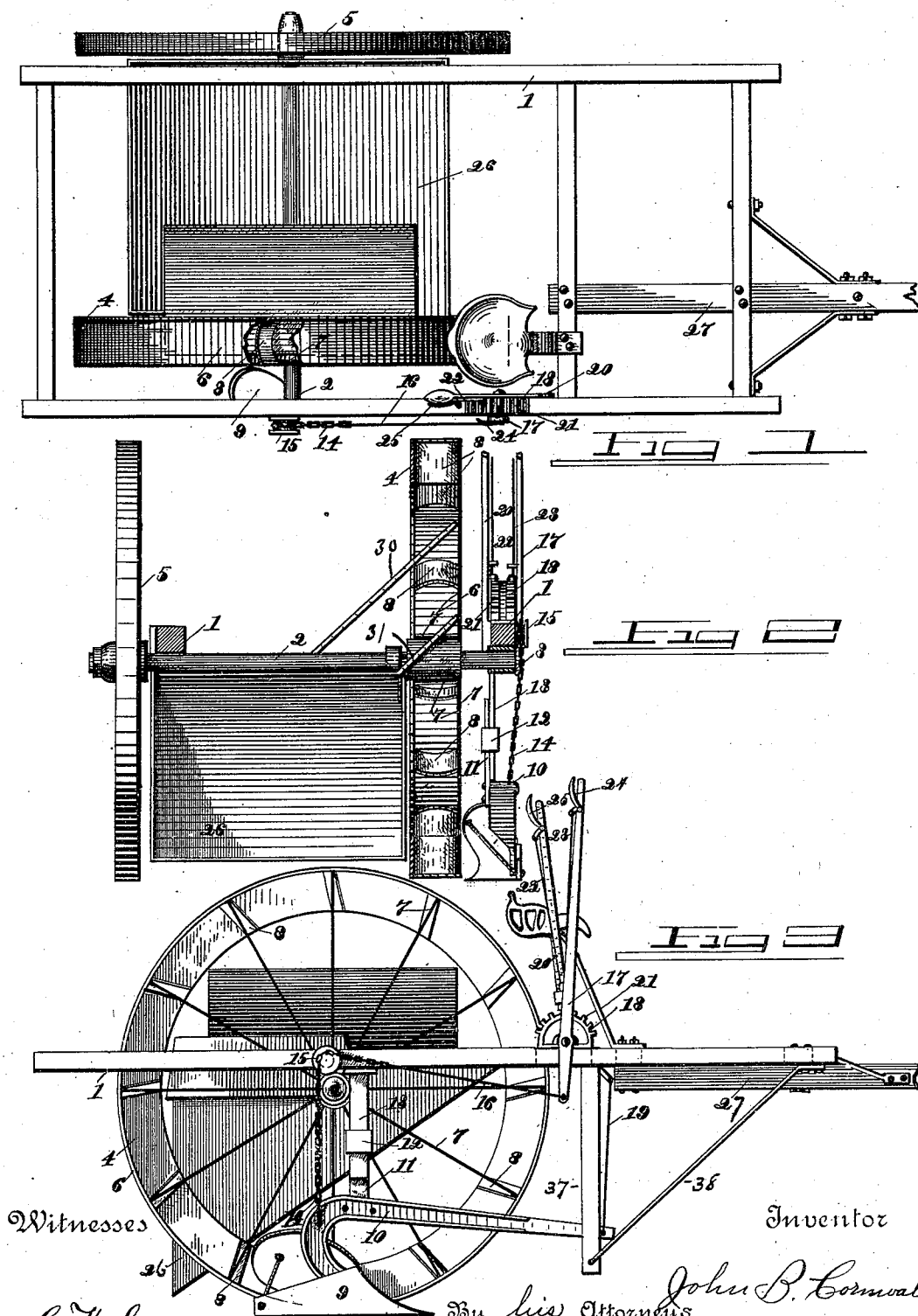


(No Model.)

J. B. CORNWALL.
GRADING AND EXCAVATING MACHINE.

No. 504,300.

Patented Aug. 29, 1893.



Witnesses

Inventor

L. W. Seville.
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By his Attorneys.

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UNITED STATES PATENT OFFICE.

JOHN B. CORNWALL, OF MOLINE, ILLINOIS.

GRADING AND EXCAVATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 504,300, dated August 29, 1893.

Application filed May 28, 1892. Serial No. 434,447. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. CORNWALL, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Grading and Excavating Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form part of this specification.

This invention is an improved form of a land grading or excavating machine by means of which the surface of the land over which the machine travels may be broken, collected and deposited in a suitable receptacle forming part of the machine, from which it may be discharged at proper periods as required.

The invention consists in the novel construction and combination of parts hereinafter described and illustrated in the accompanying drawings, in which similar reference numerals indicate like parts in the respective figures, and in which—

Figure 1 represents a top or plan view of the machine with a portion of the elevating wheel broken away to show one of the elevating shelves or buckets. Fig. 2 represents a transverse sectional view of the machine taken through the axial line of Fig. 1. Fig. 3 is a side elevation of the machine.

Referring to the drawings by numbers: 1, indicates the frame or carriage of the machine; 2, the axle thereof, secured to the sides of the said frame or carriage.

The numerals 4 and 5 indicate the wheels of the machine one or both of which are loosely mounted upon the axle. The wheel 4 is formed with a broad rim or tread 6 supported at its outer edge by the spokes 7, and preferably having an inwardly extending flange 3 at its inner edge. Within the said band and attached thereto and to the flange spokes or otherwise supported, is located a series of shelves or buckets 8 which are preferably curved transversely, and secured tangentially to the band and flange as shown so as to better collect the earth and elevate it to the proper position for the discharge.

The numeral 9 indicates a plow of such construction as to excavate the earth from the surface to be graded and turn it into the buck-

ets of the wheel 4 as they successively come into position to receive it. The plow is mounted on the rear curved end of a plow beam 10 which is rigidly attached near its bend and rear end to a vertical standard 11 which is movably located in a sleeve 12 secured to a hanger 13 attached to and depending from the frame of the machine at one side. To the rear end of the plow beam is attached one end of a chain 14 which passes over a pulley 15 at the side of the frame or carriage, the other end of said chain being connected to a link 16 the forward end of which is pivoted to the short arm of a lever 17 which is fulcrumed to a metallic segment 18 secured to the frame or carriage. The forward end of the plow beam is pivotally connected to one end of a link 19 the other end of which is connected to the short arm of a lever 20 which is also fulcrumed to the segment 18. The segment is provided with notches or teeth 21 with which are adapted to engage the lower ends of the movable rods 22, 23, located in guides on the respective levers, the upper ends of the said rods being connected to the end of angle levers 24 and 25 by means of which the rods may be operated in connection with the levers 17 and 20 to lock the same in any desired position, when they are operated to elevate or depress the plow.

37 is a depending vertical bar secured to the frame beside the front end of the plow frame, and 38 is a brace rod connected to the lower end of the bar and the front of frame, and when the machine is working the front end of beam is caught by said bar and the plow pulled forward thereby, no matter at what position the plow is adjusted, the bar forming a direct draft connection between the plow beam and frame.

The numeral 26 indicates the earth receptacle which is constructed with an inclined bottom and rigidly secured between the sides of the frame or carriage, the axle passing through suitable sleeves or collars near the upper edge of the said receptacle. From the upper part of the receptacle extends laterally and upwardly an oblique chute 30 the upper end of which sets well within the broad rim of the collecting wheel, in such position as to receive the earth from the buckets as they are successively elevated and direct it

into the earth receptacle. 31 is a similar chute below chute 30 for the same purpose. The said receptacle may be provided with a suitable door at the rear which may be opened 5 for the removal or discharge of the earth when required.

Instead of a plow, a scraper of any description may be substituted so as to adapt the machine to street cleaning purposes.

10 The numeral 27 indicates the tongue or shafts of the machine by means of which it may be drawn over the surface to be graded.

The operation of the machine is as follows:—
When drawn forward the earth is excavated 15 by the plow, turned toward the broad wheel and taken up by the buckets thereof. These as the wheel revolves, elevate the earth until the buckets assume an inverted position when they discharge it into the chute, by which it 20 is conveyed to the earth receptacle from which it may be discharged or removed when convenient. The receptacle might be mounted on wheels and be removable from the frame, or if the wheel 4 and chute were of sufficient 25 height the earth might be discharged direct into a cart or wagon driven alongside the machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters 30 Patent thereon, is—

1. The combination of the elevator wheel having a flat band or tire 6, a flange 4 at the inner side of the tire, and a series of equidistant plates 8, curved transversely and secured 35 to the band and flange tangential to the axis of the wheel, the spokes secured to the outer band and to a hub, the main frame, a plow suspended from the frame at the side of the wheel opposite the flange, the sliding connection 11, 12, 13 between the rear part of plow 40 beam and the frame, and the levers and connections thereof, with the front and rear ends of the beam whereby the plow may be ad-

justed, and the draft connections between the frame and plow beam, substantially as and 45 for the purpose described.

2. The combination of the main frame, the axle, the wheel 5 on one end thereof, the elevator wheel near the other end thereof provided with a series of buckets, a dirt receptacle suspended between said wheels, and a chute for 50 directing the discharge from the buckets into the receptacle; with a plow or scraper frame exterior to and beside the elevator wheel, the bars 11, and 13, and sleeve 12 adjustably connecting the rear end of the beam to the frame, 55 the draft bar 37 depending beside the front end of beam, and the levers and connections for independently adjusting the front and rear ends of the plow beam, substantially as 60 described.

3. The combination of the frame, the axle, the wheels thereon, one of said wheels having an angular rim and a series of curved plates or shelves 8 secured tangentially in the rim 65 forming elevator buckets, a receptacle suspended from the frame, an axle between the wheels, a chute for directing material dropped from the buckets into the receptacle, a plow 70 outside and beside the elevator wheel, the bars 11, and 13 and sleeve 12 adjustably connecting the rear end of the beam to the frame, the draft bar 37 and its brace rod 38, the chain and lever for adjusting the rear end of said 75 plow beam, and the link, lever and rock shaft for adjusting the front end thereof, all constructed and adapted to operate substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two 80 witnesses.

JOHN B. CORNWALL.

Witnesses:

C. F. HEMENWAY,
O. F. ANDERSON.