No. 662,680. Patented Nov. 27, 1900.

C. A. RAPP.

ROAD GRADER.

(Application filed Apr. 4, 1899. Renewed Apr. 21, 1900.)

(No Model.) 2 Sheets—Sheet 1.

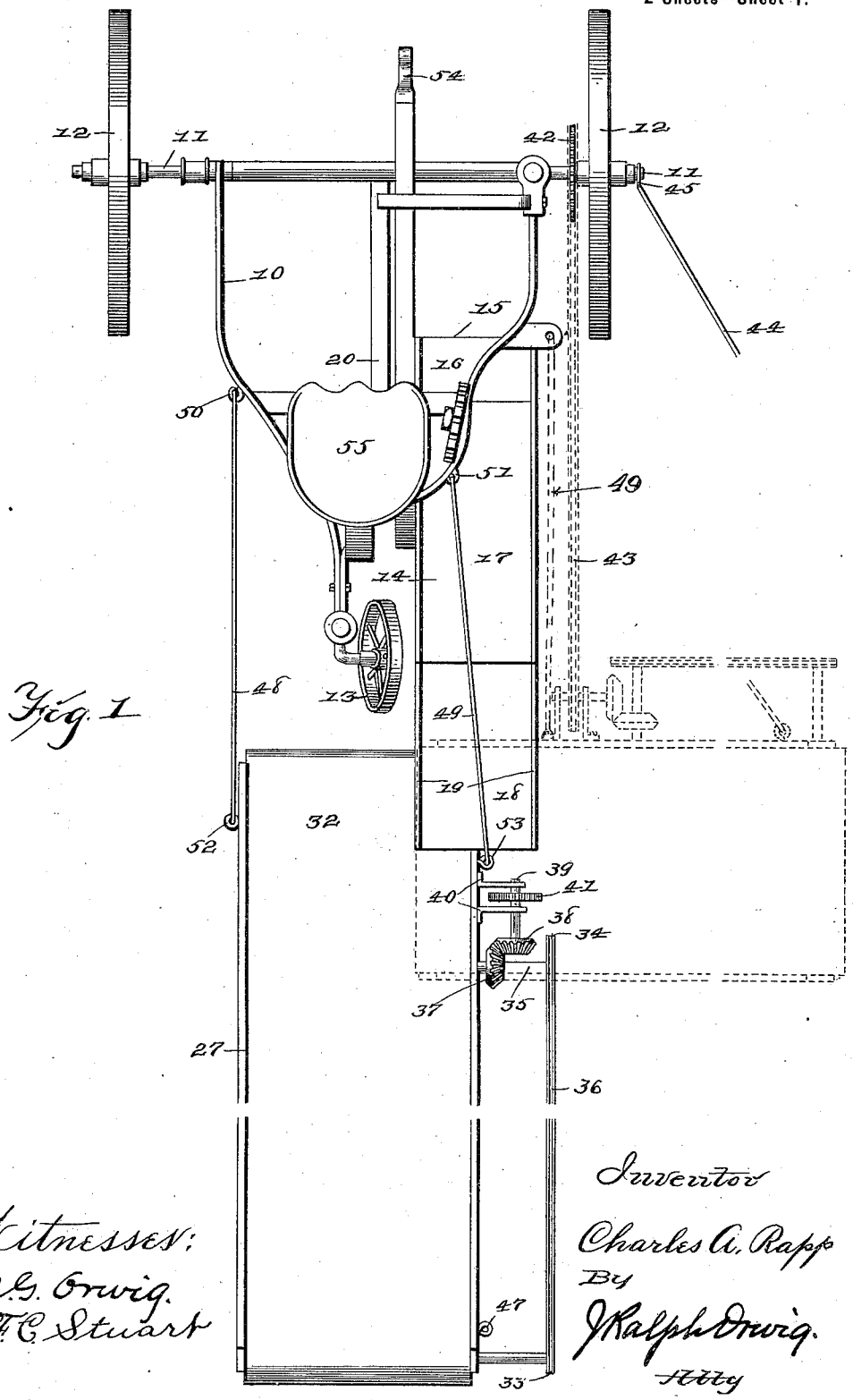


Fig. 1.

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Fig. 4.

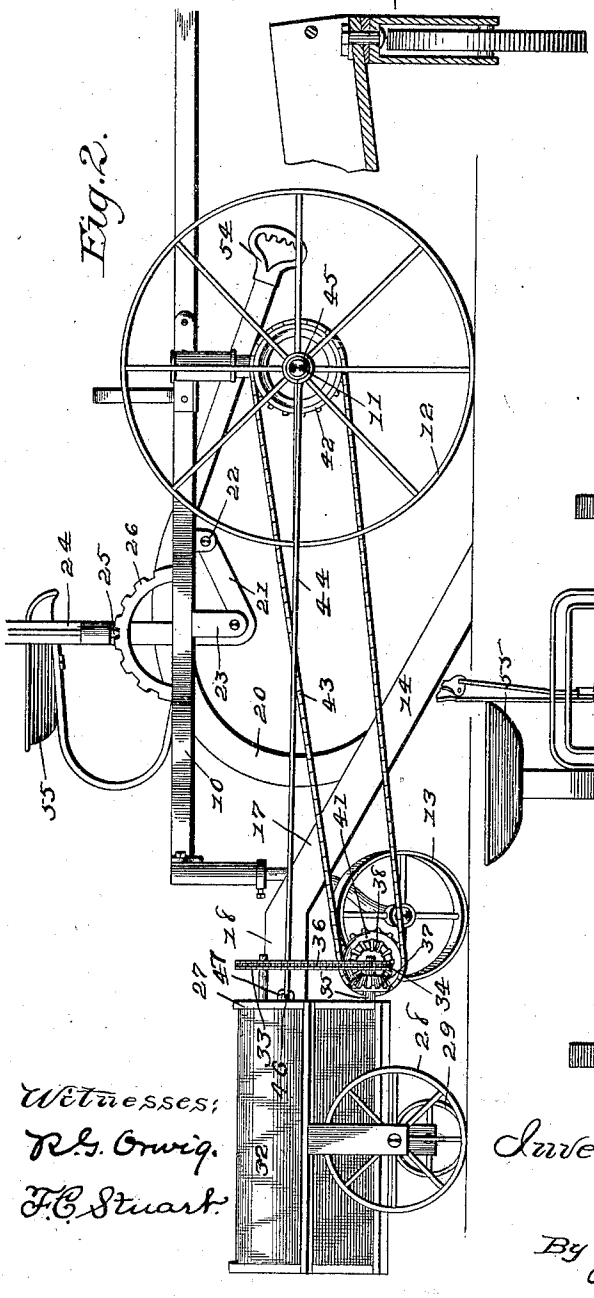
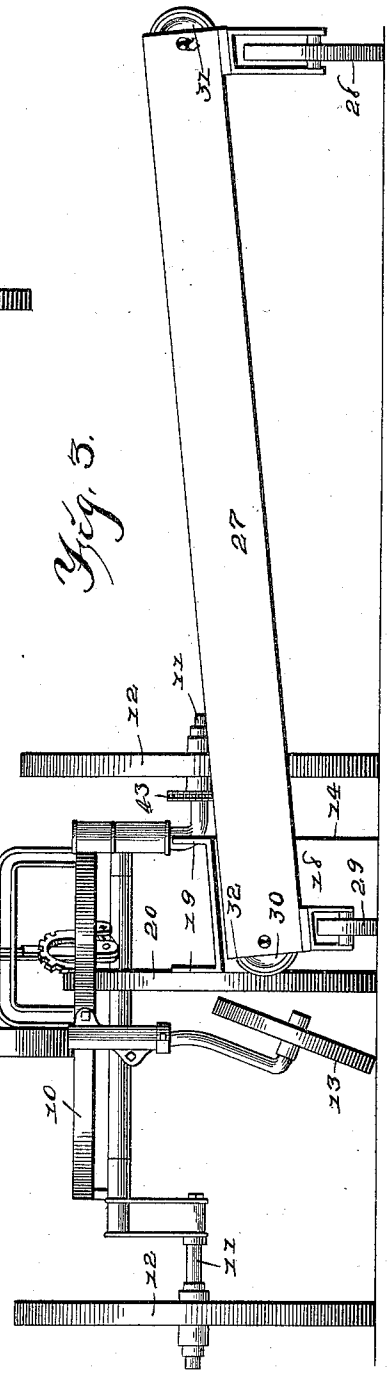


Fig. 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES A. RAPP, OF SHANNON CITY, IOWA.

ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 662,680, dated November 27, 1900.

Application filed April 4, 1899. Renewed April 21, 1900. Serial No. 13,833. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. RAPP, a citizen of the United States, residing at Shannon City, in the county of Union and State of Iowa, have invented a new and useful Road-Grader, of which the following is a specification.

One object of my invention is to provide a machine of this class which shall be of simple, strong, durable, and inexpensive construction and that may be operated with a minimum of applied draft and manual labor.

A further object is to construct a machine to scrape and lift the ground on an endless conveyer to be carried to a point of discharge and be deposited on the road-bed, and, further, to provide means whereby the conveyer may be made to travel in a line parallel with the truck in transportation over narrow roadways and through gates and narrow passageways.

My invention consists in the construction, arrangement, and combination of the conveyer, my improved plow, and a suitable truck, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the machine with the plow-adjusting mechanism omitted, showing the conveyer following the truck, as in transportation, and by dotted lines indicating the position of the conveyer when in practical use. Fig. 2 is a side elevation of the complete machine. Fig. 3 is a rear end elevation of the machine with the plow-adjusting mechanism omitted. Fig. 4 is a detail sectional view showing the manner of connecting the caster-wheels to the conveyer-frame.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate the frame of the machine, having axles 11 therein.

12 indicates the wheels for carrying the forward end of the frame, and 13 indicates a smaller wheel for supporting the rear end of the frame. The plow 14 is fixed to the beam 20. It is composed of a sharp forward cutting end 15, a flat section 16, an upwardly-inclined part 17, a rearwardly-extending section 18, and side pieces 19. The plow-beam 20 is fixed to the frame 10 by means of the bar 21, which bar is pivoted to the beam 20 in the ear 22 and to the ear 23 on the frame 10 and whose free end extends upwardly to form a handle 24, provided with a pawl 25 to engage the semicircular rack 26, by which means the plow is adjusted vertically relative to the depth of cut desired.

The conveyer comprises a frame 27, mounted on the wheels 28 and 29. Rotatably mounted in the sides of the conveyer are the rollers 30 31, over which passes the endless conveyer 32. The shaft of the roller 31 has a sprocket-wheel 33 fixed thereto and is connected with a sprocket-wheel 34 on the shaft 35 by means of the chain 36, which shaft has thereon a bevel-wheel 37, meshing with a second bevel-wheel 38 on the shaft 39, mounted in the bearings 40, fixed to the sides of the conveyer. On the shaft 39 is a sprocket-wheel 41, which is connected with the sprocket-wheel 42, fixed to the hub of the wheel 12 by the sprocket-chain 43. The outer end of the conveyer is held at right angles to the machine by the rod 44, which rod has an eye 45 to encircle the end of the main axle at one end and a hook 46 at its other end to engage an eye 47 on the side of the conveyer. The inner end of the conveyer is held in working position by means of the rod 49, said rod being hooked into the eye 53 on the conveyer and into the perforation 57 in the ear 56, which ear is integral with the frame 10.

When in transportation, the rod 44 is dispensed with and the conveyer is swung to travel in a line parallel with the frame of the machine, and the rods 48 49 are employed to drag the conveyer. The forward ends of the rods are hooked in the eyes 50 51 in the frame of the machine, and their rear ends are connected to the frame of the conveyer by eyes 52 53 in the sides of the conveyer. The wheels 28 and 29 are pivoted to the conveyer and are turned parallel therewith when the machine is being transported.

On the forward end of the plow-beam 20 is an ordinary clevis 54, to which draft is applied, and on the frame 10 I have provided a seat 55.

In practical operation the conveyer is swung to a position at right angles to the frame of the machine and the driving-chain 43 is connected to the wheel 41 for driving the endless conveyer. The connecting-rod 44 is then fixed

at its forward end to the main axle and to the eye in the outer end of the conveyer-frame at its other end to hold the outer end of the conveyer against rearward movement. When the machine is advanced in a forward line and the plow lowered by means of the lever, it is obvious that the plow will cut, scrape, and elevate the ground and deposit it on the inner end of the endless conveyer and be discharged at the outer end of the conveyer on the road-bed, to be leveled, graded, &c., in a common manner.

It is obvious that the plow may be adjusted vertically relative to the depth of cut desired and adapt itself to any kind of soil by means of the lever and pawl and rack. For example, in working a soil that is heavy the plow may be raised to cut and excavate less ground, and if working a light dry soil the plow may be lowered to take more soil, and, further, the plow may be raised sufficiently to clear stumps, stones, and other obstacles in its path and be carried in its raised position when in transportation.

One of the particular advantages of my machine is that the conveyer may be swung to travel in a line parallel with the machine proper, and thus travel over narrow roadways, through gates and narrow passage-ways, and, further, the conveyer may be detached entirely from the machine, and thus stored when out of use in a comparatively small space.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination with a road-grader, of a conveyer-frame, mounted on caster-wheels, a rod connected to the conveyer-frame at its outer end and to the axle of the main wheels for holding the conveyer against rearward movement, a rod connected to the inner end of the conveyer-frame and to the machine-frame for holding the inner end of the conveyer in position when in operation, an endless belt mounted in rollers on said conveyer-frame, a sprocket-wheel on the shaft carrying the roller at the outer end of the conveyer, a chain connecting said sprocket-wheel with a sprocket-wheel mounted on a shaft at the inner end of the conveyer, a bevel-wheel on said shaft meshing with a second bevel-wheel on a shaft mounted in suitable bearings on the side of the conveyer, a sprocket-gearing connecting with the main wheel of the machine, means for connecting the conveyer to the machine-frame whereby the conveyer may be carried in a line parallel with the machine proper, for the purposes stated.

2. In a road-grader, the combination of a suitable wheeled frame, a plow-beam pivotally mounted on said frame, a plow having a sharp, cutting forward section, a rearwardly and upwardly inclined section to elevate the soil, a horizontal section to extend over an endless conveyer, a conveyer-frame, mounted on a caster-wheel at its outer end and a second caster-wheel at its inner end, a rod connected to the side of the conveyer at its outer end and to the end of the axle of the main wheels to hold the outer end of the conveyer against rearward movement, a rod connected to the inner end of the conveyer and to the machine-frame to hold the inner end of the conveyer in position when in operation, an endless belt mounted on rollers in said conveyer-frame, a sprocket-wheel on the shaft carrying the roller at the outer end of the conveyer, a chain connecting said sprocket-wheel with a sprocket-wheel mounted on a shaft at the inner end of the conveyer, a bevel-wheel on said shaft meshing with a second bevel-wheel on a shaft mounted on suitable bearings on the side of the conveyer, and a sprocket-gearing connecting with the main wheel of the machine-frame, means for connecting the conveyer to the machine-frame whereby the conveyer may be carried in a line parallel with the machine proper, for the purposes stated.

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Witnesses:
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