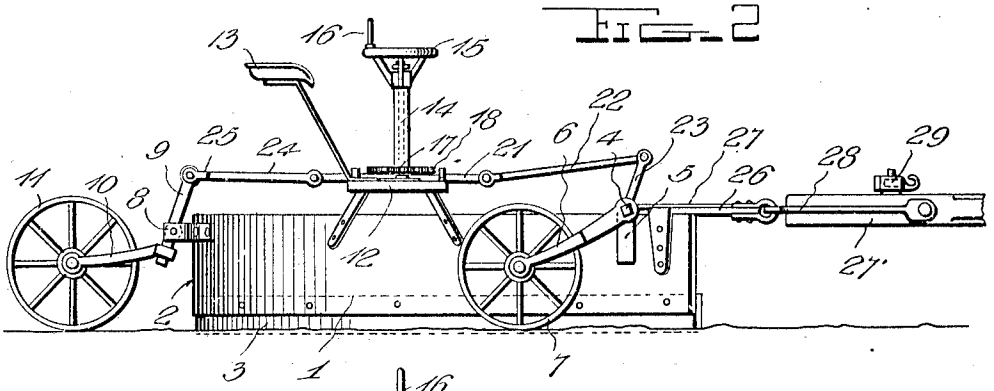
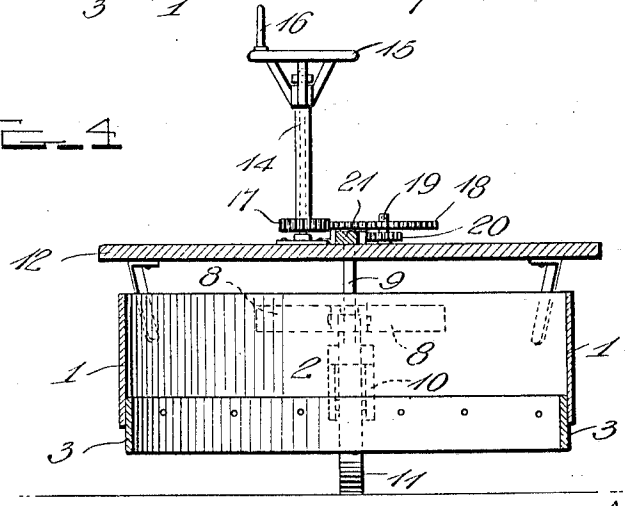


FIG. 4



Witnesses

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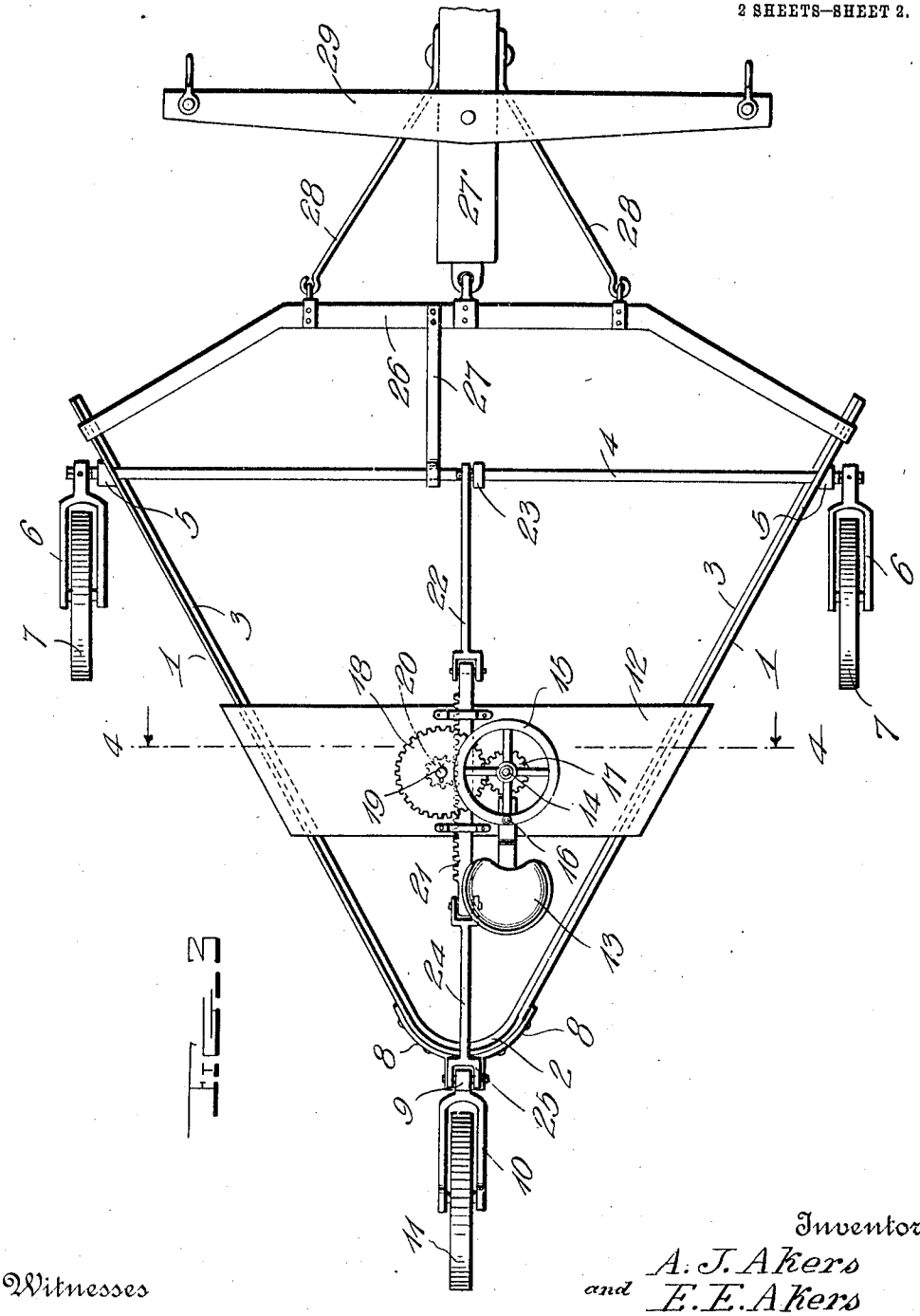

FIG. 2

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UNITED STATES PATENT OFFICE.

ANDREW J. AKERS AND EMMETT E. AKERS, OF COLUMBUS, ILLINOIS.

GRADING-MACHINE.

1,054,483. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed May 20, 1912. Serial No. 698,543.

To all whom it may concern:

Be it known that we, ANDREW J. AKERS and EMMETT E. AKERS, citizens of the United States, residing at Columbus, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Grading-Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in road grading machines.

One object of the invention is to provide a grading machine having an improved construction and arrangement of scraping and conveying mechanism whereby dirt may be quickly and easily removed from elevations and conveyed to depressions and the surface of the ground or road thus elevated and smoothed off.

Another object is to provide a machine of this character in which the necessity of providing a supporting frame is dispensed with and which is provided with an improved means for readily raising and lowering the scraping blades to inoperative and operative positions.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a side view of our improved grading machine showing the scraping blades in raised or inoperative position. Fig. 2 is a similar view showing the blades lowered or in operative position; Fig. 3 is a top plan view of the machine; Fig. 4 is a vertical cross section on the line 4—4 of Fig. 3.

Our improved grading machine comprises scraping blades 1 which are arranged at an angle to each other or diverge toward the rear end of the machine where they are connected together by a curved connecting plate 2 which may be a separate piece or may be an integral part of the blades 1 as shown. The blades 1 may be constructed of any suitable material and to the lower ends thereof are preferably secured ground engaging shares 3. The forward ends of the blades are supported and held apart in spaced relation by a transversely disposed supporting shaft 4 the ends of which are revolubly mounted in bearing brackets 5 secured to the upper edges of the blades as shown. Fixedly mounted on the projecting ends of the shaft 4 are rearwardly projecting bearing forks 6 in which are revolubly mounted the front supporting wheels 7 of the machine.

Bolted or otherwise rigidly secured to the rear ends of the blades 1 at their upper edges is a pair of bearing plates or brackets 8 between which is pivotally mounted a rear wheel standard 9 to the lower end of which is swiveled a rear wheel supporting fork 10 in which is revolubly mounted a rear supporting wheel 11.

Secured to the blades 1 near their rear ends is a seat supporting board or platform 12 on which is arranged a driver's seat 13. Revolubly mounted on the platform 12 in front and within convenient reach of the seat 13 is a gear operating shaft or a standard 14 on the upper end of which is fixedly mounted a hand wheel 15 provided with a crank handle 16 whereby the same and the shaft may be readily turned in one direction or the other by the operator occupying the seat 13. Fixed on the lower portion of the standard 14 is a spur gear pinion 17 which is engaged with a spur gear 18 revolubly mounted on a stub shaft 19 arranged on the platform 12 adjacent to the standard 14. Fixed to or forming part of the gear 18 is a spur gear pinion 20 the teeth of which are engaged with the teeth of a rack bar 21 arranged above the platform and having its forward end pivotally connected to the inner end of a link 22, the outer or forward end of which is pivotally connected to a crank arm 23 on the shaft 4. The rear end of the rack bar 21 is pivotally connected to a link 24 the outer or rear end of which is pivotally secured by a clip 25 or other suitable means to the upper end of the standard 19 of the fork 10 of the rear supporting wheel. By connecting the ends of the rack bar 21 with the shaft 4 and standard 19 of the front and rear supporting wheels it will be seen that when said rack bar is reciprocated in one direction or the other by the gears engaged therewith and operated by the standard 14 said shaft and standard will be rocked and the wheel supporting forks 6 and 10 fixed thereon will be swung upwardly or downwardly according to the direction in which the rack bar 21 is shifted. When the forks 6 and 10 are thus operated the blades 1 to which they are attached will

be raised or lowered on the supporting wheels thus lifting the blades above or bringing the same down into engagement with the ground as desired.

Connected with the forward ends of the blades is a draft bar 26, said bar being also preferably connected with the shaft 4 near the center thereof by a brace rod or bar 27. Connected to the center of the draft bar 26 is a draft tongue 27′, said tongue being preferably braced by diagonally arranged bracing rods 28 which are connected at their forward ends to the tongue and at their rear ends are loosely connected with the draft bar 26 as shown. The tongue 27 is provided with a whiffle tree 29 or other suitable draft device whereby the draft animals may be hitched to the machine.

By means of a grading machine constructed as herein shown and described it will be seen that elevations of ground may be quickly and easily scraped off by the blades 1 when lowered to an operative position, and the dirt drawn or conveyed by the scrapers to a depression to be filled or to the place where it is desired to remove the dirt. The machine when thus employed serves not only as a scraper or grader but also as a conveyer for drawing the dirt scraped up to the desired place of deposit. It will also be noted that by constructing the machine as herein shown and described the necessity of a supporting frame is dispensed with and that the blades themselves form the supporting mechanism for the operating parts of the machine. Attention is also invited to the manner in which the supporting wheels are connected with the blades and to the means by which the wheel connecting devices are operated for raising and lowering the blades, said operating means being readily actuated with comparatively little effort by the operator seated on the machine.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Having thus described our invention, what we claim is;

A grading machine comprising a pair of rigidly connected inwardly diverging scraping blades, a supporting shaft revolubly mounted on the forward portions of said blades, wheel supporting forks fixed on said shaft, front supporting wheels journaled in said forks, a rear wheel standard pivotally connected to the rear ends of the blades, a rear wheel supporting fork mounted on the lower end of said standard, a rear wheel journaled in said fork, a crank arm fixed on said shaft, a platform mounted upon the blades, a rack bar slidably mounted upon the platform and adapted to move in a horizontal position, a link to pivotally connect one end of said rack bar with said crank arm, a link to connect the opposite end of the rack bar with said standard, suitably mounted gears operatively engaged with said rack bar whereby the latter may be reciprocated to rock said shaft and standard thereby actuating said supporting wheel forks, to raise and lower said scraping blades, means whereby said gears are actuated by the driver of the machine, a draft bar rigidly connected to the forward disconnected ends of the blades, and draft appliances attached to said bar, and a brace bar connecting the shaft and draft bar.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ANDREW J. AKERS.
EMMETT E. AKERS.

Witnesses:
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A. H. KAY.