No. 749,747. PATENTED JAN. 19, 1904.

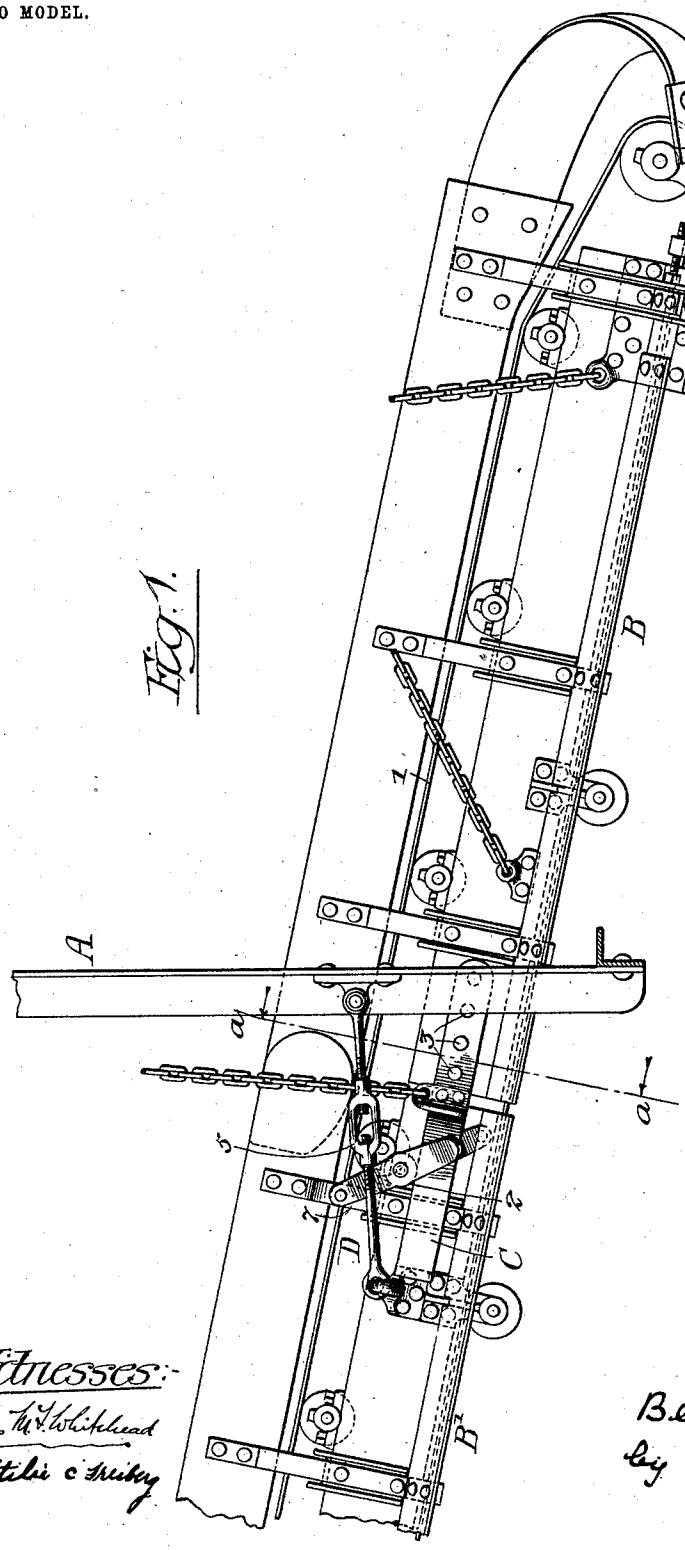
B. O. RHODES.

GRADING AND DITCHING MACHINE.

APPLICATION FILED NOV. 16, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.




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

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

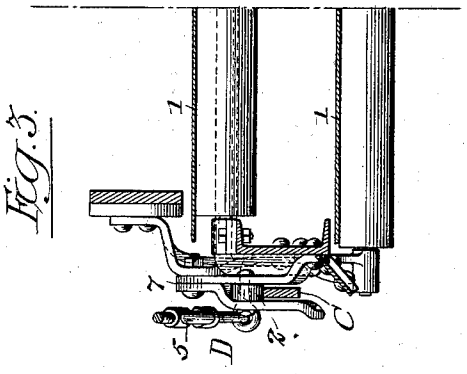



Fig. 2.




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NO MODEL. 3 SHEETS—SHEET 3.

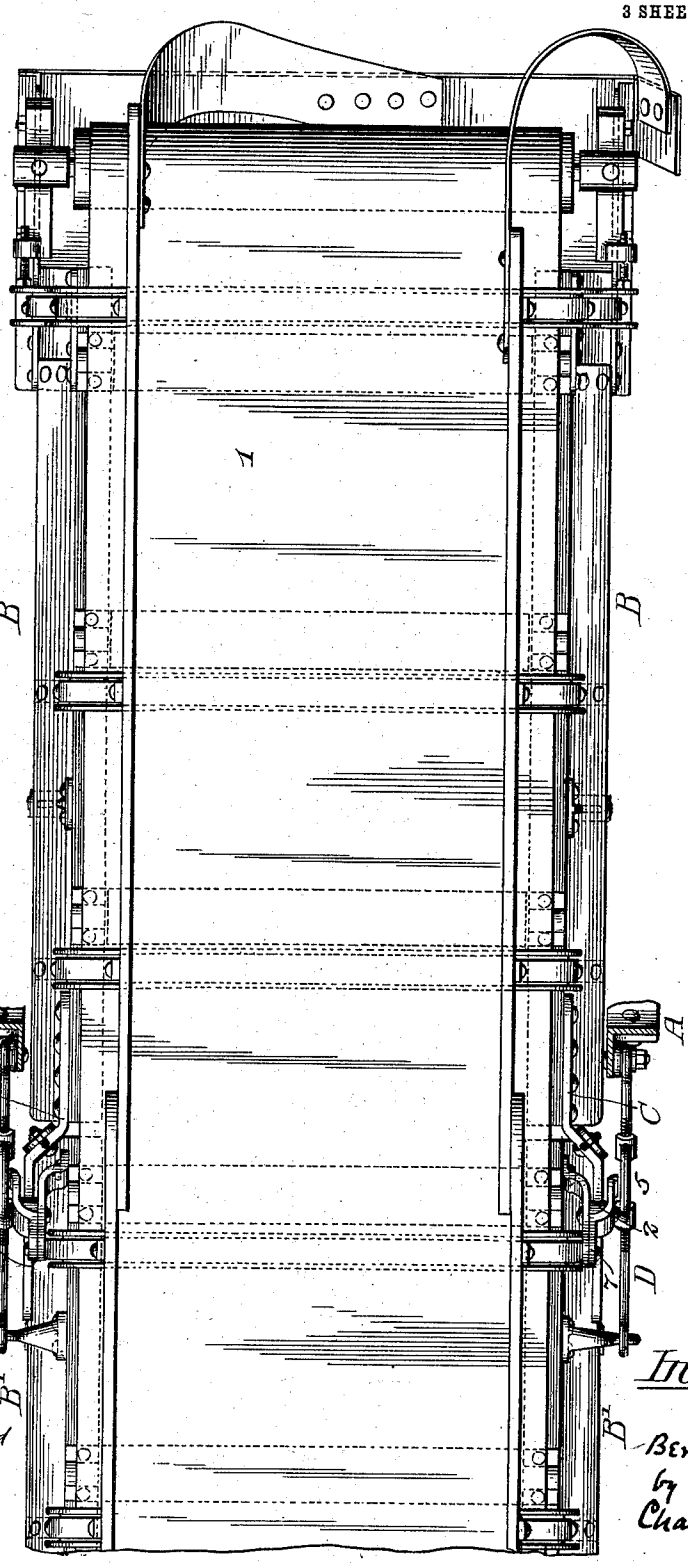



FIG. 4.

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No. 749,747. Patented January 19, 1904.

# UNITED STATES PATENT OFFICE.

BERT O. RHODES, OF BARBERTON, OHIO, ASSIGNOR TO NATIONAL DRILL AND MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

## GRADING AND DITCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 749,747, dated January 19, 1904.

Application filed November 16, 1903. Serial No. 181,359. (No model.)

*To all whom it may concern:*

Be it known that I, BERT O. RHODES, a citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Grading and Ditching Machines, of which the following is a specification.

My invention relates to grading and ditching machines having an elevating-carrier comprising an endless carrier-belt supported upon an oblong frame having a swinging section which can be raised or lowered for the purpose of varying the height of the discharging end of the elevating-carrier.

Certain objects of my invention are to effect a positive longitudinal adjustment on the part of the swinging frame-section independently of an adjacent frame-section and without strain upon the latter and at the same time permit the positively-adjusted swinging frame-section to swing freely and independently of the adjacent frame-section and to support the swinging frame-section in a way to reduce friction and avoid undesirable strain during its swinging action.

In the accompanying drawings, Figure 1 illustrates in side elevation the bed-frame and carrier-frame of an elevating-carrier for a grading and ditching machine, a portion of the carrier being broken away for convenience of illustration. Fig. 2 is a like view showing the carrier-frame swung upwardly into a nearly-vertical position. Fig. 3 is a cross-section on line *a a* in Fig. 1, the section being, however, taken transversely through one-half the width of the bed-frame. Fig. 4 is a top plan view of Fig. 1.

The standards or uprights A A′ are intended to represent portions of the main frame or body of a grading and ditching machine having a transversely-arranged elevating-carrier, an illustration of a machine of such character being, for example, found in Letters Patent No. 275,614, April 10, 1883, to Edwards and Durkee, in which the swinging frame-section, commonly termed the "carrier-frame," is hinged at one side of the machine to a pair of standards upon the body-frame and arranged as a swinging extension of a preceding frame-section positioned under the body-frame and commonly termed the "bed-frame," so that when desired the swinging carrier-frame can be swung to vary the weight of the discharge end of the elevating-carrier or swung upwardly to an extent to place it in a substantially vertical position and so as to render the machine more compact for transportation. These standards or upright portions of the body-frame are respectively at opposite sides of the elevating-carrier, which comprises a lower frame-section or bed-frame B and an upper swinging frame-section or carrier-frame B′, the two frames being supported so that they can be brought into alinement to practically form a continuous frame. These frames are provided with belt-rolls, as usual, and an endless carrier-belt 1 is, as usual, trained over such rolls.

The bed-frame B is provided at one end with a couple of parallel side bars C C′, rigidly secured thereto and projecting outwardly from what may be termed the "high" end of the bed-frame. These side bars C C′ form tracks for supporting and guiding a couple of small wheels or antifriction idler-rolls 2 upon what may be termed the "low" or "inner" end of the carrier-frame B′. These rolls are respectively arranged upon opposite sides of the carrier-frame and traverse the tracks formed by the bars C C′ when the carrier-frame is swung independently of the bed-frame. The carrier-frame is connected with the uprights A A′ of the body-frame of the machine by longitudinally-adjustable swinging links D D′, a preferred construction of longitudinally-adjustable link being a pair of rods respectively hinged to the carrier-frame and a standard and having their adjacent ends respectively right and left threaded and connected by a nut, so as to form what is commonly termed a "turnbuckle." The end of each turnbuckle connects with a standard or body-frame portion at a point somewhat above the bed-frame

B, while the opposite end of each turnbuckle connects with the carrier-frame at a point higher in position than the pair of rolls 2.

The bars C C′ are parallel with the longitudinal sides of the bed-frame B and are firmly and rigidly secured thereto, as by bolts 3, so that whether the carrier-frame B′ is in alinement with the bed-frame B, as shown in Fig. 1, or swung upwardly, as shown in Fig. 2, the tracks formed by the rigid bars C C′ will largely sustain the width of the carrier-frame. When the carrier-frame is swung upwardly, as in Fig. 2, its end rolls will travel along the track-bars C C′ toward the outer ends of such bars, and when the carrier-frame is swung downwardly, so as to place it in alinement with the bed-frame B, these rolls 2 will travel along the track-bars toward the inner ends of the latter. When the two frames are in alinement, as in Fig. 1, the carrier-frame can be adjusted toward or away from the bed-frame in accordance with the requirements of the belt by rotatively adjusting the nuts 5 and 6 of the links or turnbuckles D D′, thereby tightening or loosening the belt, as may be desired. In this way the links or turnbuckles D D′ operate as belt-tighteners.

The small wheels or rolls 2 can be attached to the carrier-frame in any suitable way—as, for example, each roll can be arranged within a forked bracket or bearing which is secured to the carrier-frame, these forked brackets or bearings 7 and 8 being illustrated in the several figures of the drawings. As the track-bars C practically form portions of the bed-frame, the lower end of the carrier-frame traverses a portion of the bed-frame when the carrier-frame is swung upwardly from its position shown in Fig. 1 with comparatively little frictional resistance, its only hinged connection with any member of the machine being effected by the links D D′, which hinge-connect the carrier-frame with the body-frame of the machine, and by thus arranging the carrier-frame to the body-frame of the machine the bed-frame, which is usually supported for tilting movement, is relieved from undesirable strain.

What I claim as my invention is—

1. In an elevating-carrier for grading and ditching machines, the bed-frame having its upper end provided with longitudinal projecting track extensions rigid therewith; and the carrier-frame having rolls arranged to traverse said track extensions when the carrier-frame is swung independently of the bed-frame.

2. In an elevating-carrier for grading and ditching machines, the bed-frame having its upper end provided with longitudinal projecting track extensions rigid therewith; the carrier-frame having rolls arranged to traverse said track extensions when the carrier-frame is swung independently of the bed-frame; and a longitudinal adjustable link connection between the carrier-frame and the body-frame of the machine.

3. In an elevating-carrier for grading and ditching machines, the bed-frame having side bars rigid therewith and projecting longitudinally from its upper end to form tracks; the carrier-frame provided with rolls arranged to traverse said tracks; and adjustable links forming hinge connections between the carrier-frame and uprights of the body-frame of the machine at points above the said tracks.

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