

W. L. COMBS & J. A. KERBER.

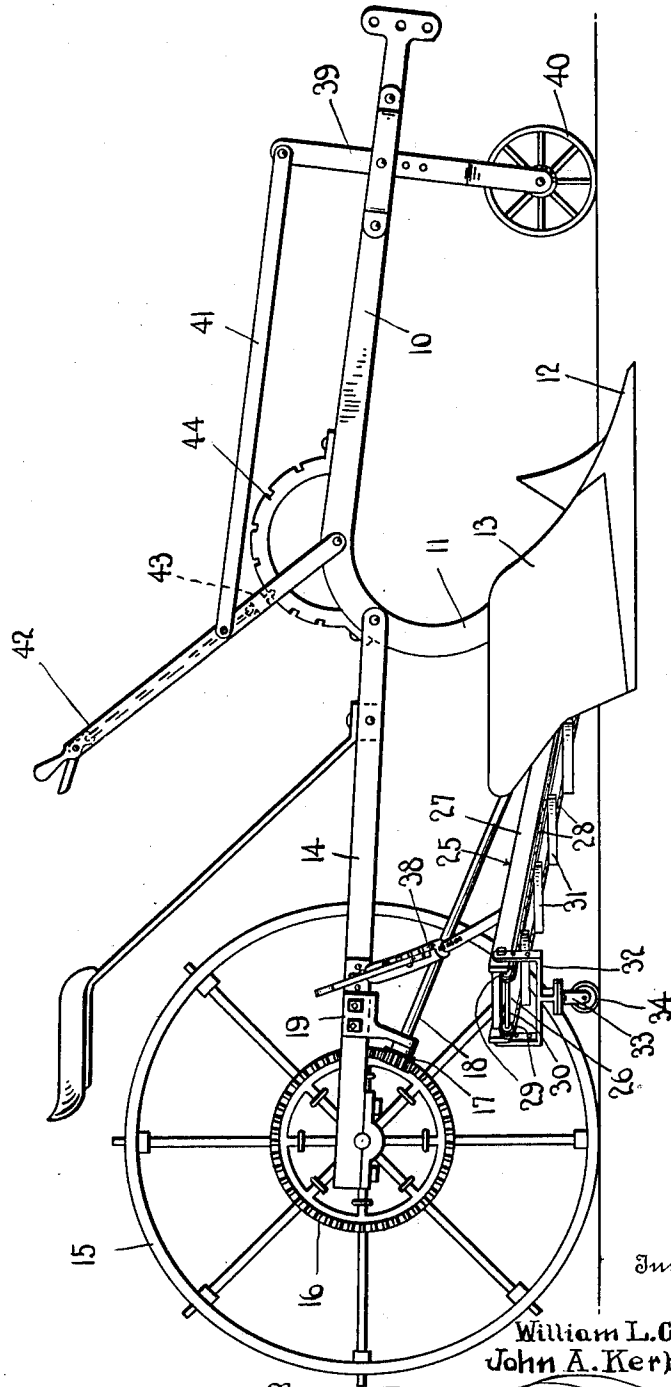
DITCHING MACHINE.

APPLICATION FILED SEPT. 14, 1910.

Patented Mar. 19, 1912.

3 SHEETS-SHEET 1.

1,020,911.



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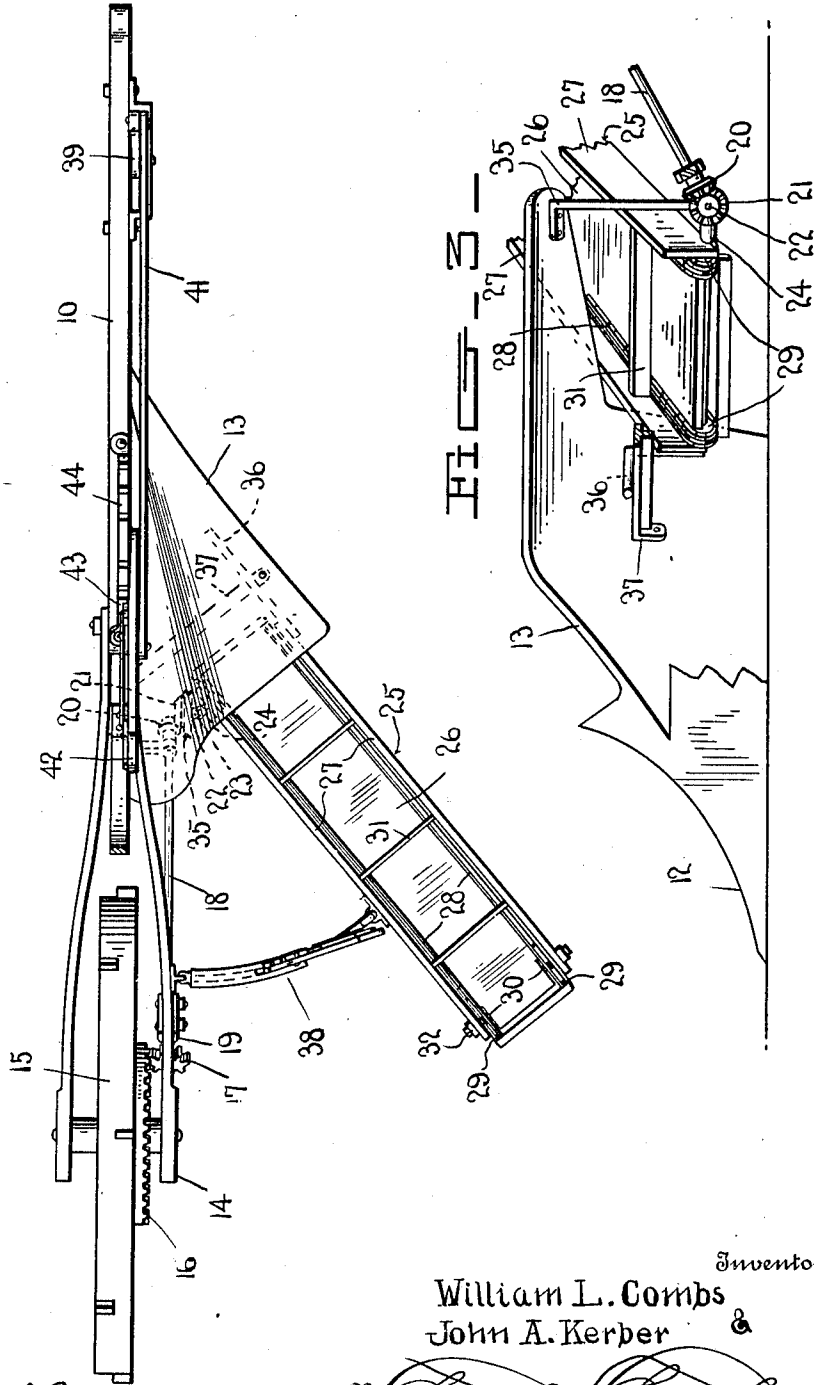
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Fig. 2--



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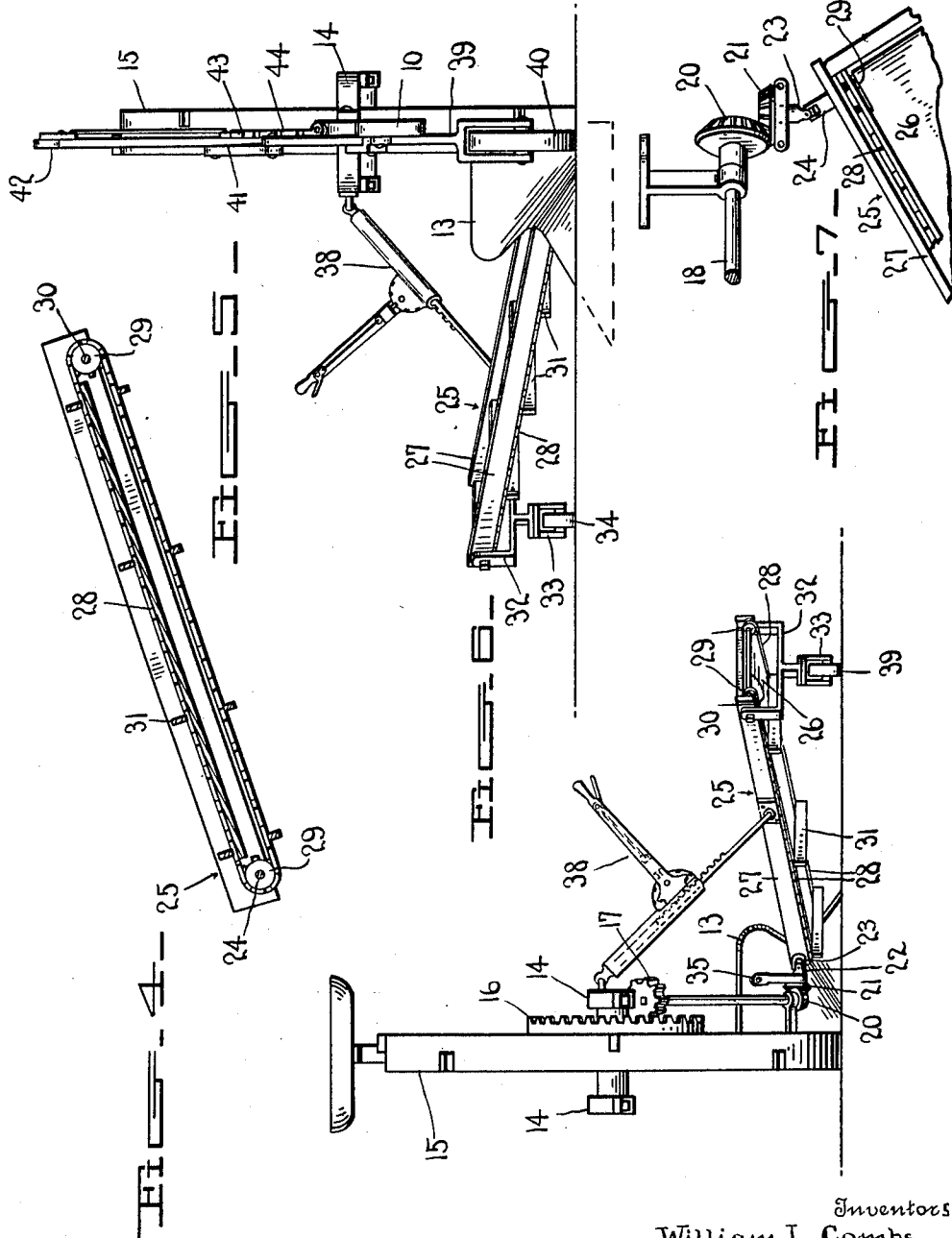
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UNITED STATES PATENT OFFICE.

WILLIAM L. COMBS AND JOHN A. KERBER, OF BELFRY, MONTANA.

DITCHING-MACHINE.

1,020,911.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed September 14, 1910. Serial No. 582,049.

To all whom it may concern:

Be it known that we, WILLIAM L. COMBS and JOHN A. KERBER, citizens of the United States, residing at Belfry, in the county of Carbon, State of Montana, have invented certain new and useful Improvements in Ditching-Machines; and we do hereby 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.

The invention relates to a ditching machine and more particularly to the class of machines in which material taken from the ditch may be deposited to one side of the same.

The primary object of the invention is the provision of a machine of this character in which dirt excavated from a ditch may be elevated and deposited to one side of the ditch during the forward travel of the machine.

Another object of the invention is the provision of a machine of this character in which the depth of cut of the plow may be determined for the formation of a ditch and also in which the dirt taken from the ditch may be elevated and evenly deposited upon the ground at one side of the ditch during the continued operation of the machine.

A still further object of the invention is the provision of a machine of this character which is simple in construction, thoroughly reliable and efficient in operation and inexpensive in the manufacture.

With these and other objects in view the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings disclosing the preferred form of embodiment of the invention and pointed out in the claims hereunto appended.

In the drawings:—Figure 1 is a side elevation of a machine constructed in accordance with the invention. Fig. 2 is a top plan view thereof. Fig. 3 is a fragmentary detail view of the lower end of the elevator and the plow with its mold-board, the latter being partly broken away. Fig. 4 is a rear elevation. Fig. 5 is a longitudinal sectional view through the elevator. Fig. 6 is a front elevation. Fig. 7 is a fragmentary top plan view of the knuckle joint and meshing pinions for driving the elevator.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings by numerals 10 designates a plow beam which is of the ordinary well-known construction having a rear downwardly curved standard 11 to which latter is fixed a ditching plow having the usual plow point 12 and mold-board 13, the plow being secured to the standard in any suitable manner so that its mold-board will lie to one side of the line of draft of the beam.

Connected to the plow beam 10 and extending rearwardly thereof is a forked frame 14 in which is journaled a ground or supporting wheel 15 the latter having fixed to its spokes a driving gear 16 meshing with a pinion 17 fixed to the rear end of a driven shaft 18 the same being journaled in a bearing 19 fixed to and depending from the forked frame 14, the shaft 18 being provided at its forward end with a further pinion 20 meshing with a pinion 21 fixed to a stud shaft 22 having connection through the medium of a knuckle joint 23 with one end of a journal 24 rotatably mounted in the forward end of an elevator frame 25 in which is mounted elevator mechanism as will be hereinafter more fully described, the elevator mechanism being driven by the said journal 24 when the machine is advanced.

The elevator frame comprises a bottom 26 to which are fixed vertical side walls 27 and over this bottom adjacent to opposite walls pass endless chains 28 the same being trained over sprocket wheels 29 fixed to the journal 24 and also to a shaft 30 journaled in the opposite end of the elevator frame. The chains have fixed thereto transverse slats 31 which serve to act upon dirt deposited upon the elevator frame, for discharging it from the rear end of the said elevator frame during the forward travel of the machine. Depending from the rear end of the elevator frame 25 is a bracket 32 to the center of which is swiveled a fork 33 in which is journaled a caster wheel 34 whereby the rear extremity of the elevator frame is held elevated to maintain the said frame at a forward inclination.

Depending from the inner face of the mold-board is an arm 35 terminating at its lower end in a suitable bearing receiving the stud shaft 22. Fixed to the outer side of the elevator frame 25 at its forward end is

an inverted L-shaped hanger 36 the latter slidably engaging a cross bracket 37 fixed to the mold-board and to the land side portion of the plow so that the elevator frame 5 may be shifted at various angles relative to the line of draft of the machine. Connected to the rear end of the elevator frame is a manually operable adjusting means 38 whereby the said elevator frame may be 10 angularly adjusted at will.

Pivoted for vertical swinging movement on the forward end of the plow beam 10 is a colter standard 39 in which is journaled at its lower end a gage wheel 40 while at its 15 upper end is pivoted one end of a rod 41 the latter being also pivotally connected to a throw lever 42 which latter is pivoted at its lower end to the plow beam and this lever 42 carries a spring control manually releasable locking dog 43 which engages with a 20 toothed segment 44 for locking the lever against movement and to maintain the same in adjusted position when regulating the disposition of the gage wheel 40 to determine the depth of cutting action of the 25 ditching plow.

What is claimed is:—

1. A ditching machine comprising a beam, a ditching plow supported thereby, a traction wheel connected to the beam at its rear 30 end, an endless elevator having its forward end disposed adjacent to the plow, an inverted L-shaped hanger arranged at the forward end of the elevator, a bracket secured to the mold-board of the plow upon which 35 the hanger is slidable, driven connections between the traction wheel and the elevator and a lever mechanism connected adjacent the rear end of the elevator whereby it may 40 be swung at varying angles relative to the longitudinal extent of the beam.

2. A ditching machine comprising a beam, a plow at the rear end of the beam, a forked frame extending rearwardly from the beam, 45 a supporting wheel rotatably mounted in the frame, a gear carried by said wheel, an elevator frame, a support carried by the plow upon which the elevator frame is slidable laterally, means for swinging the rear 50 end of the elevator frame at various angles relative to the plow beam in a lateral position, a shaft rotatably mounted in an inclined position, a pinion at the rear end of the shaft engaging with the gear, an end-

less belt in the elevator frame, shafts upon 55 which the endless belt rotates in the frame, a pinion at the forward end of the inclined shaft, a universal connection between the forward elevator shaft and the inclined shaft and a pinion carried thereby engaged 60 with the last named pinion.

3. A machine of the class described comprising a beam, a ditching plow supported thereby and having a mold-board, a traction wheel, a forked frame pivotally secured at 65 its forward end to the plow beam and rotatably receiving the traction wheel, and endless elevator connected with the plow for sliding movement laterally, a shaft upon which the forward end of the elevator is 70 mounted, a stub shaft, a universal joint connecting the stub shaft and elevator shaft, driven connections between the traction wheel and the stub shaft, means connecting the forked frame and the elevator for shifting 75 the same at various angles relative to the longitudinal extent of the beam and a caster wheel depending from the rear end of the elevator.

4. A machine of the class described comprising a beam, a ditching plow supported thereby and having a mold-board, a traction wheel, a forked frame pivotally secured at 80 its forward end to the plow beam and rotatably receiving the traction wheel, an endless elevator connected with the plow for sliding movement laterally, a shaft upon which the forward end of the elevator is 85 mounted, a stub shaft, a universal joint connecting the stub shaft and elevator shaft, driven connections between the traction wheel and the stub shaft, means connecting the forked frame and the elevator for shifting 90 the same at various angles relative to the longitudinal extent of the beam, a bracket secured to the rear end of the elevator, a fork swiveled to the bracket, a caster wheel rotatably mounted in the fork, and an adjustable gage wheel carried at the forward 95 end of the beam whereby the depth of cutting action of the plow may be regulated. 100

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

WILLIAM L. COMBS.
JOHN A. KERBER.

Witnesses:

JOHN O. HIGHAM,
E. M. DAVIDSON.