No. 726,041. PATENTED APR. 21, 1903.

J. A. FOX.

DITCHING MACHINE.

APPLICATION FILED MAY 28, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

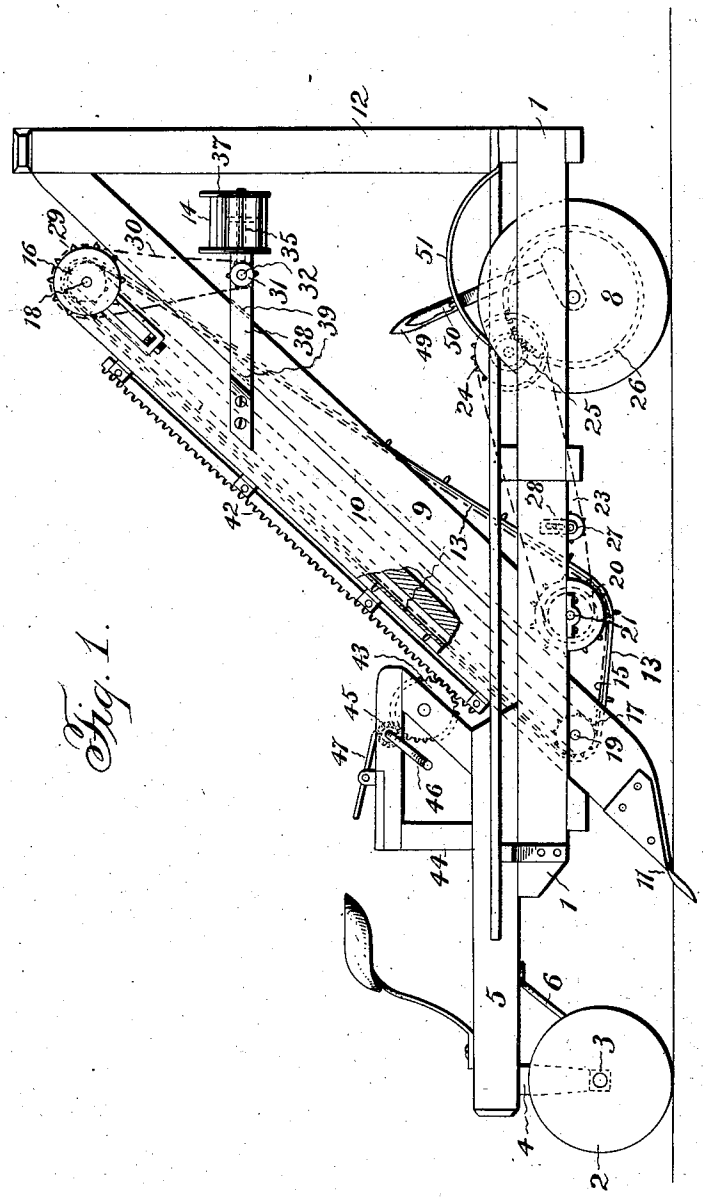


Fig. 1.

Witnesses:
Jas. E. Hutchinson
Edward Saxton

Inventor.
John A. Fox, by
Swift and Co., Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 726,041. PATENTED APR. 21, 1903.

J. A. FOX.

DITCHING MACHINE.

APPLICATION FILED MAY 28, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

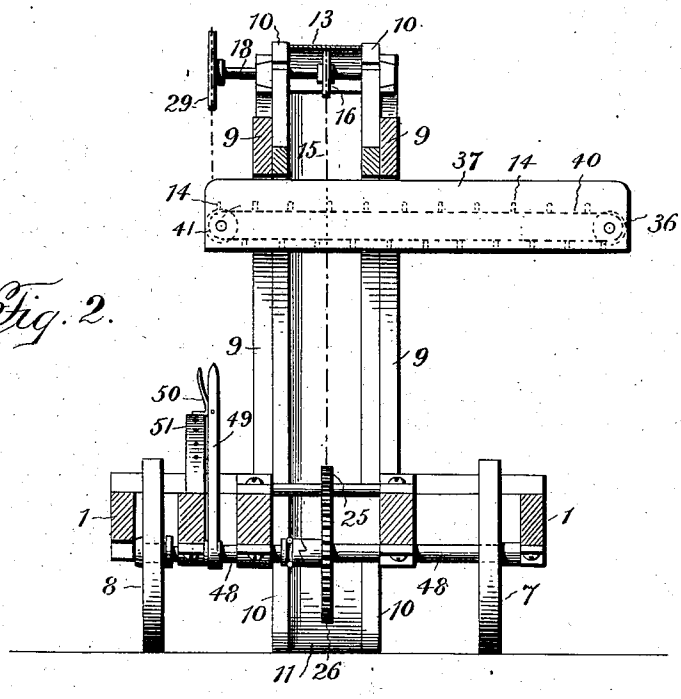
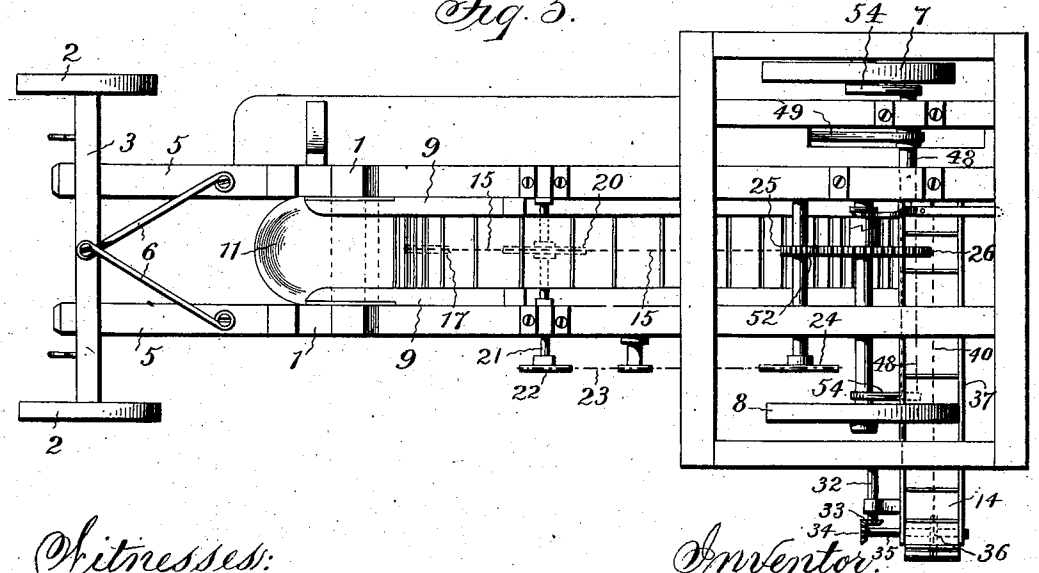


Fig. 3.



Witnesses:
Jas. E. Hutchinson
Edward Saxton

Inventor:
John A. Fox, by
Swift and Co., Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. FOX, OF COVINGTON, INDIANA.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,041, dated April 21, 1903.

Application filed May 28, 1902. Serial No. 109,316. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. FOX, a citizen of the United States, residing at Covington, in the county of Fountain and State of Indiana, have invented a new and useful Ditching-Machine; and I 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 it has for its object to provide a simple and comparatively inexpensive machine of this character designed for excavating ditches for road-grading and for other purposes and adapted to elevate the excavated earth and discharge the same at one side of the ditch.

A further object of the invention is to provide a ditching-machine in which the excavating and elevating mechanism may be readily raised and lowered to place it in position for operation and to lift it clear of the ground when turning the machine and when hauling the same from one point to another.

The invention consists in the novel construction and arrangement of parts hereinafter described and shown, and pointed out in the claims appended hereto.

In the drawings forming part of this specification, and in which like numerals of reference designate corresponding parts, Figure 1 is a side elevation of a ditching-machine constructed in accordance with this invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a reverse plan view.

Referring to the drawings, 1 designates a main frame, designed to be constructed of heavy timbers or other suitable material and supported at the front by small wheels 2, mounted upon the ends of the front axle 3, which is pivotally connected with a front bolster 4 in any suitable manner and which is designed to have a tongue or draft-beam connected to it to enable the machine to be drawn by horses or other draft-animals, and the latter are designed to walk at opposite sides of the ditch. The front portion 5 of the frame is elevated slightly to enable the front wheels 2 to pass under it, and the front axle is supported by an inclined brace 6, extending upward and rearward to the frame and secured to the same at the center of the front portion thereof.

The main frame is supported at the back by hind wheels 7 and 8, and it is provided with inclined guide-bars 9, forming a track for an adjustable plow-carrying elevator-frame 10, adapted to be raised and lowered to arrange a plow or scoop 11 in position for operation for excavating in a ditch and to lift it clear of the ground to enable the machine to be turned or hauled from one point to another. The inclined guide-bars 9 are supported by posts or uprights 12, rising from the back of the main frame and forming, with the bars 9, an approximately triangular guide-frame.

The frame 10 is slidably mounted on the inclined track of the guide-frame, and it is composed of side portions and a connecting transverse or top portion to provide a casing or housing for a main longitudinal endless carrier or elevator 13, which is adapted to receive the earth from the plow or scoop 11 and convey the same upward to a transverse conveyer or carrier 14, which discharges the earth at one side of the machine at a point beyond the ditch. The main endless carrier or elevator, which may be constructed in any suitable manner, is provided with a centrally-arranged sprocket-chain 15, meshing with upper and lower sprocket-pinions 16 and 17 of transverse shafts 18 and 19, and the said sprocket-chain is driven by a centrally-arranged sprocket-wheel 20, located between the flights of the main elevator or carrier and mounted on a shaft 21, which extends to the left-hand side of the machine. A sprocket-wheel 22 is keyed or otherwise secured to the shaft 21 at the left-hand side of the machine and is connected by a rearwardly-extending sprocket-chain 23 with a rear sprocket-wheel 24, and the latter is connected with a spur-pinion 25. The spur-pinion 25 meshes with a cog-wheel 26 of the left hind wheel 7. By this construction and arrangement of gearing motion is communicated when the machine moves forward from the hind wheel 7 to the inclined endless elevator or carrier, whereby the latter is caused to elevate the earth excavated by the plow or scoop. The sprocket-chain 23 is maintained at the proper tension by a belt-tightener 27, consisting of a sprocket-pinion and

a plate 28, carrying the sprocket-pinion and adjustably mounted on the main frame, preferably by means of a bolt-and-slot connection. The sprocket-pinion is adapted to take up any slack of the sprocket-chain 23 incident to any adjustment of the frame 10.

Shaft 19 at the upper end of the main elevator carries a sprocket-wheel 29, which is connected by a sprocket-chain 30 with a sprocket-pinion 31 of a shaft 32, located beneath the upper end of the main elevator and extending from the right-hand side of the machine to the inner end of the transverse carrier or conveyer 14. The shaft 32 is provided at its inner end with a beveled gear 33, which meshes with a beveled gear 34 of a shaft 35 of the inner end of the transverse carrier 14. The beveled gearing reverses the direction of the rotation of the shafting and actuates the carrier 14 in the proper direction to discharge the earth from the machine. The shaft 35 carries a central sprocket-wheel 36, and journaled in suitable bearings of a frame 37, which is supported by suitable bars 38, connected with the frame 10 and provided with slides 39, arranged on the guide-bars 9, whereby the transverse carrier will be raised and lowered with the main elevator. The transverse carrier or conveyer is provided with a centrally-arranged sprocket-chain 40, which meshes with a centrally-arranged pinion 41, located at the outer end of the frame 37 of the transverse conveyer. The inclined longitudinal endless carrier or elevator carries the loose earth excavated by the plow or scoop upward and deposits the same upon the transverse carrier, which discharges the earth at one side of the machine and beyond the ditch excavated by the latter.

The frame 10 is provided with an inclined rack-bar 42, which meshes with a large gear-wheel 43, located at the front of the machine in advance of the frame 10 and adapted to be rotated to raise and lower the plow or scoop. The gear-wheel 43 is mounted on a suitable shaft which is journaled in suitable bearings of an upright supporting-frame 44; but the gear-wheel may be mounted in any other suitable manner. The gear-wheel 43 is rotated by means of a pinion 45, meshing with the said gear-wheel and mounted on a suitable shaft and provided with a crank-handle 46. The crank-handle is adapted to be rotated to raise and lower the frame 10, and the latter is locked in its adjusted position by a pawl 47, pivotally mounted on the upright supporting-frame and engaging the pinion 45.

The rear axle 48 is provided at its end with arms 54, located at opposite sides of the frame, as clearly shown in Fig. 3. These arms extend forwardly and are provided with spindles for the reception of hind wheels 7 and 8. The axle 48 is also provided with an upwardly-extending arm or lever 49, by means of which the axle is partially rotated to raise and lower the rear portion of the frame of the machine. The arm or lever 49 carries a spring-actuated pawl or detent 50 for engaging a curved ratchet 51 for holding the frame of the machine in its adjusted position. The bearings 52 of the shaft upon which the sprocket-wheel 24 is mounted are designed to be adjustable to enable the gear-wheel 25 to mesh properly with the gear-wheel of the hind wheel 7. The frame of the machine is designed to be provided with a suitable platform or running-board to enable the operator to pass rearward to the arm or lever 49 for operating the same, and, if necessary, the sprocket-chain may be lengthened or shortened by removing or increasing the links of the same.

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

1. A machine of the class described, comprising a main frame having inclined guide-bars, an elevator-frame slidably mounted on the guide-bars and provided with rearwardly-extending bars having slides arranged on the guide-bars, a transverse conveyer, supported by the rearwardly-extending bars and means for raising and lowering the elevator-frame, substantially as described.

2. A machine of the class described, comprising a main frame having inclined guide-bars, a slidable elevator-frame mounted on the guide-bars, an endless carrier, mounted on the elevator-frame and provided with a sprocket-chain, a sprocket-wheel arranged between the flights of the endless carrier and meshing with the sprocket-chain and supported by the main frame, means for raising and lowering the elevator-frame and gearing connected with the sprocket-wheel for operating the endless carrier, substantially as described.

3. A machine of the class described, comprising a main frame having an inclined guide, a slidable elevator-frame mounted on the guide, a transverse conveyer connected with and carried by the elevator-frame, an endless carrier also mounted on the elevator-frame and provided with a sprocket-chain, sprocket-wheel arranged between the flights of the endless carrier and meshing with the sprocket-chain, gearing for connecting the conveyer and the endless carrier, a rack-bar secured to the elevator-frame, a gear-wheel meshing with the rack-bar, and gearing for operating the sprocket-wheel, substantially as described.

4. A machine of the class described, comprising a main frame, front and rear wheels, supporting the same, an inclined guide, mounted on the main frame, a slidable elevator-frame arranged on the guide, means for raising and lowering the elevator-frame, an endless carrier mounted on the elevator-frame and having a centrally-arranged sprocket-chain, sprocket-wheel, arranged between the

flights of the endless carrier and meshing with the sprocket-chain, a gear-wheel, connected with one of the rear wheels of the machine, a spur-pinion meshing with the gear-wheel, and sprocket-gearing connecting the pinion with the sprocket-wheel, substantially as described.

In testimony whereof I have hereto affixed my signature in the presence of two witnesses.

JOHN A. FOX.

Witnesses:
F. A. GLASCOCK,
CLARENCE W. NELSON.